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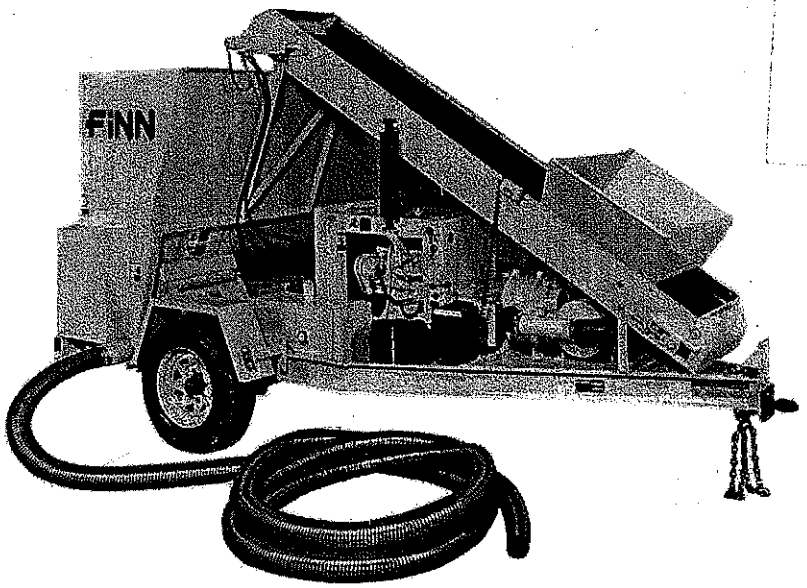


AEM-2000

Spreader

Parts and Operator's Manual

Model **RN** Serial No. _____

INDEX

SAFETY FIRST

With any piece of equipment, new or used, the most important part of its operation is SAFETY!

Finn Corporation encourages you and your employees to familiarize yourselves with your new equipment and to stress safe operation.

The first four pages of this manual are a summary of all the main safety aspects associated with this unit. Be sure to read completely before operation of machine.

This symbol is used throughout the operation and maintenance sections of this manual to call attention to safety procedures.
- Pay Attention -

DANGER: Immediate hazards which WILL result in severe personal injury or death.

WARNING: Hazards or unsafe practices which COULD result in severe personal injury or death.

CAUTION: Hazards or unsafe practices which COULD result in minor personal injury or product or property damage.

IMPORTANT: Indicates that equipment or property damage could result if instructions are not followed.

NOTE: Gives helpful information.

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.

Finn Corporation

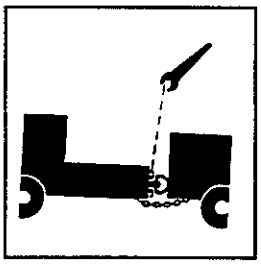
AEM SPREADER
SAFETY SUMMARY SECTION

It is important that all operators of this machine are familiar with all of the safety aspects mentioned below and have read the entire Operator's Manual before operating the machine. Always keep a copy of this manual with the machine. It is the responsibility of the operator of the machine to fully understand this safety sheet. Remember that YOU are the key to safety. Good safety practices protect not only you but also the people working with and around you. Keep in mind that this safety sheet is written for this type of machine only. Practice all other usual and customary safe working precautions; and above all, remember that safety is up to you.

The FINN AEM SPREADER is an apparatus for conveying and discharging bulk materials, such as bark or wood mulches. Its use with other products or for other applications must be by approval of the product's manufacturer. If there are any questions contact FINN Corporation at 1-800-543-7166.

I. PRE-START EQUIPMENT CHECK (equipment check is to be made with the engine off):

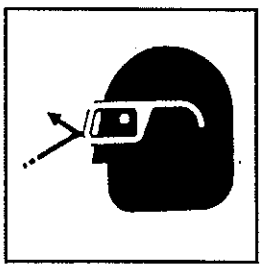
1. Check hitch and hitch bolts, safety chains, lights, brakes and breakaway switch. Verify that the hitch ball or pintle hook is the correct size for the coupler.



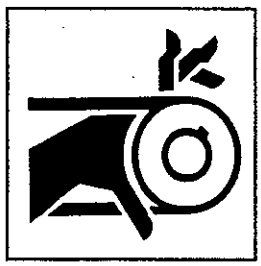
2. Verify that all guards are in place.
3. By carefully looking into the screw conveyor hopper and transition, inspect for and remove any foreign objects.
4. Inspect all hydraulic hoses for cracks, bulges or damage. If hose is bad, replace immediately.
5. Inspect the material discharge hose and connections for cracks or damage. Replace immediately.

II. MACHINE OPERATION:

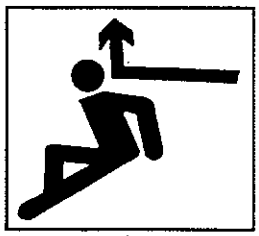
1. Always wear safety goggles when operating or feeding the machine. Other safety attire such as safety shoes, ear protection, gloves, hard hats, dust masks, etc., should be worn as required by warning decals on machine, operator's manuals, or job requirements. Remove rings, watches, etc. Avoid loose fitting clothing which may get caught in rotating machinery.



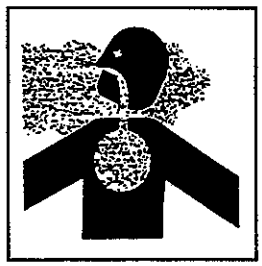
2. Do not override or tamper with safety shutdown switches on transition doors. If switches fail, use OSHA lockout/tagout procedure (29 CFR 1910.147) until switches are repaired or replaced.
3. Do not operate the machine without all guards in place.



4. Never attempt to connect or disconnect the discharge hose while the engine is running.
5. Make sure that no one is working in or on the machine. Make sure the discharge spray area is clear of all persons, animals, etc. Signal "All Clear" before starting the engine. Keep unauthorized personnel away from the machine and discharge hose at all times.



6. The driver of the towing vehicle is responsible for the safety of the operator(s) and feeder(s) of the machine. Make sure the driver is aware of and avoids all possible hazards, such as tree limbs, low power lines, etc. Vehicles which tow the equipment must start and stop gradually. Never ride on the AEM machine.
7. Never operate machine in an enclosed area without venting the exhaust of both the equipment and the vehicle on which the equipment is mounted or towed. Deadly carbon monoxide fumes can accumulate.



8. Never operate this or any other machinery when fatigued, tired, under the influence of alcohol, illegal drugs or medication. You must be in good physical condition and mentally alert to operate this machine

9. Never modify the machine. Never remove any part of the machine (except for service and then reinstall before operating).

10. During application, high pressure can be exerted at the end of the hose. Always establish and maintain good footing and hold the hose firmly. Extra personnel may be required to help direct and hold the hose, especially when working on slopes. The proper technique for hose holding personnel is to firmly grasp the hose over the shoulder or under both arms. Never hold the hose so it goes between the legs.

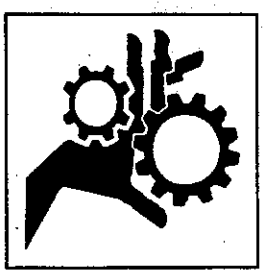
11. The AEM spreader discharges material at pressures and velocities that can cause severe bodily injury. Do not aim discharge at people, animals, etc. Only aim the discharge at the intended discharge area. Unless properly protected, do not place hand into the discharge stream.

12. Do not open any doors or access panels while machine is in operation. Severe injury may result from rotating parts.

13. Do not attempt to pull anything out of the screw conveyor hopper when machine is in operation. Shut down the engine, using OSHA lockout/tagout procedure (29 CFR 1910.147) before removing any foreign objects. Signal "All Clear" before restarting the machine.

III. MAINTENANCE:

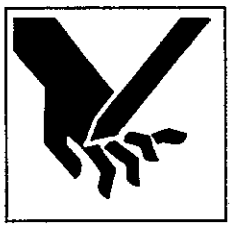
1. Before servicing the machine, turn off engine and allow all moving parts to stop. Disconnect the battery cables to prevent accidental starting of the machine. Tag the engine operating area to show that the machine is being serviced. Use lockout/tagout procedure. (29 CFR 1910.147)



2. On trailer units perform general maintenance such as checking the safety chains, hitch and hitch bolts, tires, and brakes. Repair or replace if worn or broken. Never operate machine on improperly inflated or damaged tires. Always use a safety cage or cable restraints when reinflating a repaired tire.

3. When servicing the machine, uncouple the machine from the tow vehicle and chock the wheels to prevent accidental movement of the machine.

4. Take extreme care when adjusting or replacing knives. Knife edge is very sharp and can cause severe bodily injury.



5. Radiator maintenance. Liquid cooling systems build up pressure as the engine gets hot. Before removing the radiator cap, stop the engine and let the system cool. Remove the radiator cap only after the coolant is cool.

6. Battery maintenance. Lead-acid batteries contain sulfuric acid which damage eyes or skin on contact. Always wear a face shield to avoid acid in the eyes. If acid contacts eyes, flush immediately with clean water and get medical attention. Wear rubber gloves and protective clothing to keep acid off skin. Lead-acid batteries produce flammable and explosive gases. Keep arcs, sparks, flames, and lighted tobacco away.

7. Filling of fuel. Never fill the fuel tank with the engine running, while smoking or when near an open flame. Never smoke while handling fuel or working on the fuel system. The fumes in an empty container are explosive. Never cut or weld on fuel lines, tanks, or containers. Move at least 10 feet (3 meters) away from fueling point before starting engine. Wipe off any spilled fuel and let dry before starting engine.

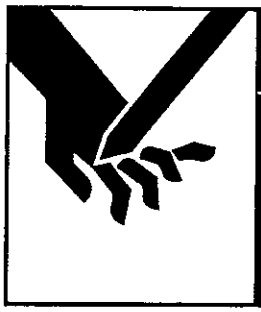
NOTE: Be careful not to allow fuel, lubricant, hydraulic fluid, or cooling fluids to penetrate into the ground or be discharged into the water system. Collect all used fluids and dispose of them properly.

8. It is recommended that only authorized genuine FINN replacement parts be used on the machine.

9. Do not use ether cold start fluid if engine is equipped with glow plug type preheater or other intake manifold type preheater. It could cause an explosion or fire and severe injury or death.

10. Diesel fuel or hydraulic fluid under pressure can penetrate the skin or eyes and cause injury, blindness or death. Pressure may build up in the hydraulic system so use caution when removing the cap.

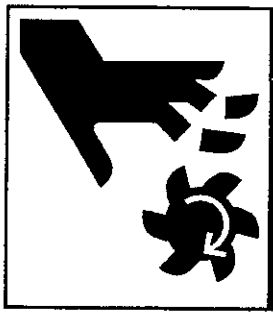
CURRENT SET OF SAFETY DECALS



⚠DANGER

Sharp knives.

P/N 55219

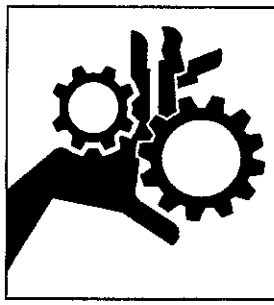


⚠DANGER

Rotating Parts.

Turn off engine and allow all parts to stop completely before opening door, removing guards or attempting service.

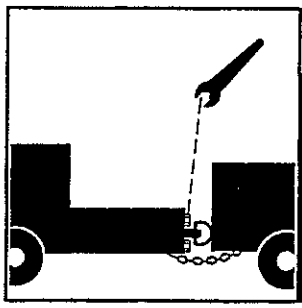
P/N 20068



⚠ WARNING

Turn engine off, disconnect battery, and allow all moving parts to stop before servicing equipment.

P/N - 22357



⚠CAUTION

Always inspect tow vehicle and equipment hitch before towing. Tighten all hitch bolts and properly connect wiring and safety chains.

P/N-31227

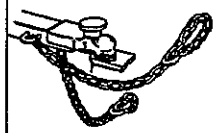
⚠ WARNING

To prevent serious burning or scalding:

- Pressurized cooling system.
- Allow system to cool.
- Remove cap slowly with gloves on.

SW600

CAUTION



Both the single and double chains must be crossed *under* the tongue. They must be oriented in such a manner as to prevent the tongue from dropping to the ground in the event of failure to the hitch, coupler or ball. The chains must be connected to the towing vehicle so that the slack for each length of chain, between the trailer and the towing vehicle, is the same and must have no more slack when in use than is necessary to permit proper turning of the vehicles. The forward end of the chain must be attached to the towing vehicle, *not* to the ball, but to the hitch or other frame member. The chain must be looped around the member and hooked back into itself.

SAFETY CHAIN INSTALLATION

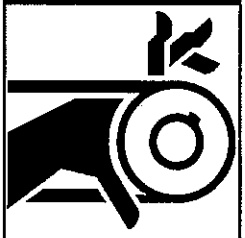
P/N 31228

⚠DANGER

Screw conveyor. Keep clear. Turn Engine off before servicing.

P/N-55218

⚠ WARNING



Do not operate without guards in place.

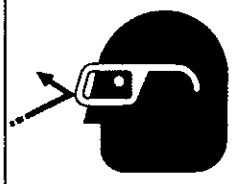
P/N-12178

⚠ WARNING

Rotating fan hazard. Keep hands clear. Shut off engine before servicing.

P/N 12251

⚠CAUTION



Wear eye protection around operating equipment

CAUTION!
USE ON 2-5/16" BALL ONLY
P/N. 5022

⚠ DANGER

HOT EXHAUST

SW7

WARNING

- BREAKAWAY SWITCH -
DO NOT USE FOR PARKING.
ATTACH CABLE TO TOWING VEHICLE WITH SLACK FOR TURNING.
ENGINE BATTERY ON TRAILER MUST BE CHARGED AND HOOKED UP FOR PROPER BREAKAWAY FUNCTION.

P/N 23453

⚠ WARNING

THROWN OBJECT HAZARD
KEEP AWAY

- To prevent serious injury or death from thrown object:
- Stay away from discharge area during operation. Keep others away.
- Do not point discharge toward people, animals or property.

SW605

⚠CAUTION  Wear proper eye protection when feeding this machine.

P/N - 22690

OPERATION AND MAINTENANCE OF THE FINN AEM SPREADER

THE FINN AEM SPREADER AND ITS FUNCTION:

The FINN AEM (pronounced "Aim") Spreader is an apparatus for conveying and discharging bulk materials, such as bark mulch, at a fast and uniform rate utilizing a minimum amount of manpower. "AEM" is an acronym for Alternative Environmental Material, in this case meaning a mixture of organic and/or inorganic materials usually comprised largely of plant and wood residues. This mixture is generally composted and processed and used as a soil amendment, a ground cover for erosion and weed control, or for decorative purposes on landscaping (bark mulch).

This manual is designed for step by step instructions on the operation, care, and maintenance of the AEM Spreader. In addition, it contains illustrations and a complete list of parts and components for easy identification.

HOW THE AEM SPREADER WORKS:

The bulk material is loaded into the hopper manually, by a loader, or by an infeed elevator. Placed at the bottom of the hopper is a screw feeder, which conveys the bulk material to an opening where it falls into a rotary air valve. The rotary air valve is specifically designed and built to handle tough, fibrous material. The function of the rotary air valve is to take the bulk material into open pockets exposed to the outside air and to convey it to an area where the pocket is closed off, at which point a high pressure air stream, created by the blower, is channeled through the pocket carrying the material off and through the hose for discharge.

IMPORTANT: **For best results and to insure safe operation and long life of the equipment, please read and follow all instructions carefully.**

TOWING VEHICLE:

The truck used to tow the FINN AEM Spreader must be equipped with a 2-5/16" ball or pintle type hitch. This hitch should be mounted as near to the end of the truck bed as possible. The tow vehicle should be fully wired for trailer marker, turn, and stop lights as well as electric brakes.

SELECTING A MULCHING MATERIAL:

Several factors must be considered when selecting material to convey through the AEM Spreader. The variety of the wood used, how it is processed, moisture content, and the presence of foreign objects all effect the ability of the AEM to convey the mulch at a uniform acceptable rate.

The mulch material must be processed and/or screened so a minimum of material is over 2 inches (5.1 cm) in any direction with no material exceeding 4 inches (10.2 cm) in length. The AEM Spreader is not a wood processor. It only reduces mulch fibers when the protrude above the rotary air valve vanes. As the vanes rotate past the knife, the protruding fibers are sheared off. If the mulch contains long or large fibers, and if the wood fibers are harder to cut, then the machine's throughput is reduced. For example, if two mulches have the same mix of material sizes that the AEM rotor must cut, but one is softwood like pine, and one is hardwood such as oak, the pine would go through at a higher rate because it is easier to cut.

Two moisture contents must be considered when selecting a material: the "greenness" of the wood and the moisture of the mulch as a whole. Wood that is well seasoned is easier to cut then "green" wood. It also processes better making a less stringy mulch. High moisture in the mulch may cause it to bridge in the screw feeder hopper, especially when loading with a loader. Material that has been saturated due to heavy rains will run better if using the elevator instead of a loader.

Avoid using mulches which contain any hard foreign objects such as rocks, nails, steel, cans, glass, etc. These objects could cause bodily injury as well as damage to machine components, especially the cutting knives in the rotary air valve.

PRE-START CHECK:

Safety check to insure operator safety:

1. Check all trailer connections to the towing vehicle, as well as the condition of the safety chains, and bolts connecting the ball coupler or pintle eye to the tongue.
2. Insure that all guards are in place.

EQUIPMENT CHECK:

CAUTION: **Equipment check is made with the engine off and all rotating parts stopped.**

1. Tool Kit - see that it contains all prescribed items (see tool kit list, page 44).
2. Lubricate equipment - use hand gun only (see lube chart, page 22-23).
3. Check engine oil - refer to engine operator' s manual.
4. Check liquid coolant level in radiator and overflow tank (protected to -34°F (-37°C) when shipped).
5. Check fuel level. Use #2-D diesel fuel oil unless operating at ambient temperature below 40°F (4°C) or at an altitude exceeding 5000 feet (1524 meters). In these instances use #1-D fuel oil.
6. Inspect the engine air cleaner (refer to the engine operator's manual), the radiator chaff screen, and the blower air cleaner for dust and dirt.
7. Check hopper and transition for foreign objects which could injure workers, or damage equipment.
8. Check the fluid level in the hydraulic tank. Proper level is midway between the upper and lower indicator mark on the sight gauge. (See "hydraulics" page 10 for oil specification).
9. Install the discharge hose. Use clamps provided with the machine.

CAUTION: **Do not use radiator type clamps which may not hold under machine operating pressure.**

STARTING PROCEDURE:

CAUTION: **See safety section of the manual (pages 2-4) before operating the machine.**

1. Set throttle about ¼ open.
2. Turn key counter clockwise and hold it until the glow plug indicator light goes out.
3. While holding in the safety switch button, turn the key clockwise until the starter engages, and the engine starts.
4. Continue to hold safety switch in for approximately 10 seconds. Allow engine to warm up for 3 to 5 minutes.

NOTE: This engine has a safety system which will shut the engine off if the engine oil pressure drops below 7 psi. or if the water temperature reaches 230° Fahrenheit (110° Centigrade).

5. Prior to mulch application, move the throttle position to fully open, and allow the governor to control the engine speed. Governed engine speed on the FINN AEM Spreader should be 2650 to 2700 RPM under load.

CREW MEMBERS AND THEIR DUTIES:

1. The Operator controls the placement of the mulch by moving the discharge hose.
2. The Loader(s) feed material to the machine either by using a skid steer or loader tractor dumping directly into the hopper, or by shoveling from the tow vehicle to the elevator.

THE MATERIAL FEED SYSTEM:

The material feed system on the AEM Spreader has been designed to give fast, uniform, mechanical feeding. The adjustable feeding rate, and the automatic reverse control system allows the use of varied materials while obtaining maximum production. The system is an integration of three subsystems, all of which contribute to efficient material flow.

SUBSYSTEM 1: MATERIAL HANDLING GROUP

The four major components of the material handling group are the blower, the screw feeder, the rotary air valve, and the feed elevator.

The blower is a rotary lobe, positive displacement type unit having two double lobe impellers. It is direct driven off the engine flywheel by a stub shaft and flexible coupling; therefore whenever the engine is running, air is being pumped. The blower is equipped with a relief valve limiting maximum air pressure to 10 psi (0.7 kg/cm^2), an inlet and outlet silencer for noise attenuation, and an inlet air filter.

The screw feeder receives material from the hopper and conveys it to an opening located directly over the rotary air valve. The screw is powered by a variable speed hydraulic motor with roller chain drive.

The rotary air valve receives the material from the screw feeder and pressurized air from the blower. Its primary function is to convey the material from the atmospheric air to a sealed chamber where the blower air picks it up and blows it out of the hose. To enable the AEM Spreader to convey fibrous material, the rotary air valve housing is equipped with two cutting knives, and the vanes on the rotor are angled and hardened. If any long material should protrude above a vane, it will be sheared off, before the vane enters the close tolerance of the housing, by a scissor like action between the vane and cutting knife. The rotor of the rotary air valve is direct coupled and driven by a bi-rotational hydraulic motor.

The material feed elevator is a belt conveyor that takes material from the hitch end of the machine and discharges it into the screw feeder hopper. It is driven by a variable speed hydraulic motor direct coupled to one of the belt conveyor rolls.

SUBSYSTEM 2: HYDRAULIC SYSTEM

Hydraulic power for the AEM Spreader is generated by a fixed displacement hydraulic pump belt driven off of the engine stub shaft. The pump received 10W (AW46) hydraulic oil from the 15 gallon (57 liter) reservoir through a suction strainer, service valve, and suction hose, and delivers it to the solenoid control valve. Pressure can be monitored on the outlet of the pump by the gauge provided.

The solenoid valve is an open center spool valve with built in relief. The relief valve is set at 2500 psi (172 bar). The spool in the valve is spring centered, and is moved by actuating a 12V DC solenoid on either end of the spool. Spool movement can be checked manually by pushing the button located at either end. Energizing a solenoid produces high pressure oil at the work port closest to that solenoid. Thus, energizing the solenoid closest to the engine pushes the spool away from the engine and causes the oil supplied from the pump to be channeled to the work port closest to the engine. This is "forward" position on the AEM Spreader.

Oil flowing through the valve in the "forward" direction is directed to two (2) flow control valves located in front of the rotary air valve. The valves divide the oil flow between the rotary air valve motor and the conveyor motors. The flow controls are adjustable, allowing the speeds of the motors to be adjusted, or completely stopped. Air valve rotor speed and maximum conveyor speed are adjusted via a lever control with a set screw knob that rotates on a 90° quadrant. This lever is located on the valve on the right in figure 1, and should be set up against the stop block as shown. The flow control on the left in figure 1 controls the conveyor speed from zero to maximum, by turning the knob. Turning the knob counter clockwise increases conveyor speed and the amount of material delivered to the rotary air valve. Oil flowing through the solenoid valve in the "reverse" direction is channeled directly to the rotary air valve motor, with no oil going to the conveyor motor(s). Thus anytime the rotary air valve is in "reverse", the conveyors do not feed material. Oil leaving the solenoid valve passes through the oil cooler and return filter (10 micron) prior to entering the reservoir.

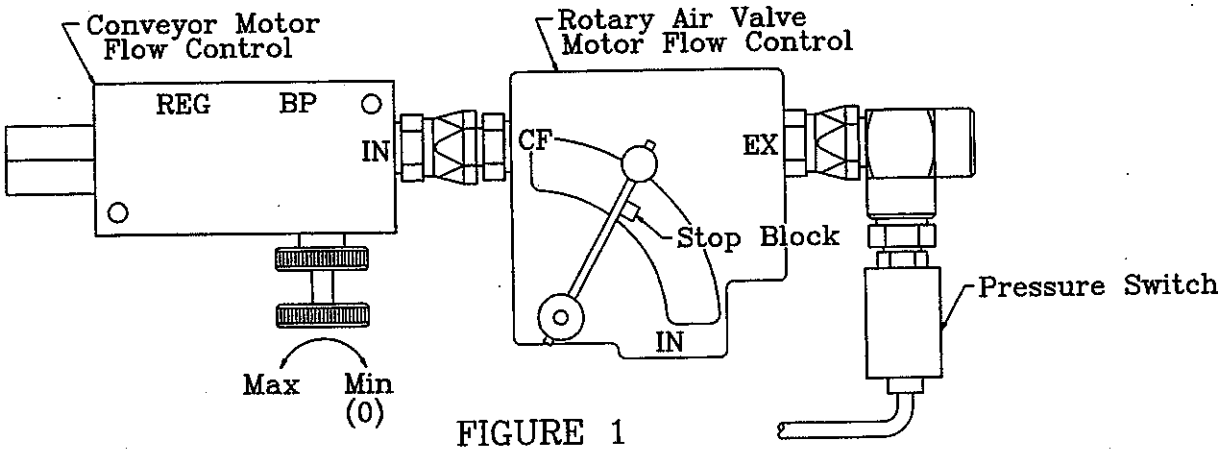


FIGURE 1

SUBSYSTEM 3: HYDRAULIC CONTROL SYSTEM

The hydraulic control system is an electrical system that controls the on-off function of the conveyor motors and the rotation direction of the rotary air valve motor. This 12-volt DC system runs off the engine electrical system. It is a series of relays, located in the box labeled "Material Feed Control" by the engine, that controls the solenoid valve in the hydraulic system.

When the "start" button is pushed, the CR2 relay in figure 2 is energized which in turn energizes the "forward" solenoid on the solenoid valve, starting the air lock and conveyors. As monitored by a pressure switch located on the "EX" port of the hydraulic speed control (see figure 1). The switch is normally open, closing when the rotary air valve motor stalls, causing high pressure due to the air valve encountering an object it can not cut. The amount of time the pressure switch is closed is monitored by the relay TR1 in figure 2. If the switch remains closed for more than 0.5 seconds, TR1 energizes timer relay TR2. TR2 automatically reverses the rotary air valve by energizing the "reverse" solenoid and de-energizing the "forward" solenoid. The unit will remain in "reverse" until TR2 times out, which is approximately 2 seconds.

When the "stop" button is pushed, power is cut to the relays which in turn stops the hydraulic motors on the conveyors and the rotary air valve by shutting off power to the solenoids. The hydraulics can also be stopped by shutting off the ignition key. Please note that the hydraulics will also stop if either transition door, between the conveyor and air lock, is opened and cannot be restarted unless the doors are closed, and the start button is pushed.

AEM 2000 with Power Status Lights: (See Figure 2)

The AEM is equipped with four Power Status Lights on the Material Feed Control Box. Each glowing light indicates that a function is ready for operation. A list of the lights as they appear from top to bottom and the meaning of each follows:

Light Color	Function	Indicator
Blue	ON/FUSE	Should be glowing when engine key is on. Shows power from the ignition switch through the 10 amp main fuse into the Material Feed Control Box.
Green	Door Switches	Should be glowing when engine key is on if the transition doors at the air lock are both closed and the interlock switches are making proper contact.
Amber	Feeding	Should be glowing whenever the "START" button is pushed activating the AEM hydraulic system*.
Red	Auto-Reverse	Should be glowing whenever the unit Auto-Reverses while feeding*.

* Note: The amber light will deactivate whenever the Red Auto-Reverse light comes on.

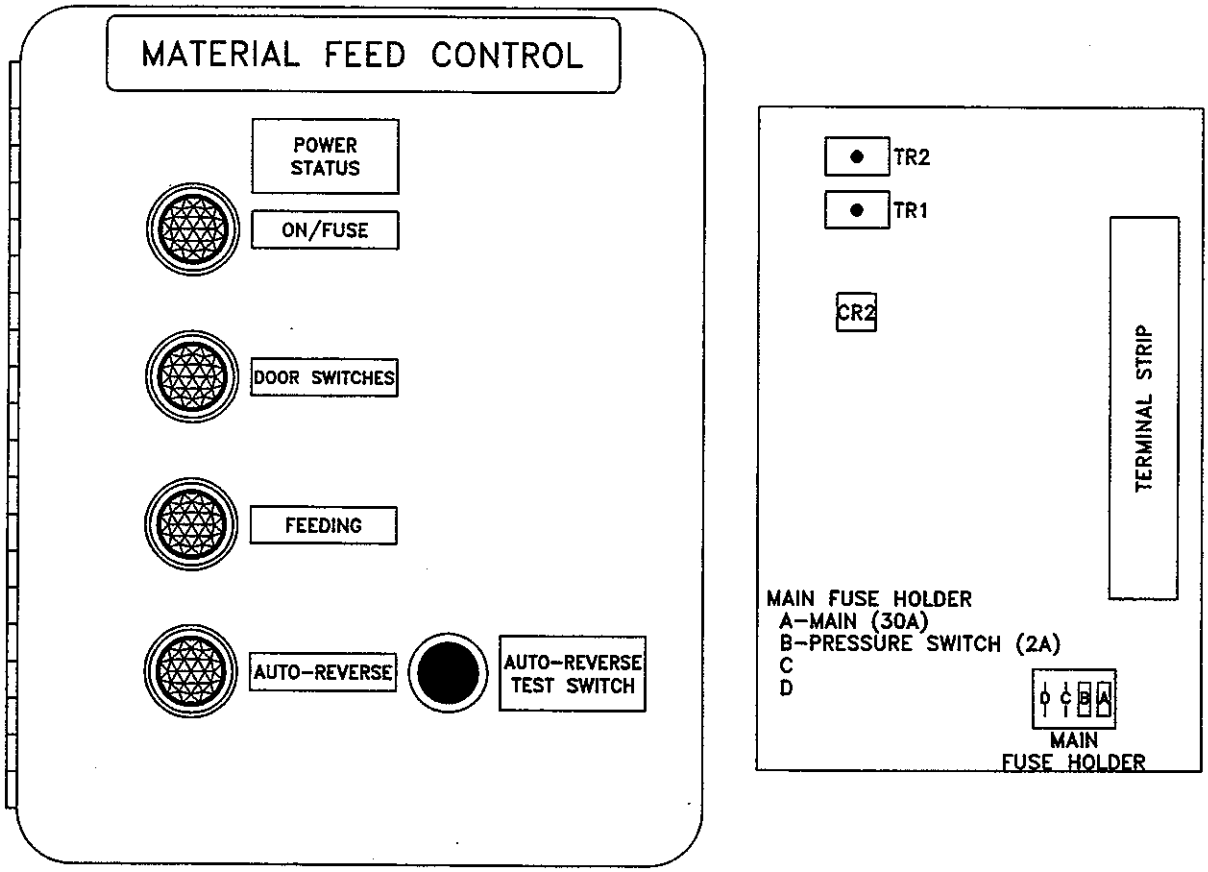


Figure 2

MULCHING WITH THE AEM SPREADER:

1. Check all areas listed under "Pre-Start Check" (page 6).
2. Start the engine following all the steps listed under "Starting Procedure" (page 7).
3. Set the rotary air valve flow control so that the lever is against the stop block.
4. Engage the hydraulics by pushing the START button on the "Start/Stop" station.
5. With the conveyor motor flow control knob set at zero, turn the knob counter-clockwise until the screw conveyor turns slowly.
6. If using the feed elevator, turn it on by closing the ball valve (elevator control valve) located on the rear of the solenoid valve. If loading by skid-steer, turn off the elevator by opening this ball valve.

NOTE: When loading the hopper, it is advisable to have the screw conveyor running prior to dumping the load in. Under no circumstances load the hopper of the AEM with material and transport any distance as the material will pack around the screw making it difficult to start.

7. Position the hose where desired. The Operator should hold the hose firmly as the material can surge out with tremendous force. When the Operator is in position and ready, he can signal the Loader(s) to proceed loading.

8. Once material starts to flow through the AEM Spreader at a uniform rate, a loader can adjust the conveyor speed control to maximize output. Adjust the speed control watching the rotary air valve shaft. Adjust the speed up to maximum, or to a point up or down where the Automatic Reverse operates about 2 to 4 times per minute. Note that every time the Automatic Reverse operates, there is little or no production from the AEM due to the conveyors being off. So, it is better to run at a slower conveyor speed that produces a more continuous discharge of material, than operating at a higher speed which results in numerous reversals that interrupt the flow of material.

9. Mulch the bed by starting at the farthest point and working back toward the machine. Best results are obtained by pointing the end of the hose down aiming 4 to 10 feet in front of the Operator's feet.

10. If applying a light touch-up layer of mulch, it may be desirable to slow the engine down between ½ - ¾ throttle to limit air flow. This tends to slow the rotational speed of the rotary air valve but may not affect the speed of the conveyors. The conveyor speed control may have to be readjusted to a lower speed in these cases.

AEM ADJUSTMENTS:

There are three components on the AEM Spreader which may need periodic adjustments while operating due to changing material conditions. These are the screw conveyor and elevator speed, the automatic reverse pressure switch setting, and the automatic reverse time interval. Knowing how and when to adjust these is the key to getting consistent material flow and high production from the AEM Spreader. Below is a description and location for each item, its function and a list of symptoms indicating what settings to correct.

A. Screw Conveyor and Elevator Control:

This hydraulic valve is located just inside the right side of the frame in front of the rotary air valve (see figure 1). It is a rectangular block with a screw knob adjustment pointing toward the engine. Screwing the knob clockwise decreases the conveyor speed thus decreasing the amount of material delivered to the rotary air valve, while turning the knob counter-clockwise increases the amount of material delivered to the rotary air valve.

B. Automatic Reverse Pressure Switch Setting:

This switch is the interlock between the hydraulic system and the electrical control system. The switch is normally open. It closes when the rotary air valve motor hydraulic pressure reaches the switch setting causing the motor to automatically reverse. (Note: The conveyor and elevator stop whenever the switch closes.) The switch is located on the "EX" port of the screw conveyor speed control (see figure 1), pointing down in front of the large frame angle. Two different types of pressure switches have been used. The first consists of a brass mounting base (screwed into the hydraulics) and a black cap (connected to the electrical control system). The black cap can be turned clockwise to decrease the pressure setting. The second is all brass with a sliding collar. Sliding the collar toward the wires reveals a slotted cylinder which adjusts the switch setting. Using a small screw driver, adjust the cylinder the same way as the black knob on the previously described switch.

C. Automatic Reverse Time Interval:

When the pressure switch closes due to high pressure, a series of relays is triggered in the electrical control system automatically reversing the rotary air valve, and stopping the screw conveyor and elevator. The length of time the system remains in reverse is determined by the setting on the timer relay TR2 (see figure 2). This relay is located inside the electrical control box labeled "MATERIAL FEED CONTROL". It is toward the top of the box having a digital dial graduated 0-6 seconds, indicating the approximate length of time the reverse cycle will last. Optimum setting is 2 seconds.

TROUBLE SHOOTING CHART:

Symptom	Probable Cause	Remedy
No material discharge.	Screw conveyor not turning.	Reset speed control.
	Electrical control system off.	Check if engine key is on. Check that transition doors are closed.
	Screw conveyor and air valve not turning.	Screw conveyor jammed. Turn off engine, turn screw in reverse ½ turn. Restart.
	Reverse interval too long.	Reset time (2-4 seconds).
Air valve auto-reverses excessively.	Pressure switch set too low.	Increase pressure switch setting.
	Feed rate too high.	Slow speed control.
	Dull air valve knives.	Grind and reset knives.
Air valve motor stalls in reverse, cycling forward-reverse.	Over-feeding.	Slow speed control.
	Foreign object in transition or hose outlet.	Shut-off engine. Remove object.
Air valve motor stalls in forward, no auto reverse.	Pressure switch set too high.	Decrease pressure switch setting.
	Reverse time interval too short.	Reset timer (2-4 seconds).
	Knives dulled or chipped-knife clearance too large.	Sharpen blades, reset knife clearance.

MAINTENANCE:

CAUTION: **Turn off engine and disconnect battery before servicing equipment.**

Weekly - After every 50 hours of operation:

1. Change engine oil and filter after 35 hours, every 100 hours after that following engine manufacturer's recommendations.

2. Lubricate the two bearings on the screw conveyor, the blower, and on each shaft of the elevator. Wipe each bearing before lubrication to remove dirt and prevent overheating.

3. Remove and clean chaff screen on the radiator. Blow out radiator fins with dry compressed air. Do not use a pressure washer. This will damage the radiator fins.

4. Remove and clean air cleaner elements on the engine and rotary blower using dry, clean compressed air.

5. Inflate tires to 75 psi (5.2 kg/cm^2).

6. Check the oil in the rotary air valve gearbox and in the blower gearbox (see blower manual).

7. Check rotary air valve knives for wear, chips, and clearance. To change:

DANGER: **Knives have very sharp edges which can cause serious injury. Handle with care.**

a) Remove five bolts holding knives and transition doors to rotary air valve knife shelves.

b) Remove doors and knives.

c) Clean all dirt or debris from shelves.

d) Back out the two center jacking screws on each shelf.

e) Compare replacement knives to those removed. If the new knife is wider, back the two outside jacking screws out at least this amount. Count the turns, and back both screws out evenly.

f) Lay the knife on the knife shelf. Insure the knife is installed with the cutting angle edge facing down as shown in Figure 3. Install loosely the two outer, and the middle knife mounting bolts. Tighten the mounting bolts just enough to hold the knife in position while still allowing it to be removed.

g) Install a block of wood (approximately 2" x 4" x 6" long (5x10x15 cm)) in between the knife and the closest vane at the center of the rotor length. Pinch the wood between the knife and the vane by turning the rotor shaft with a pipe wrench.

h) While keeping pressure on the knife, tighten the three mounting bolts.

i) Remove the wood block, and check the clearance between the knife and the rotor vane using a feeler gauge at the three mounting bolts.

NOTE: If the knife touches the vane at any point, loosen the three mounting bolts, back off the jacking screws evenly, and repeat steps g, h, and i until clearance is obtained.

j) Loosen the three mounting bolts, and use the jacking screws to close the gap. One full turn of the screw moves the knife 0.070 inches (1.8 mm).

k) Tighten mounting bolts as in step g and h.

l) Repeat steps, g, h, I, and j until a knife to vane clearance of no more than 0.006 inches (0.15 mm) is obtained at the closest point(s).

m) Once set, install the other two mounting bolts and tighten.

n) Run two center jacking screws in to contact the knives. Lock all jacking screws in place with the locknuts.

o) Remove three mounting bolts for transition door, and install the door.

p) Repeat procedure for other knife.

q) Immediately have removed set of knives sharpened. Do not attempt to grind the knives by hand. They must be ground straight and true on a surface grinder by an experienced knife sharpener. Grind the knives to the profile shown below:

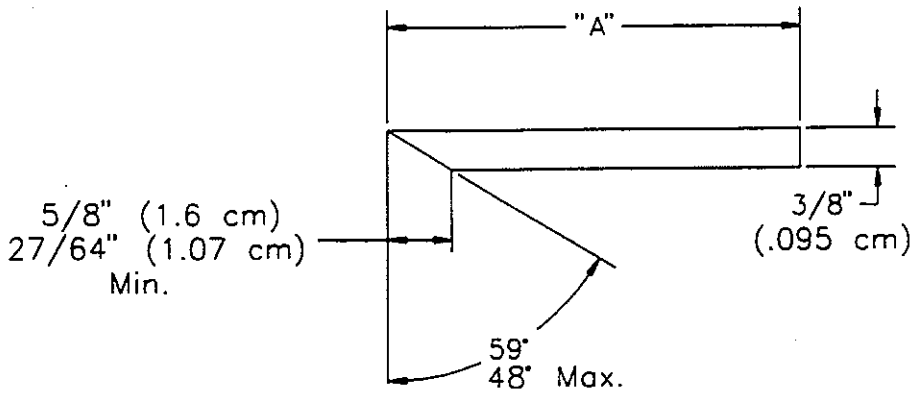


Figure 3

When dimension "A" has been reduced to 2- 3/8 inches (6 cm) the knife must be discarded.

8. Check the take-up roll at the hitch end of the elevator for any material build-up on the backside of the belt. Clean out any debris with air or water. Re-track the belt while running by tightening the take-up roller bearing on the side of the conveyor that the belt is running too close to.

After First 100 Hours of Operation:

1. Change the gear box oil on the blower (see blower manual). Change oil every 1000 hours thereafter.

2. Change the gearbox oil on the rotary air valve using SAE 80W90 oil, filling to the side plug. Change every 1000 hours thereafter.

Every 3 Months or 3000 Miles (4800 km):

1. Check and adjust trailer brakes.

2. Re-torque wheel lug nuts (85-95 ft.lbs. (12-13 kg-m)).

3. Check tire condition.

Every 12 Months or 12000 Miles (19300 km):

1. Inspect and repack wheel bearings.

2. Inspect trailer brake magnets, pads, drums, etc.

Winter Shutdown and Storage:

1. Blow all material out of machine, turn off engine and disconnect battery cables.

2. Remove the inlet elbow to the blower air chamber and coat internals of impeller cylinder with a rust preventative such as "WD-40". Reconnect piping to prevent foreign debris from entering blower chamber. Rotate drive shaft three or four revolutions. Repeat this process every month or as conditions may require.

3. Remove the drain plug from the rotary air valve to insure that no water builds up inside the valve housing (water can freeze and severely damage the valve).

4. Store machine inside or protect as best as possible.

AEM 2000 WITH RADIO REMOTE CONTROL OPTION:

This AEM is equipped with a Radio Remote to control the Material Feed Start and Stop. It also contains an Emergency Stop button that activates the Murphy shutdown system on the engine. The remote throttle requires the addition of an electric throttle control on the engine, and is not active.

If using the Radio Remote, a certain start-up sequence must be followed or engine shutdown will occur. When using the remote, start as follows:

1. Place the Radio Remote ON/OFF switch, located on the Radio Remote box, to the "OFF" position.

2. Place the switch, located on top of the Radio Transmitter, to the "OFF" position.

3. Start the engine and allow to warm up as specified in the AEM instruction manual.

4. While holding in the Murphy button located on the engine panel.

    a) Place the Radio Remote switch located on the Radio Remote box to the "ON" position.
    b) Place the Radio Transmitter switch to the "ON" position.

Pushing the red button located next to the antenna on the Radio Transmitter activates the Murphy shutdown system. To reset the warning system:

1. Flip the Radio Transmitter ON/OFF switch to "OFF".

2. While holding the Murphy button in, flip the Radio Transmitter ON/OFF switch to "ON".

To utilize the Material Feed Start/Stop feature of the Radio Remote, the Initial "START" must occur at the Start/Stop station on the AEM. The hard-wired, Start Stop on the unit is the primary and overriding set of controls. Pushing of the "Stop" button, as well as a loss of power to the Material Feed Control (i.e. open transition door or blown main fuse), deactivates the material Feed Start/Stop feature of the Radio Remote until power is restored to the Material Feed Control and the "Start" button on the machine is pushed.

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AEM-2000
Spreader
Parts Manual

Model No. RN Serial No. _____

NOTE: The Parts Manual Section of this manual may be removed. The Operator's manual must remain with the machine at all times for continued reference.

WARRANTY

Finn warrants to the original Purchaser for use (or rental to others for use) all new construction machinery and attachments therefore manufactured by Finn to be free from defects in material and workmanship for a period of 12 months from date of purchase or 1200 hours of use, whichever comes first. Replacement parts provided under the terms of this warranty are warranted for the remainder of the warranty period applicable to the product in which installed, as if such parts were original components of that product. Finn makes no warranty with respect to (a) allied equipment or trade accessories not manufactured by it (such as, but not limited to tires, ignitions, starters, hose, batteries, magnetos, carburetors, engines or like or unlike equipment or accessories), such being subject to the warranty, if any, provided by their respective manufactures; or (b) secondhand, used, altered, or rebuilt machines. Further, the warranty herein expressed shall be rendered null and void to the extent any defect or failure of the products warranted hereby arises out of or is caused by accessories or component parts not manufactured or supplied by Finn, whether same are supplied by Purchaser, dealers or any other party. THE WARRANTY DESCRIBED IN THIS PARAGRAPH SHALL BE IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

Upon notification of Finn during the above-stated warranty period of any failure to conform to this warranty, and upon inspection by Finn to verify said nonconformity and verify the continuing existence of the warranty period, Finn will provide a new part or a repaired part, whichever Finn elects, to replace the part found to be defective. Such parts will be provided without charge to the Purchaser during normal working hours at a place of business of a Finn dealer or other establishment authorized by Finn to effect said repairs or replacements, but Purchaser shall bear all costs of transporting the product to and from such place of business or establishment. Correction of nonconformities, in the manner and for the period time provided above, shall constitute fulfillment of all liabilities of Finn under this contract.

THE REMEDIES OF THE USER SET FORTH HEREIN ARE EXCLUSIVE, WITHOUT REGARD TO WHETHER ANY DEFECT WAS DISCOVERABLE OR LATENT AT THE TIME OF DELIVERY OF THE PRODUCT TO THE PURCHASER. The essential purpose of this exclusive remedy shall be to provide the Purchaser with repair or replacement of parts that prove to be defective within the period and under the conditions previously set forth. This exclusive remedy shall not have failed of its essential purpose (as that term is used in the Uniform Commercial Code) provided Finn remains willing to repair or replace defective parts within a commercially reasonable time after it obtains actual knowledge of the existence of a particular defect.

IN NO EVENT SHALL FINN BE LIABLE FOR ANY SPECIAL, CONSEQUENTIAL, INCIDENTAL OR INDIRECT DAMAGES, INCLUDING LOST PROFITS OR LOST COMMERCIAL OPPORTUNITIES, WITH RESPECT TO THE SALE OF THE ABOVE WARRANTED PRODUCT OR ANYTHING DONE IN CONNECTION THEREWITH, OR FOR PROPERTY DAMAGE SUSTAINED BY A PERSON CLAIMING TO BE A THIRD PART BENEFICIARY OF A SURVIVING WARRANTY UNDER THE LAW OF ANY JURISDICTION.

NOTICE

FINN CORPORATION URGES THE USE OF ONLY FINN CORPORATION SUPPLIED PARTS AND ATTACHMENTS TO ASSURE PROPER PERFORMANCE AND SAFE OPERATION OF FINN CORPORATION EQUIPMENT. INSIST ON PARTS AND ATTACHMENTS MANUFACTURED OR SUPPLIED BY FINN CORPORATION WHEN YOU PURCHASE, REPAIR OR REPLACE YOUR FINN EQUIPMENT AND ATTACHMENTS.

BECAUSE FINN CORPORATION CANNOT ASSURE THAT PARTS AND ATTACHMENTS NOT MANUFACTURED OR SUPPLIED BY FINN MEET FINN CORPORATION'S QUALITY STANDARDS, SPECIFICATIONS, OR OPERATING REQUIREMENTS, OUR WARRANTY IS NOT EFFECTIVE TO THE EXTENT ANY FAILURE OF OR DEFECT IN A FINN CORPORATION PRODUCT ARISES FROM OR IS CAUSED BY PARTS, ATTACHMENTS OR COMPONENTS NOT ORIGINATING WITH FINN CORPORATION. USE OF FINN CORPORATION EQUIPMENT WITH PARTS AND ATTACHMENTS NOT MANUFACTURED OR SUPPLIED BY FINN COULD RESULT IN PERSONAL INJURY.

Effective December 8, 1995

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.

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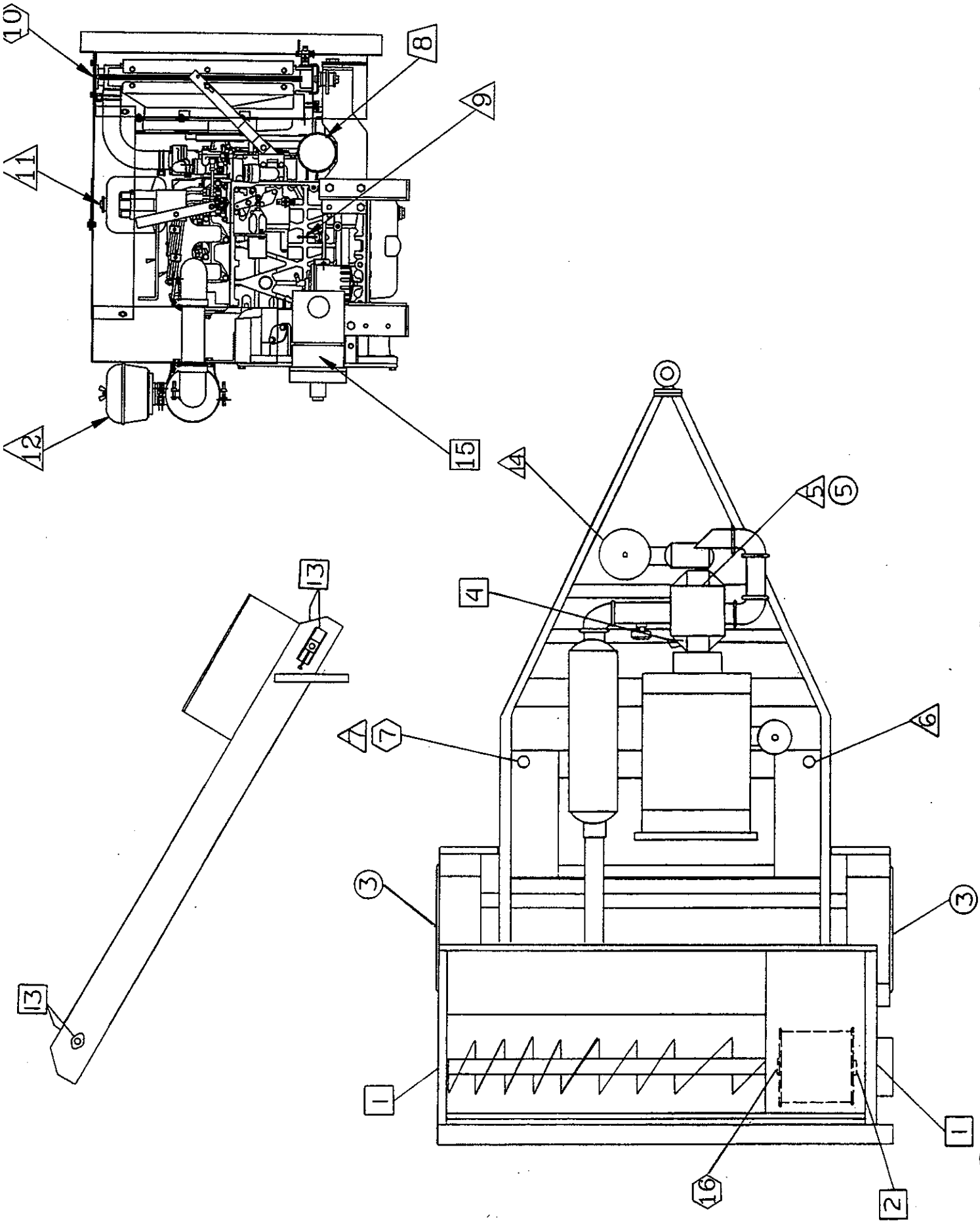
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LUBRICATION CHART

Ref. No.	Location	Lubricant	Frequency	Number
1	Screw Conveyor Bearings	CL	Weekly	2
2	Air Lock Bearing	CL	Weekly	1
3	Wheel Bearings	CL	Annually	2
4	Blower Bearings	CL	Weekly	2
5	Check Oil Level	MO	Daily	1
	Change Oil	MO	Annually	1
6	Check Fuel Level	DF	Daily	1
7	Check Hydraulic Oil Level	HO	Daily	1
	Change Oil and Filter	HO	Seasonally	1
8	Change Engine Oil & Filter	MO	See Engine Manual	1
9	Check Engine Oil Level	MO	Daily	1
10	Change Engine Coolant	AF	Seasonally	1
11	Check Coolant Level	AF	Daily	1
12	Check Air Cleaner-Engine		Daily	1
13	Elevator Bearings	CL	Weekly	4
14	Check Air Cleaner-Blower		Daily	1
15	Check Overhung Load Adapter	CL	Weekly	1
16	Gear Box-Air Lock	GO	Seasonally	1

LUBRICANT OR FLUID USED

CL	Chassis Lubricant
MO	Motor Oil SAE 30 CD/SF
AF	50/50 Anti-Freeze and Water Mixture
DF	Diesel Fuel
HO	Hydraulic Oil 10W-40 SE Motor Oil
GO	90W Gear Oil

TIME KEY

DAILY (8 hours) 

WEEKLY (40 hours) 

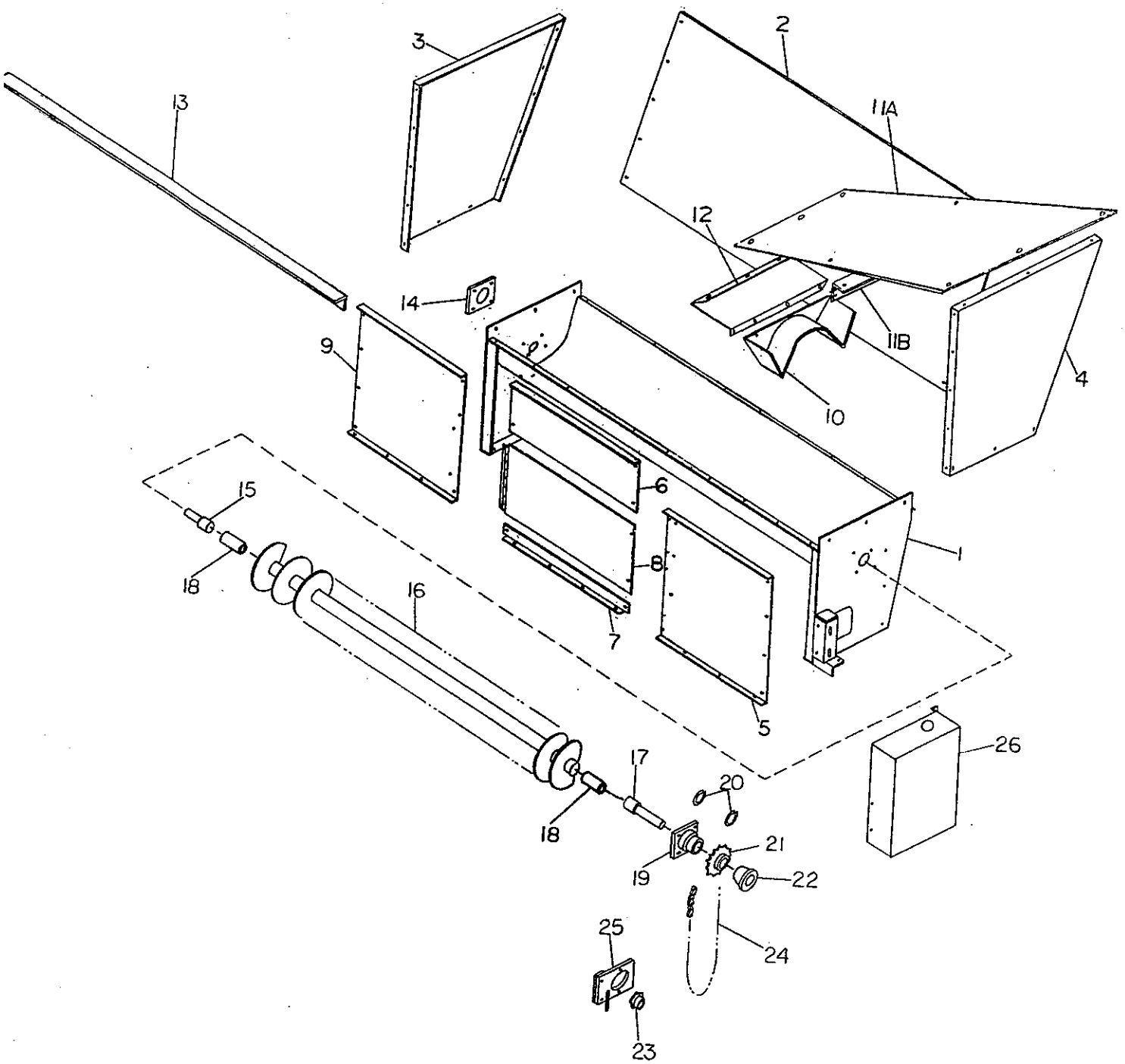
SEASONALLY (500 hours) 

ANNUALLY (2000 hours) 

SEE ENGINE MANUAL 

FLUID CAPACITIES

Fuel - 15.75 Gallons (60 L)
Hydraulic Oil - 15.75 Gallons (60 L)
Engine Coolant - 1.5 Gallons (6 L) 50/50 Mix Only
Engine Oil - 6 Quarts (6 L)
Gear Box Oil - 9 ounces (.26 L)

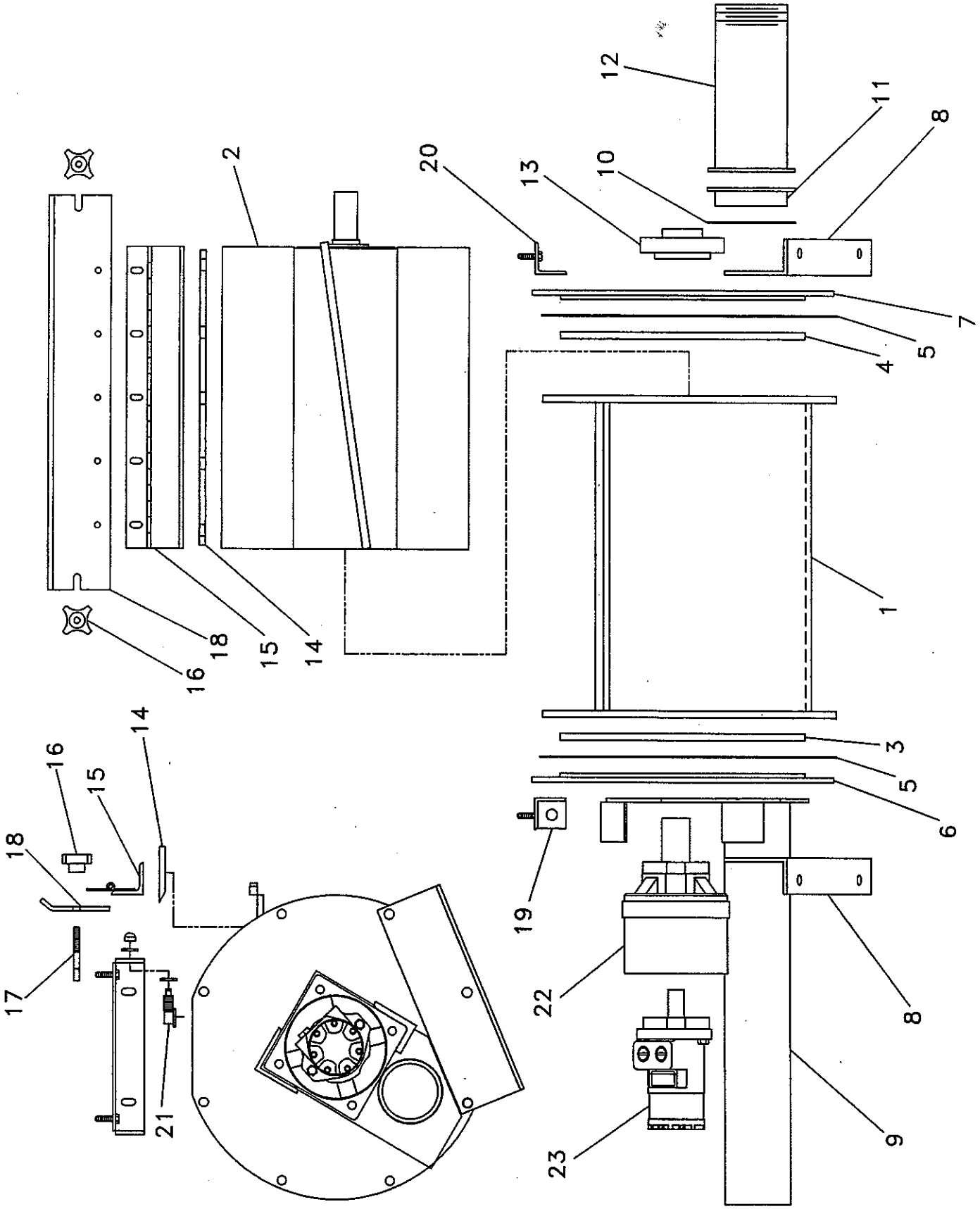


WHEN ORDERING PARTS, BE SURE TO STATE SERIAL NUMBER OF MACHINE

SCREW CONVEYOR, TROUGH & HOPPER

Ref. No.	Part Number	Description	No. Req'd
1	055441	Conveyor Trough	1
2	055315	Front Hopper Panel	1
3	055316-02	Left Hopper Panel	1
4	055316-01	Right Hopper Panel	1
5	055193-01	Right Rear Hopper Panel	1
6	055195-01	Upper Rear Hopper Panel	1
7	055195-02	Lower Rear Hopper Panel	1
8	055244	Hopper Door	1
9	055193-02	Left Rear Hopper Panel	1
10	055445	Shroud	1
11A	055417	Diverter Cover	1
11B	055446	Diverter Plate Support Angle	1
12	055418	Diverter	1
13	055242-05	Rear Hopper Support Angle	1
14	055143	Flange Bearing	1
15	055170-01	Conveyor Idler Shaft	1
16	055437	Screw Conveyor	1
17	055170-03	Conveyor Thrust Drive Shaft	1
18	055245-03	Insert Pipe	2
19	055207	Flange Thrust Bearing	1
20	055186	Snap Ring	2
21	055303	Sprocket, Driven	1
22	055103	Bushing	1
23	055105	Drive Sprocket	1
24	055302	Drive Chain	1
	055293	Chain Connecting Link	1
	055419	Chain Offset Link	1
25	055323	Motor Mounting Plate	1
26	055317	Chain Guard	1

WHEN ORDERING PARTS, BE SURE TO STATE SERIAL NUMBER OF MACHINE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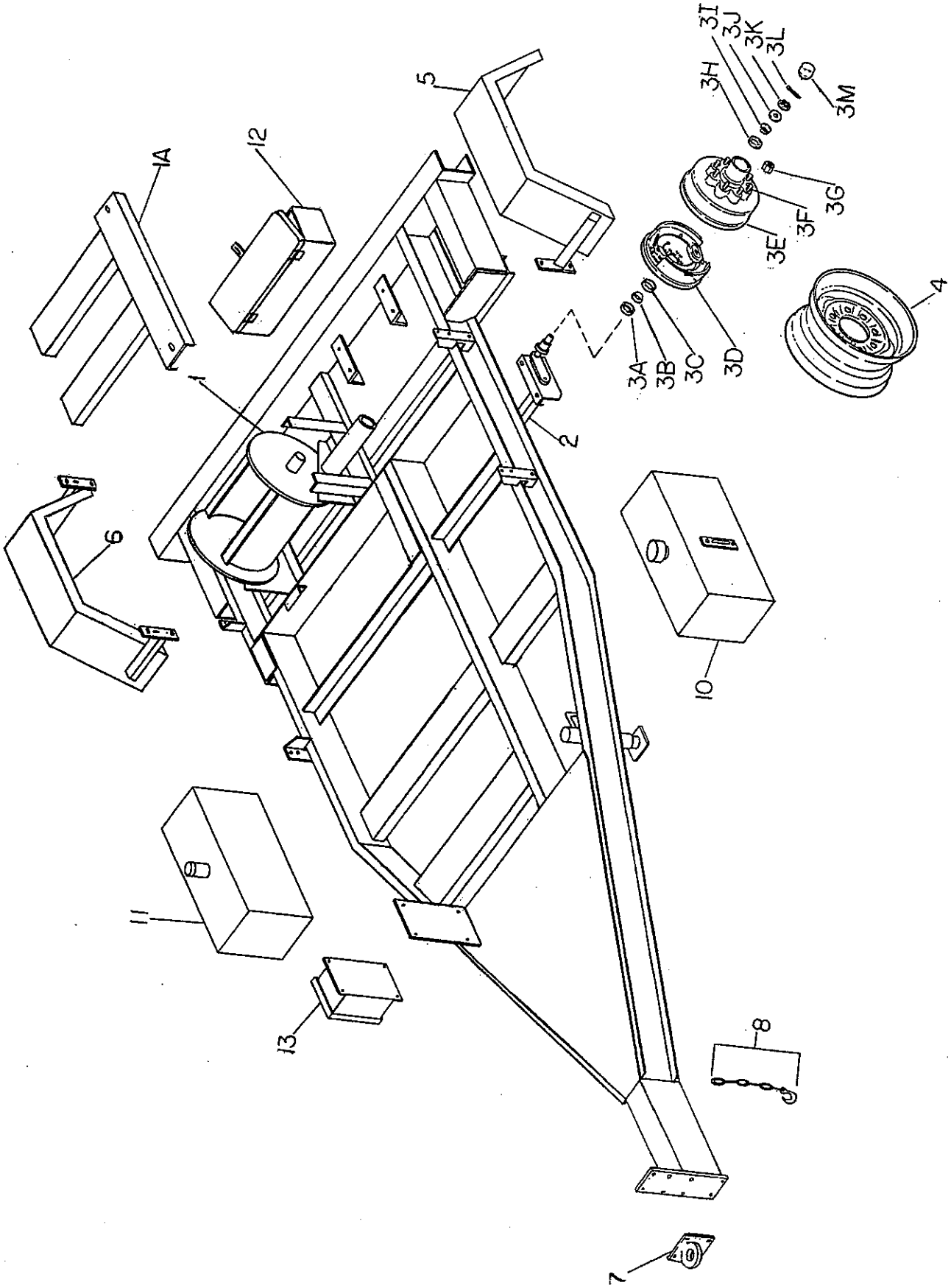
AIR LOCK ASSEMBLY

Ref. No.	Part Number	Description	No. Req'd
1	055438	Air Lock Housing	1
	X0828	1/2" Bolt x 1 3/4" Long	11
	X0832	1/2" Bolt x 2" Long	5
	W08F	1/2" Flat Washer	16
	W08L	1/2" Lockwasher	16
	Y08	1/2" Hex Nut	16
2	055423	Rotor	1
3	055442-01	Inlet Seal Plate	1
4	055442-02	Outlet Seal Plate	1
5	055214	Shim Set	1
6	055439-02	Inlet End Plate	1
7	055439-01	Outlet End Plate	1
8	055431-03	Air Valve Foot	2
9	055457-02	Inlet Pipe Weldment	1
10	055440	Discharge Gasket	3
11	055444	Discharge Insert	1
	X0412BH	1/4" Button Head Bolt x 3/4" Long	4
12	055457-01	Discharge Pipe Weldment	1
13	005446	Bearing	1
	X0728	7/16" Bolt x 1 3/4" Long	4
	W07F	7/16" Flat Washer	4
	W07L	7/16" Lockwasher	4
14	055113	Knife	2
	XS0444	1/4" Square Head Bolt x 2 3/4" Long	8
	Y04J	1/4" Jam Nut	8
15	055432-01	Hinge Weldment	2
16	070583	Black Knob	4
17	055433	Swing Bolt	4
18	055431-02	Door	2
	W05F	5/16" Flat Washer	10
	W05L	5/16" Lockwasher	10
	Y05	5/16" Hex Nut	10
19	055432-02	Door Mount - Inlet Side	1
20	055432-03	Door Mount - Discharge Side	1
21	055407	Door Button	2
22	055464	Gear Box	1
23	055409	Hydraulic Motor	1
24	055510	Drain Plug	1

WHEN ORDERING PARTS, BE SURE TO STATE SERIAL NUMBER OF MACHINE

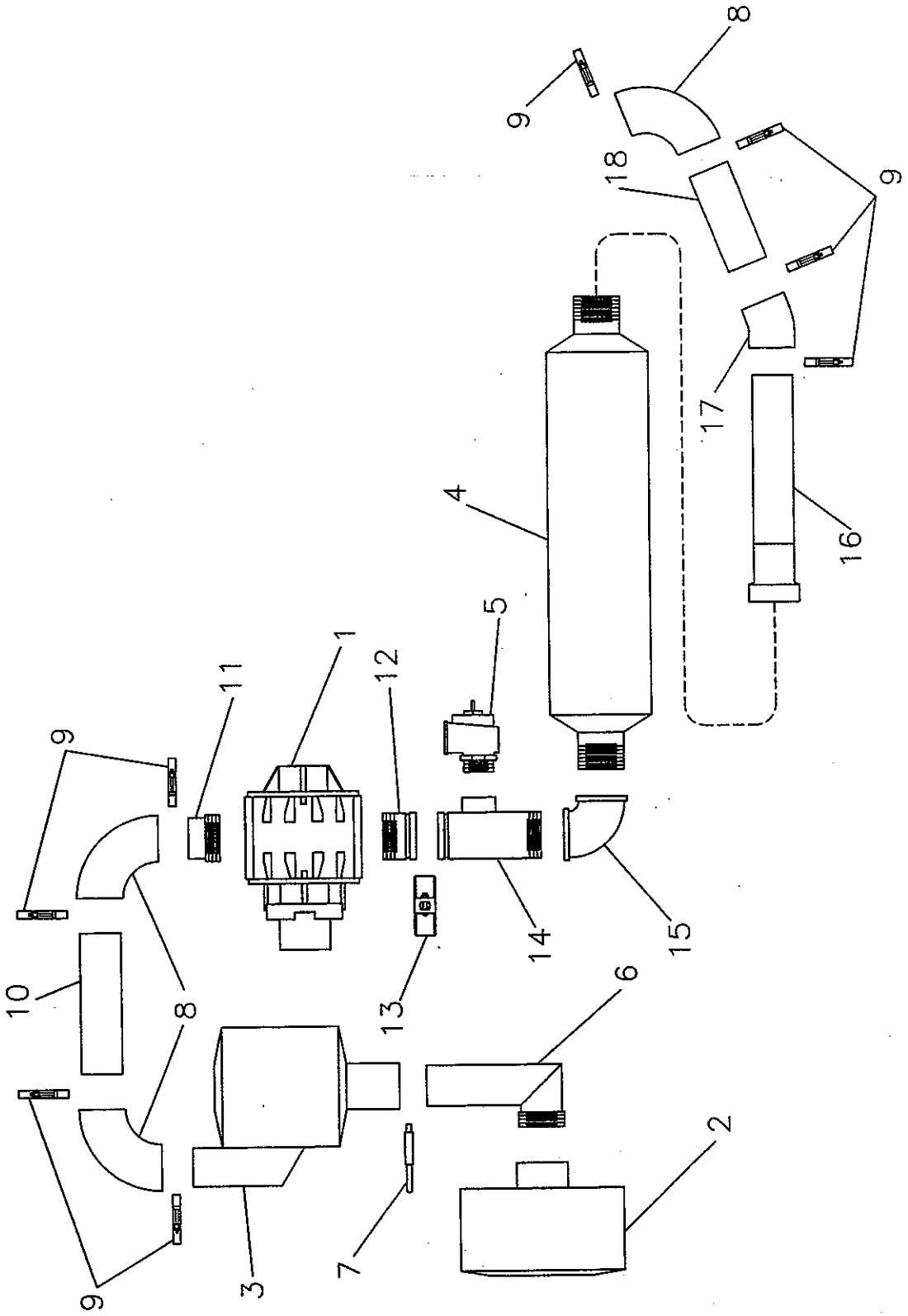


WHEN ORDERING PARTS, BE SURE TO STATE SERIAL NUMBER OF MACHINE

FRAME AND AXLE COMPONENTS

Ref. No.	Part Number	Description	No. Req'd
1	055443	Air Lock Assembly (See Page 26)	1
1A	055434	Air Lock Mount	1
2	055112	Axle	1
3A	WL10-01	Grease Seal	2
3B	WL25580	Inner Bearing Cone	2
3C	WL25520	Inner Bearing Cup	2
3D	WL23-105	Left Hand Brake Assembly	1
	WL23-106	Right Hand Brake Assembly	1
3E	WL8-219-4	Hub and Drum	2
3F	WL7-122	Stud	16
3G	WL6-80	Nut	16
3H	WL14276	Outer Bearing Cup	2
3I	WL14125A	Outer Bearing Cone	2
3J	WL5-57	Spindle Washer	2
3K	WL6-1	Spindle Nut	2
3L	WL19-2	Cotter Pin	2
3M	WL21-39	Grease Cap	2
4	005057	Wheel	2
	005060	Tire	2
	004644	Tire Stem	2
5	055179	Fender-Left Hand Side	1
6	055427	Fender Right Hand Side	1
7	080043	Tow Ring (Standard)	1
	005134	Coupler (Optional)	1
	005135	2 5/16 Ball (Optional)	1
8A	190033	Safety Chain	6'
8B	004888	Coupling Link	2
8C	023485	Clevis Grab Hook	2
9	005438	Trailer Jack	1
10	055182	Hydraulic Reservoir	1
	055184-01	Tie-Down Strap	2
11	055183	Fuel Tank	1
	055184-01	Tie-Down Strap	2
	007914	Fuel Tank Cap	1
	011867	Fuel Tank Gauge	1
12	011313	Tool Box	1
	011398	Tool Box Mount	4
13	055454	Control Box Assembly (See Page 40)	1

WHEN ORDERING PARTS, BE SURE TO STATE SERIAL NUMBER OF MACHINE

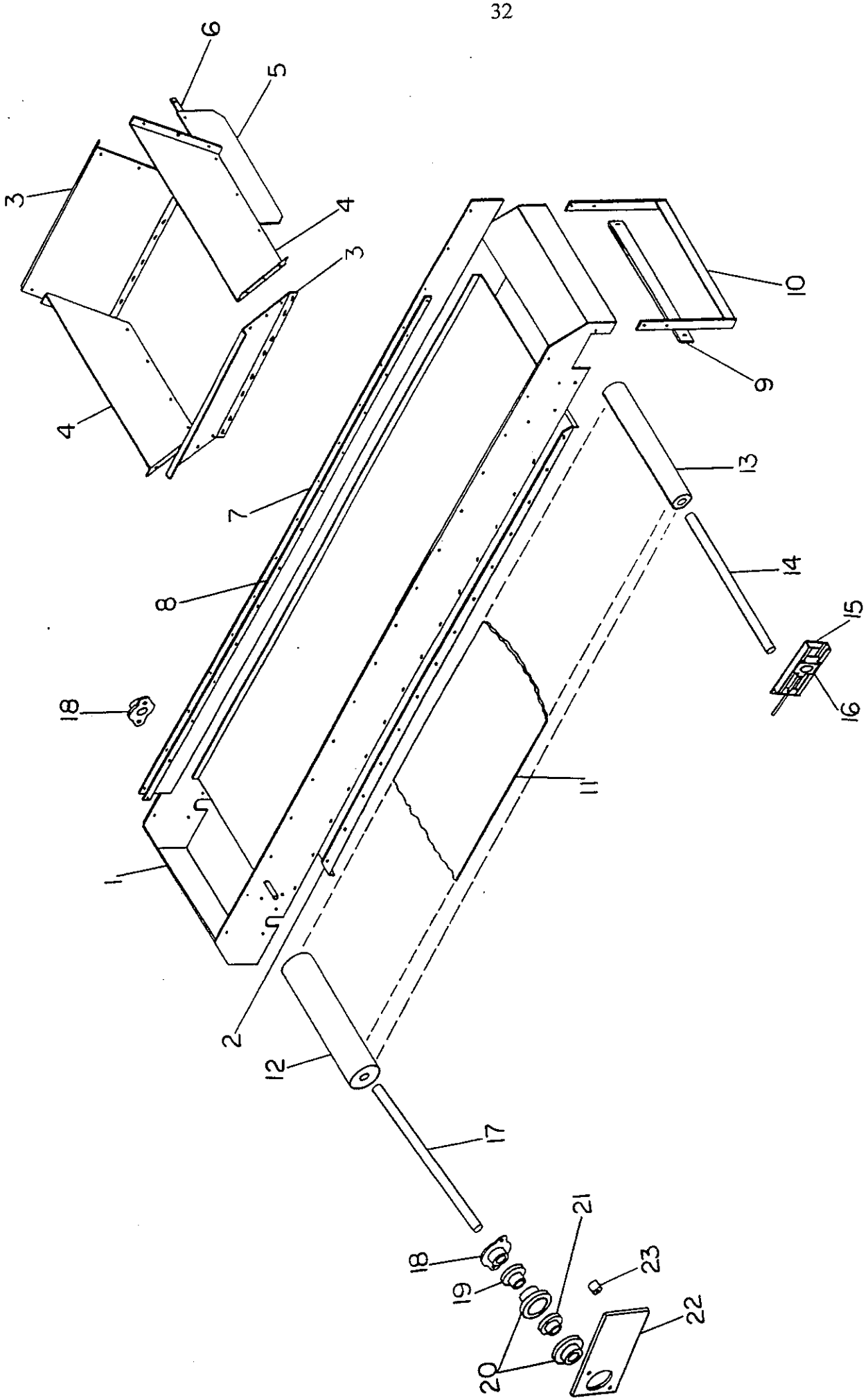


WHEN ORDERING PARTS, BE SURE TO STATE SERIAL NUMBER OF MACHINE

BLOWER COMPONENTS

Ref. No.	Part Number	Description	No. Req'd
1	055138	Blower	1
2	055144	Filter	1
	055145	Filter Element	1
3	055341-07	Inlet Silencer	1
4	055184-02	Outlet Silencer	1
5	055141	Relief Valve	1
6	055341-04	Inlet Elbow Pipe	1
7	055336	Clamp	1
8	055334	90° Rubber Elbow	3
9	055335	Clamp	8
10	055338-15	Adapter Tube	1
11	055341-01	Inlet Pipe	1
12	005226-02	Connector Pipe	1
13	006710	Clamp	1
	006145	Gasket, Clamp	1
14	055181-02	Relief Pipe	1
15	160022	90° Pipe Elbow	1
16	055181-04	Tube Connector	1
17	055366	22° Rubber Elbow	1
18	055181-10	Connector Tube	1

WHEN ORDERING PARTS, BE SURE TO STATE SERIAL NUMBER OF MACHINE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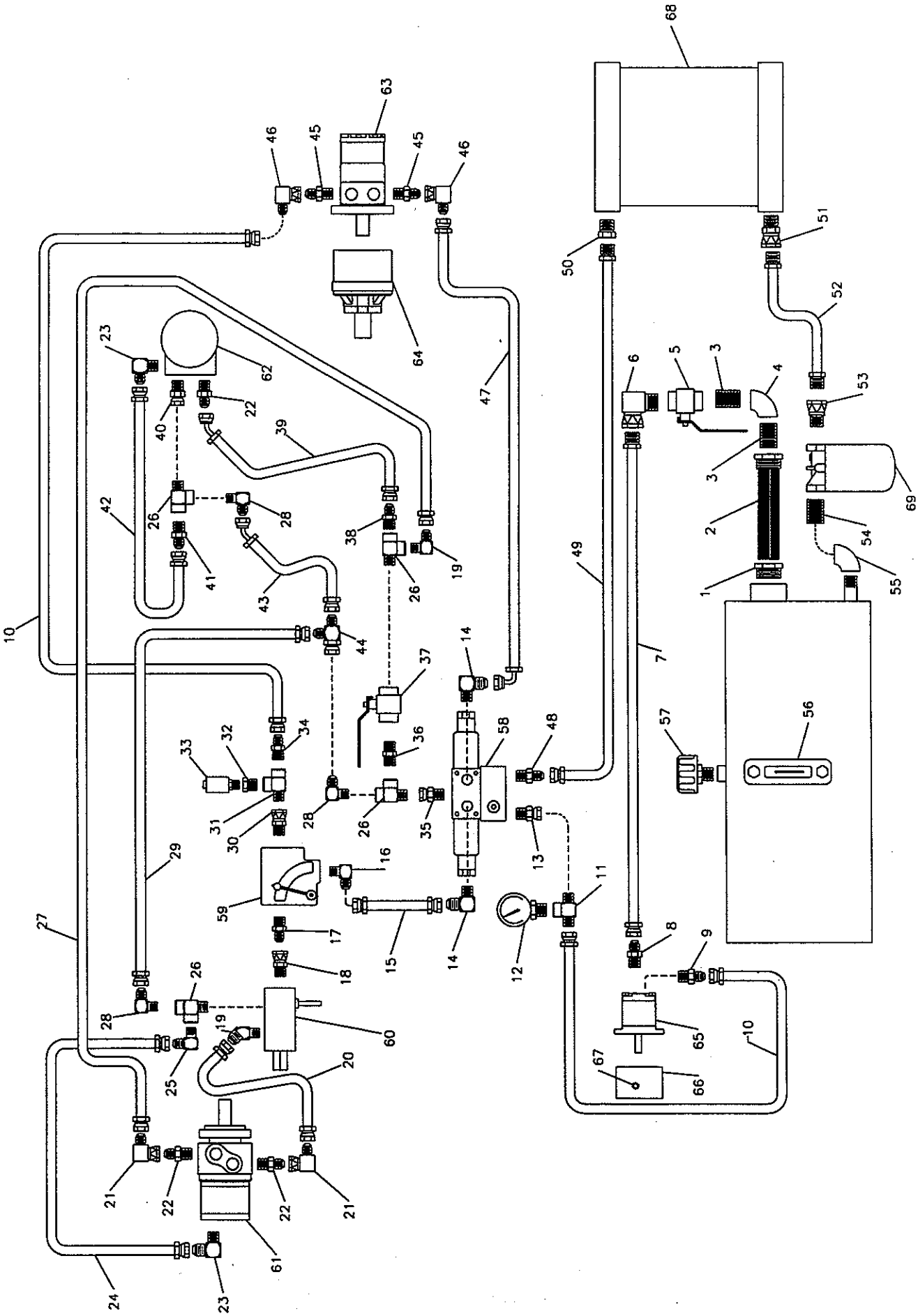
ELEVATOR

Ref. No.	Part Number	Description	No. Req'd
1	055290	Elevator Weldment	1
2	055199	Bottom Pan	1
3	055201-01	Hopper Side	2
4	055201-02	Hopper End	2
5	055265-01	Hopper Rubber Flap	1
6	055270-01	Backing Strap	1
7	055265-02	Side Rubber Strip	2
8	055270-02	Backing Strap	2
9	055270-05	Scraper	1
10	055269-01	Front Elevator Mount	1
	055269-07	Rear Elevator Mount	1
	055269-04	Cross Brace	1
11	055254	Elevator Belt	1
12	055256	Drive Roll	1
	055282	Bushing	1
13	055255	Idler Roll	1
	055281	Bushing	1
14	055266-01	Idler Shaft	1
15	055258	Take Up Unit	2
16	055257	Take Up Bearing	2
17	055266-02	Drive Shaft	1
18	020586	Bearing	2
19	020679	Bushing, Shaft	1
20	055259	Coupling	1
21	020813B	Bushing, Motor	1
22	055148-04	Motor Mounting Plate	1
23	004630	Rubber Insert	1
	055260	Hydraulic Motor	1

WHEN ORDERING PARTS, BE SURE TO STATE SERIAL NUMBER OF MACHINE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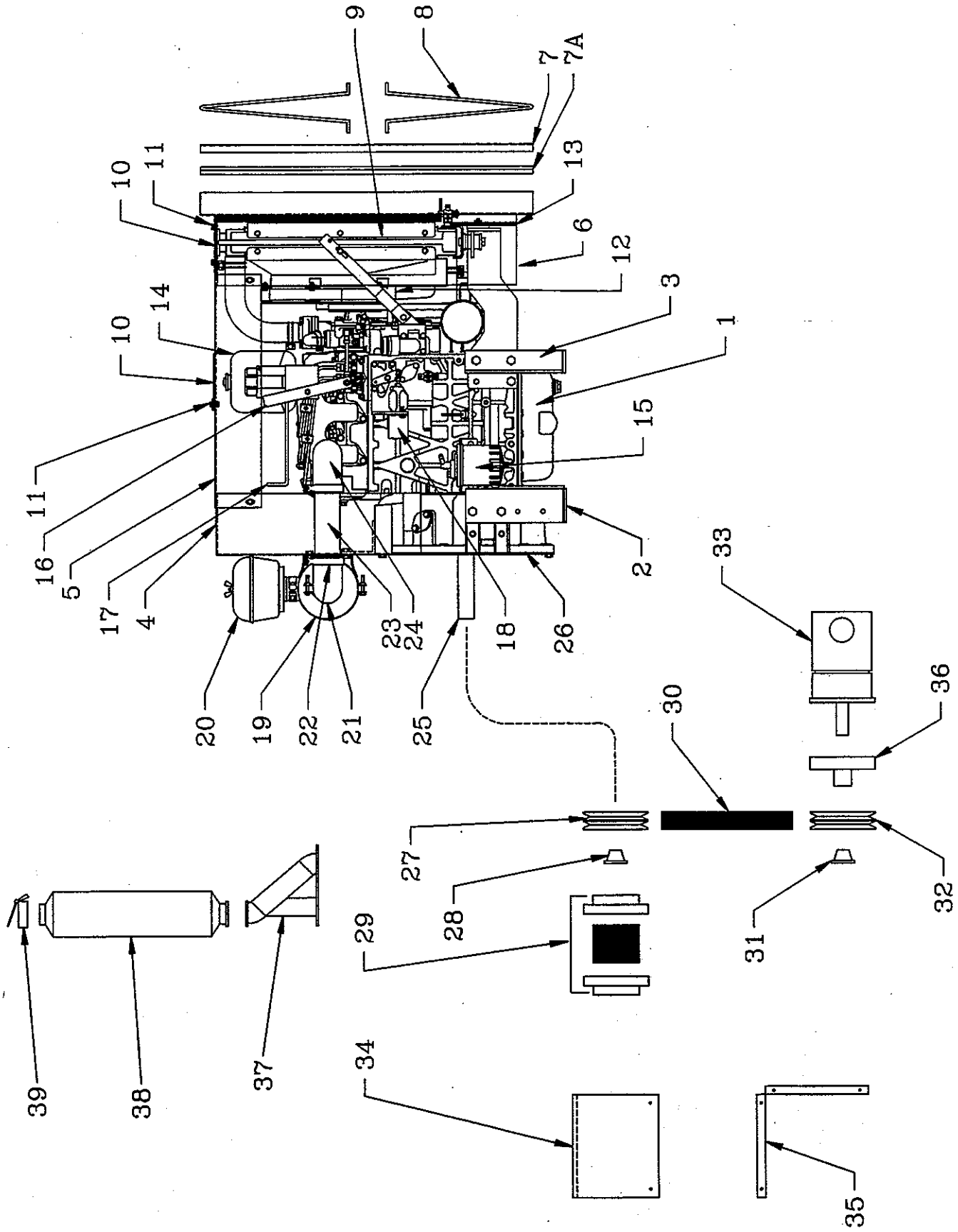
HYDRAULIC SYSTEM

Ref. No.	Part Number	Description	No. Req'd
1	160763	Reducer Bushing	1
2	011466	Suction Strainer	1
3	160305	Close Nipple	2
4	160010	90° Pipe Elbow	1
5	021559	Ball Valve	1
6	070465	90° Adapter Union	1
7	055360	Suction Hose	1
8	055383	Straight Male Adapter	1
9	055359	Straight Male Adapter	1
10	055361	High Pressure Feed Hose	2
11	055369	Female Branch Tee	1
12	012044	Pressure Gauge	1
13	055357	Straight Male Adapter Union	1
14	055230	Male 90° Elbow Adapter	2
15	055224	High Pressure Forward Hose	1
16	023652	Male 90° Elbow Adapter	1
17	085015	Straight Male Adapter	1
18	055394	Straight Adapter Union	1
19	012243	Male 45° Elbow Adapter	2
20	055458	High Pressure Screw Hose	1
21	FW71636	90° Adapter Union	2
22	085014	Straight Male Adapter	3
23	055274	Male 90° Elbow Adapter	2
24	055461	Case Drain Hose	1
25	055273	Male 90° Elbow Adapter	1
26	022301	Street Tee	4
27	055460	Screw Return Hose	1
28	055234	Male 90° Elbow Adapter	3
29	055459	Excess Oil Hose	1
30	022305	Straight Adapter Union	1
31	022592	Street Tee	1
32	055229	Hex Reducer Bushing	1
33	055116	Pressure Switch	1
34	041053	Straight Male Adapter	1
35	055237	Straight Adapter Union	1
36	022263	Pipe Nipple	1
37	055261	High Pressure Ball Valve	1
38	055238	Straight Male Adapter	1
39	055277	High Pressure Elevator Hose	1
40	080023	Straight Adapter Union	1
41	055272	Straight Male Adapter	1
42	055275	Case Drain Hose	1
43	055278	Elevator Return Hose	1
44	FW71784	Union Tee	1
45	012086	Straight Male Adapter	2
46	FW71870	90° Adapter Union	2
47	055462	High Pressure Reverse Hose	1
48	055233	Straight Male Adapter	1
49	055223	Cooler Hose	1
50	011958	Reducer Bushing	1
51	070376	Straight Adapter Union	1
52	055222	Return Hose	1
53	000668	Straight Adapter Union	1
54	160303	Close Nipple	1
55	160008	90° Pipe Elbow	1
56	080329	Sight Level Gauge	1
57	004900	Filler/Breather Cap	1
58	055115	Solenoid Control Valve	1
59	055140	Flow Control Valve	1
60	055395	Priority Divider	1
61	055400	Hydraulic Motor - Screw	1
62	055260	Hydraulic Motor - Elevator	1
63	055409	Hydraulic Motor - Air Lock	1
64	055464	Gear Box	1
65	055356	Hydraulic Pump	1
66	055381	Over Hung Load Adapter	1
67	011202	Grease Fitting	1
68	011618	Hydraulic Oil Cooler	1
69	021617	Return Filter	1
	021618	Filter Element	1



WHEN ORDERING PARTS, BE SURE TO STATE SERIAL NUMBER OF MACHINE

ENGINE ASSEMBLY

Ref. No.	Part Number	Description	No. Req'd
1	031352	Diesel Engine Assembly	1
2	005099	Rear Engine Mount	1
3	031363-01	Front Engine Mount	1
4	055412	Rear Engine Shroud	1
5	031362	Top Engine Shroud	1
6	031311-01	Radiator Shroud	1
7	031310	Radiator Screen	1
7A	190087	Seal, Radiator Screen	104"
8	031308	Retaining Spring, Screen	2
9	005093	Radiator Assembly	1
10	008177	Cover, Radiator Cap Hole	1
11	031311-08	Cover Strap	1
12	031371	Suction Fan	1
13	031311-09	Heat Shield	1
14	KU15501-72400	Coolant Recovery Tank w/Bracket	1
15	031355	Fuel Filter Assembly	1
	KU70000-43081	Filter Element	1
16	005502-02	Throttle Pivot Strap #031365 THROTTLE CABLE	1
	005502-04	Throttle Rod	1
	012193	Ball Joint	2
17	005503-03	Throttle Reverser Lever	1
18	031333	Shut Down Solenoid Kit	1
19	031354	Air Cleaner Assembly	1
	KU15401-11080	Element, Air Cleaner	1
20	031356	Pre-Cleaner	1
21	005504-03	90° Rubber Elbow	1
22	022450	Clamp	4
23	005504-02	Connector Tube	1
24	005504-03	90° Rubber Elbow	1
25	055162	Drive Shaft	1
26	055210	Rear Engine Cover	1
27	055110	Drive Sheave	1
28	000437B	Drive Bushing	1
29	055101	Coupling Assembly	1
	031273	Coupling Half, Drive	1
	055102	Coupling Half, Blower	1
	031274	Coupling Insert	1
30	055100	Power Band	1
31	021668B	Pump Bushing	1
32	011622	Pump Sheave	1
33	055356	Hydraulic Pump	1
34	055161-01	Coupling Guard	1
35	055161-02	Belt Guard	1
36	055381	Overhung Load Adapter	1
37	055428	Exhaust Adapter	1
38	KU19416-12002	Muffler Kit	1
	KU15371-12370	Muffler Gasket	2
39	055135	Rain Cap	1
		NOT ILLUSTRATED	
	080103	Fuel Pump	1
	080105	Pre Fuel Filter	1

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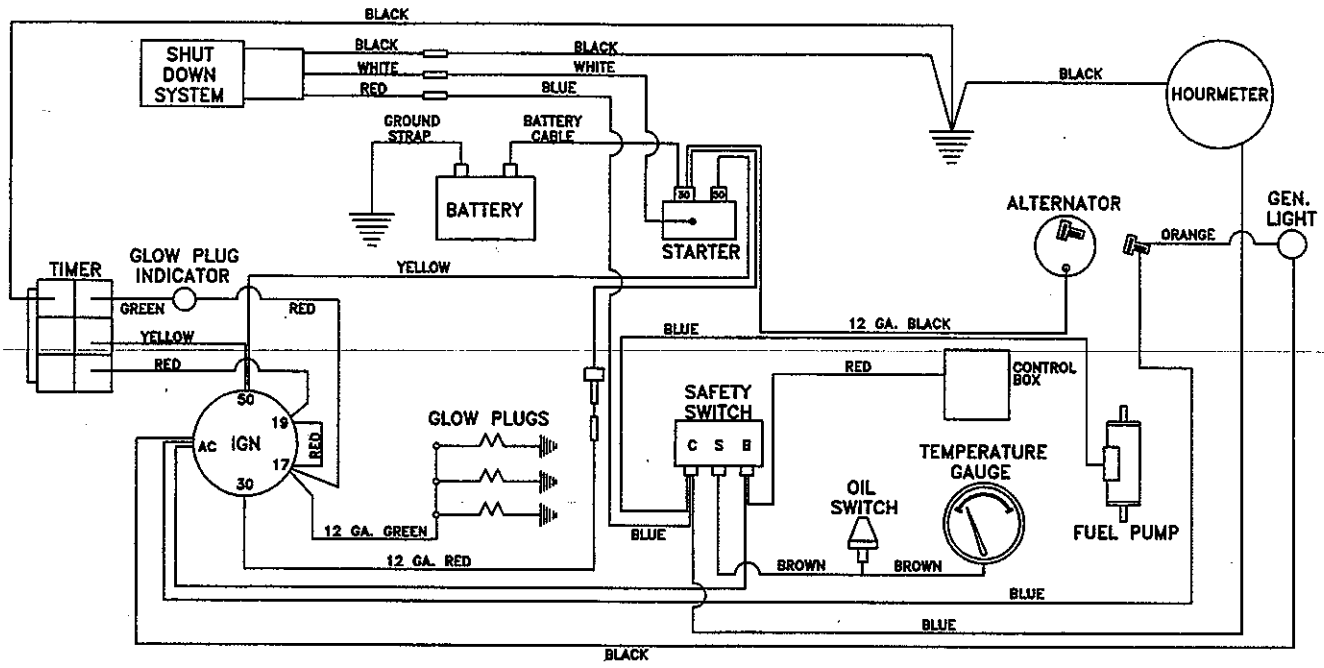
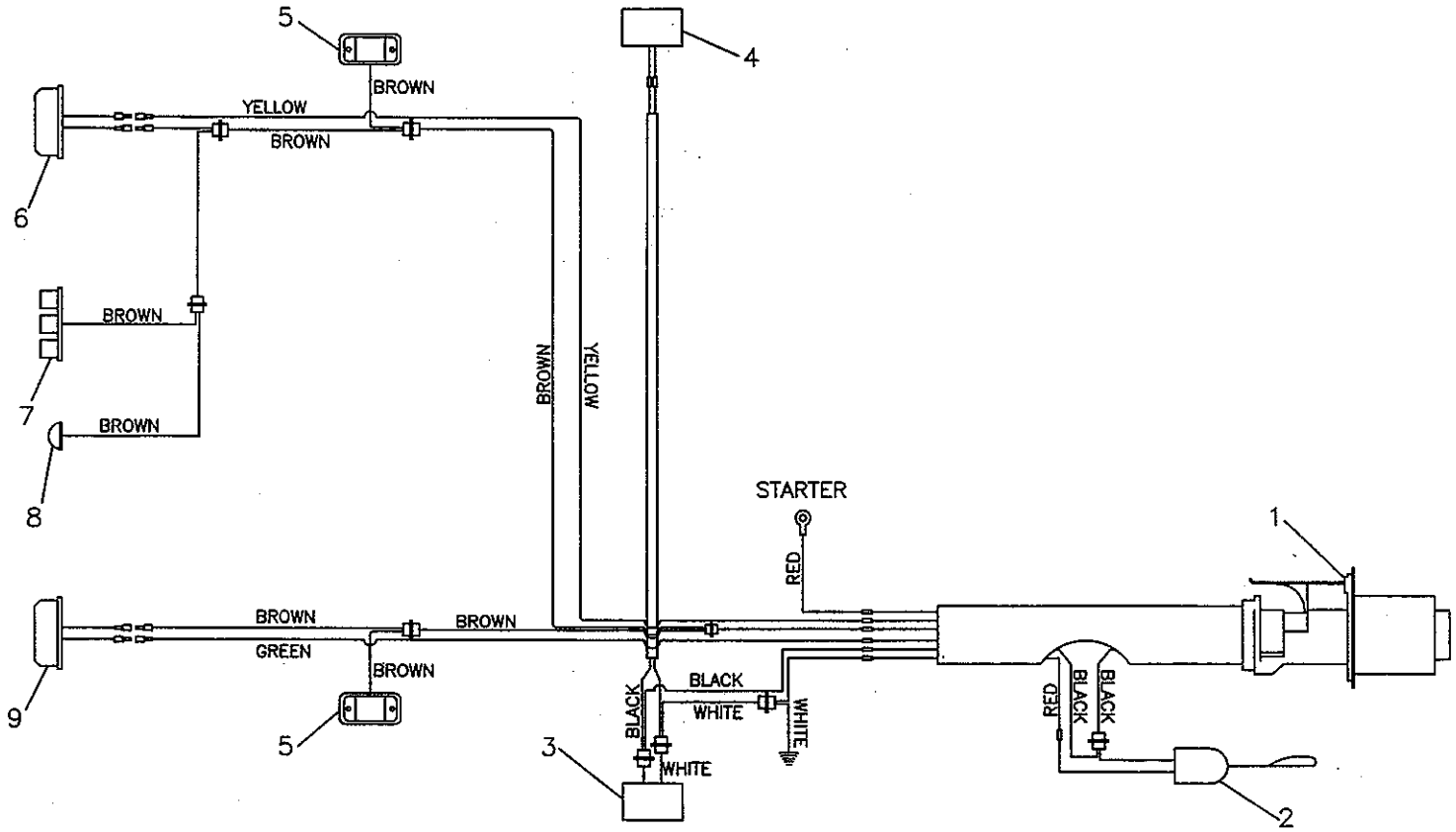


ENGINE WIRING

Part Number	Description	No. Req'd
004933	Ignition Switch	1
007274	Hourmeter	1
004935	Glow Plug Indicator	1
__ 022119	Safety Switch	1
006499	Horn	1
005301	Temperature Switch	1
004934	Oil Switch	1
006245	Generator Light	1
KU-70000-65938	Voltage Regulator	1
002256-12	Battery	1
031031	Battery Cable	1
010516	Ground Strap	1
080103	Fuel Pump	1

KU15694-65990 Timer

WHEN ORDERING PARTS, BE SURE TO STATE SERIAL NUMBER OF MACHINE



TRAILER WIRING

Ref. No.	Part Number	Description	No. Req'd
1	060069	Trailer Plug	1
2	023424	Breakaway Switch	1
	030934-01	Chain	1
	005016	"S" Hook	1
	005017	Snap	1
3	WL23-106	Right Hand Brake Assembly	1
4	WL23-105	Left Hand Brake Assembly	1
5	FW71090	Amber Corner Marker Light	2
6	005137	Taillight-Left Hand Side	1
	005137-A	Lens, Taillight	1
7	005138	Taillight-Right Hand Side	1
	005138-A	Lens, Taillight	1
8	060316	3-Bar Light	1
9	005236	License Plate Light	1

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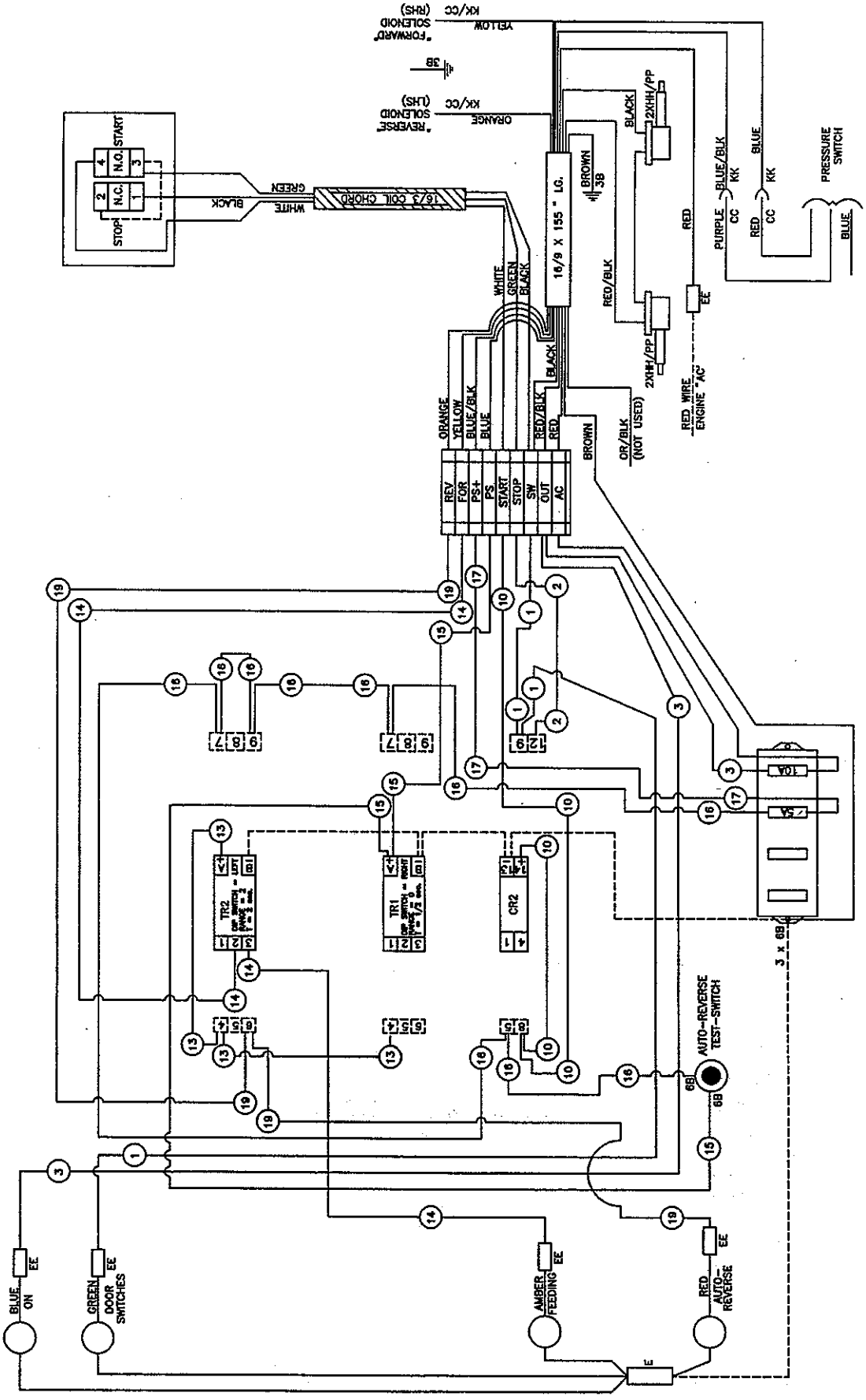
"FORWARD" SOLENOID (RHS)
kk/cc
YELLOW
3B
"REVERSE" SOLENOID (LHS)
kk/cc
ORANGE
START
N.O.
N.C.
STOP
BLACK
WHITE
GREEN
16/3 COIL CHORD
16/9 X 155 " LG.
BROWN 3B
BLACK
2XHH/PP
RED/BLK
RED
EE
PURPLE
BLUE/BLK
BLUE
CC
KK
PRESSURE SWITCH
RED WIRE ENGINE "AC"
OR/BLK (NOT USED)
ORANGE
YELLOW
BLUE/BLK
BLUE
REV
FOR
PS+
PS
START
STOP
SW OUT
AC
TR2
TR1
CR2
10A
5A
3 x 6B
AUTO-REVERSE TEST-SWITCH
6B
BLUE ON
EE
GREEN DOOR SWITCHES
AMBER FEEDING
RED AUTO-REVERSE

CONTROL BOX WIRING

Part Number	Description	No. Req'd
055120	Relay-RH2B	1
055123	Socket for Relay-RH2B	1
055122	Timer	2
055125	Socket for Timer	2
055343	Start/Stop Station	1
055344	Coil Cord	1
055449	10 AMP Fuse	1
055450	5 AMP Fuse	1
055404	Blue Pilot Light	1
055405	Green Pilot Light	1
055403	Amber Pilot Light	1
055406	Red Pilot Light	1
080304	Liquid Tight Fitting	3
055347-01	Start/Stop Station Mounting Clamp	1
055346	Knob	1

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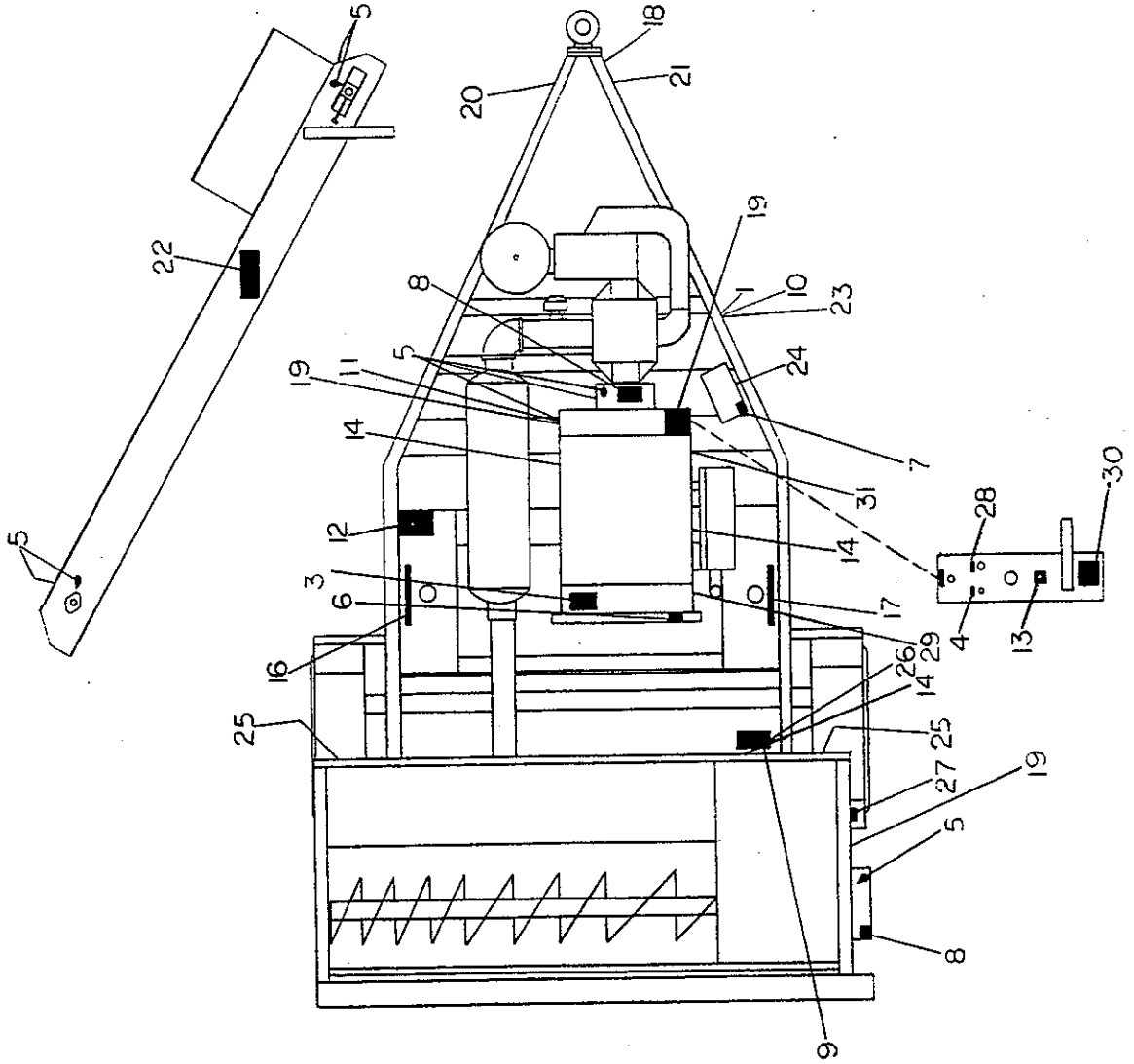
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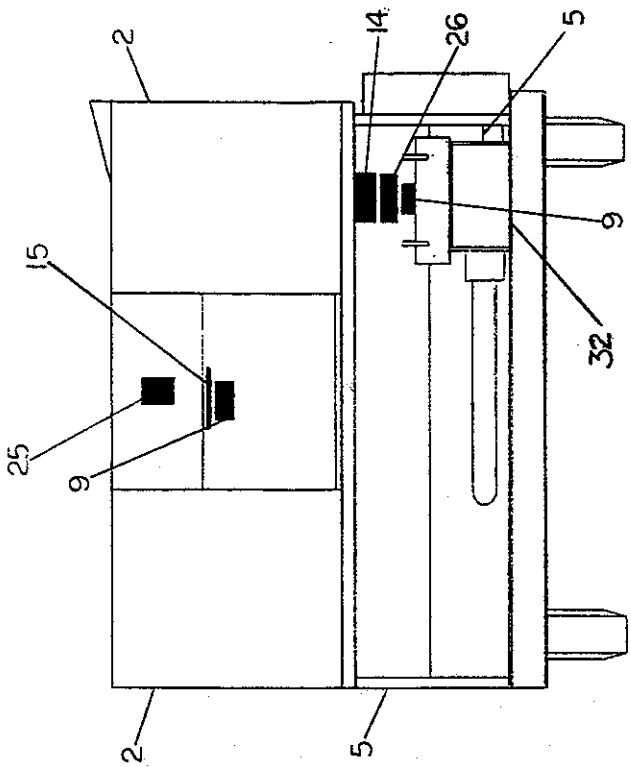
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DECALS

Ref. No.	Part Number	Description	No. Req'd
1	011690	Finn Nameplate	1
2	023174	Finn Decal	2
3	012279	Decal "Warning! Radiator...Hot"	1
4	006870-GEN	Decal "GEN"	1
5	007231	Decal "Service Weekly"	10
6	007429	Decal "Radiator Protection"	1
7	007535	Decal "Throttle"	1
8	012179	Decal "Warning! Do Not Operate..."	2
9	020068	Decal "Danger! Do Not Open Door.."	3
10	020976	Decal "Patent Infringement"	1
11	021664	Decal "Caution! Do Not Tow.."	1
12	021665	Decal "Hydraulic Instruction's"	1
13	022082	Decal "Hold Button In.."	1
14	022357	Decal "Danger! Turn Off Engine.."	4
15	022690	Decal "Caution! Wear Eye Protection.."	1
16	022390	Decal "Hydraulic Oil Only"	1
17	022341	Decal "Diesel Fuel Only"	1
18	023423	Decal "Warning! Breakaway Switch.."	1
19	023519	Decal "Caution! Wear Eye Protection.."	3
20	031227	Decal "Caution! Always Inspect Hitch"	1
21	031228	Decal "Safety Chain Instructions"	1
22	055215	Decal "Safety Instructions"	1
23	055216	Decal "Patent Numbers"	1
24	055217	Decal "Material Feed Control"	1
25	055218	Decal "Danger! Screw Conveyor.."	2
26	055219	Decal "Danger! Sharp Knives"	2
27	055280	Decal "Warning! Thrown Objects.."	1
28	080108-03	Decal "Glow Plugs"	1
29	012251	Decal "Danger! Rotating Fan"	1
30	012260	"Maintain Safety Decals" Tag	1
31	012278	Decal "Danger! Hot Exhaust"	1
32	007607	Decal "Drain Water Daily"	1

Note: Decals must be purchased as a kit
Part # 055748

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TOOL KIT

Part Number	Description	No. Req'd
012681A	Touch Up Paint	1
KU70000-73886	Engine Parts Manual	1
	Engine Operators Manual	1
	Blower Operators Manual	1
	AEM Spreader Parts/Operators Manual	1

DISCHARGE HOSE

Part Number	Description	No. Req'd
055399B	100' Discharge Hose	1
055398B	50' Discharge Hose	1
055377	Connector Tube	1
055304	Clamp	2
055337	Shoulder Strap	1
055374A	Aluminum Adapter	1
055375A	Aluminum Coupler	1

RECOMMENDED SPARE PARTS

Part Number	Description
055145	Blower Filter Element
021618	Hydraulic Oil Return Filter Element
KU70000-43081	Fuel Filter
080105	Pre-Fuel Filter
KU70000-32091	Engine Oil Filter
007739	Air Cleaner Element
055113	Air Lock Knives (2 Sets)

Recommended spare parts are available to help avoid unnecessary down time.