TM35 SERIES POWERMULCHER

SAFETY
OPERATION
SERVICE AND PARTS
MANUAL

Epic Manufacturing © 2016

NOTICE

Every attempt has been made to make this manual complete, accurate and up-to-date. However, all information contained herein is subject to change due to updates and design modifications. Updated versions of this manual are available at **www.epicmanufacturing.com**. All inquiries concerning this manual should be directed to **sales@epicmanufacturing.com**.



THE FOLLOWING INFORMATION IS IMPORTANT TO THE HEALTH AND SAFETY OF YOUR EMPLOYEES.

PLEASE **READ**, TAKE **ACTION** AND **FILE** THIS DOCUMENT FOR FUTURE REFERENCE.

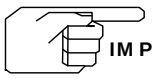
ASK FOR ADDITIONAL COPIES IF REQUIRED.

STUDY THIS MANUAL CAREFULLY BEFORE ATTEMPTING TO OPERATE THE MACHINERY.



THIS SAFETY ALERT SYMBOL IS USED TO CALL YOUR ATTENTION TO INSTRUCTIONS CONCERNING YOUR PERSONAL SAFETY.

Federal law requires you to explain the safety and operating instructions furnished with this machine to all employees before they are allowed to operate the machine. These instructions must be repeated to the employees at the beginning of each season. Be sure to observe and follow these instructions for you and your employee's safety.



THIS SYMBOL IS USED TO DRAW ATTENTION TO THOSE OPERATIONAL AND MAINTENANCE INSTRUCTIONS WE CONSIDER IMPORTANT TO INSURE LONG TROUBLE-FREE OPERATION OF THIS MACHINE.

CALIFORNIA
PROPOSITION 65 WARNING

DIESEL ENGINE EXHAUST AND SOME OF ITS CONSTITUENTS ARE KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER, BIRTH DEFECTS AND OTHER REPRODUCTIVE HARM.

DISCLAIMER: These materials are for training purposes only, and are not a substitute for OSHA's Occupational Safety and Health Standards.

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EPIC MODEL TM35 SERIES POWERMULCHER

FORWARD

A MESSAGE FROM EPIC

Getting the most out of your new **TM35 PowerMulcher** should be within the reach of an inexperienced crew in a few hours. The purpose of this manual is to minimize start up difficulties and acquaint the new owner with recommended operating procedures and techniques. The following pages also include information on parts, service and accessories to help in making your new machine a versatile and profitable investment.

Your new **Epic PowerMulcher** represents the culmination of over forty-five years of expertise embodying field feed back, innovative design and manufacturing experience. Functional simplification and avoidance of mechanical complexities have been prime engineering objectives throughout this time. The benefits to be realized will be years of trouble free performance with minimum attention and maintenance.



EVERY OPERATOR AND FOREMAN SHOULD READ THIS BOOKLET AND FAMILIARIZE THEMSELVES WITH THE OPERATIONAL AND MECHANICAL ASPECTS DESCRIBED. SOME OF THE FOLLOWING COMMENTARY MAY APPEAR TO BE OBVIOUS, BUT AT THE EXPENSE OF BEING REPETITIVE OR ASSUMING CERTAIN BASICS, THIS WILL SERVE AS A GUIDE FOR BOTH OWNERS AND OPERATORS NOT ACQUAINTED WITH MULCHING PROCEDURES AS WELL AS PROVIDING INSTRUCTIONS ON THE DETAILED OPERATION OF YOUR NEW UNIT.



THIS MANUAL IS PROVIDED TO SHIP WITH NEW UNITS MANUFACTURED AT THE DATE OF THIS DOCUMENT'S REVISION. IT IS ALSO SUPPLIED AS A REFERENCE GUIDE FOR UNITS OF SIMILAR CONSTRUCTION, MANUFACTURED UNDER PRIOR DESIGNS. SOME PARTS, OPTIONS, ENGINES, ETC., MAY NOT BE, OR MAY NOT HAVE BEEN, AVAILABLE AT THE TIME OF PRODUCTION OF YOUR MACHINE. CONTACT **EPIC** FOR COST AND AVAILABILITY OF ANY REQUESTED UPGRADES.



FOR REFERENCES MADE TO ENGINES, CONSULT THE APPROPRIATE ENGINE MANUFACTURER'S LITERATURE FOR APPLICABLE DETAILED INFORMATION.

Epic welcome this opportunity to be of service to you and wish to express our appreciation for the confidence extended by your selection of **Epic** mulching and seeding equipment.

WHAT IS MULCHING



From a horticultural point of view, mulch can cover a variety of organic materials. Pine bark, wood chips, pine straw, peat, and hay or straw are typical. At **Epic**, our concern has been with the processing of the last two products in a useful productive form.

Epic PowerMulchers process rectangular bales. After removing the twine or wire, the expanded slabs or flakes are thrashed and separated into uniform stalk lengths, varying between 4" and 10" in length. These are then broadcast over prepared ground surfaces forming an intertwined mat.

The mulch serves to control topsoil water evaporation, and protect from wind and water erosion while providing a beneficial microclimate promoting more rapid seed germination. Decomposition of the mulch material enhances the organic structure of the soil and provides nutrients for the new growth.

Mulch is commonly applied at the rate of 1-1/2 to 2 tons to the acre (about 3" to 4" of fluffed height) and higher rates may sometimes be specified. There is a limit however, because more is not necessarily better. Too much mulch may snuff out required air and light inhibiting new seedling growth.

To provide a sense of productivity, the **TM35 PowerMulcher** carries a nominal rating of **5 tons per hour**. In practical terms this machine will process good quality, dry mulch weighing about 60 lb. per bale, at the rate of about three bales a minute. Bale weight and grade vary significantly dependent on type of mulch, baling equipment and storage facilities.

Productivity requires that the material is available to the machine, and is most often stacked on the truck bed with the machine mounted to the rear corner for discharging. It is safe to predict that capacity limits are based on getting material to the machine and not how much the machine can blow out.

Optional accessories provide for handling a host of other materials, including ground mulches, peat, leaves and debris, and even seeding and fertilizing. Hose attachments provide extended discharge range and the suction adapter kit can extend the seasonal capabilities of the machinery.

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EPIC MODEL TM35
POWERMULCHER

SAFETY

POWERMULCHER SAFETY OVERVIEW



Personnel responsible for your PowerMulcher training program, maintenance, and operations must read and understand this safety manual and operator's manual. No one should set up, operate or maintain a PowerMulcher until they understand it, its operation and know how to do their job safely.

DISCLAIMER: THESE MATERIALS ARE FOR TRAINING PURPOSES ONLY, AND ARE NOT A SUBSTITUTE FOR OSHA'S OCCUPATIONAL SAFETY AND HEALTH STANDARDS.

RECOGNIZE SAFETY INFORMATION



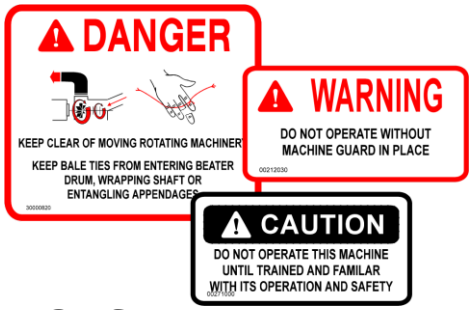
This is the safety alert symbol. When you see it in your operations manual be alert to the potential for personal injury.

Follow recommended precautions and safe operating practices.

UNDERSTAND SAFETY WORDS

A signal word - **DANGER**, **WARNING**, or **CAUTION** is used to identify a potential for serious injury. **DANGER** identifies the most serious hazards.

DANGER or **WARNING** safety signs are located near specific hazards. General precautions are listed on **CAUTION** safety signs. **CAUTION** also calls attention to safety messages in this manual.



FOLLOW SAFETY INSTRUCTIONS



Carefully read all safety messages in your operations manual and on your PowerMulcher. Keep safety signs in good condition. Replace missing or damaged safety signs. Be sure new equipment components and repair parts include current safety signs and safety guards. Replacement safety signs and guards are available from your Epic dealer or directly from Epic.

Learn how to operate the machine and how to use the controls properly. Do not let anyone operate without instruction.

Keep your machine in proper working condition. Unauthorized modifications to the machine may impair the function and/or safety and affect machine life.



800-526-7687

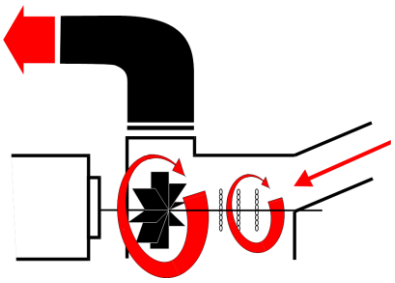
If you do not understand any part of this manual and need assistance, contact Epic directly.

CONCENTRATE ON YOUR JOB



Daydreaming, worrying about other problems or other improper operation of a machine could cripple you for life. Operating a PowerMulcher requires your complete attention. Talking, joking or participating in or watching horseplay could result in physical injury to you . . . and that is not something to joke about. So watch what you are doing and concentrate on your job.

KEEP CLEAR OF THE WORK AREA



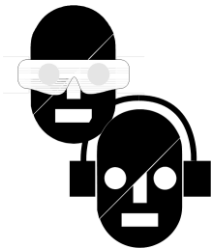
The purpose of a PowerMulcher is to thrash and separate strands of baled hay or straw and discharge the processed mulch away from the machine. The PowerMulcher utilizes engine power to turn a common main drive shaft, flailing chain stations and blower wheel at high speed to process the hay. It is obvious that this same capacity will sever arms, hands, fingers or any other part of the body that is in the work area when the machine is activated.

Additionally, the discharge from the blower is capable of discharging the processed mulch at high velocity (more than 100 feet on some models). The discharge of the machine is powerful enough to dislodge pebbles, stones or other debris, which may cause eye or personal injury.

The person responsible for activating the machine is the boom operator. It is his responsibility to see not only that his own body is clear of the work area and all moving parts, but that his co-workers are clear also and are entirely visible in a safe location before activating the machine.

During set-up, maintenance or other work on the machine which requires manipulation within the beater drum, blower housing, discharge boom, feed tray, engine or other work area, the key should be removed from the machine and battery disconnected.

WEAR PROTECTIVE CLOTHING



Protect your eyes from blowing chaff, as well as rocks and other foreign debris, which may be found in mulch bales. Use approved impact resistant eye wear.
As the conditions dictate, the use of respirators to protect you from inhaling nuisance dust is recommended.

Construction equipment is noisy. Prolonged exposure to loud noise can cause impairment or loss of hearing. Use approved ear protection to control this hazard.

Reflective gear and hard hats may also be necessary depending on your job site.

PRACTICE WORK AREA SAFETY RULES

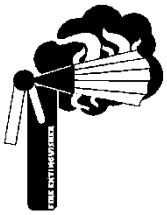


The location of your job site will demand that additional safety practices be implemented. Always follow the applicable OSHA regulations.

While working on road sides and interstate highways, insure that appropriate strobes, flashers and other warning devices are installed on all vehicles as required by law. All workers should be wearing high visibility reflective vests. Anti-crash vehicles should be employed when appropriate. The use of barriers and flagmen is suggested. Be aware of the traffic flow and use caution to avoid discharging towards vehicles.

Since PowerMulchers are used at a variety of locations (strip mines, coal storage areas, land fills, refineries, power plants, and protected wilderness areas) it is imperative to contact the appropriate safety official or regulating agency to obtain information regarding any special safety considerations on specific job sites.

FIRE IS ALWAYS A POSSIBILITY



The potential for fire always exists. The combinations of fuels, heat from engines, and clean dry straw increase the risk. Have a fire extinguisher near the work area. Learn to look for it before you begin working.

Always keep the machine clean of chaff and debris.

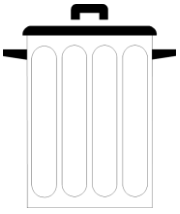
NEATNESS IS IMPORTANT



Keep the floor of your work area clear of bales or flakes of mulch, twine, scrap and trash that could cause you to stumble. Falling or slipping can result in painful or perhaps even fatal injuries.

Put all fuel, tools and other equipment away when you are not using them. Even a screwdriver can be deadly if left on an enclosure of the machine.

CLEAN AS YOU GO !

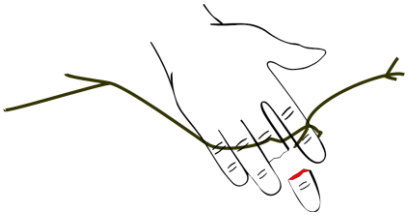


Twine, when removed, should be disposed of immediately in a container away from the PowerMulcher. That loose piece of twine around the machine could cause you to fall or loose a hand or finger.

PROPER BALE HANDLING IS IMPORTANT

Bale twine or wire is dangerous. When cutting and removing twine from a mulch bale the handler must make sure that the twine is not pulled into the machine. The twine can wrap around a shaft and pull an arm or hand into the machine. It is capable of cutting through fingers.

It takes only a fraction of a second to lose fingers. Pay attention to your fingers, the twine, and the moving equipment when handling twine.



HYDRAULIC SYSTEM HAZARDS



Some PowerMulchers are manufactured with hydraulically operated power feed systems. Hydraulic fluid lines are a high-pressure fluid hazard. To prevent serious injury or death always relieve system pressure before repairing or adjusting or disconnecting.

Tighten all connections before applying pressure. Search for leaks with a piece of cardboard. Leaking hoses, fittings or components should be reported to your supervisor immediately.



If an accident occurs, see a doctor immediately. Any fluid injected into the skin must be surgically removed in a few hours or gangrene may result. Doctors unfamiliar with this type of injury should reference a knowledgeable medical source.

HYDRAULIC SYSTEM JAMS



On PowerMulchers manufactured with hydraulically operated power feed systems, should the hydraulic power feed system jam and the feed flipper drum stop rotating, the pressure relief valve in the flow control valve will open. Before attempting to clear any feed system jam, turn the engine off and return the feed system control cable to its closed position. The jammed bale may now be cleared.

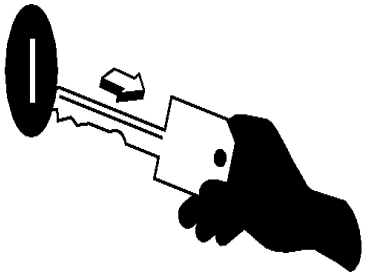
Failure to shut the machine down will cause the power feed system to immediately resume operation when the system pressure drops below the relief valve setting. This could cause death or severe bodily injury.

VIBRATION IS A WARNING SIGN

A rotational unbalance of any sort will become obvious in the form of vibration. Vibration is an important warning sign of impending mechanical failure. Instruct all users of your equipment to report unusual vibration at the onset.



PRACTICE SAFE MAINTENANCE



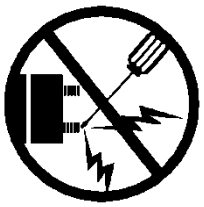
- Understand service procedure before doing work.
- Keep areas cleans and dry.
- Keep clothing away from moving or power driven parts.
- Disengage all power and operational controls, and relieve pressure.
- Stop engine and remove key. Allow engine to cool down before working on any engine component.
- Disconnect the battery before machine adjustments or welding on machine.
- Keep all parts in good condition and properly installed.
- Fix damaged components immediately.
- Replace worn or broken parts.
- Remove any build-up of grease, oil or debris.

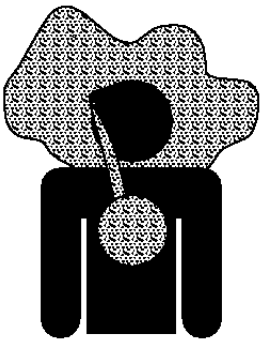
PROPER ENGINE SERVICING IS IMPORTANT



- **Do not perform service on an engine if you are not qualified.**
- Use care when refueling the engine. Fuels and their vapors are extremely flammable and may explode when ignited.
- Do not fill the fuel tank while the engine is hot or running, since spilled fuel may ignite if it is exposed to hot parts or sparks from the ignition.
- Do not start the engine near spilled fuel; wipe up spills immediately.
- **Never use fuel for a cleaning agent.**
- Store fuels in approved containers only. After refueling, remove any containers from the immediate work area.
- **Do not add oil when engine is hot or running as oil may vaporize and ignite**.
- **Do not add coolant to water-cooled units when engine is hot due to the possibility of steam burns.** Only remove filler cap when cool enough to touch with bare hands. Slowly loosen cap first to relieve pressure before removing completely.

- Engines are a burn hazard. The crankcase, cylinder head, exhaust system, radiator, and other components can get extremely hot from operation.
- The electrical systems of engines can be a source of high voltage. Never touch electrical wires or components when engine is running.
- **Never attempt to start the engine by shorting across the starter solenoid.**

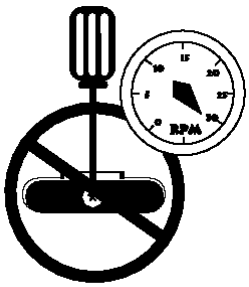




- Engine exhaust gases contain poisonous carbon monoxide. Never run engine in an enclosed area. **Avoid inhaling exhaust fumes.**
- Avoid accidental starts, which could cause injury to you or fellow workers. **Remove the ignition key when servicing the unit.** Disconnect and ground the spark plug wire on one or two cylinders. On electric start units, disconnect the battery cables. Always remove the ground (-) cable first.

Refer to the engine manufacturer's operation and safety manuals for more detailed information.

ENGINE SPEED IS IMPORTANT



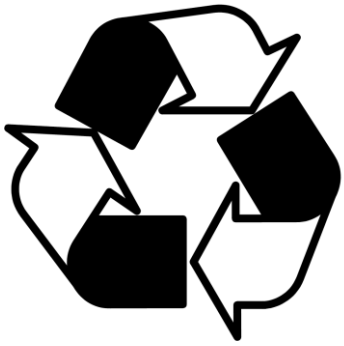
Never tamper with the governor component settings to increase the maximum speed.

The components used to build the PowerMulcher are designed to operate at a specific maximum speed. Severe personal injury and damage to the PowerMulcher can result at speeds set above the maximum.

A rotation unbalance of any sort will become obvious in the form of vibration. Vibration is an important warning sign of impending mechanical failure. Notify your supervisor of any unusual vibrations or noises at the onset.

DISPOSE OF WASTE PROPERLY

Improperly disposing of waste can threaten the environment and ecology. Potentially harmful waste associated with Epic equipment include such items as oil, fuel, coolant, filters, batteries, emulsified asphalt, tackifier and fertilizers. Bale wire or twine should be disposed of in appropriate containers.

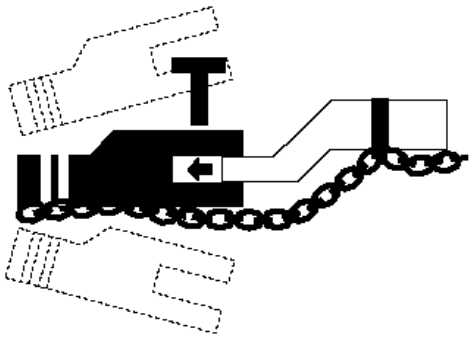


Use labeled, leak proof containers when draining fluids. Do not use food or beverage containers that may mislead someone into drinking from these. Do not pour waste onto the ground, into a drain or into any water source.

Inquire on the proper way to recycle or dispose of waste from your local environmental or recycling center, or from your state's Environmental Protection Agency.

TRAILERED UNIT CONCERNS

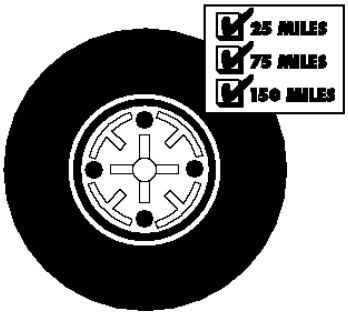
The machine's frame must be level for ease of towing, as well as operator and crew safety. The hitch should be located so that the truck bed overhang will not interfere with the extended load tray.



- Provide adequate set back from the vehicle chassis frame so that jack knifing, when backing up, will not damage machine.
- Provide for securing the safety chains and breakaway (if provided). Make sure hitch is secured before attempting to tow machinery.
- Running lights are standard for over the road travel. They include stop, directional, tail side markers and license plate.
- Make sure all running lights are working at the start of each day.
- The flasher light switch of the truck, when engaged will also activate the directional and taillights mounted in the rear bumper.
- Whenever emergency signaling is required, use this circuit.

It is important to check the torque of the wheel lug nuts.

Initially, These are set at the factory at 90-ft. lb. Due to relaxation associated with travel, they must be torqued at 25, 75, and 150-mile intervals.



Braking systems, if supplied, must be checked for proper adjustment and operation. Brake adjustments should be made after the first 200 miles (seating) and again at 3000-mile intervals.

LOOK THINGS OVER CAREFULLY

Before operating your PowerMulcher, look to see if your machine is in the proper condition. Are the beater chains or flail knives all in place? Are they worn? Is the blower wheel in operating condition? Is the workspace clean? Is the fuel properly stored? Are all the bale ties cleaned up? Are the machine guards and covers all in place? Are all nuts, bolts and screws tight? Do you know where the fire extinguisher is? Do all workers have protective safety gear? Is everything in proper operating condition? If not, report the unsafe condition to your supervisor and be sure the problem is corrected before beginning operation.



KNOW YOUR MACHINE

PowerMulcher all have one characteristic in common. Once the beater shaft starts spinning, simply turning off the machine will not stop the main shaft and blower wheel from spinning. The moving machinery can cause serious injury and even death. Be aware that the shaft and the associated components, which rotate at more than 2000 revolutions per minute, are extremely dangerous.

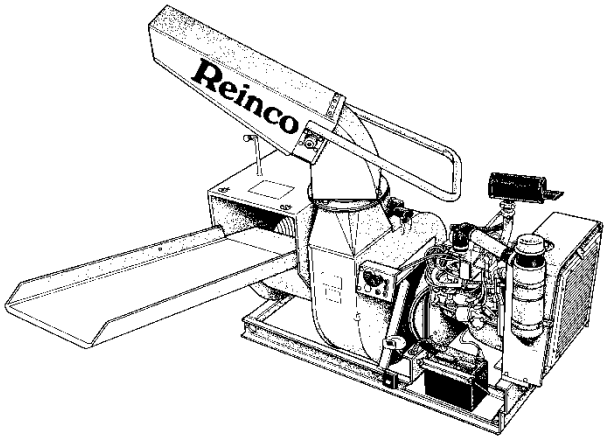
1. Before mulching, be sure to **read** this entire **manual**.
2. Do not operate unit if unfamiliar with operational and safety procedures on this or any unit.
3. The force from the blower can kick up dust and blow over small items that are not secure.
4. Never discharge the unit towards people. Bodily injury may occur.
5. Never force any material into the machine. Allow the machine to clear material from the drum.
6. Never attempt to clear the beater drum of debris or make adjustments while the engine is running.
7. Be sure to keep all body parts and clothing away from moving parts while engine is running.
8. Do not attempt to discharge rocks, nails, or other debris that may damage blower or cause premature wear.
9. Do not operate machine without factory provided guards installed.
10. Twine or wire should be cut and removed to prevent loose trailing ends from being pulled into the beater chamber.
11. Do not allow fingers to become entangled in the bale twine.
12. Do not wear loose clothing, which may become entangled with the machinery.
13. Hydraulic fluid lines are a high-pressure fluid hazard. To prevent serious injury or death always relieve system pressure before repairing or adjusting or disconnecting.
14. Before attempting to clear any feed system jam, turn the engine off and return the feed system control cable to its closed position
15. Do not add oil, water or fuel while engine is running or hot.
16. Do not perform maintenance while unit is running or battery is connected.
17. Do not, under any condition, operate the machine when vibrating.
18. Working space must be allowed not only for the boom operator, but also for access to the stacked mulch bales.
19. Daily, inspect the flailing chains, blower wheel blades and drive coupling assembly for signs of wear or misalignment.
20. The flailing chains are made of case hardened steel. If a link breaks, an unbalance or vibration will occur. Always make sure chain stations are replaced in matched pairs.
21. Check the leading edges of the blower wheel paddles. Dry mulch causes very little wear, but dirt laden, wet or moldy material will abrade the leading edges of the paddles. When they begin to feather and bend back, replace the wheel. Rocks and other foreign matter that are found in some mulch bales might also cause bending of the wheel blades that may produce a noticeable vibration.
22. The drive coupling connects the engine to the blower shaft. Coupling misalignment will cause vibration. Realign immediately should this occur.
23. Secure the discharge boom before transporting the machine.
24. The PowerMulcher is not a passenger vehicle. Never board the machine while moving from site to site.
25. Do not stand on fenders.
26. Make sure all towing systems are operational and in good order.
27. Never attempt to hitch machine without using leveling jack.
28. **IT IS IMPERATIVE THAT COMMON SENSE AND GOOD JUDGMENT BE EMPLOYED WHEN OPERATING THIS MACHINE.**

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EPIC MODEL TM35
POWERMULCHER

OPERATION

MACHINE IN GENERAL



The **TM35** Series **POWERMULCHER** is a self-contained, portable machine designed to thrash hay or straw into short, uniform lengths and then blow the mulch strands at distances up to 60 feet.

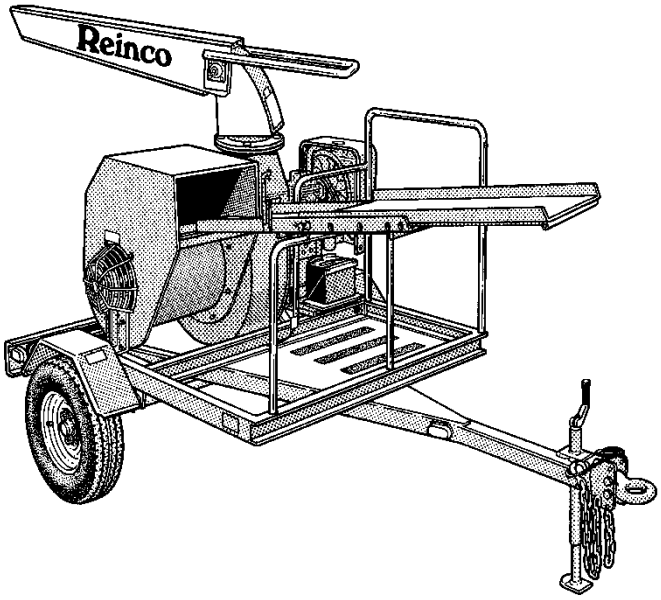
The Model **TM35** is powered by a heavy-duty engine which drives an in line beater/blower shaft. The engine, blower housing with lift ring, and beater drum are mounted to a fabricated steel frame. Rectangular discharge boom and elbow assemblies are mounted to the outlet side of the blower housing and allow the operator to direct the placement of mulch.

Mulch is fed to the beater drum via a removable feed tray that can be stored when the unit is in transit. A bale placed on the load tray must first be untied and the wire or twine removed to prevent it from being drawn into the machine. Care should be used to **avoid entangling one's fingers in the baling twine**.

The opening from the load tray to the beater drum has purposely been limited in height to prevent overloading. An ideal flake thickness of dry mulch material is about 4 to 5 inches.

Thrashing and debaling of the mulch flakes in the beater drum is accomplished by a series of beater chain stations. Air drawn into the beater drum, by the blower, sucks the thrashed stalks and strands through the beater drum, then conveys them under high static pressure and volume through the discharge boom.

An engine instrument control panel includes oil, temperature and alternator lamps, hour meter, keyed ignition, and choke control. Adjusting the engine speed, with the throttle control mounted within reach of the operator, controls discharge distance.



Model **TM35X** is a single axle trailer mounted unit. It has a fixed tongue, safety chains and top wind screw jack and footpad. A 2" ball type hitch is supplied standard. Optional adjustable ball hitches in 2” and 2-5/16” ball types, lunette eye or farm pin hitches are also available, offering interchangeability between vehicles.

The skid and trailer mounted units are similar in construction; with the exception of the discharge boom length and the fixed/extendable load tray assembly.

Either of the above models may be equipped with an optional emulsion spray system that allows for simultaneously coating the mulch with emulsified asphalt or other liquefied tacking material while discharging mulch. Machines equipped with this option are designated as **TM35A** or **TM35XA**.

UNPACKING

The **TM35** Series **PowerMulcher** is normally shipped unpacked on a flat bed truck. Some units however are shipped palletized or crated to accommodate other methods of transport. If it is received in the original factory packaging, your new **PowerMulcher** may require some light assembly.

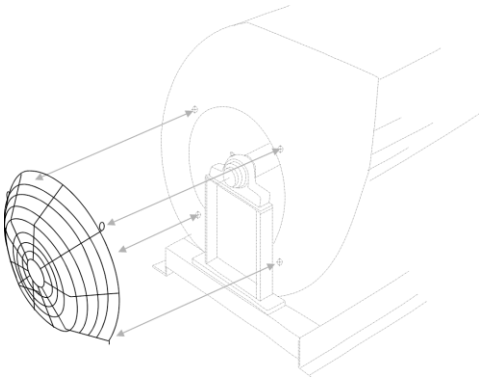
1. Cut away any packaging from the pallet, and remove the outer packaging.
2. If packed in a cardboard container the discharge assembly will be removed and packaged to minimize the container dimensions.
3. Mount the assembly to the discharge transition with the four bolts and nuts provided. Rotate the discharge boom and position to lock in the transport position. [See Discharge Boom AssemblyNOMENCLATURE 49]
4. Locate the lifting loop and lift the unit from the pallet with a hoist and sling.
5. Place the machine in an open area suitable for inspection.

MACHINE ASSEMBLY

The **TM35** Series **PowerMulcher** is normally shipped fully assembled. Look the machine over to insure that all items appear to be installed and secured. On some occasions, assemblies must be broken down for shipment.

GUARD INSTALLATION

1. Remove Mulcher from shipping carton.
2. Locate the wire bearing guard.
3. Remove and retain the two (2) hex head cap screws and nuts located on the bearing side of the beater drum. (The side opposite the engine).
4. Orient the guard so that the "looped ears" face up, then slip the bottom stringer hooks into the two (2) holes on the beater drum near the base frame.
5. Push the guard toward the beater drum and align the two (2) "looped ears" with the upper mounting holes.
6. Secure the guard with the two (2) ¼-20 x 3/4" hex head cap screws previously removed.



LOCATING THE LOAD TRAY

Skid mounted units only: Remove the load tray from the side of beater drum by removing the locking cotter pins and lifting. Position the tray in the mouth of the beater chamber so that it may be supported at a slight angle. Place the reinforced end of the tray over the support bar and under the support lip (both run cross ways in beater chamber opening). The tray angle will nest the tray on the crossbar.

Trailered units only: The two-piece tray assembly consists of a fixed tray and sliding extension, angled to provide access to tow vehicle bed. Remove the tray-locking bar by removing one of the cotter pins and pulling the bar from the tray. Position the tray to extend to the tailgate overhang. Replace the locking bar and cotter to position the tray as desired. When mulching is completed, replace the tray in the original position for transport.

MOUNTING

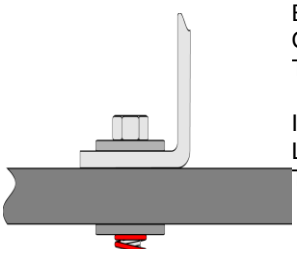
The skid mounted Model **TM35** PowerMulcher can be secured to any flatbed truck or trailer and is compact enough to be transported in a standard pickup truck. The ideal working position is in the back of the bed and on the shoulder side of the road with the load tray extending toward the mulch supply.

IMPORTANT! ADEQUATE WORKING SPACE MUST BE PROVIDED NOT ONLY FOR THE BOOM OPERATOR, BUT ALSO FOR ACCESS TO THE STACKED MULCH BALES. FOR A LARGE TRUCK OR TRAILER, TWO MEN OR MORE WILL BE REQUIRED FOR TOP PRODUCTIVITY.

A lifting loop is provided so that a front-end loader, or a forklift with lifting chain or sling, can be used to transport and position the machine. Once in place, secure with binders or mounting cleats and blocks. The base frame has four bolt holes through which fasteners can be positioned to secure the machine.

Typically, bolts are installed only in opposite corners to allow the unit to remain rigid on the flexible bed. If all four corners are bolted, follow the suggested fastening system below.

IMPORTANT! SUGGESTED FASTENING SYSTEM FOR UNEVEN OR FLEXIBLE TRUCK OR TRAILER BED MOUNTING.

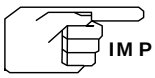


BOLTS SHOULD BE SUFFICIENT IN LENGTH, TO CONTROL MOVEMENT OF THE MACHINE. DO NOT TIGHTEN TO COMPRESS SPRINGS COMPLETELY.

INSURE THAT THE MACHINE BASE IS PLACED ON A LEVEL SURFACE BEFORE FASTENING. DO NOT TWIST OR DISTORT THE FRAME

TOWING THE MULCHER

The **TM35X** trailer frame tongue has permanently fixed hitch plate with five hitch positions. Optional hitch styles include an adjustable lunette eye (requires a pintle hook mounted on the towing vehicle), adjustable ball style (2" or 2-5/16") or 'farm' clevis type. The adjustable feature provides for interchangeability when connecting to alternate tow vehicles. Either style requires a Class B hitch assembly.



THE TRAILER HITCH MUST BE PROPERLY POSITIONED AND SECURED ON THE VEHICLE**.**

1. The first concern is height. Position the hitch to place the machine frame level for ease of towing, as well as operator safety.
2. The vehicle hitch should be located so that the truck bed overhang will not interfere with the load tray when in the extended position.
3. Provide adequate set back from the vehicle chassis frame so that jack knifing, when backing up, will not damage the machine.
4. Provide for securing the safety chains and wiring hookup.



PERIODICALLY CHECK THE TORQUE OF THE WHEEL LUG NUTS. THESE ARE SET AT THE FACTORY AT (90-FT. LB.).

DUE TO RELAXATION ASSOCIATED WITH TRAVEL, THEY MUST BE **TORQUED AT 25, 75, AND 150-MILE INTERVALS**.

DO NOT ATTEMPT TO TOW UNIT UNTIL ALL HOOKUPS ARE COMPLETE AND PROPERLY FUNCTIONING.

Running lights are provided as standard equipment. They include stop, directional, tail and license plate. A socket connector and pigtail harness is included to install on the vehicle chassis to complete the recommended trailer hook up. The vehicle hazard flasher switch will also activate the directional and tail lights mounted in the rear bumper. Use this circuit for standing or when working on roadways.

PRE-OPERATION INSPECTION

Before placing your machine on the job site, it is recommended that a familiarizing checkout be conducted for all key personal involved with the operation. Each machine is functionally tested at the factory before shipping. Before starting up, however, retrace the factory inspection procedures as follows:

All units:

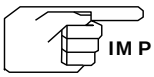
1. Crank case oil level
2. Air cleaner assembly
3. Fuel (Check engine manuals for grade)
4. Battery connections (negative ground)
5. On-off and start switch, instruments, horn
6. Remove boom lock and actuate boom
7. Remove feed tray, open and install
8. Remove any debris from beater drum
9. Inspect flailing chain stations

With trailer option:

1. Wheel lugs and tires
2. Hitch, safety chain and swing jack
3. Trailer wiring cable and plug
4. Lighting

If equipped with emulsion spray option:

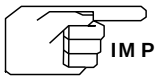
1. Pump, sheave and belt alignment and tension
2. Pump clutch and lever linkages
3. Suction strainer and prime fill cap
4. Hose connections and auxiliary spray valve



INSPECT MACHINE FOR OBVIOUS OBSTRUCTIONS IN BEATER CHAMBER, BLOWER HOUSING, AND THE REST OF THE DRIVE MECHANISM.
CHECK ALL BOLTS FOR TIGHTNESS.

ENGINE BREAK IN

The BREAK-IN period for the specific engine is noted in the vendor operation manual supplied with this manual. Proper engine break in and maintenance scheduling will result as increased engine life.



FOLLOW MANUFACTURERS RECOMMENDED FIRST AND CONSECUTIVE OIL AND FILTER CHANGES.

STARTUP

CAUTION! **BEFORE STARTING ENGINE**, FAMILIARIZE YOURSELF WITH THIS ENTIRE MANUAL. ALSO, READ THE ENGINE MANUAL.

The gasoline engine is equipped with an electronic ignition system. Other than servicing the spark plugs, adjustments, or ignition maintenance is significantly reduced. This non-contact ignition system should provide years of trouble free service if the engine is properly maintained. Before starting the unit, be sure it is mounted as described previously. Be sure to make your test run in an open area.

CAUTION! FORCE FROM THE BLOWER DISCHARGE CAN KICK UP DUST AND BLOW OVER ITEMS THAT ARE NOT SECURE.

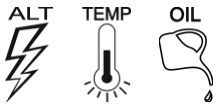
After reading the engine manual, you may start the engine.

The **gasoline engine** has a keyed ignition start switch. Turn to the "ON" position, pull the choke, set the throttle for a fast idle, and turn the key to "START". Slowly reset the choke as the engine warms up.

The **diesel engine** is provided with a keyed ignition star switch with a timed preheater switch. Turn the key to the left momentarily, or until the timer lamp shuts off, then turn the key to "start". Adjust the throttle to run smoothly as the engine warms up.

When running smoothly, adjust the throttle to a high idle. No strange noises or vibrations should occur. If there is, shut the engine down and rectify the problem (See MAINTENANCE AND SERVICE 31). For break-in procedure, refer to the vendor Engine Manual for details.

Either engine is provided with instrument lamps including oil pressure, coolant temperature and alternator circuit. These lamps may illuminate for a short time while starting the unit. If either of the lamps remains illuminated, shut down the engine, identify the cause and correct before continuing to operate the unit.



A governor control is set at the factory for 2400-RPM maximum throttle extension. The throttle is a vernier type. By depressing the center button and pushing or pulling, quick adjustments are made. Releasing the button will lock the control, and by rotating the outside knob, a fine or vernier variation occurs. A tension-locking device is provided to maintain the desired operating speed, when desired.



BE SURE ALL OPERATORS READ AND UNDERSTAND THE FOLLOWING OPERATIONAL PRECAUTIONS:

OPERATING CAUTIONS

1. Twine or wire should be cut and removed to prevent loose trailing ends from wrapping around fingers and then being pulled into the beater chamber.
2. Never attempt to clear the beater drum of debris or make adjustments while the engine is running.
3. Check the thrashing chains at the end of every day's operation. The chains are made of case hardened steel. If a link breaks, an unbalanced vibration will occur. Do not, under any condition, operate the machine when vibrating. Always make sure chain stations are in matched pairs.
4. Routinely inspect the drive coupling connecting the engine drive shaft to the blower shaft. Wear on the center member or coupling looseness will result from a vibration situation caused by an imbalance or misalignment due to overloading, obstruction or low quality mulch. Do not operate the unit until the coupling has been aligned or repaired.
5. The engine has been set to a maximum operating speed of 2400 RPM. Do not exceed or set speed higher, as wear from excessive vibration may occur.

ENGINE OPERATING CAUTIONS

1. The engine has been set to a maximum operating speed of 2400 RPM. Do not exceed or set speed higher, as wear from excessive vibration may occur.
2. Clean chaff from engine and radiator screen routinely. Clean the radiator cooling fins on a periodic basis.
3. The engine is intended to run in a level position. Intermittently, the engine may run at a maximum of 25° angle for not more than 10 minutes.
4. The available horsepower supplied by the engine drops approximately 3% per one thousand feet above sea level. When operating unit at an altitude of 5000 feet or greater, consult local engine service representative.



CAUTION! BEFORE MULCHING, BE SURE TO READ THIS ENTIRE MANUAL.

MULCHING

Your new Model **TM35** PowerMulcher will accept flakes or slabs of mulch for thrashing and blowing. The opening has been limited in height to minimize potential overloading.

The **TM35** PowerMulcher as equipped with standard flailing chain stations will blow mulch strands uniformly at distances 60 to 65 feet in calm air. This may vary slightly depending on bale moisture content and the degree of decomposition. For accurate placement around buildings, structures, and to minimize broadcasting or drift onto adjacent properties, hose discharge kits may be recommended.
This unit is nominally rated at 4-5 tons per hour. Dry bales, with a count of 40 to the ton would require 200-250 bales for this coverage equating to blowing ten to twelve bales every three minutes. Conversely, oversized or wet bales weighing as much as 100 pounds may require a few minutes or more for processing.

In practical terms, the machine can distribute mulch at higher outputs depending on the grade (quality), moisture content, and age. "Clean" mulch will be thrashed and blown faster than will old, moldy or mulch infused with foreign objects. Similarly, hay characteristically will not "mulch" as quickly as straw.

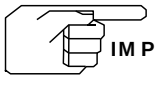
Every load of mulch varies one way or another and requires some human or mechanical adjustment. The machine is not programmed to do this for you.

CREW REQUIREMENTS

A minimum crew of 2 men, not including a vehicle driver, is needed. To get maximum output perhaps as many as 4 or more men will be required. Their function would be primarily to get the baled mulch to the machine and remove the twine or wire wrap.

While job size usually dictates labor requirements, a three-member crew is common. This would include a vehicle driver, a feed man and a placement operator. In the case of a three-man crew, the operator normally stands next to the feed tray and flakes the supplied mulch bales off into segments, which are drawn into the beater chamber.

If extension hose is used, the operator would direct mulch placement at the far end of the hose while the feeder would continuously provide a mulch supply to the **TM35** PowerMulcher.



IMPORTANT! IT IS IMPERATIVE THAT COMMON SENSE AND GOOD JUDGMENT BE EMPLOYED WHEN OPERATING THIS MACHINE.



CAUTION! BE SURE TO KEEP ALL BODY PARTS AND CLOTHING AWAY FROM MOVING PARTS WHILE ENGINE IS RUNNING.

FEEDING MULCH

A bale placed on the load tray must first be untied and the wire or twine removed to prevent from being engorged by the machine. Either the feeder or operator must cut or remove the baling twine or wire. Since it is best to make the cut on the top of the bale closest to the beater chamber opening, it will probably be easiest for the operator to do the cutting. However, if the feeder loads each bale from the side opposite the operator it could be just as easy for the feeder to do the cutting and removal. In any case should twine or wire get into the machine, it should be stopped and removed. Baling wire and twine when wrapped with the mulch will reduce output and may damage the shaft bearings.

The boom operator is the essential man to the operation. While holding the bale with one hand, the operator allows individual segments (flakes) to fall forward into the beater chamber entrance. The airflow at the entrance will draw the segment from the tray. As each segment is processed, the operator then directs the discharge boom for best placement. The placement operator simply separates a flake from the untied bale and allows the blower suction to draw the mulch into the drum. An ideal flake thickness of dry mulch material is about 4 to 5 inches.

Pushing segments into the opening is not necessary and will often reduce the productivity of the machine. As the processed material draws through the blower, the airflow draft increase will draw consecutive segments into the opening. A simple nudge from the operator is all that may be normally required. If mulch does not flow into the beater chamber by the air suction and a slight nudge, or if it plugs completely, stop the machine before inspecting the beater chamber.



CAUTION! NEVER FORCE ANY MATERIAL INTO THE MACHINE.

PLACING MULCH

While introducing the material with one hand, the operator then directs the placement of the mulch by properly positioning and articulating the discharge boom discharge boom with the other. When using hose attachments, the feeder replaces the operator at the machine, and the operator then places the material at the end of the hose. Naturally, it is to the crew's advantage to mulch with the wind to obtain the best possible range and minimize operator fatigue and discomfort. This is particularly true when applying tackifier emulsions.

The throttle control determines blowing range and output. A low engine speed will blow only a portion of the maximum range while top engine speed will provide the greatest range. As engine speed decreases, the loading rate must be decreased accordingly. This adjustment in output should be coordinated with position, and travel speed to achieve the desired application rate. A horn with foot control switch is used to signal the vehicle driver. A simple signal system devised by the crew, to stop and to proceed will serve to regulate truck movement to best advantage.

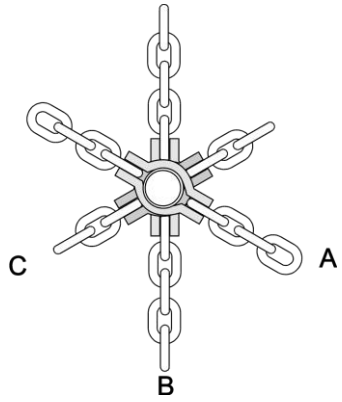
The crew should quickly adapt to a comfortable routine, which will be clearly recognizable in the increased productivity.



CAUTION! NEVER DISCHARGE THE UNIT TOWARDS PEOPLE. BODILY INJURY MAY OCCUR.

MULCH LENGTH

CHAIN CONFIGURATION



Pairs of forged steel clamps secure the chains to the beater shaft using ½-20NF bolts. The chains are of alloy steel, through hardened and mounted in pairs.

The first is mounted 4" from the beater drum end sheet. The next are positioned approximately 6" apart. Each station is set 120° from one another (first at 12:00 and 6:00 o'clock, next at 4:00 and 10:00, and the last at 2:00 and 8:00) as viewed from the open end of the shaft.

Chains do wear! Scheduled inspection should be made after every 40 hours as routine. If wet, moldy mulch is used, inspection should become a daily routine. The link chain used is a through-hardened alloy for wear resistance. On inspection, if an apparent groove is beginning to form between the mating links, the chain should be replaced in pairs.

CAUTION!

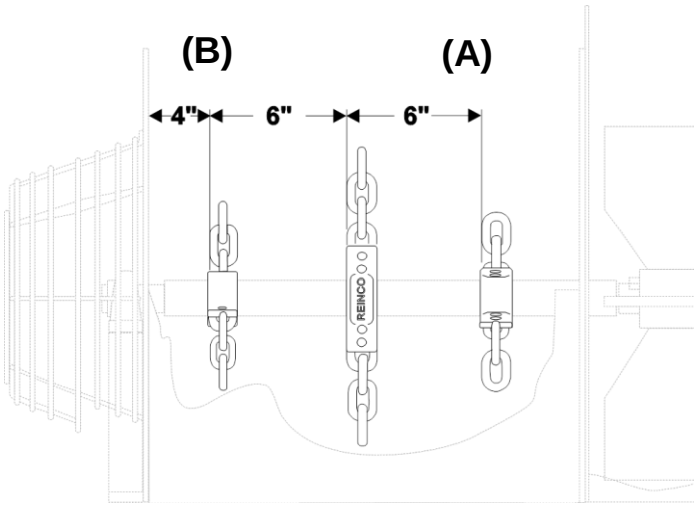
INSPECT THE CHAIN STATIONS REGULARLY FOR WEAR. REPLACE ONLY WITH SUITABLE HARDENED REPLACEMENT SECTIONS. STANDARD GRADE (PROOF) CHAIN WILL BREAK AND COULD CAUSE SERIOUS INJURY OR EVEN DEATH.

MULCH LENGTH ADJUSTMENT

The position of the chain on the beater shaft will determine the stalk length of the discharged mulch.

The station nearest the blower inlet (A) will determine stalk length. Moving closer to the blower inlet will shorten the stalks. Positioning too close to the inlet, however, will act as a restriction in getting mulch to the blower.

The furthest station (B) will regulate the make up air to the blower. One or both of the stations farthest from the blower inlet may not be required, depending on the mulch. With very dry and old material, these may be completely removed.



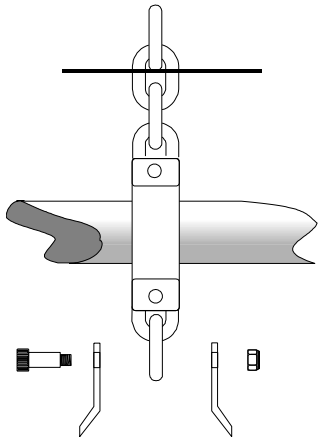
FLAIL KNIFE KITS

When processing coarse, stringy or green mulch, salt hay, or similar tough grasses as mulch material, a series of cutting knives may be installed in place of the inlet station (A), or center station chain links. Knives are not installed as standard equipment because stalk length with average mulch hay would be much to short.

The knives will thrash and cut material otherwise too tough for handling with the standard flail chains, as well as keep long strand coarse material from wrapping the shaft. The flail knives are available in sets, which include mounting hardware for one station.

Order:

Part Number **CH0643.21** for flail knives and hardware only
Part Number **83271120** for flail , hardware, and 2 link chain



To install the flail knives:

1. Cut or burn the outer links from the station closest to the blower wheel to leave one free link to mount the knives.
2. Secure the knives as shown in the diagram to the left. One kit includes all parts required for one chain station.

Should the discharged mulch be too finely cut, move the station back from the blower inlet, or remove one or both of the other stations. Also, try locating the knife assembly at another location.

CAUTION! WHEN OPERATING WITH KNIVES INSTALLED, IT IS IMPORTANT TO INSPECT THESE REGULARLY FOR WEAR. DO NOT OPERATE WITH BROKEN OR DAMAGED KNIVES

ANCHORING MULCH

Mulch can be either "glued down" with tackifier, held down with netting, or "cut" into the soil with an implement. Anchoring the mulch material with a tackifier or Mulch Disc dramatically reduces the potential of damage from wind and rain.

TACKIFIER

Originally, emulsified asphalt was used predominantly for holding mulch in place. Although contractors still use this oil based tackifier, is use is becoming less common due to high cost, environmental concerns, availability problems and the associated cleanup liabilities in congested areas. The emulsion spray system option is utilized to spray the tackifier into the discharged mulch as it is placed.

Alternative 'environmentally friendly' tackifiers are available in either liquid or powder form, yet both are always applied in a liquid slurry state through a HydroSeeder, HydroMulcher, or a similar mixing/spraying apparatus.

Hydraulic mulch can also be used as a tackifier sprayed onto hay or straw at the recommended rate of 700-850 pounds per acre.

Hydraulic mulch applications are water intensive. Tackifier used with hydraulic mulch may dramatically reduce material requirements and increase the effectiveness of the application.

LEGACY OPTIONAL EMULSION SPRAY SYSTEM

The positive displacement gearotor style pumping system can be installed for applying asphaltic tackifiers such as SS-1 or RC-1. The pump is driven by a belt powered from the beater shaft and engaged by a clutch. The flow is directed to a spray pipe mounted under the boom. A flat jet nozzle on the end of the pipe directs a fan pattern discharge of emulsion into the air blast carrying the mulch from the boom. When tacking is not required, the clutch should not be actuated.

Emulsified asphalt should have the viscosity of latex paint at 70 degrees Fahrenheit. To maintain this viscosity at lower temperatures requires a heater system.

The suction pick-up tube must be immersed and the pump primed to draw binder from a drum or other source. Emulsion can be sprayed directly with the mulch. To do so, the valve on the pressure side of the pump is set to feed the boom spray hose. The alternate position is adapted with a garden hose connection for remote or over-spraying of mulch. When not in use, the pick up tube is stored in a holder and the valves are closed.

APPLICATION RATES

The pump employed is rated at 8 gpm with a liquid having a viscosity of 400 SSU. Normally specifications call for 150 to 200 gallons per acre. This means that under ideal conditions it would take about 20 minutes to pump enough oil to cover an acre. On an hourly basis, the system could theoretically tack 3 acres of mulch. With alternative tackifiers, the application will vary based on the particular product coverage requirements.
The boom operator must develop skill in applying the proper quantity of emulsified asphalt based on the amount of mulch that is being placed. This is done visually and can be estimated rather closely by the black/grey color the over spray casts on the mulch.

There are many variables controlling the actual pump flow. Such as:

1. Temperature as related to viscosity.
2. Engine RPM.
3. Cleanliness of the system.
4. Age of the emulsion.

PRIMING FOR START-UP

To insure an adequate supply of liquid to the pump, the system must first be primed. This is done with about 5 gallons of waste oil cut with kerosene. Here are the steps to follow:

1. Disengage clutch and stop engine.
2. Remove pick-up tube from holder and place in a clean can or pail. Open boom valve.
3. Uncap riser pipe mounted on pump discharge and fill to top with cut waste oil.
4. Rotate pump in a clockwise direction by pulling the belt. As the level in the riser pipe falls, continue to add more oil. When oil discharges from the pick-up tube stop rotating the pump. Then fill the riser pipe to the top and recap.
5. Place the pick-up tube in the remaining oil of the 5-gallon pail. Support the tube so it doesn't fall over. Place a section of waste hose over the nozzle and return to the container.
6. Start the engine. Engage the clutch and run at about 1000 RPM.
7. As the pump forces oil through the system, the entrained air will cause a squealing noise. After a few minutes, this will cease. The system is now primed.
8. Disengage the drive belt clutch. Close the boom valve, then drain and store the pick-up tube in it's holder.

EMULSION SYSTEM CLEAN-UP

After use, the system must be flushed. Fuel oil or cutback waste oil should be used for this purpose.

Here are the steps to follow:

1. Remove pick-up tube from the asphalt and drain into a 5 gallon container of flushing liquid.
2. Place a piece of waste hose onto the boom nozzle and return to the container.
3. Start engine. Make certain valve is open, engage clutch and run at a slow idle for about 5 minutes.
4. Close boom valve, replace pick-up tube in holder, disengage clutch and turn engine off.
5. Any excess coating should be wiped clean with fuel oil.
6. Remove strainer element and clean before replacing.

If emulsified asphalt is used, flush the pump and spray hose with fuel oil or with a 50/50 oil kerosene mix.

If water based tackifiers is used, flush system with clean water making particularly certain the strainer is unclogged. Follow the water flush with a 50/50-oil kerosene mix.

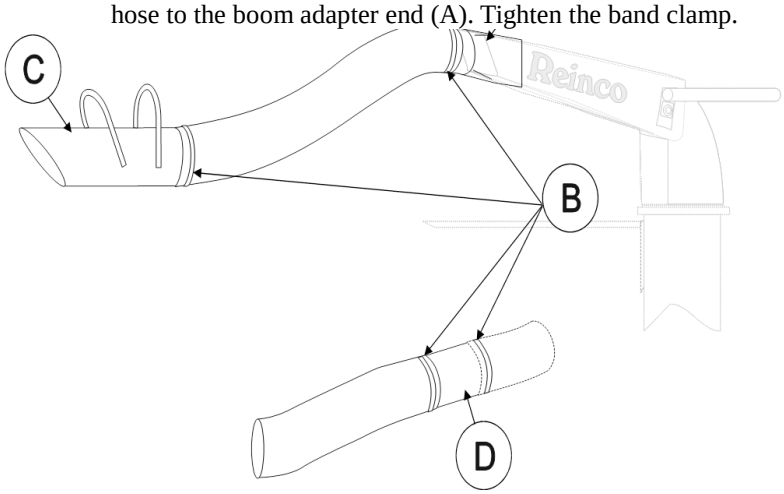
OPTIONAL EXTENSION HOSE

The discharge boom may be adapted to utilize 100 feet or more of 8" flexible extension hose. Hose discharge is best suited to apply mulch in hard to reach areas, or simply to improve placement control in areas where drifted and overblown material is either undesirable or prohibited. Hose extensions are offered in 25 foot sections for ease of handling.



INSTALLATION

1. Install the hose adapter (A) onto the discharge boom end. Locate and install the mounting clips to the boom. Some drilling will be required for field installation. Secure the boom adapter to the mounting clips with the hardware provided.
2. Lock the boom in the transport position to insure that the discharge assembly is directed away from the engine.
3. Place a band clamp (B) over the hose end and mount the hose to the boom adapter end (A). Tighten the band clamp.



4. Install the applicator spout end (C) similarly.
5. If additional extension hoses are being used, they may be inserted before the applicator spout by means of a coupling tube (D), included with each extension hose kit. The hose ends are then clamped over the coupler.
6. Mulching may now be started. Adjust throttle to desired speed and begin feeding untied mulch bales while the placement operator directs the discharge at the hose end.

It is important to understand that the material is being transported in the airflow of the blower fan. Material characteristics (moisture content, weight, particle size, etc.) will determine volume capabilities.

IMPORTANT! DO NOT ATTEMPT TO DISCHARGE ROCKS, NAILS, OR OTHER DEBRIS, WHICH MAY DAMAGE BLOWER OR CAUSE PREMATURE WEAR.

When done with the job, turn the machine off and remove the adapter assembly. Clean out any residual material remaining in the beater drum.

OPTIONAL SUCTION ADAPTER

Another option adding to the versatility of the **TM35** PowerMulcher is the suction adapter kit. Spilled or over-sprayed mulch, leaves and decorative wood chips or landscape mulches may be picked up and placed with this easily installed assembly. The kit includes a beater drum "inlet hose adapter", and an air "suction cover".

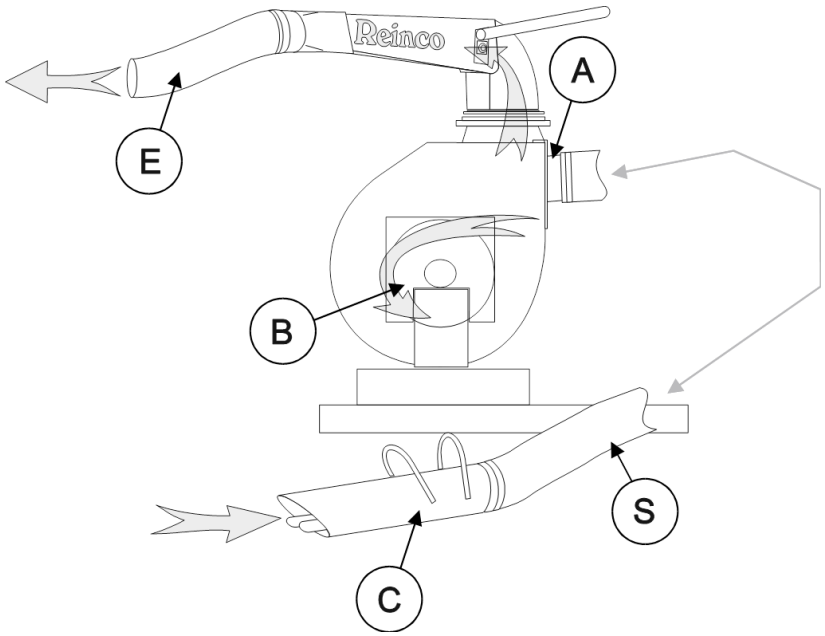
INSTALLATION

1. The inlet hose adapter (A) is attached at the beater drum in place of the feed tray. Be sure the machine is turned off and the key is removed before attempting assembly.

2. Place the adapter (A) onto the tray support pins in place of the feed tray. Replace the locking cotters to secure the adapter in place.

3. The air makeup cover (B) is to be installed on the exterior of the unit at at the pillow block bearing end. Remove the bearing shaft guard. Hold the cover over the beater shaft with the "U" shaped notch facing down. This cover now provides for make-up air to be drawn through the the inlet hose adapter. Replace the bearing guard and tighten the screws.

4. The final installation step involves installing suction and discharge hoses consistent with the desired application. Typically, the basic hose "starter kit" (S) would be connected to the inlet adapter by slipping the hose over the adapter tube and clamping the hose as indicated in the forgoing section. The discharge spout end (playpipe) would be used as a suction head. For comfort, an additional nozzle (C) may be used.



The feed man is now utilized to pick up the desired material by working the pick up end of the hose. Compacted or wetted material should be kicked up to assist in vacuuming. The placement operator simply directs the discharge boom assembly or the discharge extension hose (E) if utilized. Additional extension hoses may be added on the suction and discharge loops, as the individual job dictates, however, the length of the hoses used will be constrained by the type of material(s) being handled. It is important to understand that the material is being transported in the airflow of the blower fan. Material characteristics (moisture content, weight, particle size, etc.) will determine volume capabilities.

CAUTION! DO NOT ATTEMPT TO PICK UP OR DISCHARGE ROCKS, NAILS, OR OTHER DEBRIS WHICH MAY DAMAGE BLOWER OR CAUSE PREMATURE WEAR.

When done with the job, turn the machine off and remove the adapter assembly and suction cover. Clean out any residual material remaining in the beater drum, then replace the feed tray.

OPTIONAL SEED BROADCASTER

The **TM35** series **PowerMulcher** broadcast seeder option provides for simultaneous application of seed and granular fertilizers, while distributing hay or straw mulch. The broadcaster distributor head assembly discharges directly into the beater chamber assuring uniform distribution of materials. Materials broadcast from the **PowerMulcher** discharge are dependent upon engine RPM. Lower engine RPM will reduce the discharge area and application rate. The unit is intended to operate on or near level. Pitching of the machine on slopes will hinder discharge into the drum.

IMPORTANT!

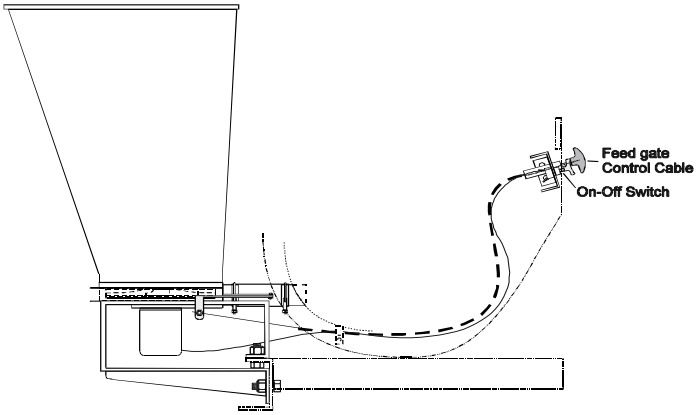
MULCH REQUIREMENTS WILL OFTEN EXCEED THE SEED OR FERTILIZER REQUIREMENTS. ADJUST THE FEED RATE TO COVER THE GIVEN AREA, AND THEN SHUT OFF THE BROADCASTER TO COMPLETE THE MULCH APPLICATION.

Trial applications are recommended to establish the coverage preference for the materials to be applied. Inert absorbent granules (Speedy-dry) or similar material may be used to determine the spread or range during the trial application.

The hopper feed rate is regulated by adjustment at the distributor head. As some materials feed faster or slower than others, care should be taken to adjust the feed gate accordingly.

OPERATION

TM-35 Series Broadcast Seeder Attachment



1. Pull out control cable to close hopper gate.
2. Charge the hopper with material, start the **PowerMulcher** and adjust the throttle for desired range.
3. Pull out switch to start the hopper motor before opening the hopper gate control.
4. Push the gate control cable in momentarily to open the hopper gate to discharge material.
5. Take care to close the gate control completely before turning the motor off.
6. Turn off broadcaster motor, and then shut down the **PowerMulcher**.
7. Inspect area covered. If broadcast is satisfactory, proceed with distribution, otherwise, adjust the feed gate control setting and throttle to best suit the desired coverage.

RECOMMENDED GRANULAR SETTINGS

Reference the following chart to determine for approximate material application requirements.

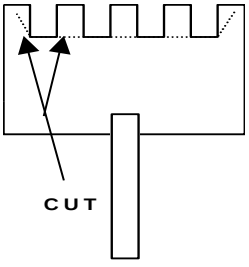
APPROXIMATE MATERIAL APPLICATION RATES

TYPE	GATE OPENING *	RATE PER ACRE
Alfalfa	3/16"	5-1/2 lbs.
Ammonium Nitrate	3/8"	80 lbs.
Australian Pea	3/8"	1 bushel
Bahia Grass (see note below)	3/16"	19 lbs.
Blue Grass	1/2"	2/3 bushel
Brome Grass	1/2"+	1 bushel/14 ft
Clover	3/16"	5-1/2 lbs.
Fertilizer (Pellet Or Granular)	5/8"	62 lbs.
Flax And Millet	1/4"	10 pt
Ladino Clover	1/32	1 lbs.
Lespedeza	3/16"	6 lbs.
Oats	1"	2 bushel
Orchard Grass	3/8"	2/3 bushel
Red Top	3/16"	7 pt
Rye	1/2"	3/4 bushel
Rye Grass	3/8"	1 bushel
Sweet Sudan Grass	1/2"	20 lbs.
Timothy	3/16"	6 lbs.
Turnip Seed	1/4"	10 lbs.
Vetch	3/8"	2/3 bushel
Wheat	1/2"	3/4 bushel

- Bahia grass may require removal of teeth from feed gate to improve feeding. See BAHIA SEED MODIFICATIONS below.
- For 8-16 granules, a 1/4" gate opening allows approximately 16 lbs. of materials to feed every 6 minutes. Setting the gate less than 1/4" will not allow 8-16 granules to feed evenly into the blower. Each 1/16" increase in the gate opening (beyond 1/4") will increase the feed rate by approximately 10 lbs.
- For 20-40 granules, or finer the 1/4" opening will allow approximately. 8-9 lbs. for each 6 minutes. Each 1/16" increase in the gate opening will increase the feed rate by approximately 40%.
- Do not measure feed opening from top of feed gate (tooth), all measurements should be taken from bottom of feed gate (tooth).

BAHIA SEED MODIFICATIONS

1. To remove feed gate loosen 1/4" cap screws from base. Remove opening stop under gauge, by removing wing nut and screw.
2. Rock feed gate to center and pull out of base assembly. Cut or grind center teeth from feed gate.
3. Do not remove end teeth from plate. Cut end teeth at angle to inside of tooth. The end teeth guide feed plate into base assembly.
4. Reverse procedure for reassembly.



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EPIC MODEL TM35
POWERMULCHER

MAINTENANCE AND SERVICE

SERVICE

Due to the simplified construction of **Epic** HydroSeeders, HydroMulchers, and PowerMulchers, most routine maintenance can be performed without the services of a skilled mechanic. In the event that your unit requires expertise beyond that which is covered in this manual, contact your authorized **Epic** servicing dealer or Epic Manufacturing. directly.

If your **Epic** dealer is not an authorized engine dealer, and the problem is engine related, contact an authorized engine service center. Call **Epic** or your dealer for the name of your nearest engine service location.

The **Epic** limited warranty, which follows, does not cover the engine. The engine manufacturer provides their own limited warranty found in the engine manual, provided with new machine.

WARRANTY

The equipment warranty statement is provided as protection to our valued customers, when or if the situation occurs, that a part or parts fail prematurely during normal use and service. The warranty period as provided allows the purchaser to make claim for repair or replacement of the parts deemed defective within that period. The procedure that follows will provide that claims made may be expedited promptly and that settlement will be made fairly and amicably.

WARRANTY PROCEDURE AND FILING

1. NOTIFICATION - Promptly notify your dealer or **Epic** of defect or failure and confirm in writing.
2. AUTHORIZATION - Upon receipt of authorization from **Epic**, initiate replacement or repair under the terms and conditions of the warranty.
3. RETURN GOODS - Should part(s) be requested returned for inspection, obtain authorization for return (RGA). Return part(s) to **Epic Manufacturing**, freight prepaid. A copy of the return authorization should accompany the shipment.
4. SUBMIT - Claims submitted for warranty consideration will require copies of notification, replacement part(s), invoice(s), and time record (Work Order). Copies of any additional correspondence concerning the particular claim should be submitted as well.

Epic's obligation under the terms of the warranty shall be limited to replacement or credit for the part(s). On request, parts must be returned for inspection. Related labor must be considered fair and reasonable regarding work performed. A work order time record will be required to substantiate and validate labor reimbursement requests.

Claims submitted which upon review are determined to be the responsibility of third parties will be returned with instruction for forwarding to those parties.

Claims submitted for warranty consideration must be forwarded to **Epic** for review **within 30 days of the date of claim** or the claim will be considered invalid and void.

Settlement of any claim will require that any prior claims or adjustments be settled.

WARRANTY STATEMENT

The following warranty statement is provided to illustrate **Epic's** typical Warranty. To the extent that there may be inconsistencies between this statement and that provided by the sales order Terms and Conditions, the sales order Terms and Conditions shall apply.

EPIC MANUFACTURING PROVIDES A LIMITED TWO-YEAR WARRANTY ON THE MACHINERY OF ITS OWN MANUFACTURE. EPIC MANUFACTURING WARRANTS TO ANY BUYER THAT THE MACHINERY SHALL BE FREE OF DEFECTS IN MATERIAL OR WORKMANSHIP DURING NORMAL USE AND SERVICE FOR A PERIOD OF TWO YEARS FROM THE DATE OF SHIPMENT TO THE CONSUMER. THIS WARRANTY IS NOT EXTENDED FOR MACHINES PLACED INTO RENTAL SERVICE.

UNDER THIS LIMITED WARRANTY, EPIC MANUFACTURING SHALL WITHIN ONE WEEK FROM THE DATE OF NOTIFICATION, (1) INITIATE REPLACEMENT OR ACTION FOR REPAIR OF THE PART(S) PROVEN DEFECTIVE IN MATERIAL OR WORKMANSHIP OR, (2) DIRECT THE SERVICING DEALER TO INVESTIGATE, REPORT, AND THEN AUTHORIZE AND PERFORM REPAIR OR, (3) ON DIRECT FACTORY SHIPMENT, INSTRUCT THE USER, UPON VERIFICATION OF FAILURE, TO PERFORM HIS OWN REPAIR WITH PRIOR AGREED UPON BACK CHARGES TO EPIC MANUFACTURING THE CHOICE OF ALTERNATIVES SHALL REMAIN THE SOLE DECISION OF EPIC MANUFACTURING
THIS WRITTEN WARRANTY IS THE ONLY WARRANTY MADE BY EPIC MANUFACTURING IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, IF ANY, ARE LIMITED TO THE SAME TERM AS THIS WRITTEN WARRANTY. CERTAIN STATES DO NOT ALLOW LIMITATIONS ON HOW LONG AN IMPLIED WARRANTY LAST, SO THE ABOVE LIMITATIONS MAY NOT APPLY. HOWEVER, SOLELY WITH RESPECT TO THE BUYER, THE FOREGOING WARRANTY IS IN LIEU OF ANY AND ALL IMPLIED WARRANTIES INCLUDING, WITHOUT LIMITATION, IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR ANY PARTICULAR PURPOSE AND IN LIEU OF ALL OTHER WARRANTIES EXPRESSED OR IMPLIED, AND NO OTHER WARRANTY IS MADE OR AUTHORIZED TO BE MADE.

THE USER OR DEALER MUST PROMPTLY, WITHIN THE LIMITED WARRANTY PERIOD, NOTIFY EPIC MANUFACTURING, AND CONFIRM IN WRITING, THE DEFECTS, ALLOWING THE COMPANY TO ANALYZE THE FAILURE AND DETERMINE ITS OBLIGATION UNDER THE WARRANTY. COSTS INCURRED BY THE USER OR DEALER ARE TO BE ABSORBED, UNTIL SETTLEMENT UNDER TERMS OF THIS WARRANTY. THE COMPANY RESERVES THE OPTION AND THE RIGHT TO HAVE ALL DEFECTIVE COMPONENTS RETURNED, TRANSPORTATION PREPAID, FOR INSPECTION.
THIS LIMITED WARRANTY DOES NOT COVER UNSATISFACTORY PERFORMANCE OR FAILURE DUE TO MISUSE OR ABUSE OF THE PRODUCT, NOR WILL EPIC MANUFACTURING BE RESPONSIBLE FOR UNSATISFACTORY PERFORMANCE OR FAILURE DUE TO IMPROPER ADJUSTMENT OR REPAIR OF THE PRODUCT. THE SPECIFICATIONS ARE DESCRIPTIVE AND ARE NOT WARRANTIES.

THIS LIMITED WARRANTY DOES NOT COVER EQUIPMENT AND ACCESSORIES MANUFACTURED BY THIRD PARTIES.

EPIC MANUFACTURING SHALL NOT BE RESPONSIBLE FOR CONSEQUENTIAL, SPECIAL, CONTINGENT, INCIDENTAL OR ANY OTHER DAMAGES WHATSOEVER IN CONNECTION WITH REPLACEMENT, REPAIR OR REFUND AS SET FORTH ABOVE. CERTAIN STATES DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATION OR EXCLUSION MAY NOT APPLY.

THIS WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS AND YOU MAY HAVE OTHER RIGHTS IN ACCORDANCE WITH YOUR STATE LAW.

MAINTENANCE OVERVIEW

The life of your equipment investment relates directly to the care that you give it. By following the recommendations below, your new PowerMulcher should last many years.

BASIC

GENERAL: Keep your machine clean. Inspect beater chains; drive coupling, engine, oil and air cleaner before and after each use. Remove all dirt and chaff from the engine with an air nozzle or brush. Pay particular attention to shake out debris from the radiator chaff screen.

SAFETY: Perform a daily inspection of the machine from a safety viewpoint. Replace safety decals when worn, faded or damaged.

DRIVE TRAIN

BEARINGS: The most common error committed by the casual operator is over-lubrication of bearings. A shot or two of grease (Fiske Lubri-plate 930-AA or equivalent) every 100 hours is adequate.
Periodically check locking collar set screws for tightness.

BEATER CHAINS: The position of the beater chain station nearest the blower inlet will determine stalk length. Moving closer to the blower will shorten the stalks. Positioning too close to the inlet, however, will act as a restriction in getting mulch to the blower.
When processing coarse or green mulch or salt hay, a series of cutting knives may be installed in place of the chain station. These are available in sets, with two link chains (part no. 83271120). These are not installed as standard because stalk length with average mulch hay would be much to short. To control wrapping, mount the knife kit at the center station. To control strand length, mount at the station closest to the fan.
Adjust strand length by moving the station either closer (shorter), or away (longer), from the fan inlet.
Beater chains should be inspected on a daily basis for wear. Failure to replace worn chains could lead to serious injury if "thrown".
Failure to replace "thrown" chains will cause an imbalance on the beater shaft, which may be evidenced by a noticeable vibration.
Broken links of chain must be immediately replaced.
Always install in matched pairs. If one side of a chain station needs replacement, the other side will need to be replaced shortly also.
Standard commercially available chain is not suitable for operation in the PowerMulcher. Use beater chain purchased from **Epic** or a **Epic** Authorized Dealer only!



INSPECT THE CHAIN STATIONS REGULARLY FOR WEAR. REPLACE ONLY WITH SUITABLE HARDENED REPLACEMENT SECTIONS. STANDARD GRADE (PROOF) CHAIN WILL BREAK AND COULD CAUSE SERIOUS INJURY OR EVEN DEATH.

The TM35 PowerMulcher uses three matched flailing stations. Starting from the feed tray, the first is 3 link, the next two 4 link. The first is positioned approximately 4" from the drum side sheet (air inlet), and the others are positioned at 6” equidistant. Each station is oriented at 120° from the last. One of the stations may not be required depending on the mulch. With very dry and old material, the first or center station may be removed.

BEATER SHAFT: If a foreign object such as a boulder or log enters the beater chamber, it

may cause sufficient damage to bend the shaft. To check straightness, remove the shaft and have a machinist check for run out.
If the total variation should exceed .015", replace the shaft.

BLOWER WHEEL: The blower fan is keyed to the driven shaft with four square head set screws. Inspect these screws for tightness periodically and after the first twenty hours of use. If the fan becomes loose, reposition if necessary, then re-tighten screws. Screws can be accessed through blower outlet after discharge chute has been removed.

Wear of the wheel is evident when the leading edges of the blades begin to curl back. If a heavy object hits the paddles, bending and unbalance can occur. In either case, replace the wheel.



DO NOT ATTEMPT TO REPAIR THE BLADES.
DO NOT OPERATE THE MACHINE WITH A WORN WHEEL.
A WORN OR UNBALANCED BLOWER WHEEL IS DANGEROUS AND MAY CAUSE DEATH OR SERIOUS INJURY!

DRIVE COUPLING: The drive coupling transmits power to the blower and beater shaft. Excessive misalignment of the shafts (axial or angular) will produce vibration. If vibration is present, inspect and realign coupling as necessary. Inspect the setscrews and connecting bolts every 100 operating hours for loosening or other abnormality.
If the coupling becomes misaligned, contact your servicing dealer. Otherwise, follow this procedure:
Determine the direction and degree of misalignment by measuring with a caliper or divider around the periphery of the drive coupling flanges. If the gap is measured on the top of one of the coupling flanges, this indicates that the alignment height requires adjustment. A gap is measured in the side of either flange this indicates that side alignment is required.
If misalignment is detected, determine whether to adjust the blower shaft or engine [shim as required]. After making the adjustment, re-measure the coupling flanges. If the gap is eliminated, tighten all bolts and again recheck the alignment. If the alignment is within specifications, start engine, adjust the throttle and inspect for vibration. If vibration exists, contact your servicing dealer or the factory for assistance.
For more information on coupling alignment, See Drive Coupling Alignment 38.

ENGINE: Daily inspection involves checking oil level, air cleaner and removing dirt and chaff from engine cowl. Refer to engine manual for the manufacturers maintenance schedule and further details.



A governor setting limits the operating RPM nominally at 2400.
IF THE MAXIMUM ENGINE RPM EXCEEDS 2400, ADJUST THIS SETTING.

DISCHARGE ASSEMBLY

DISCHARGE: Check operating engine RPM. Adjust the engine governor setting to a maximum of 2400 RPM. Do not exceed this setting.

BOOM ROTATION: The bearing contacting surface may be dirty making it hard to turn. The boom elbow assembly must be removed, then cleaned and reassembled.

BOOM SEALS: Inspect boom air seals (top and bottom) for wear. Worn, cracked or damaged air seals will cause discomfort to the boom operator. Replace as required.

TRAILER ASSEMBLY

AXLE: Inspect all suspension components for exercise wear at approximately 6,000 miles of usage. Worn spring eye bushings, sagging or broken springs should be replaced. Repack bearings every 12 months or 12,000 miles.

BRAKES: Inspect and service trailer brakes at yearly intervals. Magnets, which are worn unevenly, should be replaced. Inspect drum surfaces and armature contact area for excessive wear or scoring.
Test operation before each use.
Recheck braking adjustments each 3,000 miles.

BREAKAWAY: Check switch operation routinely. If the switch does not engage with the pin removed, repair or replace the unit immediately.

HITCH: Inspect hitch components for wear. Routinely check hitch-mounting hardware for loosening or wear. Replace all worn or damaged components.

JACK: Oil tongue jack regularly. Clean dirt from retracting leg. Routinely inspect the locking pin and spring assembly for wear.
Replace worn or damaged components as necessary.

LIGHTS: Routinely inspect and insure all lights are operational each time the unit is hitched. Do not transport unit without all lamps in working condition.

TIRES: Check inflation pressure weekly to insure maximum life and tread wear. Check for tire wear frequently.
Note: Once a wear pattern is established, it will continue even when cause is corrected. Replace worn or damaged tires regularly.

WHEELS: **Retorque wheel bolts at 25, 75, and 150-mile intervals.**
Inspect for cracks, dents, or distortion each six months or 6,000 mile intervals.

OPTIONAL SEED BROADCASTER

HOPPER: A light film of grease may be applied between the hopper and casting to minimize dust.

FEED GATE: Dusty materials/residuals should be periodically cleaned from the feed gate and adjusting levers for ease of operation. Graphite or similar lubricant may be applied to the feed gate to minimize dust restriction.

LEGACY EMULSION SYSTEM

CLUTCH: Periodically grease clutch assembly. A single shot of grease is sufficient; over-greasing may prevent the clutch from actuating.

DRIVE BELT: The pump and driver sheaves must be in line for the belt to run true.
Tensioning is maintained by adjusting the pump base mounting bolts.
Tension the drive belt only with clutch engaged.
Alignment is correct when belt is "in-line", when clutch is "not" engaged.

LEVER BEARINGS: Lubricate with oil every 50 operating hours.

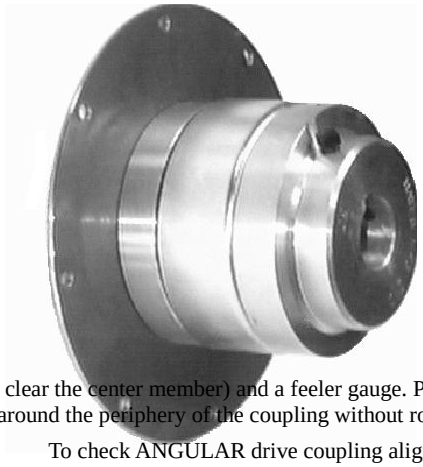
PUMP: The pump shaft is equipped with sealed lubricated bearings that should last virtually for the life of the pump, provided the mechanical seal assembly remains intact.
It is necessary to use clean emulsions or binders and to flush the pump (including the spray system) after each use. The pump must be flushed daily with cut back oil to protect the close tolerance surfaces. Drain oil, or a 50% mixture of low-grade motor oil with kerosene (or fuel oil) is adequate. Dispose of waste oil properly.
The relief valve is equipped with a spring adjustment range of 100 to 150psi. The exact pressure setting is not critical, but it must be high enough to prevent chattering and by-pass. Discharge pressure increases when turning the adjusting screw in a clock-wise direction. If the screw bottoms out and chattering persists, the viscosity is too high and liquid must be thinned.

PUMP SEAL: Should the mechanical seal fail, the first indication will be dripping emulsion from the shaft end of the pump. Replacement must be made immediately or the bearings may be ruined.
To replace the mechanical seal assembly, first remove the head, and then pull the shaft, rotor and seal out as a unit.
Refer to Disassembly and Reassembly Instructions 42.

STRAINER ELEMENT: The strainer has a 1/8" mesh element, sized to keep congealed lumps of asphalt from plugging the nozzle or valves. If the strainer basket is clogged, the pump cannot draw fluid.
Inspect the screen daily for possible obstructions from dirty emulsion.

DRIVE COUPLINGS

FLYWHEEL TO SHAFT COUPLINGS



When aligning the coupling, it is important that the centerline of the blower shaft be true to the centerline of the engine shaft. Wear on these components due to the axial and radial forces transmitted during operation will be avoided with proper alignment.

COUPLING SHOULD BE ALIGNED WITHIN .005" PARALLEL AND ANGULAR.

1. To check PARALLEL drive coupling alignment, use a notched straight edge (notch should be sufficient to clear the center member) and a feeler gauge. Place the straight edge across the two coupling flanges and measure the maximum offset at various points around the periphery of the coupling without rotating the coupling. If the maximum offset exceeds .005", realign the shafts.

To check ANGULAR drive coupling alignment, a micrometer or caliper must be used. Measure from the outside of one flange to the d the periphery of the coupling. Determine the maximum and minimum dimensions without rotating the coupling. The difference between the maximum and minimum s required, be sure to recheck the parallel alignment.

In the field, the angular measurements may be approximated with a tape or ruler. Use opposite reference positions on the engine bell ations on the perimeter of the coupling flange (blower side). The variations should be limited to 1/32". However, this method should be rechecked as soon as possible as

ALIGNMENT AND COMPONENT REPLACEMENT

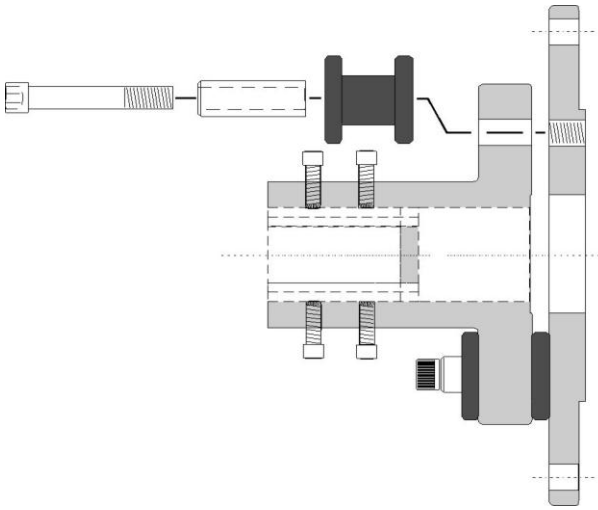
It should not be necessary to replace any parts on the drive coupling assembly, provided that misalignment is discovered at the onset. The following procedure covers the process to replace an entire coupling assembly, and may also be used as a guide for alignment also.

1. Inspect the coupling assembly for damaged parts. Secure replacements as required.
2. Remove any protective coatings or lubricants from bores, mating surfaces and fasteners. Remove any burrs, etc. from the shafts.
3. Slide the coupling flange (hub) onto the blower shaft using the proper, snug fitting, key. Should the fit be loose, identify the cause and remedy before proceeding further.
4. Slide the coupling plate into the flywheel pilot or counter bore. Install and tighten the flywheel mounting screws alternately to approximately 400 in. lb.
5. Align and shim the drum/housing assembly, shaft bearings and/or engine as required, and tighten all bolts.
6. Check parallel and angular alignment as described above. Should the alignment be within specifications, proceed to step 8.
7. Loosen drum/housing assembly, shaft bearings and/or engine bolts as required, adjust shims to correct the misalignment. Torque all fasteners, then repeat step 6.
8. Using a thread locking resin, torque the set screws on the shaft flange securely. Check that all fasteners are securely torqued.
9. Replace coupling guard and bearing end shaft guard.

FLYWHEEL TO SHAFT PIN TYPE COUPLING

The pin type drive coupling allows for axial movement of the shafts to compensate for vibrations produced by the engine, (as during cold starting) and torque during heavy loads. Axial movement is not restricted. The rubber inserts can be replaced without complete disassembly of the coupling. No lubrication is required.

When installing and aligning the coupling, it is important that the centerline of the blower shaft be true to the centerline of the engine shaft. The coupling assembly aligns the shaft to the engine flywheel face. Alignment of the shaft hub and mating hub should not be necessary. However, wear on the flexible coupling components due to the axial and radial forces transmitted during operation will be minimized with proper alignment.



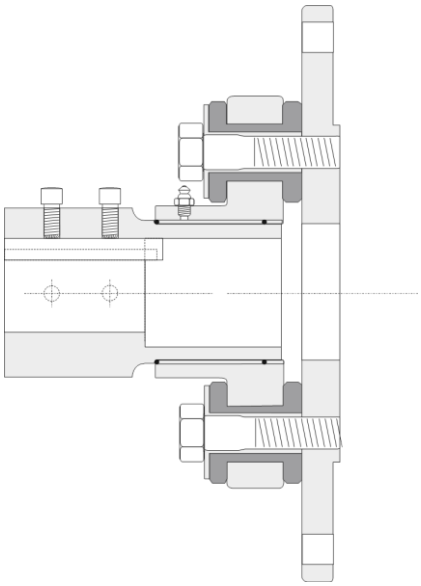
COUPLING SHOULD BE ALIGNED WITHIN .015" PARALLEL AND ANGULAR.

COUPLING ALIGNMENT OR REPLACEMENT

It should not be necessary to replace any parts on the drive coupling assembly, if misalignment is discovered at the onset. The following procedure covers replacement of the entire coupling assembly, and may be used as a guide for checking coupling alignment.

1. Inspect the coupling assembly for damage. Secure replacement coupling assembly or components required.
2. If replacement is necessary, loosen and remove the engine mounting bolts. Take measures to insure that existing shims are retained for reinstallation. Remove flywheel mounting bolts and lock washers. Move engine forward to remove coupling from flywheel face. Remove coupling hub from blower shaft.
3. Remove any protective coatings or lubricants from bores, mating surfaces and fasteners. Remove any burrs, etc. from the shaft.
4. Slide the complete coupling assembly onto the blower shaft using the proper, snug fitting, key. Should the fit be loose, identify the cause and remedy before proceeding further. Do not secure the setscrews. The coupling assembly should be snug but free to slide on the shaft.
5. Move the engine to slide the coupling plate into the flywheel pilot or counter bore. If the coupling does not slide easily into the flywheel pilot, realignment is necessary. Do not attempt to pry or force the coupling into the pilot. Align and shim the engine as required, and tighten all bolts.
6. Using a dial indicator, caliper and/or micrometer, check parallel and angular alignment tolerances. Should the alignment be within specifications, proceed to step 8.
7. Loosen drum/housing assembly, shaft bearings and/or engine bolts as required and adjust or shim as necessary, to correct the misalignment. Torque all fasteners, then repeat step 6.
8. With the coupling aligned to the flywheel face, install and tighten the flywheel mounting screws and lock washers, then torque alternately to approximately 220 in. lb. Using a thread locking resin, torque the setscrews on the shaft flange securely. Recheck that all fasteners are secure. It is recommended that the locking resin be 'injected' between the shaft and hub surface to prevent galling of the shaft materials during extreme conditions. Fill the set screw threads on the hub and push the resin into the void when installing the set screws. Recheck the set screw torque to complete the installation.
9. Replace coupling guard and bearing end shaft guard.

FLYWHEEL TO SHAFT SPLINE TYPE COUPLING



The spline type coupling allows for axial movement of the shafts to compensate for vibrations produced by the engine, (as during cold starting) and torque during heavy loads. Under normal conditions, lubrication is limited to a shot of grease every 40 operating hours. Under harsh conditions, (i.e.. overloading, jamming , etc.), lubrication will be recommended at 20 hour intervals.

When aligning the coupling, it is important that the center line of the blower shaft be true to the center line of the engine shaft. The coupling assembly aligns the shaft to the engine flywheel face. Alignment of the shaft hub and mating hub should not be necessary. However, wear on the flexible coupling components due to the axial and radial forces transmitted during operation will be minimized with proper alignment.

COUPLING SHOULD BE ALIGNED WITHIN .015" PARALLEL AND ANGULAR.

COUPLING ALIGNMENT OR REPLACEMENT

It should not be necessary to replace any parts on the drive coupling assembly, if misalignment is discovered at the onset. The following procedure covers replacement of the entire coupling assembly, and may be used as a guide for checking coupling alignment.

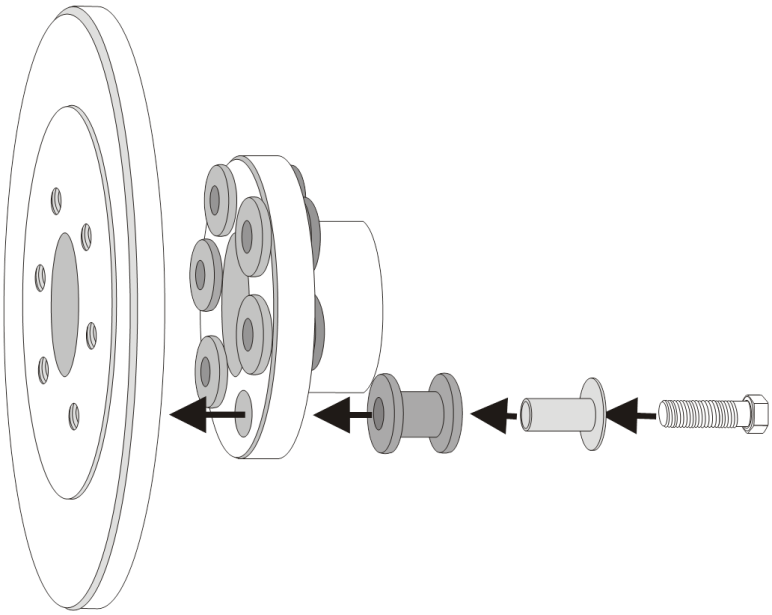
1. Inspect the coupling assembly for damage. Secure replacement coupling assembly if required.
2. If replacement is necessary, loosen and remove the engine mounting bolts. Take measures to insure that existing shims are retained for re-installation. Remove flywheel mounting bolts and lock washers. Move engine forward to remove coupling from flywheel face. Remove coupling from blower shaft.
3. Remove any protective coatings or lubricants from bores, mating surfaces and fasteners. Remove any burrs, etc. from the shaft.
4. Slide the complete coupling assembly onto the blower shaft using the proper, snug fitting, key. Should the fit be loose, identify the cause and remedy before proceeding further. Do not secure the setscrews. The coupling assembly should be snug but free to slide on the shaft.
5. Move the engine to slide the coupling plate into the flywheel pilot or counter bore. If the coupling does not slide easily into the flywheel pilot, realignment is necessary. Do not attempt to pry or force the coupling into the pilot. Align and shim the engine as required, and tighten all bolts.
6. Using a dial indicator, caliper and/or micrometer, check parallel and angular alignment tolerances. Should the alignment be within specifications, proceed to step 8.
7. Loosen drum/housing assembly, shaft bearings and/or engine bolts as required, adjust shims if necessary, to correct the misalignment. Torque all fasteners, then repeat step 6.
8. With the coupling aligned to the flywheel face, install and tighten the flywheel mounting screws and lock washers, then torque alternately to approximately 220 in. lb. Using a thread locking resin, torque the setscrews on the shaft flange securely. Recheck that all fasteners are secure.
9. Check spline lubrication. Do not over grease, a shot of two of grease is adequate. Replace coupling guard and bearing end shaft guard.

INSERT (BUSHING) REPLACEMENT

The bushing and inserts used in these coupling styles allows for flexibility and movement of the shafts to compensate for vibrations produced by the engine, and torque during heavy loads.

Under normal conditions, the inserts will distribute these forces equally to protect the drive line components.

Continuous heavy loading of the Mulcher (i.e., wet moldy material) will cause early cycling or breakdown of the neoprene compound insert.



Replacement of the inserts **does not require disassembly** of the unit or the **coupling** components.

1. Remove the retaining bolt and bushing (sleeve) from the individual insert. It may be necessary to loosen all of the retaining bolts to provide clearance to remove the insert. *****
2. Using a needle nose or long nosed pliers, pull the worn insert from the hub.
3. Apply dissipating grease (petroleum jelly) to the replacement insert, and twist into the hub.
4. Inspect the bushing for distortion, (secure replacements if required). Apply grease to the bushing and press into the insert.
5. Clean the retaining bolt and apply a locking resin. Tighten the bolt to seat (preload) the insert. Continue replacement of the inserts individually, around the face of the hub.
6. With the bolts seated, then torque alternately to approximately 400-in. lb.
7. Recheck the drive coupling alignment as referenced in the preceding pages.

***** Replacement of the inserts on the pin drive style coupling allows each insert to be serviced individually.

EMULSION PUMP SERVICE INSTRUCTIONS

VIKING PUMP GG-195 HL-195

EMULSION PUMP DISASSEMBLY

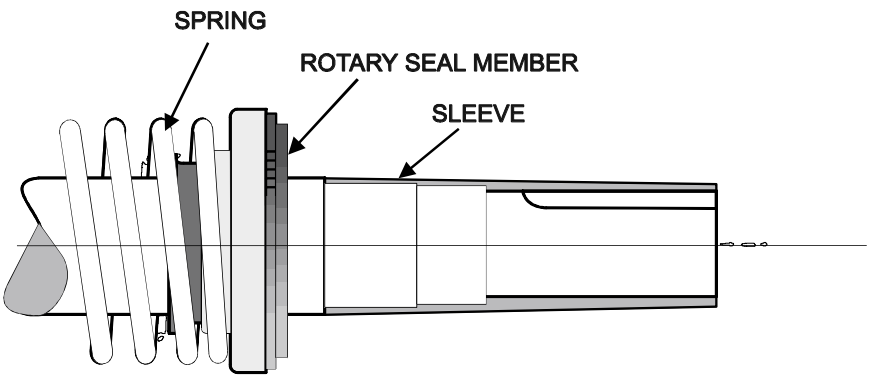
1. Remove the head and O-ring gasket. Avoid tilting the head down, as the idler may slide off.
2. Remove the idler from the idler pin. If the idler pin is worn, the head, idler pin and the idler bushing should be replaced. If the idler bushing is worn, it is strongly recommended that the idler and bushing be replaced.
3. Remove the lock not from the shaft. A piece of brass rod or hardwood inserted in the port opening will keep the shaft from turning.
4. The rotor and shaft can now be removed from the casing. The spring and rotary member of the mechanical seal will come out with the shaft.
5. Loosen the two (2) set screws in the end of the bearing housing. Turn the housing counter clockwise and remove the casing. Remove the snap ring form the bearing housing to remove the double row ball bearing. Use a spanner wrench to remove the end cap.
6. Remove the snap ring and casing ball bearing. The bearing retainer washer, located between the casing bearing and seal seat , can now be removed if it did not stay on the rotor shaft when the shaft was removed.
7. The seal seat or stationary part of the seal can now be removed from the casing.

EMULSION PUMP REASSEMBLY

MECHANICAL SEAL INSTALLATION

The mechanical seal assembly is simple to install and good performance will result if care is taken in its installation. Never touch the sealing faces with anything except the fingers or a clean cloth.

1. Clean the rotor hub, shaft and seal seat housing in the casing, making sure they are clean and free from dirt and grit. Coat the outside diameter of the seal seat, and the inside diameter of the seal housing bore, with light machine oil. Gently press the seal seat into place in the casing. Place the sleeve (furnished with replacement seals) on the shaft as far as it will go. The tapered end must face toward the shaft end. Coat the inside of the rotary member and the outside of the tapered sleeve with light oil. Inspect to insure the shaft is free of nicks and burrs. Place the spring and rotary member (spring first), onto the sleeve and position against the hub of the rotor. With the seal in place, remove the sleeve.



2. Flush the sealing faces of both the rotary member and seal seat with light oil and install rotor and shaft. Push the rotor and shaft into the casing slowly until the ends of the rotor teeth are just beyond the face of the casing.

COMPLETING REASSEMBLY

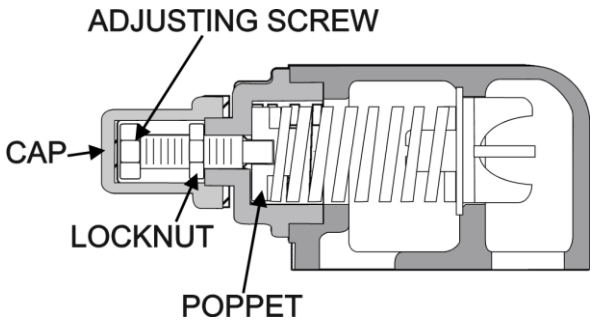
1. Place the idler on the idler pin and the O-ring head gasket on the head. Place the head assembly on the pump and tighten the cap screws evenly and securely. The seal is now automatically compressed to its proper working length.
2. Pack the single row ball bearing with grease and install in the casing and secure it with the snap ring.
3. Pack the lubrication chamber between the casing ball bearing and the double row ball bearing in the bearing housing approximately half full with lithium base ball bearing grease.
4. Pack the double row ball bearing with lithium base ball bearing grease and press into the bearing housing. Install the snap ring to hold the bearing in place.
5. Start the bearing housing into the casing. Turn by hand until tight. This forces the rotor against the head. Replace and tighten the lock nut on the shaft. Insert a piece of brass or hardwood through the port opening between the rotor teeth to keep the shaft from turning.
6. Adjust the pump thrust bearing and rotor clearance by loosening the two set screws in the bearing housing and turn counterclockwise 1/2" measured on the outside of the bearing housing. This represents approximately .003" end clearance.

IMPORTANT!

- **BE SURE THE SHAFT CAN BE ROTATED FREELY. IF NOT, TURN THE BEARING HOUSING COUNTERCLOCKWISE UNTIL THE SHAFT CAN BE TURNED.**
- **BE SURE SET SCREWS ARE TIGHTENED SECURELY AFTER ADJUSTMENT IS MADE.**
- **HIGH VISCOSITY LIQUIDS REQUIRE ADDITIONAL END CLEARANCE.**
- **THE AMOUNT OF END CLEARANCE DEPENDS ON THE VISCOSITY OF THE LIQUID BEING PUMPED.**

RELIEF VALVE PRESSURE ADJUSTMENT

1. Remove the valve cap which covers the adjustment screw and loosen the lock nut. A pressure gauge somewhere in the discharge line may be used for accurate adjustment during pump setup. The gauge is not recommended to be installed during normal operation, due to the properties of the emulsion. The adjusting screw should be turned inward to increase the pump pressure or turned outward to decrease. Make sure the locknut is secured after any adjustment has been made.
2. Should the pressure adjustments fail, then repair or replace the pump relief valve.



3. Reverse the preceding steps for reassembly. If valve is removed for repairs, be sure to replace in same position.
4. When properly installed the valve cap should point towards the suction port.

WINTERIZING AND STORAGE

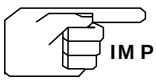
When the season is over, a preventive maintenance plan for laying up the machine over the winter months will simplify spring start up.

1. It is assumed that the entire unit will have been thoroughly cleaned and washed down.
2. Peeling paint or rusty spots should be scraped, primed and painted.
3. The standard 100-hour check should be performed on the engine.
4. Reference the specific engine manual for cold weather preparation.
5. Remove the battery, fill and charge, and store in a dry, preferably warm area.
   NEVER STORE A BATTERY DIRECTLY ON THE GROUND OR ON CONCRETE.
   Check the unused battery charge at 90-day intervals.
6. Lubricate all components as listed per the *"**MAINTENANCE SCHEDULE**"* 45.
7. Any identified repairs should be performed now to simplify next season's start up.
8. If the machine cannot be stored inside during the winter months, cover the entire unit to protect from the elements.
9. Jack up trailer and place frame on stands to remove weight from tires. Never jack up or support unit or running gear components (springs, beam, shackles, etc.)

MAINTENANCE SCHEDULE

At the end of each job, clean residual materials spilled or over sprayed onto and around the machine. Diligently clean dirt and chaff from the engine cooling areas and shroud.

FIRST 4 HOURS:	• **CHECK ENGINE AND ALL MOUNTING BOLTS.**
	• **CHECK DRIVE COUPLING SET SCREWS. RETORQUE IF LOOSENED.**
	• **CHECK ENGINE CONTROLS. CHECK ENGINE MANUAL RELATED INFORMATION**
	• **CHECK ENGINE FLUID LEVELS.**
	• **INSPECT RUNNING GEAR AND HITCH COMPONENTS**
EVERY 4 HOURS:	• **CLEAN AIR CLEANER ELEMENT. CHECK ENGINE MANUAL FOR RELATED INFORMATION**
	• **CLEAN CHAFF FROM ENGINE RADIATOR SCREEN.**
	• **REPEAT THE FIRST 4 HOURS INSPECTION.**
EVERY 20 HOURS:	• **INSPECT FLAIL CHAINS AND BLOWER WHEEL.**
	• **OIL THE THROTTLE AND CHOKE MECHANISMS.**
	• **CLEAN AIR CLEANER ELEMENT. CHECK ENGINE MANUAL FOR RELATED INFORMATION**
	• **LUBRICATE HITCH COMPONENTS**
EVERY 40 HOURS:	• **CHECK BATTERY ELECTROLYTES.**
	• **CHECK AND SET ENGINE RPM TO 2400 MAXIMUM.**
EVERY 100 HOURS:	• **TUNE UP ENGINE. CHECK ENGINE MANUAL FOR RELATED INFORMATION**
	• **CHANGE ENGINE OIL. CHECK ENGINE MANUAL FOR RELATED INFORMATION**
	• **REPLACE AIR CLEANER CARTRIDGE. CHECK ENGINE MANUAL RELATED INFORMATION**
	• **LUBRICATE BLOWER SHAFT BEARINGS.**
	• **LUBRICATE FEED SYSTEM BEARINGS**
	• **LUBRICATE DISCHARGE BOOM BEARINGS**
	• **LUBRICATE BLOWER SHAFT BEARINGS**
	• **CHECK TIRES FOR INFLATION AND WEAR PATTERN**
	• **INSPECT AXLE SPRINGS AND COMPONENTS**



- DO NOT OVER GREASE BEARINGS!
- FOR SPECIFIC ENGINE MAINTENANCE INSTRUCTIONS, PLEASE REFER TO THE ENGINE MANUFACTURER'S MANUAL.

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EPIC MODEL TM35
POWERMULCHER

PARTS LISTINGS

Epic Manufacturing © 2016

REPLACEMENT PARTS

ORDERING REPLACEMENT PARTS

Identify the part(s) by item number using the pictorial schematic provided. Match the item number to the list, and identify the part required by stock number. Contact your **EPIC** dealer for price and availability. Parts may be ordered directly from the factory, outside of dealer territories. Parts ordered from the factory, for shipment to a customer within a dealer territory will be directed through the respective dealer's Parts and Service departments.

Many of the parts listed are commercially available and may be procured locally. Manufacturer's specific part numbers are available on request.

Other parts, such as engine components may be obtained through the respective manufacturer's distribution and service network.

Should you require assistance concerning locating these agencies, contact your **EPIC** dealer or **EPIC** directly.

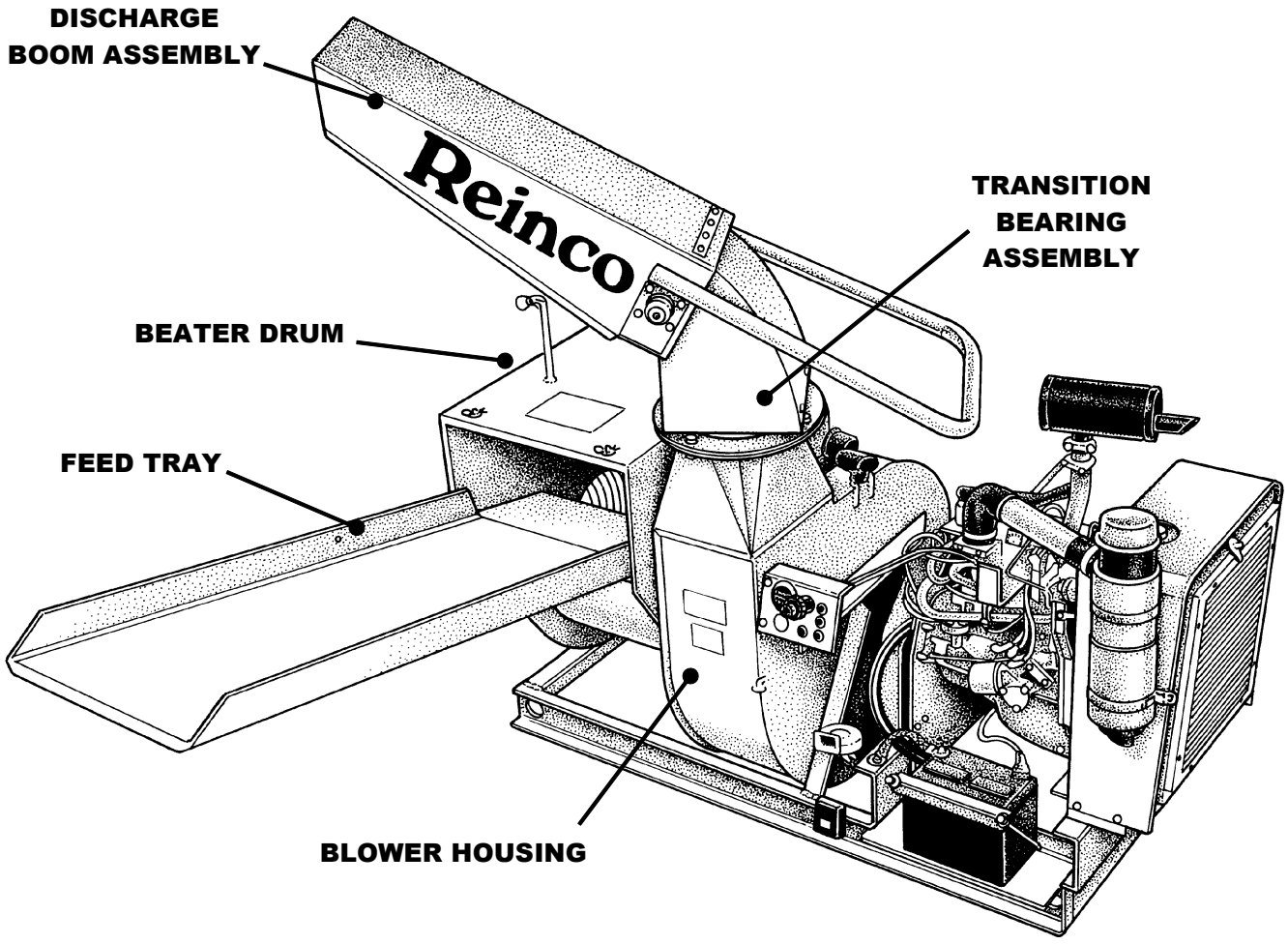
OPERATION PARTS AND SERVICE MANUALS

Additional user manuals may be ordered by part number as indicated:

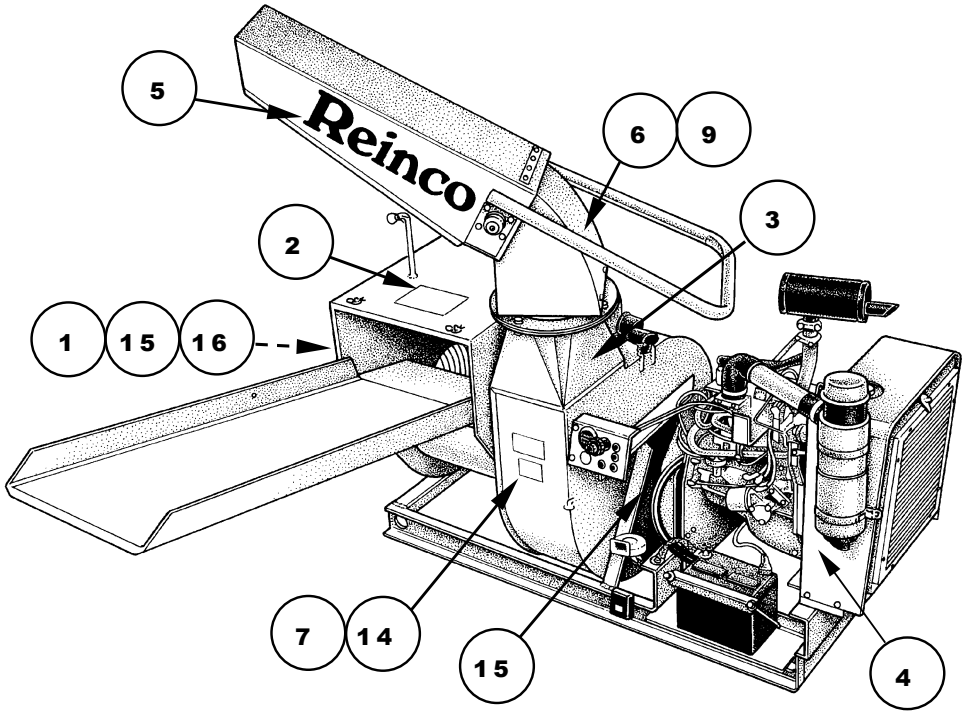
EPIC PART NO.	DESCRIPTION
00902000	PowerMulcher Safety Manual Common for All Epic Mulchers
33000940	TM35 Series, All Serial No.'s
EN3113.51	Engine Operation Manual Ford VSG-413 *
EN3116.51	Engine Operation Manual Kubota Diesel *
AX5110.51	Axle Service Manual 100-M*

*MANUALS PROVIDED BY MANUFACTURER

NOMENCLATURE

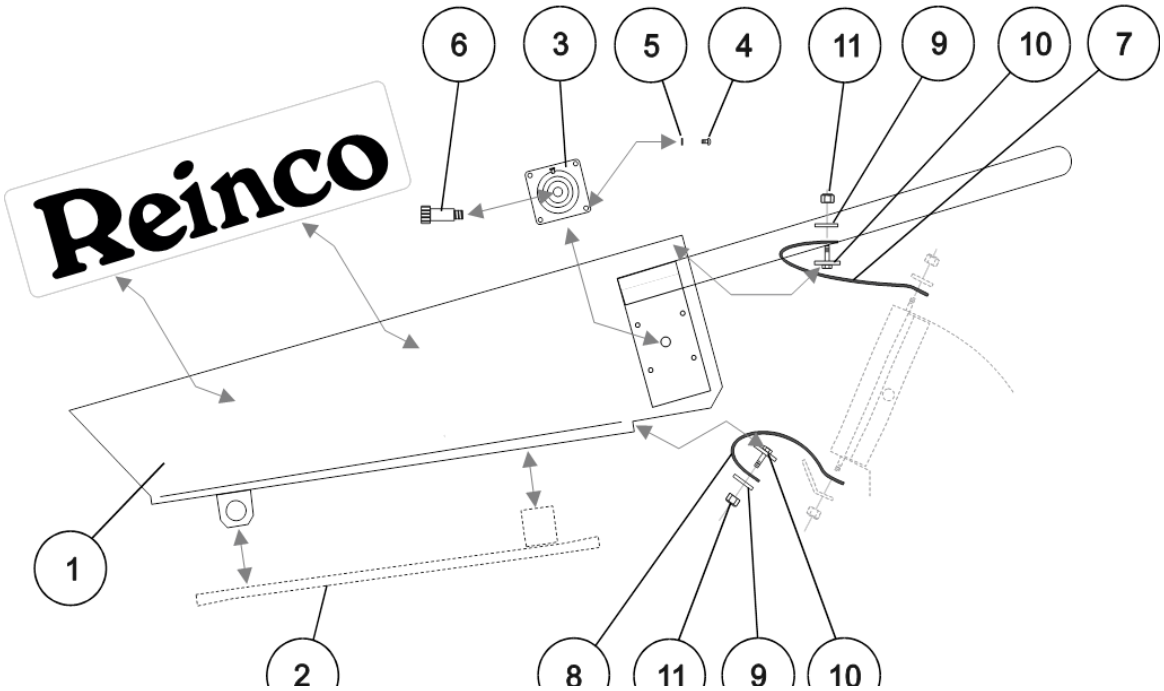


DECALS & APPLIQUÉS



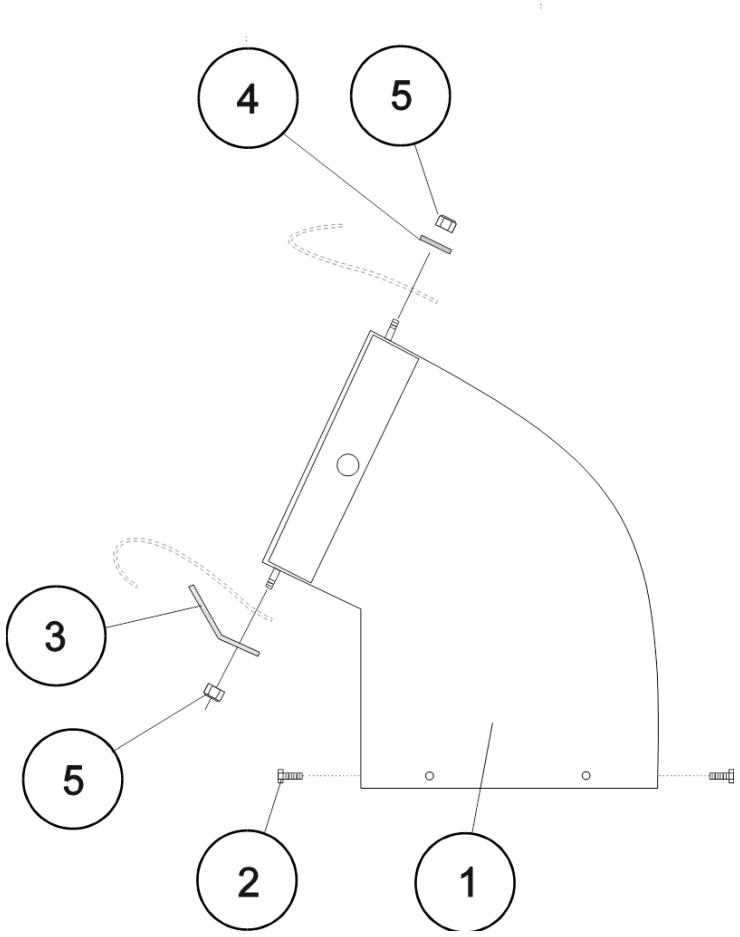
ITEM	PART NUMBER	DESCRIPTION	QTY.
	33009040	TMX SERIES SAFETY DECAL KIT INCLUDES ITEMS 1-12, 17	1
	33009010	TM SERIES SAFETY DECAL KIT	1
		INCLUDES ITEMS 1-9,15,17	
1	00191000	DECAL - DO NOT OVERGREASE BEARINGS	1
2	30000820	DECAL - DANGER BALE TIES	1
3	00211020	DECAL - CAUTION STOP MACHINE FOR SERVICING	1
4	85591000	DECAL - CAUTION 2400 RPM MAX.	1
5	ID2625.02	DECAL - EPIC LOGO APPLIQUE 5"x20½"	2
6	30000810	DECAL - OPERATING INSTRUCTIONS	1
7	00291000	DECAL - WARNING VIBRATION	1
8	00271000	DECAL - CAUTION EQUIPMENT TRAINING	1
9	00301000	DECAL - HEARING PROTECTION	1
10	00281000	DECAL - WARNING WHEEL TORQUE	2
11	SA0101.30	NON-SKID TAPE KIT	1
12	00282010	DECAL - CAUTION NO STEP	1
13	00181000	DECAL - GASOLINE ONLY	1
	00182000	DECAL - DIESEL ONLY	ALT
14	00241000	DECAL - EPIC SALES & SERVICE PHONE NUMBER	2
15	00212030	DECAL - WARNING KEEP GUARDS IN PLACE	2
16	ID2600.11	SERIAL NUMBER NAMEPLATE	1
17	00401010	DECAL – INSTRUMENT MARKERS ALT/TEMP/OIL	1

DISCHARGE BOOM DETAILS



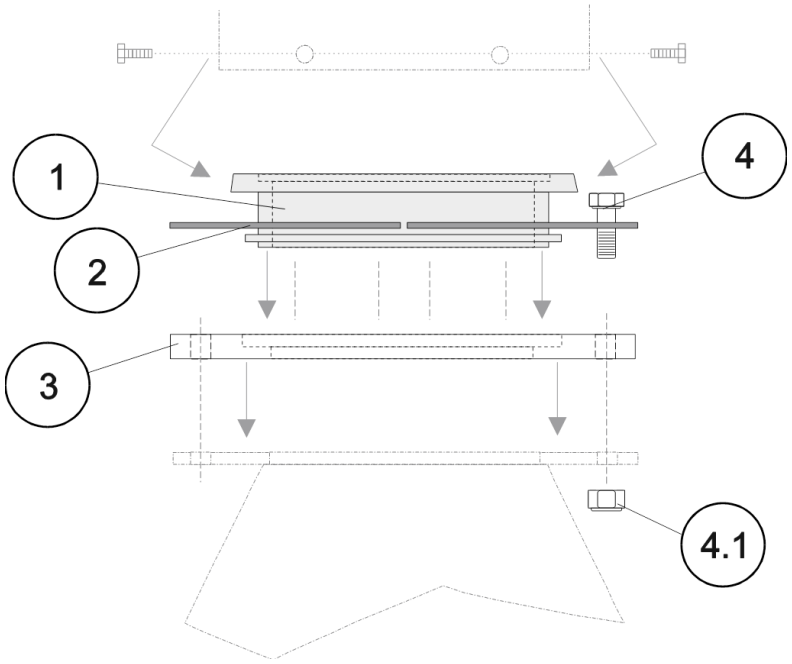
ITEM	PART NUMBER	DESCRIPTION	QTY.
1	3010K020 3010K040	TM DISCHARGE BOOM - SKID TM(X) DISCHARGE BOOM - TRLR	1
2	3010K030	TM(A) DISCHARGE BOOM - SKID	ALT
		INCLUDES SPRAY PIPE	
	3010K050	TM(XA) DISCHARGE BOOM - TRLR	ALT
		INCLUDES SPRAY PIPE	
3	BE0318.02	BEARING 3/4" FLANGED	2
4	FA2153.03	5/16-24 x 3/8" BHSS	8
5	FA0340.02	5/16 INTERNAL LOCKWASHER	8
6	FA1189.20	3/4 x 2 SOCKET SHOULDER BOLT	2
7	30541020	SEAL - TOP	1
8	30541010	SEAL - BOTTOM	1
9	30541040	SEAL STRAP	2
10	30541050	SEAL HOLD DOWN	2
11	FA1241.01	¼-20 NYLON INSERT NUT	8

DISCHARGE ELBOW DETAILS



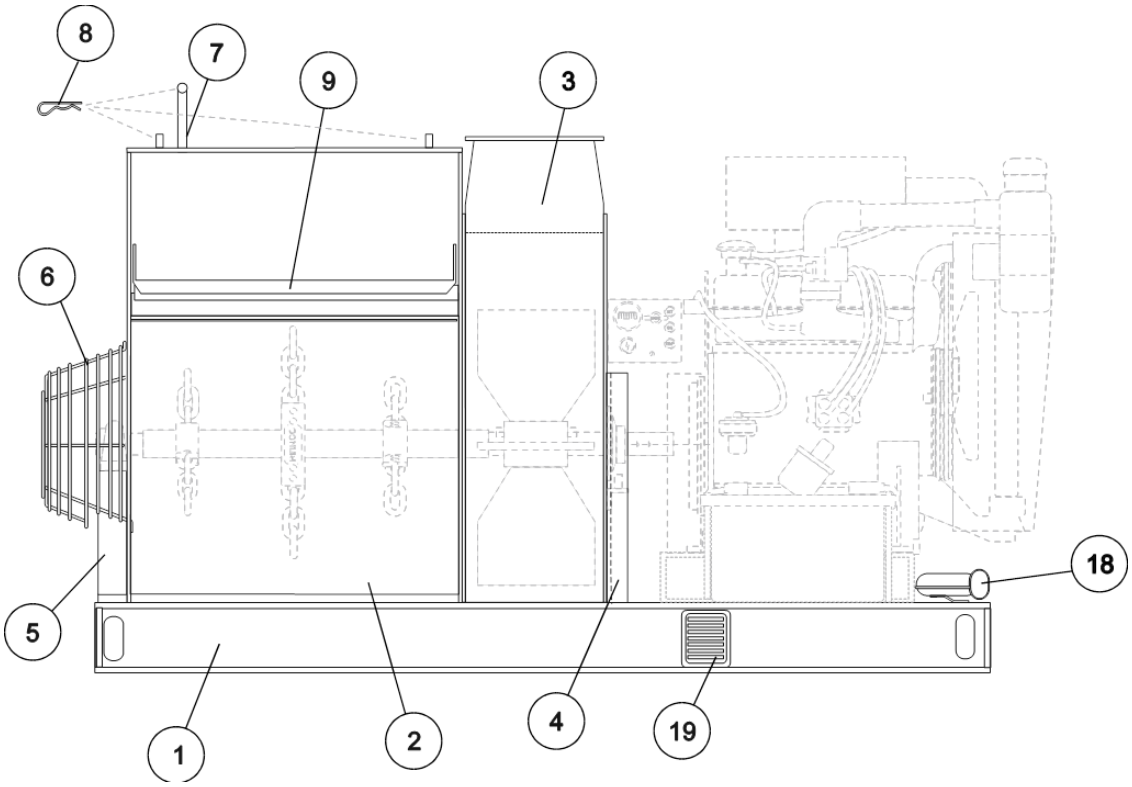
ITEM	PART NUMBER	DESCRIPTION	QTY.
1	30123000	ELBOW	1
2	FA1122.04	¼ - 20 x ½" HEX HEAD CAP SCREW	8
3	30541030	SEAL BACKUP PLATE	1
4	30541040	SEAL STRAP	1
5	FA1241.01	¼-20 NYLON INSERT NUT	8

TRANSITION ASSEMBLY



ITEM	PART NUMBER	DESCRIPTION	QTY.
1	30911000	TRANSITION	1
2	30572030	CLAMP RING (SPLIT)	1
3	30571010	BEARING, CAP PLATE	1
4	FA1124.14	3/8-16 x 1-1/2" HEX HEAD CAP SCREW	4
5	FA1241.03	3/8-16 NYLON INSERT JAM NUT	4

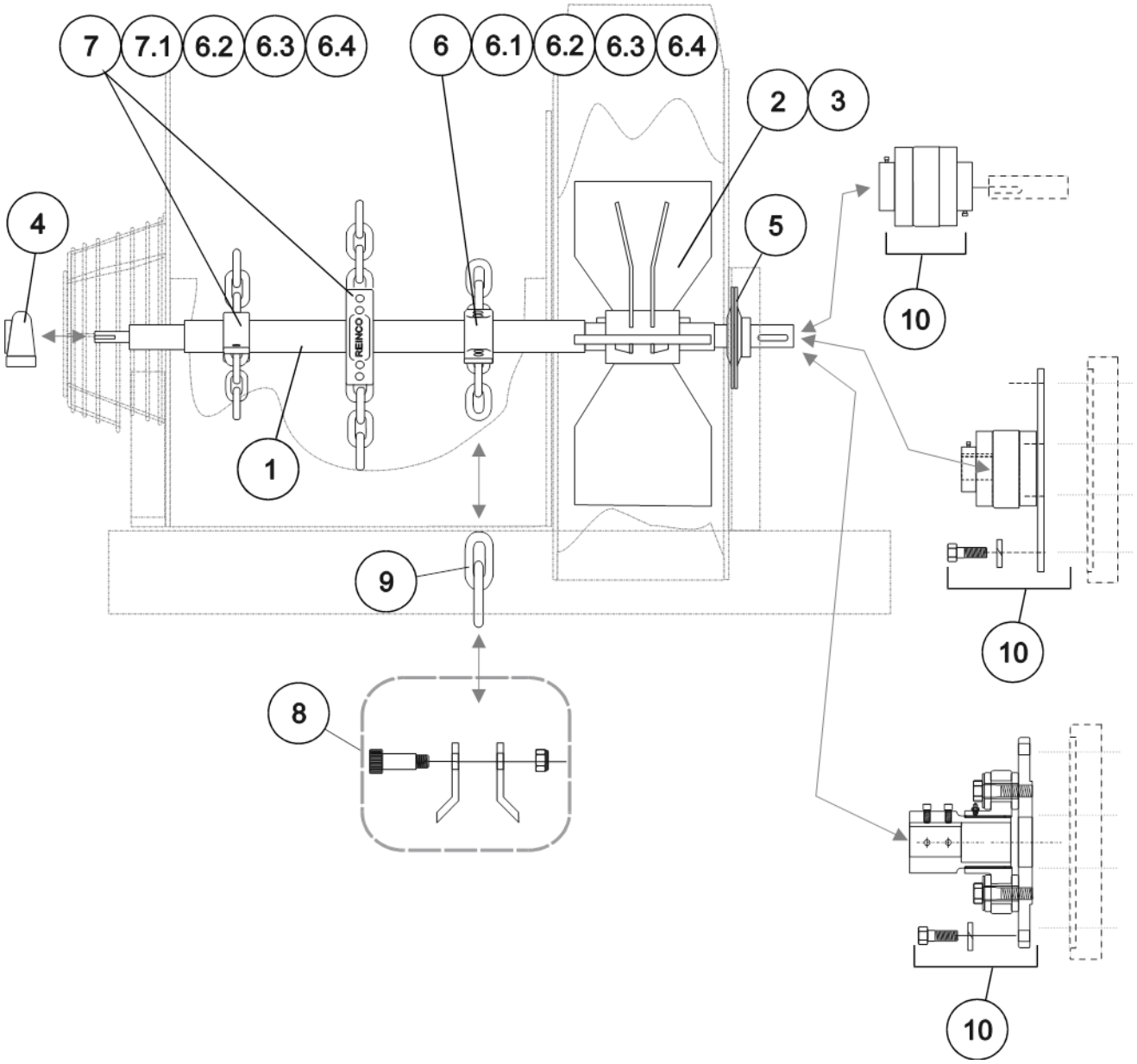
LOWER UNIT DETAILS



ITEM	PART NUMBER	DESCRIPTION	QTY
1	30345000	BASE FRAME	1
2	30646000	BEATER DRUM	1
3	30507010	BLOWER HOUSING	1
4	30346041	SIDE PLATE BRACE	1
5	30341070	SHAFT BEARING SUPPORT	1
6	31651000	SHAFT BEARING GUARD	1
7	30101100	BOOM TRANSPORT BRACKET	1
8	HA7150.01	HAIRPIN COTTER	3
9	30831010	BALE FEED TRAY	1
18	SI0901.05	SIGNAL HORN	1
19	EL2101.61	FOOT SWITCH	1
20	32511000	FUEL TANK KIT	
20.1	01627010	TANK 12 GALLON	1
20.2	FA1124.06	3/8-16 x 3/4" HEX HEAD CAP SCREW	4
20.3	FA1241.03	3/8-16 NYLON INSERT NUT	4

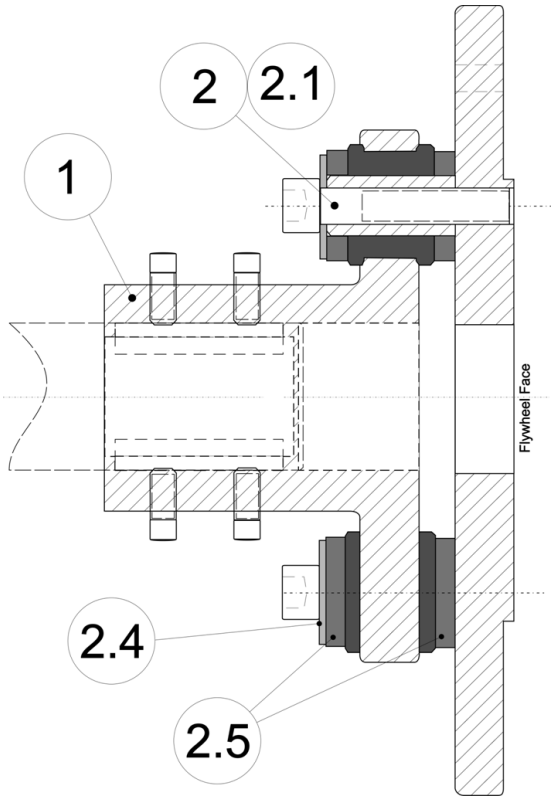
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DRIVE TRAIN COMPONENTS



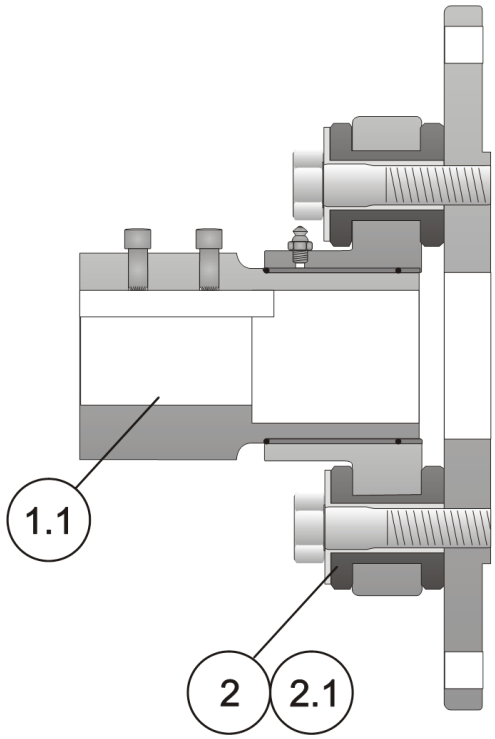
ITEM	PART NUMBER	DESCRIPTION	QTY
1	30712000	BEATER SHAFT	1
2	BL6030.01	BLOWER WHEEL	1
3	KE9003.10	KEY 3/8 x 4" BER	1
4	BE0260.01	SHAFT PILLOW BLOCK BEARING	1
5	BE0342.01	SIDE PLATE FLANGE BEARING	1
6	83271030	FLAIL CHAIN STATION - 3 LINK	1
6.1	CH0642.43	CHAIN ONLY - 3 LINK GRADE 100	2
6.2	83271010	BRACKET ONLY	2
6.3	FA2126.20	½-20 x 2 HHCS	4
6.4	FA2241.04	½-20 NYLON INSERT NUT	4
7	83271040	FLAIL CHAIN STATION - 4 LINK	2
7.1	CH0642.44	CHAIN ONLY - 4 LINK GRADE 100	4
8	CH0643.21	OPTIONAL FLAIL KNIVE KIT	OPT
9	CH0642.42	CHAIN ONLY - 2 LINK GRADE 100	2
	83271120	See FLAIL KNIVE KIT, INCL: CHAIN SECTIONS, BRACKETS, HARDWARE (Page 21)	**OPT**
10	CO8515.40	DRIVE COUPLING ASSEMBLY (KUBOTA)	1
10*	CO8514.10	DRIVE COUPLING ASSEMBLY (FORD)	1

FLYWHEEL COUPLING – PIN DRIVE KUB V1505E1



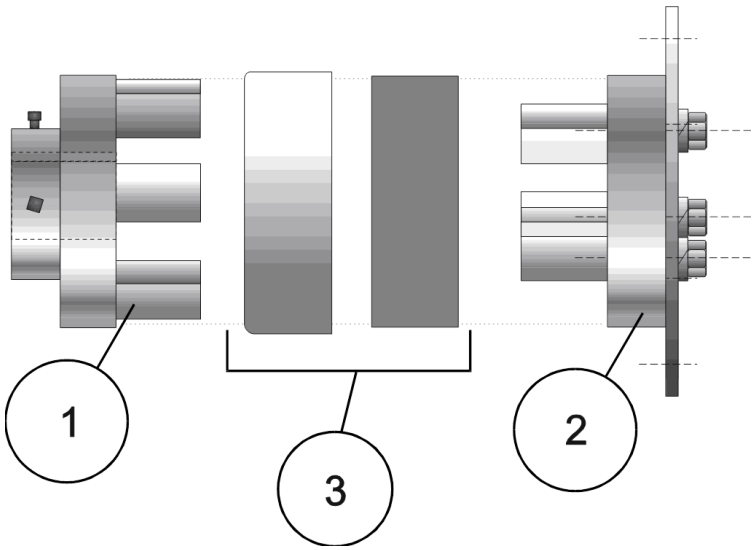
ITEM	PART NUMBER	DESCRIPTION	QTY	SERIAL
	CO8515.40A	**PIN STYLE FLYWHEEL COUPLING COMPLETE**	1	4660+
1.1	CO8515.44	HUB ONLY 1-7/16" BORE	1	
1.2	CO8515.43	FLYWHEEL PLATE Kub05/SAE7.5	1	
2	CO8515.41A	Service Kit [Set 9 Pins & Bushings and bolts]	1	
2.1	CO8515.42	Service Kit [Set 9 Bushings only]	1	
	CO8515.13	Bushing Only (Neoprene Insert each)	9	
2.2	FA2154.22	7/16"x2 ¼" NF Socket Cap Screw(3/8" Allen Key)	9	
2.5	BU7775.01	Urethane Spring Bushing	18	
2.4	FA0321.03	Retaining Washer	9	
	KE9002.13	KEY - BLOWER SHAFT 3/8 x 2 BER	2	

FLYWHEEL COUPLING – SPLINE DRIVE KUB V1505B1



ITEM	PART NUMBER	DESCRIPTION	QTY	SERIAL
	CO8515.30	**FLYWHEEL COUPLING COMPLETE**	1	4340+
	CO8515.10	**FLYWHEEL COUPLING COMPLETE**	1	4101+
1.1	CO8515.12	SPLINED HUB ONLY 1-7/16" BORE	1	All
2	CO8515.11	BUSHING / INSERT / HARDWARE KIT	9	4340+
			6	4101+
2.1	CO8515.13	NEOPRENE INSERT ONLY	9	4340+
			6	4101+
3	FA3109.25	8MM x 25MM HEX HEAD CAP SCREW	6	
3.1	FA0330.02	5/16 SPLIT LOCKWASHER	6	
4	KE9002.13	KEY - BLOWER SHAFT 3/8 x 2 BER	2	

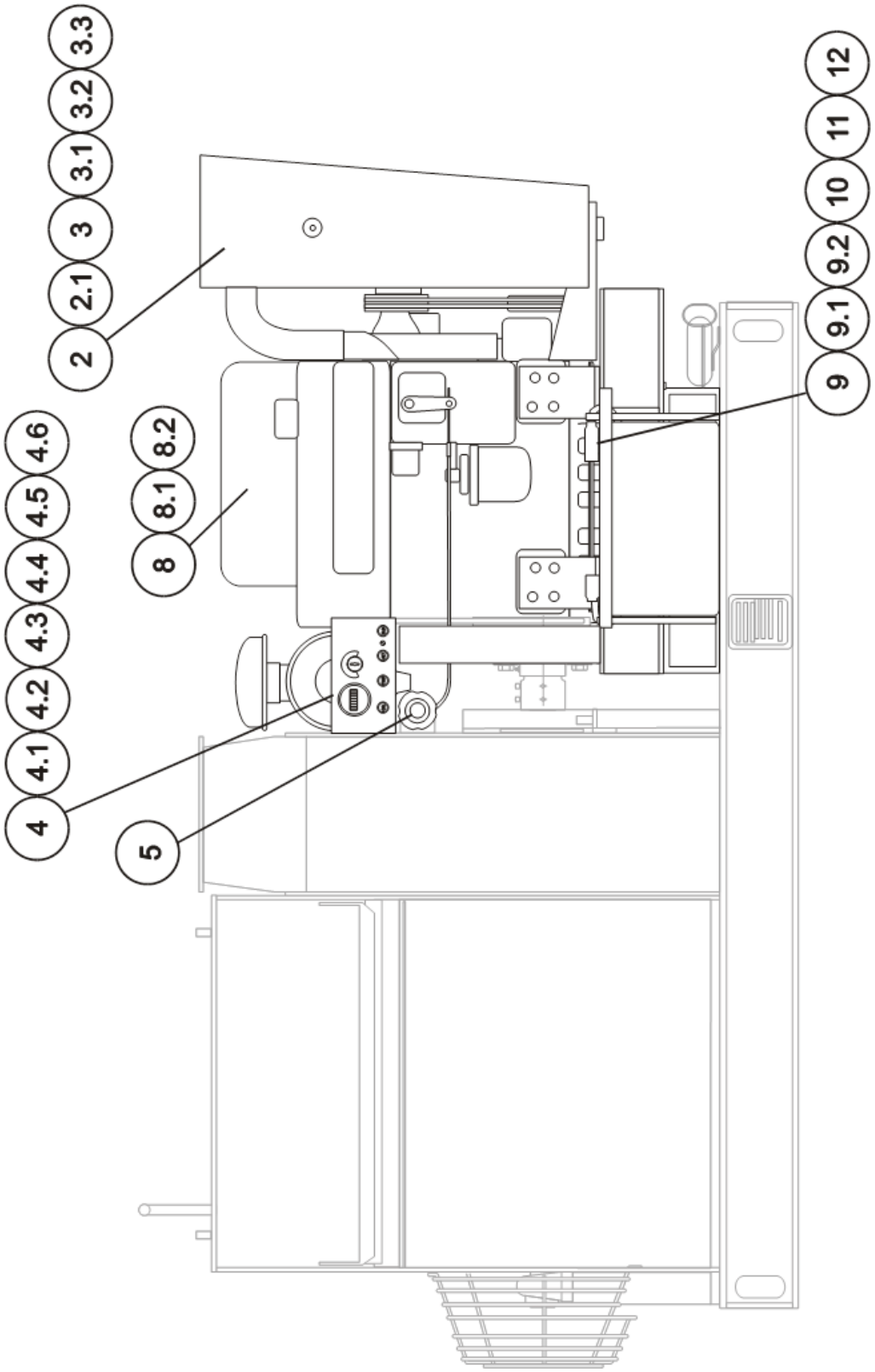
FLYWHEEL COUPLING – FORD VSG-413 ENGINE



ITEM	PART NUMBER	DESCRIPTION	QTY
	CO8511.00	**FLYWHEEL COUPLING COMPLETE SAE 6.5**	1
1	CO8446.32	FLANGE ONLY 1-7/16 B 3/8 KW	1
2	CO8511.01	FLANGE & PLATE ASSEMBLY 1-7/16"B 3/8KW	1
3	CO8446.34	CENTER MEMBER WITH RING	1
3.1	CO8446.35	CENTER MEMBER ONLY - NEOPRENE	1
3.2	CO8446.36	METAL RING ONLY	1
4	KE9002.13	KEY - BLOWER SHAFT 3/8 x 2 BER	1
5	FA3108.16	8MMX16 HEX HEAD CAP SCREW	6
5.1	FA0330.02	5/16 SPLIT LOCKWASHER	6

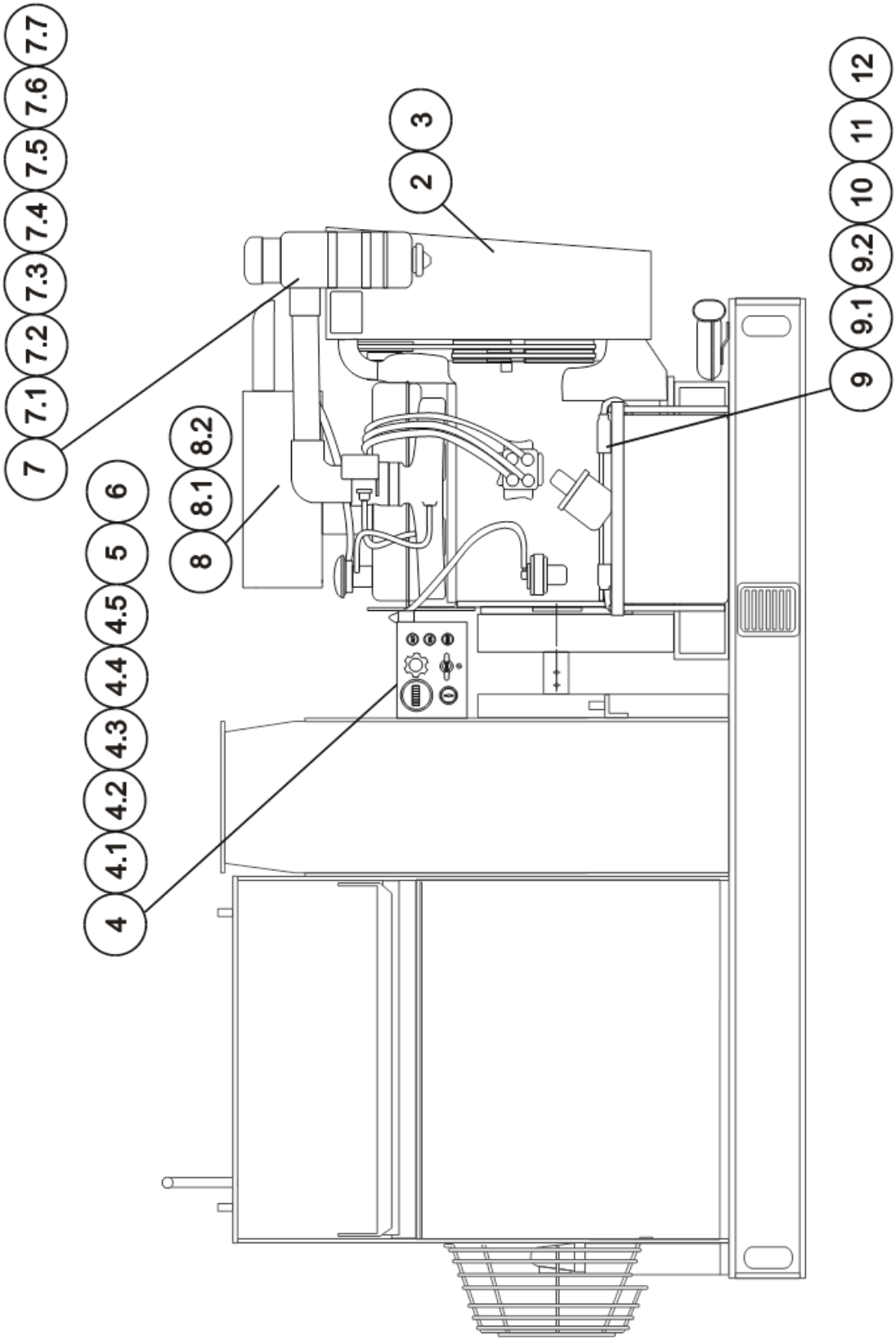
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ENGINE COMPONENTS – KUBOTA V1505 ENGINE



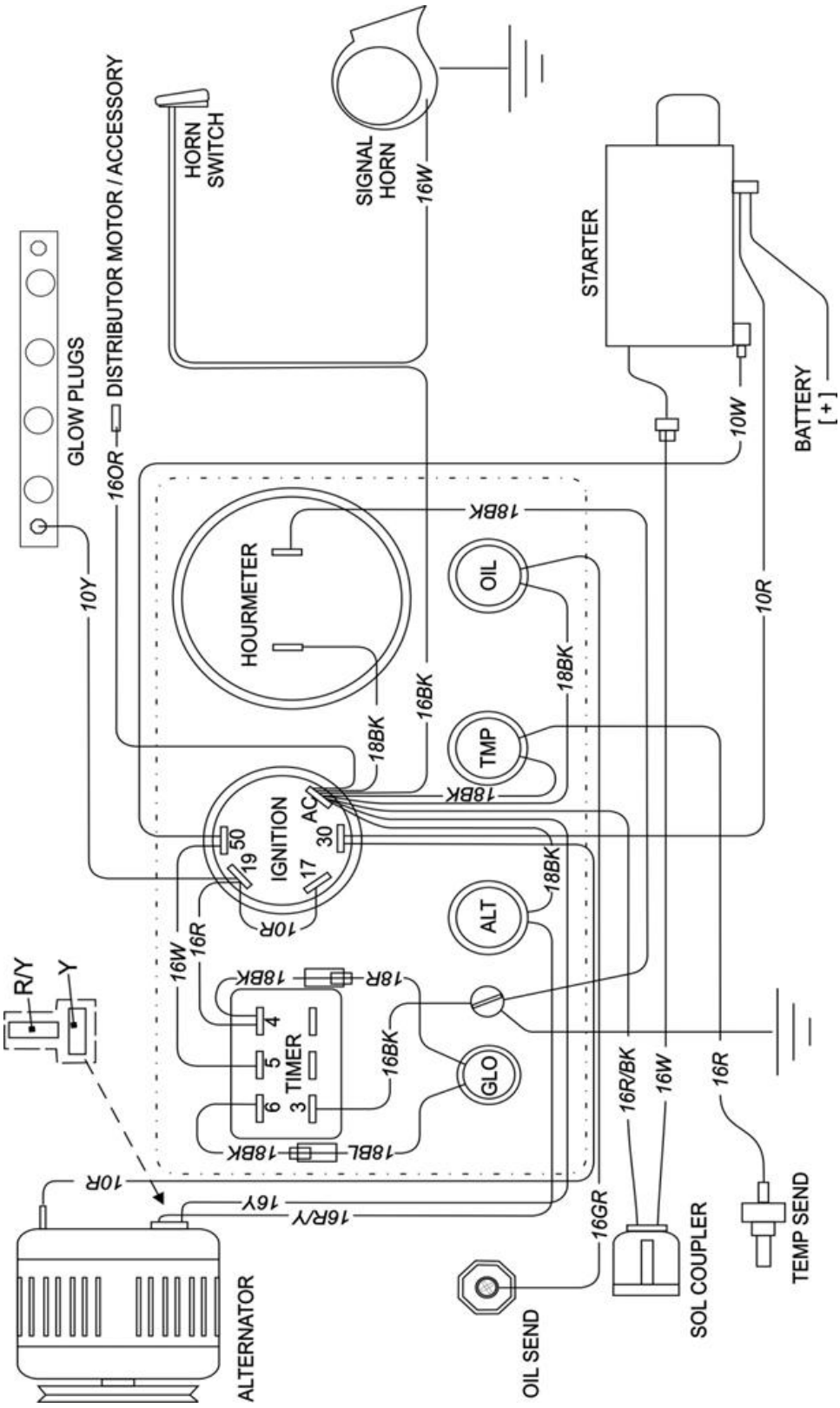
ITEM	PART NUMBER	DESCRIPTION	QTY
1	EN3116.00	DIESEL ENGINE KUBOTA 1505B1	1
1.1	30418010	ENGINE SUB-FRAME ASSEMBLY	1
1.2	11231040	ENGINE FLYWHEEL GUARD	1
1.31	1123J010	ENGINE MOUNT – LEFT	4
1.32	1123J020	ENGINE MOUNT - RIGHT	
2	07846000	RADIATOR COWL ENCLOSURE	1
2.1	SH6060.10	STUD BUMPER	2
3	07892030	RADIATOR DEBRIS SCREEN	1
3.1	07847040	SCREEN RETAINER	1
3.2	FA1122.10	THUMB SCREW ¼-20x1”	1
3.3	FA1281.02	INSERT NUT 1/4-20	1
4	31551000	INSTRUMENT PANEL	1
4.1	31534000	ENGINE/INSTRUMENT WIRING HARNESS	1
4.2	IN3601.00	HOUR METER	1
4.3	EN3116.15	IGNITION SWITCH – KEYED	1
4.4	EL2115.10	PANEL LAMP- RED [ALT]	1
4.5	EL2115.30	PANEL LAMP- AMBER [TEMP]	1
4.6	EL2115.20	PANEL LAMP- GREEN [OIL]	1
5	CO6210.00	THROTTLE CONTROL CABLE ASSEMBLY	1
5.1	CO6297.01	THROTTLE PIVOT PIN CONNECTOR	1
7	31631010	AIR CLEANER PRECLEANER RING	1
8	EN3116.12	MANIFOLD MUFFLER - Kubota #3756088513	1
8.1	EX3020.14	EXHAUST TAILPIECE	1
8.2	EX3060.14	EXHAUST CLAMP 1-1/2	1
9	BA8802.01	BATTERY 12V GRP 24	1
9.1	31471010	BATTERY HOLD DOWN BRACKET	1
9.2	BA8805.01	BATTERY HOLD DOWN BOLT	2
9.3	FA1241.03	3/8-16 NYLON INSERT NUT	2
9.4	FA0320.03	3/8 COMMERCIAL FLATWASHER	1
10	BA8806.02	BATTERY CABLE 30-31 (+)	1
11	BA8850.01	BATTERY BOOT	1
12	BA8807.01	BATTERY GROUND STRAP	1
4A	31533000	INSTRUMENT PANEL – SHUTDOWN	OPT
4.4A	IN0501.00	AMMETER	1
4.5A	IN8201.20	TEMPERATURE GAUGE	1
4.6A	IN6401.10	OIL PRESSURE GAUGE	1
4.7A	EL2101.10	ENGINE 'STOP' SWITCH	1
4.8A	EL2108.02	TATTLETALE SWITCH	1

ENGINE COMPONENTS – FORD VSG-413 ENGINE

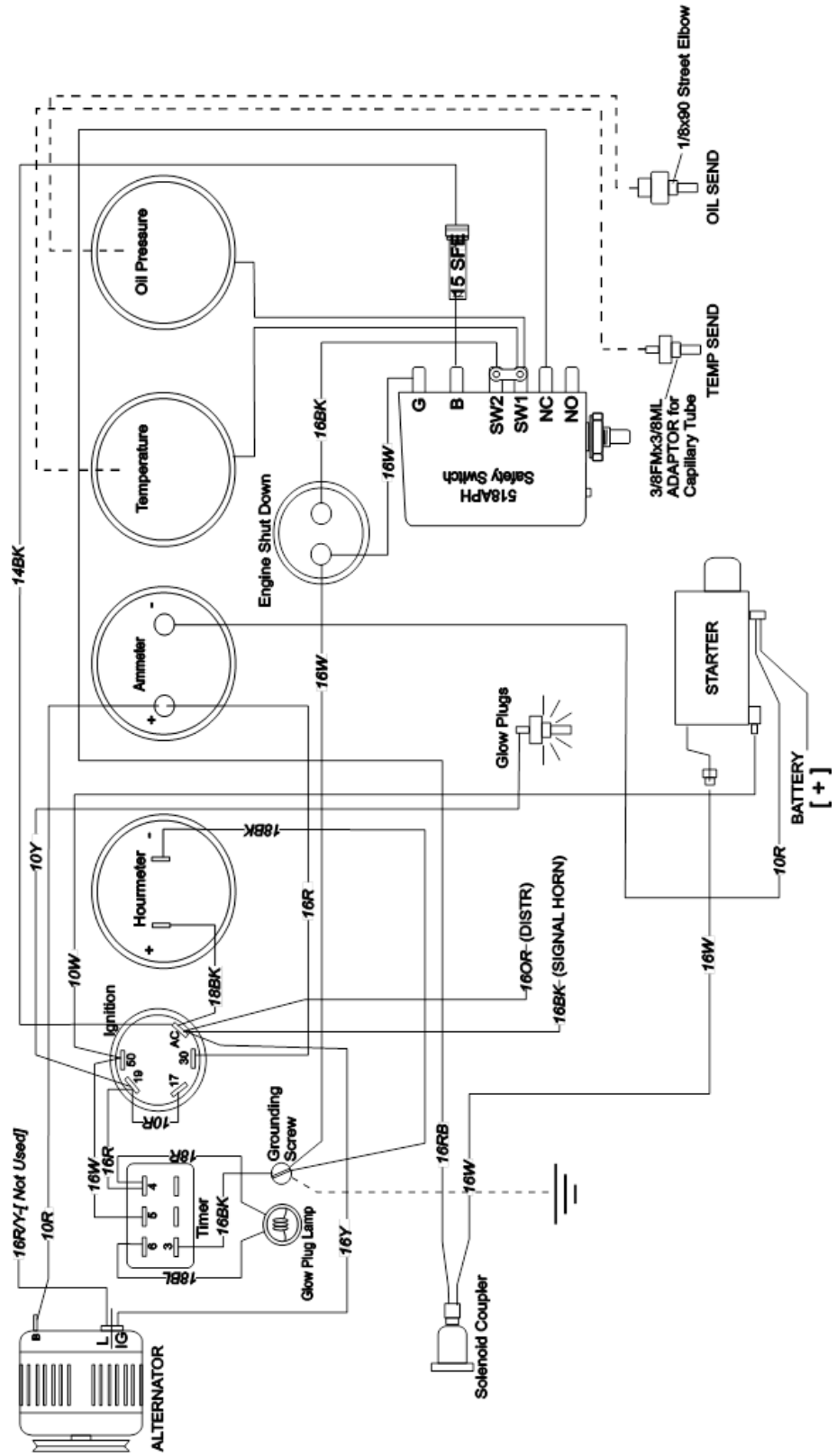


ITEM	PART NUMBER	DESCRIPTION	QTY	SERIAL
1	EN3113.00	FORD VSG-413 ENGINE	1	
1.1	30414010	ENGINE SUB-FRAME ASSEMBLY	1	
1.2	31522010	ENGINE FLYWHEEL GUARD	1	
2	07849000	RADIATOR COWL ENCLOSURE	1	
3	07892030	RADIATOR DEBRIS SCREEN	1	
3.1	07848020	SCREEN RETAINER	1	
3.2	FA1112.06	THUMB SCREW ¼-20x3/4"	1	
3.3	FA1281.02	INSERT NUT 1/4-20	1	
4	31522000	ENGINE INSTRUMENT PANEL	1	
4.1	31532000	ENGINE/INSTRUMENT WIRING HARNESS	1	
4.2	IN3601.00	HOUR METER	1	
4.3	E12107.10	IGNITION SWITCH - KEYED	1	
4.4	EL2115.10	PANEL LAMP- RED [ALT]	1	
4.5	EL2115.30	PANEL LAMP- AMBER [TEMP]	1	
4.6	EL2115.20	PANEL LAMP- GREEN [OIL]	1	
5	CO6210.00	THROTTLE CONTROL CABLE ASSEMBLY	1	
5.1	CO6297.01	PIVOT PIN	1	
7	FI0100.50	AIR CLEANER ASSEMBLY	1	
	FI0102.50	AIR CLEANER ASSEMBLY	1	4375+
7.1	FI0100.52	INLET CAP	1	
	FI0102.52	INLET CAP	1	4375+
7.2	FI0100.53	MOUNTING BAND	2	
	FI0102.53	MOUNTING BAND	1	4375+
7.3	31631010	PRECLEANER RING	1	
7.4	FI0160.20	ADAPTOR 2-1/4 x 2	1	
7.5	FI0150.22	ELBOW 2-1/4" x 90	1	
7.6	FI0180.20	CLAMP	2	
7.7	31831020	AIR INTAKE TUBE W/ BREATHER INLET	1	
8	EX3000.17	MUFFLER	1	
8.1	EX3025.17	EXHAUST ADAPTOR	1	
8.2	EX3060.17	CLAMP	1	
9	BA8802.01	BATTERY 12V GRP 24	1	
9.1	31471010	BATTERY HOLD DOWN BRACKET	1	
9.2	BA8805.01	BATTERY HOLD DOWN BOLT	2	
9.3	FA1241.03	3/8-16 NYLON INSERT NUT	2	
9.4	FA0320.03	3/8 COMMERCIAL FLATWASHER	1	
10	BA8806.02	BATTERY CABLE 30-31 (+)	1	
11	BA8850.01	BATTERY BOOT (RED)	1	
12	BA8807.01	BATTERY GROUND STRAP	1	

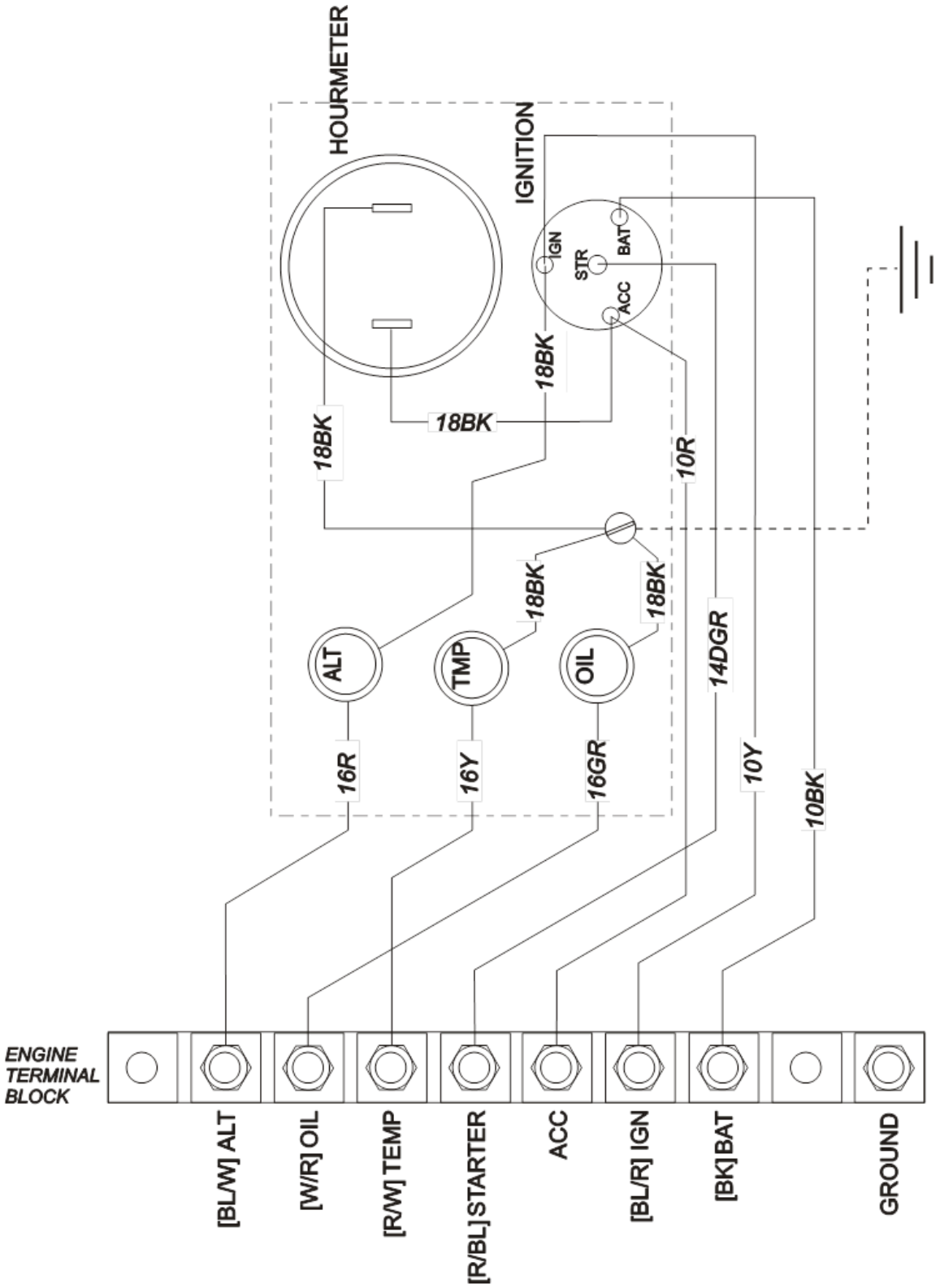
ENGINE INSTRUMENT WIRING – KUBOTA V1505 ENGINE


HORN SWITCH
SIGNAL HORN
16W
STARTER
BATTERY [+]
10W
GLOW PLUGS
16OR
DISTRIBUTOR MOTOR / ACCESSORY
10Y
10R
18BK
HOURMETER
OIL
TMP
16BK
IGNITION
AC
50
19
17
30
ALT
10R
16R
16W
R/Y
Y
18R
4
5
6
3
TIMER
GLO
18BL
16R/BK
16R
16GR
16R/Y
16Y
ALTERNATOR
OIL SEND
SOL COUPLER
TEMP SEND

SHUTDOWN INSTRUMENT WIRING – KUBOTA V1505

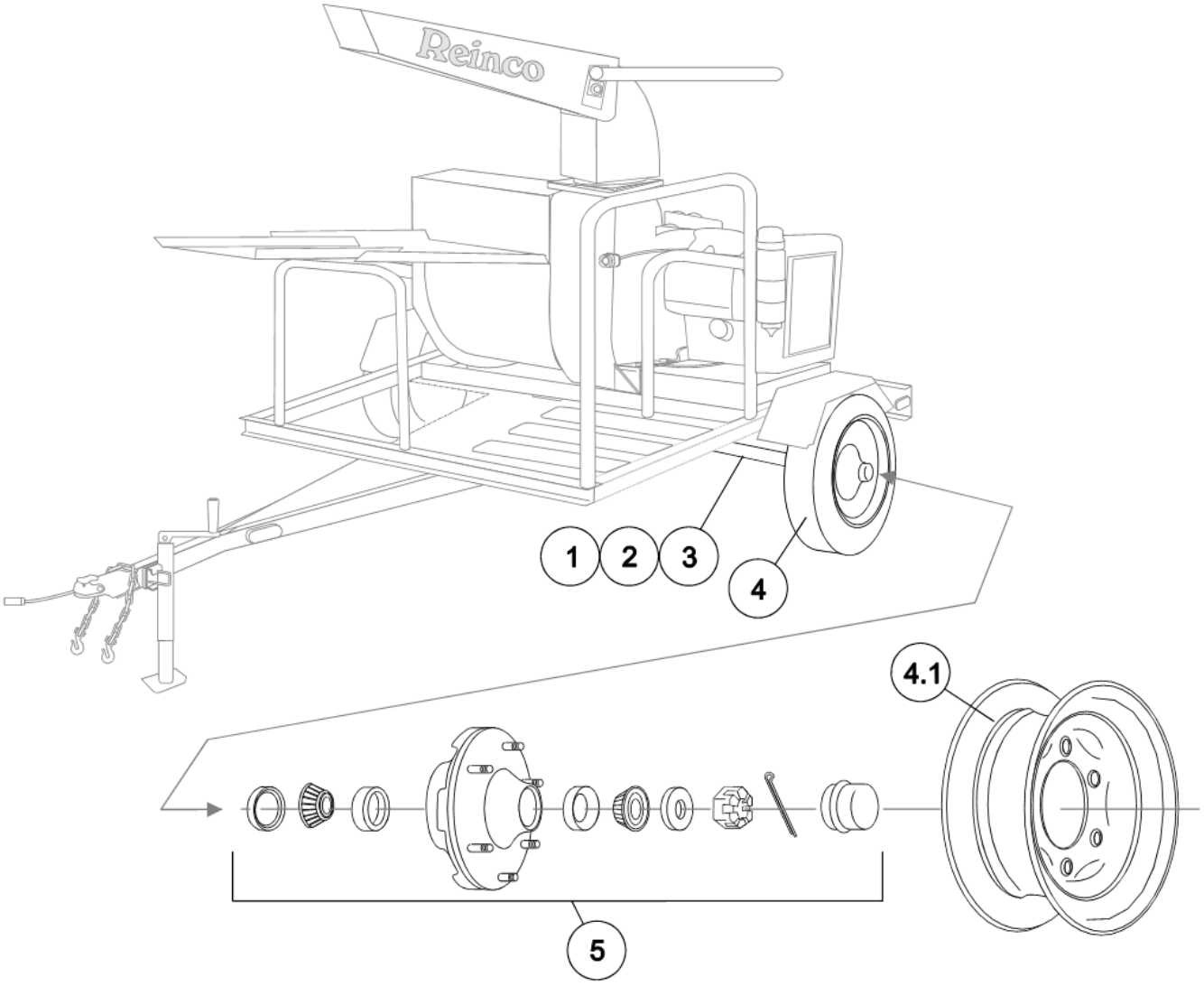


ENGINE INSTRUMENT WIRING – FORD VSG-413 ENGINE



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TRAILER RUNNING GEAR



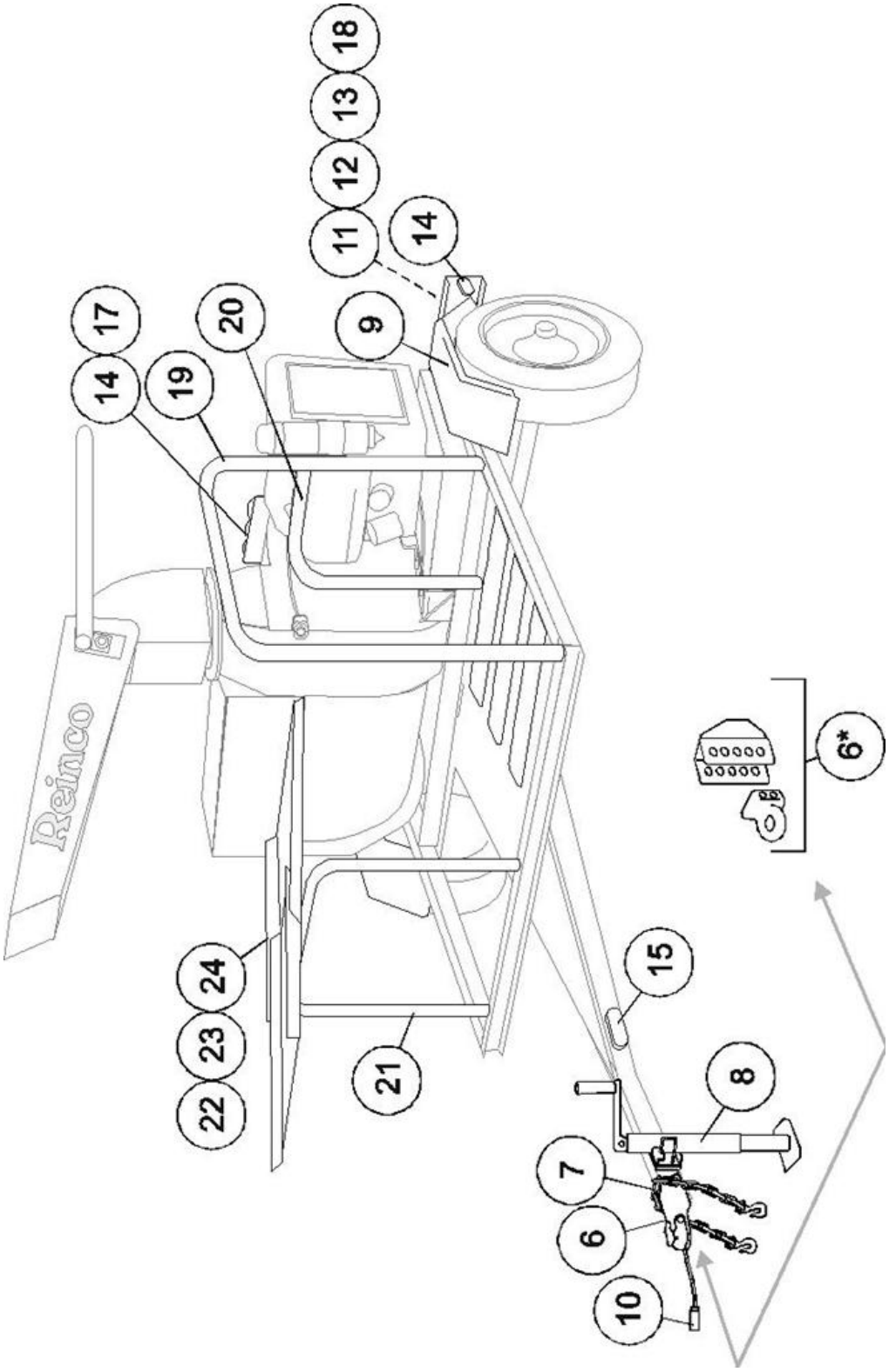
3500 LB CAPACITY IDLER AXLE

ITEM	PART NUMBER	DESCRIPTION	QTY
1	AX5105.30	AXLE ASSEMBLY	1
2	AX5103.22	SPRING LS 72-26-2500, 4LF	1
3	AX5103.23	SPRING RS 72-26-2000, 3LF	1
	AX5103.16	BOLT - SHACKLE 7-3	6
	AX5103.17	LOCKNUT - SHACKLE 6-7	6
	AX5103.21	LINK - SHACKLE 18-12 (3 1/8")	4
	AX5103.15	BUSHING - SPRINGEYE 14-01	4
4	TI7501.00	MOUNTED TIRE ASSEMBLY	2
4.1	AX5105.15	WHEEL 6-5.5 BC 17-118	2
4.2	TI7201.13	TIRE ST225/75R15-D 8 PLY	2
5	AX5103.44	HUB & BEARING ASSEMBLY 8-251 90 6-5.5	1
5.1	AX5103.48	GREASE CAP 21-3 1.9900	2
5.2	AX5103.07	COTTER PIN 19-2	2
5.3	AX5103.06	SPINDLE NUT 6-1	2
5.4	AX5103.45	SPINDLE WASHER 5-23D	2
5.5	AX5103.49	BEARING - OUTER CONE L44649	2
5.6	AX5103.40	RACE - OUTER CUP L44610	2
5.7	AX5103.41	BEARING - INNER CONE L68149	2
5.8	AX5103.42	RACE - INNER CUP L68111	2
5.9	AX5103.43	GREASE SEAL 10-4 NTL 442251	2
5.10	AX5201.20	WHEEL NUT 6-80	12

OPTIONAL BRAKE ASSEMBLIES (3500 lb. AXLE)

ITEM	PART NUMBER	DESCRIPTION	QTY
ELEC	AX5105.34	HUB AND DRUM ASSEMBLY 8-250-90 6-5.5	2
	AX5105.36	BRAKE ASS LH 23-26DX 10 x 2¼	1
	AX5105.37	BRAKE ASS LH 23-27DX 10 x 2¼	1
HYDR	AX5105.41	BRAKE ASSY LH 23-312 DX US 10 x 2¼	1
	AX5105.42	BRAKE ASSY RH 23-313 DX US 10 x 2¼	1
	TU1000.01	TUBING KIT - SINGLE AXLE	1

TRAILER COMPONENTS



HITCH COMPONENTS

ITEM	PART NUMBER	DESCRIPTION	QTY
6	CO9212.01	COUPLER - 2" BALL - STRAIGHT	1
6*	CO9080.40	ADJUSTABLE EYE, 3" LUNETTE EYE	OPT
	CO9080.51	ADJUSTABLE COUPLER - 2" BALL	OPT
	CO9085.51	ADJUSTABLE COUPLER - 2-5/16" BALL	OPT
6.1*	CO9080.41	5 POSITION MOUNTING CHANNEL/GUSSET	1
6.2*	CO9080.42	BOLT & NUT KIT	1
HYDR	CO9212.10	COUPLER - 2" BALL/HYDR SURGE ACTUATOR	OPT
	CO9212.20	COUPLER - 3" EYE/HYDR SURGE ACTUATOR	OPT
7	CH0641.41	SAFETY CHAIN W/HOOKS	1
8	JA1003.05	SWIVEL JACK 1000#	1
8.1	JA1005.05	JACK LOCKRING	1
9	83042000	FENDER	2
10	31495000	TRAILER WIRING HARNESS	1
10.1	EL2203.02	CONNECTOR PLUG 6 COND.	1
10.2	EL2203.01	CONNECTOR SOCKET 6 COND.	1

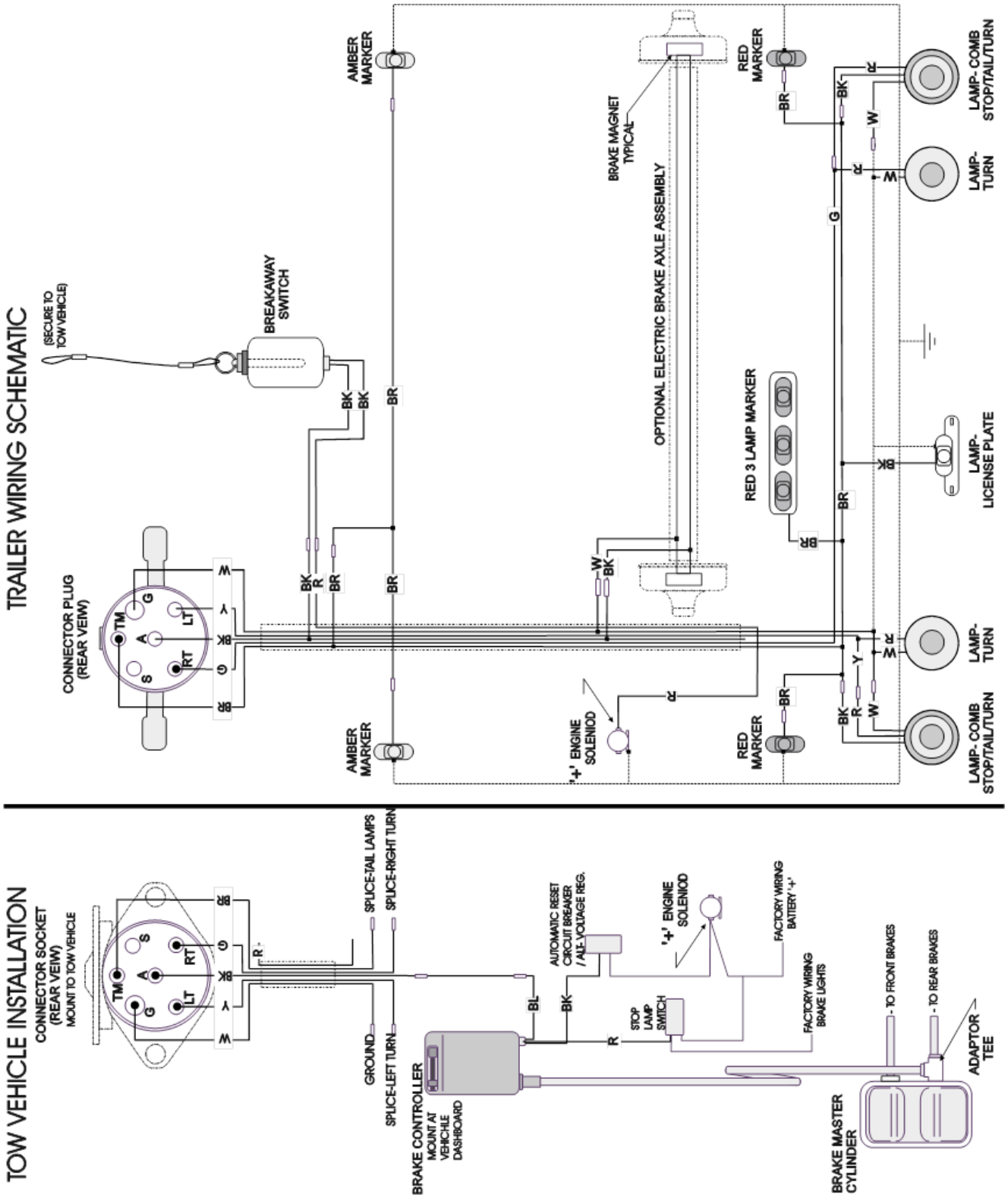
LIGHTING COMPONENTS

ITEM	PART NUMBER	DESCRIPTION	QTY
11	LI3302.05	TAIL LAMP - COMBINATION	2
12	LI3303.05	TAIL LAMP - DIRECTIONAL	2
13	LI3305.02	LICENSE PLATE LAMP	1
14	LI3301.21	MARKER LAMP - RED (REAR)	5
15	LI3301.22	MARKER LAMP - AMBER (FWD)	2
17	30284010	LIGHT BAR BRACKET	1
18	LI4030.01	REFLECTOR - RED [BUMPER-REAR] OVAL	2
	LI4040.01	REFLECTOR - RED 3-5/16	2
	LI4040.02	REFLECTOR - AMBER 3-5/16	2
	LI4040.12	REFLECTOR - AMBER 2-3/8	2
	LI4060.18	CONSPICUITY TAPE KIT	1

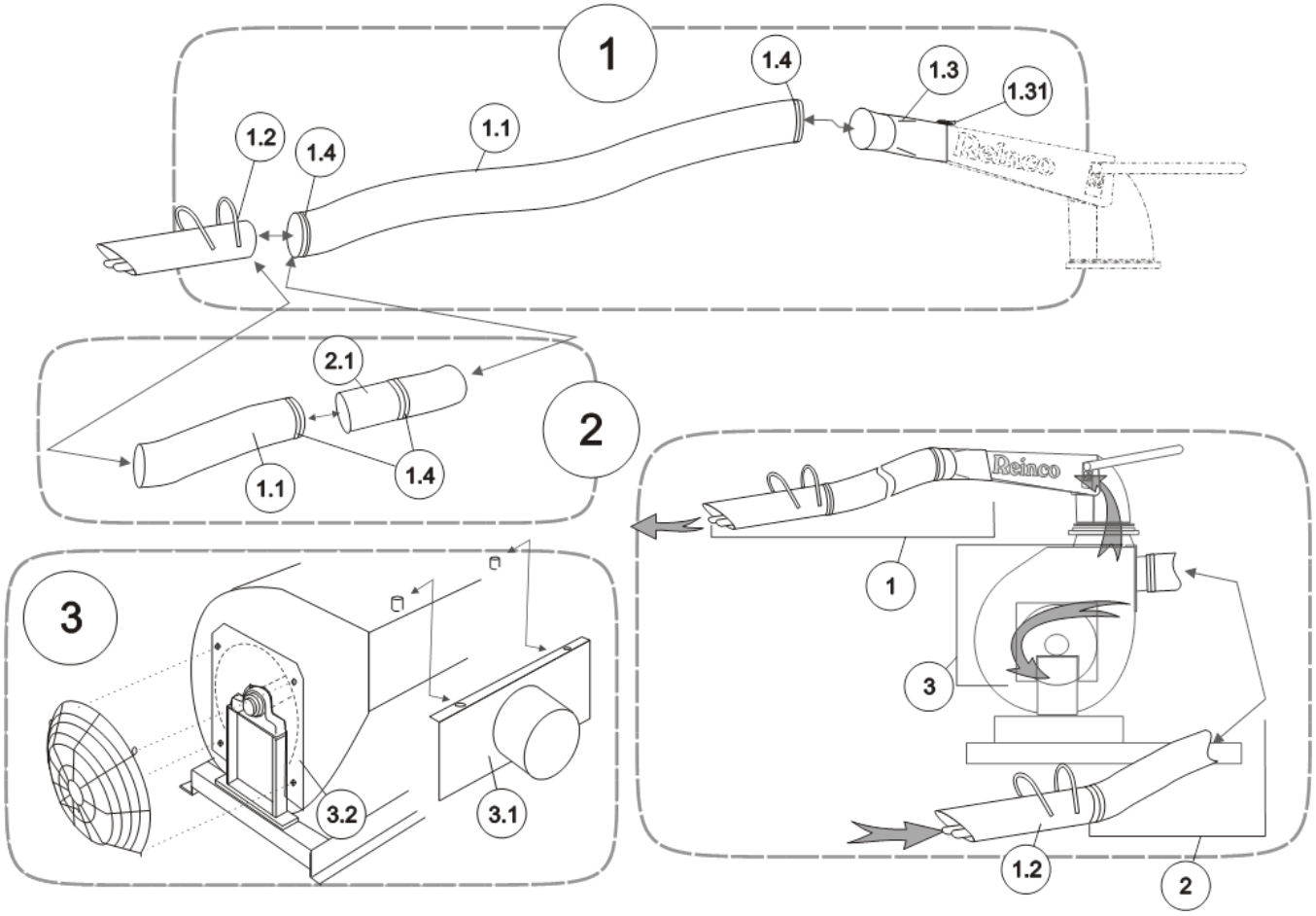
TRAILER RELATED PARTS

ITEM	PART NUMBER	DESCRIPTION	QTY
19	30201110	SIDE RAILING	1
20	30201100	ENGINE GUARD RAILING	1
21	30201090	TRAY SUPPORT RAILING	1
22	30811010	FEED TRAY - FIXED	1
22.1	30811020	FEED TRAY ADAPTER	1
22.2	HA7131.10	U-CLAMP	2
23	30821000	FEED TRAY - SLIDING	1
24	30811011	TRAY LOCK BAR	1
24.1	HA7150.02	HAIR PIN COTTER	2
25	BR2022.03	BREAK AWAY SWITCH	OPT
26	BR0501.02	BRAKE CONTROLLER 12V ELEC	OPT

TRAILER WIRING SCHEMATIC

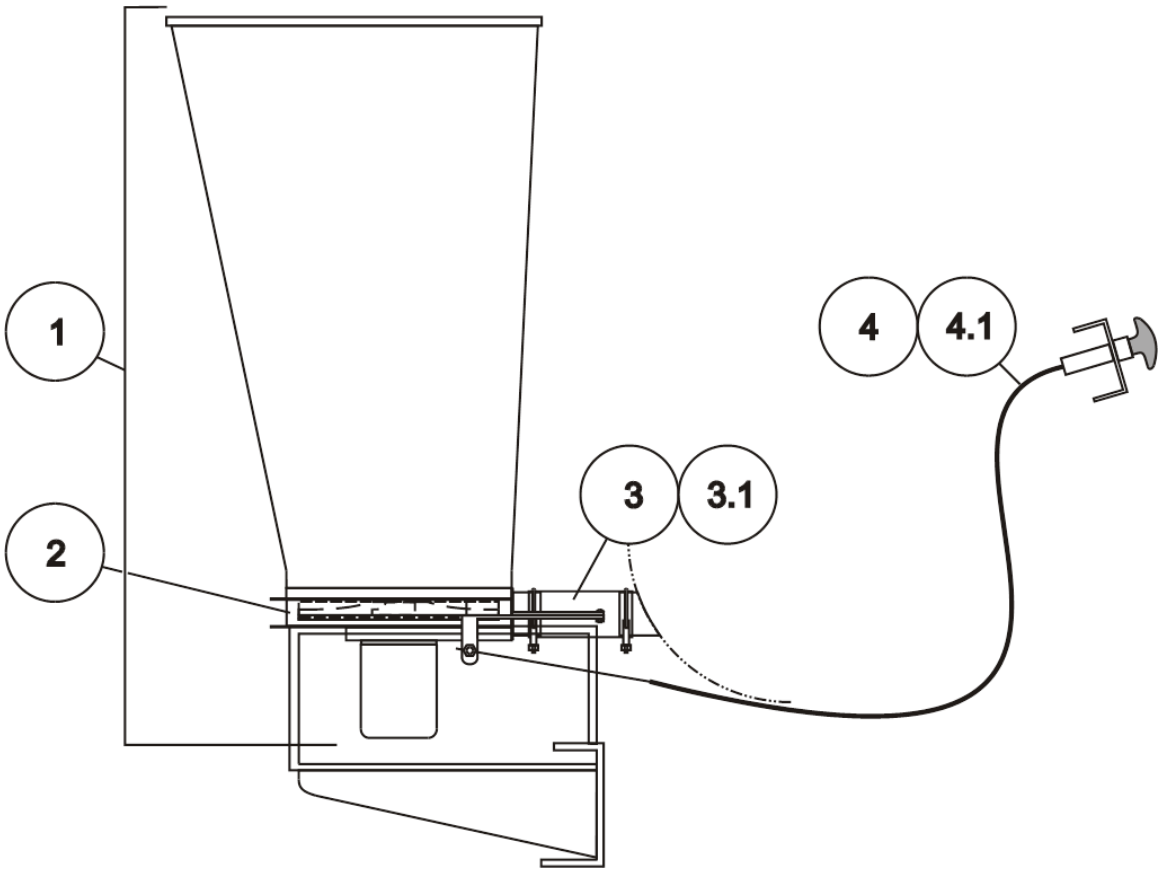


HOSE ATTACHMENTS



ITEM	PART NUMBER	DESCRIPTION	QTY
1	**33009100**	**STARTER HOSE KIT 8" x 25'**	
1.1	HO6180.05	HOSE 8" x 25'	1
1.2	30108020	COMBINATION NOZZLE (SPOUT)	1
1.3	31613010	BOOM HOSE ADAPTOR	1
1.31	31633040	MOUNTING CLASP W/ HARDWARE	2
1.4	FI0180.80	HOSE CLAMP	2
2	**33009200**	**EXTENSION HOSE KIT 8" x 25'**	
2.1	30108030	COUPLER	1
3	**33009300**	**SUCTION ADAPTER KIT**	
3.1	31682010	SUCTION HOSE ADAPTER	1
3.2	31682030	MAKE UP AIR COVER	1
4	33009400	VACUUM HOSE KIT 8" x 25' (NO ADAPTOR)	1

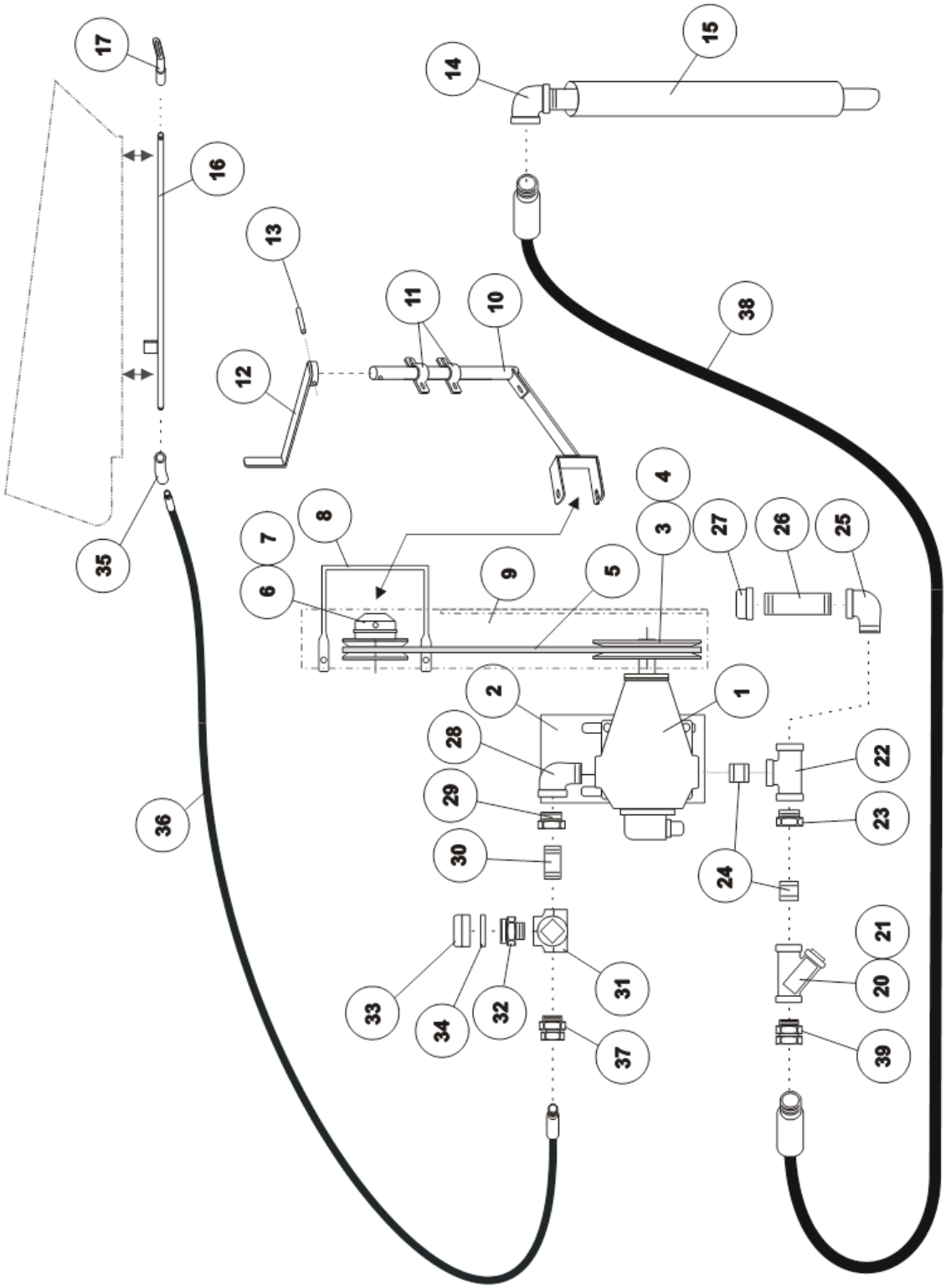
SEED BROADCASTER



ITEM	PART NUMBER	DESCRIPTION	QTY
*1	HS2000.00	SEED BROADCASTER	1
2	31771010	DISTRIBUTOR HEAD	1
3	EX3050.40	FLEX TUBE 4"	8.5"
3.1	EX3060.40	CLAMP 4"	2
4	CO6120.00	CONTROL CABLE	1
4.1	CO6297.01	PIVOT CONNECTOR	1

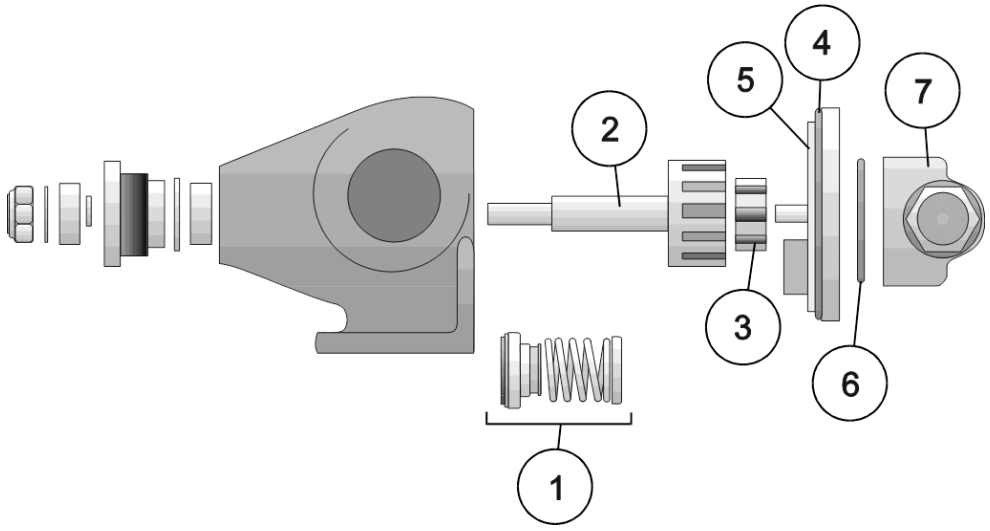
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EMULSION SPRAY SYSTEM



ITEM	PART NUMBER	DESCRIPTION	QTY
1	PU5443.00	EMULSION PUMP VIKING GG4195	1
2	31101110	PUMP BASE	1
3	SH2100.20	SHEAVE 5" PITCH ½"B	1
4	KE9001.01	KEY 3/16 x 1½ BES	1
5	BE5802.01	BELT BX46 46.1	1
6	CL8005.10	CLUTCH RB4-3/4"	1
7	KE9001.05	KEY ¼ x 2 BES	1
8	31101060	CLUTCH GUARD	1
9	31101080	BELT GUARD	1
10	31101040	PIVOT LEVER	1
11	BE0225.02	BEARING 1"PB	2
12	31101020	ACTUATING LEVER - (SKID)	1
	31101021	ACTUATING LEVER - (TRAILER)	ALT
12.1		YOKE-ACTUATING LEVER	1
13	HA7160.06	ROLL PIN ¼ x 1-5/8"	1
14	31101121	PICKUP TUBE ASSEMBLY	1
15	31101122	PICKUP TUBE HOLDER	1
16	31111001	BOOM SPRAY PIPE 16" (SKID)	1
	31111002	BOOM SPRAY PIPE 28" (TRAILER)	ALT
17	30102020	SPRAY NOZZLE ASSEMBLY	1
20	ST7101.00	STRAINER 1" WYE	1
21	ST7101.01	ELEMENT	1
22	PI2882.57	REDUCING TEE 1½ x 1½ x 1	1
23	PI2714.10	REDUCING BUSHING 1½ x 1	1
24	PI7871.01	NIPPLE 1" x SHORT HVY	2
25	PI2853.14	ELBOW 90° 1½ x STREET BMI	1
26	PI7873.06	NIPPLE 1½ x 6 TBE	1
27	PI3830.14	CAP 1½ BRASS	1
28	PI2853.10	ELBOW 90° 1 x STREET BMI	1
29	PI2710.14	REDUCING BUSHING 1" x ½"	1
30	PI7869.00	NIPPLE ½" x CLOSE	1
31	VA5310.00	VALVE ½" 3 PORT	1
32	PI3815.80	GARDEN HOSE ADAPTER	1
33	PI3815.81	CAP - GARDEN HOSE	1
34	PI3815.82	WASHER	1
35	PI2851.03	ELBOW 45° 3/8 BMI	1
36	31291010	DISCHARGE HOSE 3/8" x 6'	1
37	HO7770.53	SWIVEL CONNECTOR ½"M x 3/8"FM	1
38	31291020	SUCTION PICKUP HOSE 1" x 7'6"	1
39	HO7771.10	SWIVEL CONNECTOR 1"M x 1"FM	1

TACKING SYSTEM PUMP PARTS



ITEM	PART NUMBER	DESCRIPTION	QTY
1	PU5443.01	MECHANICAL SEAL ASSY (2-473-003-999)	1
2	PU5443.02	ROTOR & SHAFT (3-564-200-012)	1
3	PU5443.03	IDLER & BUSHING (3-417-200-553)	1
4	PU5443.04	O-RING (2-551-001-860)	1
5	PU5443.05	HEAD & IDLER PIN (3-336-200-015)	1
6	PU5443.06	GASKET, RELIEF VALVE (2-316-806-300)	1
7	PU5443.07	INTERNAL RELIEF VALVE (3-795-200-000)	1

NOTES AND COMMENTS

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