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***Bark Blower*** <sup>TM</sup>  
*AIM-AND-SHOOT MULCH SPREADING*

## **Model BB-1216** **Parts and Operator's Manual**

Model **SD**      Serial No. \_\_\_\_\_



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# 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 six 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.

## Finn Corporation

### CALIFORNIA

#### Proposition 65 Warning

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

### CALIFORNIA

#### Proposition 65 Warning

Battery posts, terminals and related accessories contain lead and lead compounds, chemicals known to the State of California to cause cancer and reproductive harm. Wash hands after handling.

# BARK BLOWER SAFETY SUMMARY SECTION

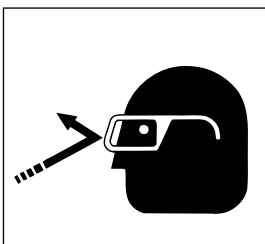
It is important that all operators of this machine are familiar with all the safety aspects mentioned below before operating the machine. Always keep a copy of this manual with the machine. It is the responsibility of the operator of the machine to fully understand this safety section. Remember that 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.

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

1. Verify that all guards are in place.
2. By carefully looking into the blower hopper and transition, inspect for and remove any foreign objects. Follow OSHA lockout/tagout procedure (29 CFR 1910.147)
3. Inspect all hydraulic hoses and tubes for cracks, bulges or damage. If hose is bad, replace immediately.
4. Inspect the material discharge hose and connections for cracks or damage. If damage is found, replace affected part immediately.

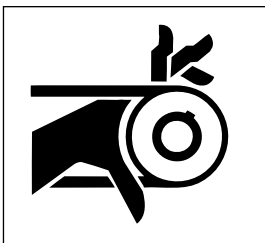
## II. MACHINE OPERATION:

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 the safety shutdown switches on the folding door or discharge. 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.

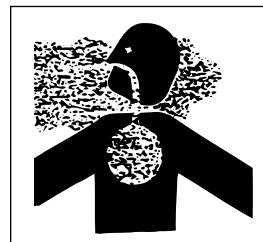
5. Make sure that no one is working in or on the machine. Make sure the discharge area is clear of all persons, animals, etc. Signal "All Clear" before starting the engine. Keep unauthorized personnel away from the machine and discharge hose at all times.



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.

7. Do not allow anyone to ride on the trailer or any other part of the blower for any reason.

8. Never operate machine in an enclosed area without venting the exhaust of both the equipment and the tow vehicle. Deadly carbon monoxide fumes can accumulate.



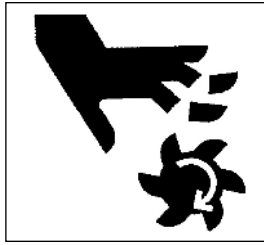
9. Never operate this or any other machinery when fatigued, tired, under the influence of alcohol, illegal drugs or medication. You must be in good physical condition and mentally alert to operate this machine.

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

11. 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 under both arms. Never hold the hose so it goes between the legs.

12. The blower 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.

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



14. Do not attempt to pull anything out of the blower 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.



15. When leaving the blower unattended for any reason, be sure to:

- A. Shut off conveyor drive.
- B. Shut off vehicle engine and blower engine.
- C. Place transmission of the vehicle in "neutral" or "park".
- D. Set parking brake firmly.
- E. Lock ignition and take keys with you.
- F. Lock vehicle cab.
- G. If on a steep grade, block the wheels.

These actions are recommended to avoid unauthorized use, runaway, vandalism, theft and unexpected operation when the equipment is restarted.

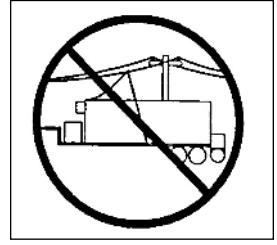
16. Do not read, eat or otherwise lose or lessen your attention in any manner while operating the blower. Operating is a full time job.

17. Be careful in getting on and off the blower, especially in wet, icy, snowy or muddy conditions. Clean mud, snow or ice from steps, fenders and footwear.



18. All personnel operating and/or around the machine must be aware that the blower can be controlled via remote control. For safety reasons and to prevent accidental starting, always keep the power switch on the remote receiver in the "OFF" position when the remote control is not being used.

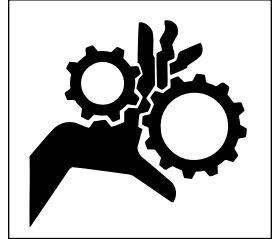
19. Be careful when operating the tarp near power lines. Raising the tarp into power lines may cause severe electrical shock. Always have the tarp either fully open or retracted when transporting the machine.



20. Turn slowly and travel on rough surfaces and side slopes carefully, especially with a loaded blower body.

### 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).



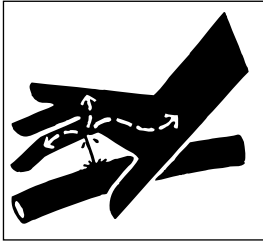
2. Take extreme care when adjusting or replacing knives. Knife edge is very sharp and can cause severe bodily injury.



3. 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.
4. Battery maintenance. Lead-acid batteries contain sulfuric acid which may 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 gasses. Keep arcs, sparks, flames, and lighted tobacco away.
5. Filling of fuel. Never fill the fuel tank with the engine running, or 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.

6. It is recommended that only authorized genuine FINN replacement parts be used on this machine.
7. 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.
8. Diesel fuel or hydraulic fluid under pressure can penetrate the skin or eyes and cause injury, blindness or death. To check for such leaks, use a piece of cardboard or wood instead of your hand. Pressure may build up in the hydraulic system so use caution when removing the cap.



9. Some parts and assemblies are quite heavy. Before attempting to unfasten any heavy part or assembly, arrange to support it by means of a hoist, by blocking or by use of an adequate arrangement to prevent it from falling, tipping, swinging or moving in any manner which may damage it or injure someone.
10. If repairs require use of a torch or electric welder, be sure that all flammable and combustible materials are removed. Fuel or oil reservoirs must be emptied, steam cleaned and filled with clean water before any cutting or welding on them is attempted. Do NOT weld or cut on any tank containing oil, gasoline or their fumes or other flammable material, or any container whose contents or previous contents are unknown.



## CURRENT SET OF SAFETY DECALS

<b>CAUTION</b>		<b>Wear proper eye protection when feeding this machine.</b>
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**DANGER**

**Do not raise  
tarp under high  
voltage lines.**

P/N 045128

**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.

P/N-55280

**DANGER**

**Sharp  
knives.**

P/N 55219

**DANGER**

HOT EXHAUST

012278

**DANGER**

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

20068

**WARNING**

To prevent serious burning or scalding:  
  
 Pressurized cooling system.  
  
 Allow system to cool.  
  
 Remove cap slowly with gloves on.

P/N-12279

**WARNING**

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

12201

**DANGER**

**ROTATING HAZARD  
INSIDE THIS UNIT**  
  
 NEVER PUT ARMS OR FEET NOR CLIMB  
ON OR IN THIS UNIT BEFORE FIRST:  

- SHUTTING OFF ENGINE AND ALLOWING ALL MOVING PARTS TO STOP
- DISCONNECTING BATTERY CABLES AND FOLLOWING PROPER LOCK-OUT/TAG-OUT PROCEDURE

 FAILURE TO FOLLOW THESE INSTRUCTIONS  
WILL RESULT IN SERIOUS INJURY OR DEATH

P/N 52177

**WARNING**

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

22357

**WARNING**

**Do not operate  
without guards  
in place.**

12179

**CAUTION**

Wear eye protection  
around operating  
equipment.

23519

# **OPERATION AND MAINTENANCE MANUAL FOR FINN BARK BLOWER**

## **INTRODUCTION:**

The FINN Corporation would like to thank you for your latest FINN purchase. In our efforts to maintain a quality and growing relationship with each and every customer, we would like to encourage you to contact us for help with service, genuine replacement parts, or any other information you may require.

## **THE FINN BARK BLOWER AND ITS FUNCTION:**

The FINN Bark Blower 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. The product to be used 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 intended to provide step-by-step instructions on the operation, care, and maintenance of the Bark Blower. In addition, it contains illustrations and a complete list of parts and components for easy identification.

## **HOW THE BARK BLOWER WORKS:**

The bulk material is loaded into the hopper by a loader or by a feed elevator. Located at the bottom of the hopper is a drag conveyor, which conveys the bulk material to an opening containing a feed roll. The feed roll and drag conveyor feed the bulk material into a rotary air valve (the “airlock”). 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 that 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.

## MOUNTING THE BARK BLOWER:

The selection of the vehicle on which a blower is to be mounted has important safety aspects. To avoid overloading:

- A. Do not mount a blower on a chassis which, when fully loaded with material to be spread, will exceed either the Gross Axle Weight Rating (GAWR) or the Gross Vehicle Weight Rating (GVWR) for the chassis, see below.
- B. Do install the blower only on a vehicle with cab-to-axle dimension recommended for the blower body length selected, see below.

Once the proper carrier has been selected, the blower must be securely mounted to it.



**CAUTION:** Your FINN® Bark Blower should be mounted by a qualified truck body installer.

**IMPORTANT:** Mounting the blower to the truck must allow for tire clearance as well as frame twist. Place hard wood spacers along the length of truck rails or use FINN® Spring Mounting Kit (#011562) or equivalent.

2. Follow mounting instructions given in Figures 1 and 2 on Page 8. If mounting conditions require deviation from these instructions, consult the factory.

## DIMENSIONS, CAPACITIES, AND TRUCK REQUIREMENTS:

- \*CF - Back of cab to end of frame
- C - Distance from front of Bark Blower to center of gravity
- \*CA/CT - Back of cab to center of rear axle or trunnion
- \*FE - Front axle weight - Empty
- FL - Front axle weight - Loaded
- G - Distance from center of rear axle or trunnion to Bark Blower™ Center of gravity
- BW - Bark Blower weight
- \*RE - Rear axle weight - Empty
- \*RL - Rear axle weight - Loaded
- \*WB - Truck wheel base
- \* These dimensions needed from the truck supplier as well as Front axle capacity and Rear axle capacity.
- \*\* Truck GVW depends on the truck weight. CA/CT dimensions are approximate only, and depend on the front and rear axle capacities, as well as the front and rear empty axle weights.
- \*\*\* Weight of Bark Blower, hose reel and mulch (800 lbs per yard.) Weight may vary greatly due to the large variety of mulch materials.

		1216
Truck GVW **	Pounds (kg)	33,000 (14,970)
CA/CT **	Inches (cm)	192+ (487+)
C	Inches (cm)	161 (409)
OAL	Inches (cm)	274 (695)
BW ***	Pounds (kg)	23,500± (10,700±)

**NOTE:** This table was developed including the hose reel with 200' of hose. If no hose reel is to be installed the OAL, CA/CT and C dimensions may be shortened by 40" as well as the BW reduced by 750 lbs.

## TRUCK MOUNTING CALCULATIONS:

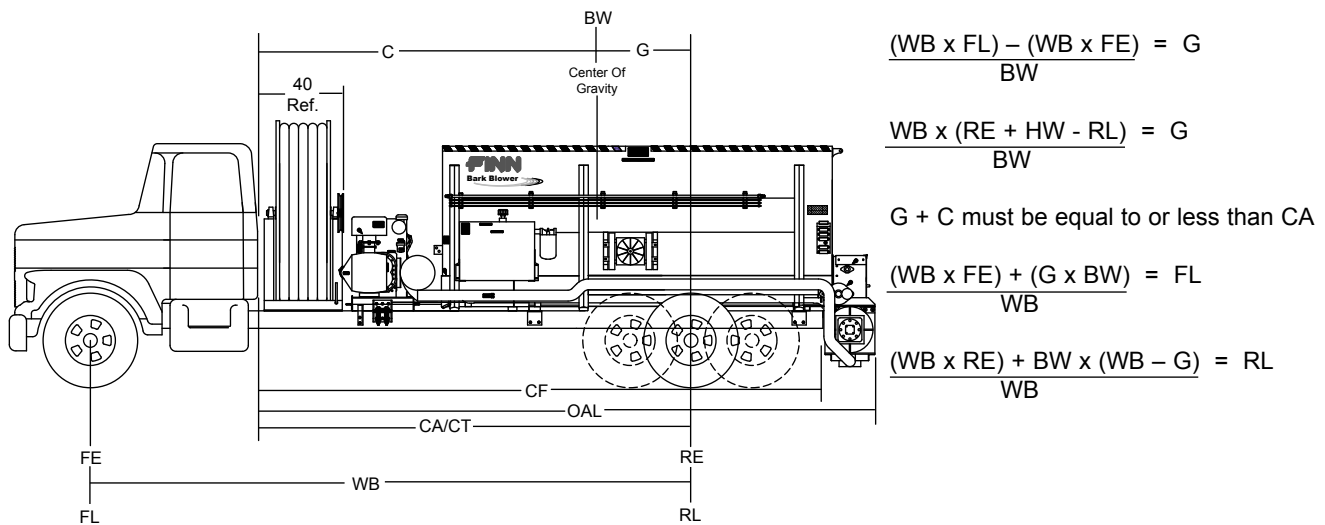


Figure 1

## GENERAL MOUNTING GUIDELINES:

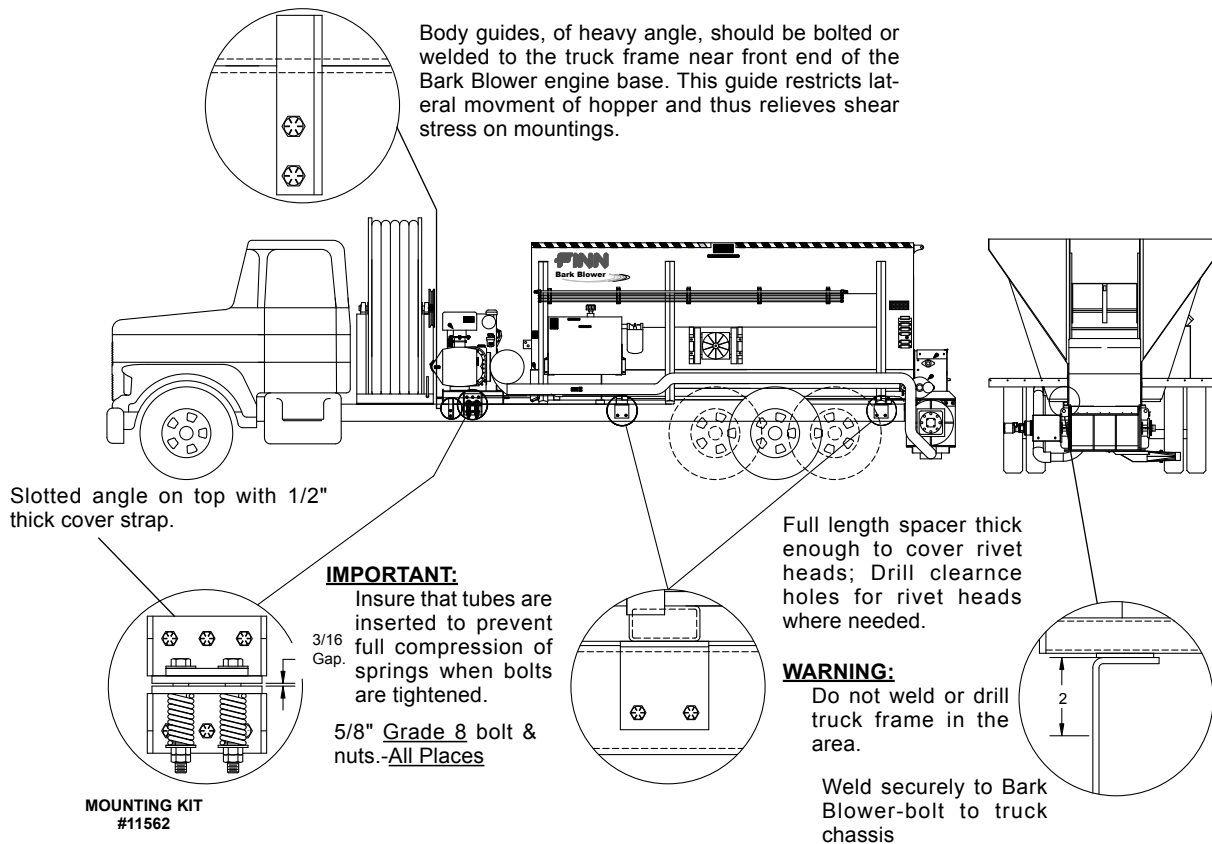


Figure 2

## SELECTING A MULCHING MATERIAL:

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

The mulch material must be processed and/or screened so that 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 Bark Blower is not a wood processor. It only reduces mulch fibers when they protrude above the rotary air valve (airlock) 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 Bark Blower 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 characteristics 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 than "green" wood. It also processes better, making a less stringy mulch. High moisture in the mulch may cause it to bridge in the hopper.

Avoid using mulches that 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 airlock.

## PRE-START EQUIPMENT CHECK:



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

Safety check to insure operator safety:

1. Check that all the truck mountings are secure.
2. Make sure that all guards are in place.
3. Tool Kit - see that it contains all prescribed items (see tool kit list, parts manual).
4. Lubricate equipment - use handgun only (see lube chart, pages 24-25).
5. Check engine oil - refer to engine operator's manual.
6. Check liquid coolant level in radiator (protected to -34°F (-37°C) when shipped).
7. 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.
8. 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.
9. Check hopper and transition for foreign objects that could injure workers, or damage equipment.
10. Check the fluid level in the hydraulic tank. Check that service valve is open on reservoir. Proper level is midway between the upper and lower indicator mark on the sight gauge. (See page 25 for oil specification).
11. Install the discharge hose, using the short hot air hose section as the first connection after the airlock. This will help extend the life of the other hoses. Use clamps provided with the machine.



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

## STARTING PROCEDURE:



**CAUTION:** See safety section of the manual (pages 2-5) before operating the machine.

1. Turn the remote control to the off position on the remote control panel.
2. Turn the key until starter engages and the engine fires.

**NOTE:** This engine has a safety system that will shut the engine off if the engine oil pressure drops below 7 PSI (.48 bar) or if the water temperature reaches 230° Fahrenheit (110° Centigrade). This system has a 15 sec. override at startup to allow engine oil pressure to build. If the key is left in the “Run” position for more than 15 sec. without attempting to start the engine, the override will expire and the safety switch will close and disable the ignition. The red light above the ignition will light up, indicating the key must be returned to the “Off” position before restarting.

3. Check that the “ON/FUSE” and “DOOR SWITCHES” lights are illuminated. If the green “DOOR SWITCHES” is not, check that the folding door above the airlock is tightly closed and the airlock discharge is tight. If both lights are off, but the voltmeter is reading correctly, check the 10 AMP circuit breaker in the control box (see Figure 4 on page 15). If the voltmeter is also dead, then check the 30 AMP circuit breaker in the control box.
4. Allow the engine to warm up for three to five minutes.
5. Prior to mulch application, move the throttle position to fully open, and allow the governor to control the engine speed. Governed engine speed should be 2575 to 2625 RPM under load.

## CREW MEMBERS AND THEIR DUTIES:

1. The Operator controls the placement of the mulch by moving and aiming the discharge hose.
2. The Loader(s) feed material to the machine by using a bucket loader or belt conveyor dumping material directly into the hopper.

## THE MATERIAL FEED SYSTEM:

The material feed system on the Bark Blower has been designed to give fast and uniform mechanical feeding. The adjustable feeding rate and the automatic reverse control system allow the use of varied materials while obtaining maximum production. The system is an integration of the following four 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 drag conveyor, the feed roll, and the rotary air valve (airlock).

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 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 14 PSI (1 bar), an inlet and outlet silencer for noise attenuation, and an inlet air filter.

The drag conveyor receives material from the agitated hopper and conveys it to an opening located at the rear of the hopper, where the feed roll is located. The feed roll insures a uniform feed of bulk material to the rotary air valve. The drag conveyor is powered by two variable speed hydraulic motors mounted to a common gearbox.

The airlock receives the material from the drag conveyor 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 Bark Blower to convey fibrous material, the airlock housing is equipped with two sharp 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. The airlock rotor is direct-coupled to a bi-rotational hydraulic motor and gearbox.

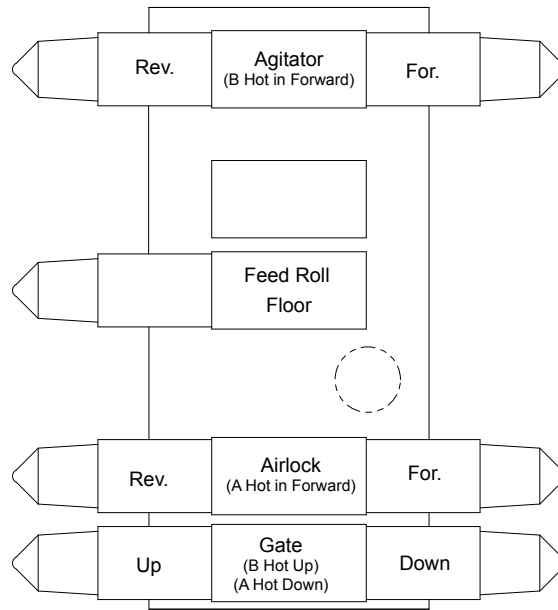
## **SUBSYSTEM 2: HYDRAULIC SYSTEM**

Hydraulic power for the Bark Blower is generated by a flow and pressure compensated, load-sensing pump driven off of the engine auxiliary drive. This means the pump can measure how much load is on the hydraulic circuit and will only pump the oil needed to satisfy the demands of the circuit. The pump receives 10W-40 hydraulic fluid from the 36 gallon (136 liter) reservoir through a service valve and suction hose, and delivers it to the valve manifold. The manifold has four separate valve sections with solenoids that control all the functions on the Bark Blower.

Two pressure gauges at the valve manifold read the valve inlet pressure (top gauge) and the load-sense pressure (bottom gauge). The top gauge should always read about 300 PSI more than the lower gauge. This 300 PSI is called the "margin pressure" and is a measure of the pump's ability to respond to changes in the hydraulic circuit. If the margin pressure is set too high (over 500 PSI), the pump will be too sensitive and can become unstable. If the margin pressure is too low (below 200 PSI), the pump can become "lazy" and not provide enough oil flow for the demand. The margin pressure can be adjusted using the lower compensator adjustment screw in-line with the load sense hose on the back of the hydraulic pump. The only time the gauges will not show the margin pressure is when one of the hydraulic circuits is stalled, such as if the floor conveyor somehow became jammed. In this case, both gauges will show the high pressure standby of 2800 PSI until the blockage is removed. High pressure standby is the maximum pressure the pump will produce. A system relief valve is set for 3500 PSI to protect the system if there is a failure in the pump compensator.

## **DESCRIPTION OF VALVE SECTIONS**

Figure 2 shows the four valve sections and their locations. Each solenoid operates in only one direction, so circuits that require bi-directional flow have two solenoids, such as the gate and airlock. The valves can be stroked manually by pressing in the black buttons on the end of each solenoid. All of the sections see the same inlet pressure and the load sensing capabilities of the pump will supply only as much flow as the highest demand circuit requires. If an airlock vane needs to cut a tough piece of bark, the resistance in the motor will cause a pressure spike in the airlock forward circuit. The pump will sense this and marginally increase flow until the load is overcome and the pressure drops, at which time the pump will de-stroke and return to its previous output. Each circuit in the hydraulic manifold block is pressure compensated so that each valve section will only accept the oil flow needed. This means that when the overall pressure increases in the system, or in any one circuit, the flow through all the circuits remains relatively constant.



**Figure 3**

## **A. GATE**

The bottom valve section of the manifold controls the discharge gate. The valve has a fixed diameter orifice to limit the speed of the gate cylinder.

## **B. ROTARY AIR VALVE (AIRLOCK)**

The second valve section of the manifold runs the airlock. The spool in the valve is factory set so that the airlock turns at about 12 RPM. The pressure compensated needle valve stacked under the solenoid valve provides adjustment of the airlock speed from zero to about 15 RPM. With the needle valve turned all the way out, the airlock will turn the fastest. With each full turn in of the knob, the airlock will slow down approximately 3 RPM. There is a pressure switch on the forward circuit that is set for 2400 PSI (165 bar) that triggers the auto-reverse function on the airlock. Normal rotation of the airlock is clockwise if looking from the driver side of the machine.

## **C. DRAG CONVEYOR FLOOR & FEED ROLL**

The third valve up controls the floor and feed roll speed. It is an electrically-driven proportional valve that is controlled by the floor speed toggle switch on the control box. Toggling the switch up or down varies the input voltage to the solenoid and moves the spool in the valve accordingly, allowing more or less oil flow to the floor and feed roll. The feed roll is plumbed in series with the floor, meaning oil flows to the feed roll motor first and then down to the floor motors. This setup automatically causes the floor to slow down if the feed roll begins to jam up, preventing overfeeding of the feed roll. The floor motors are plumbed in parallel so that each one works evenly on the tandem gearbox.

## **D. AGITATOR**

The top valve section controls the speed and rotation of the agitator. The spool in this section is factory set so that the agitator rotates at approximately 4 RPM. This section also has a pressure switch installed on the forward port that is set for 2400 PSI (165 bar) that triggers the agitator auto-reverse function. Normal rotation of the agitator is clockwise if looking from the rear of the machine.



## **SUBSYSTEM 3: HYDRAULIC CONTROL SYSTEM**

The hydraulic control system is an electrical system that controls all of the hydraulic functions on the Bark Blower. This 12-volt DC system runs off the engine electrical system. It is a series of relays, located in the electrical control box on the rear passenger-side of the machine, which control the solenoid valves in the hydraulic system. The solenoids are energized by way of the white DIN connectors mounted on each solenoid. The DIN connectors each have a small red light in them that light up if the circuit is active. This is an easy way to check if a particular circuit has electrical power.

When the "Start" button is pushed the CR1 and CR2 relays in Figure 4 on page 15 are energized. This in turn energizes the forward solenoid on the airlock valve section, starting the airlock. If the floor toggle switch is "On", the floor and feed roll solenoid is also energized after a short delay. Timer relay TR3 delays the start of the floor so the airlock always has a chance to clear itself. TR3 should time out after 1.5 seconds, at which point the floor and feed roll will begin to move at a speed relative to the Floor Speed display. As material drops into the top of the airlock, the pressure required to cut the material is monitored by the pressure switch located on the forward port of the airlock valve section in the manifold (see Figure 3 on Page 12). The switch is normally open. When the airlock motor stalls due to the rotor encountering an object it can not cut, high pressure is created in the airlock circuit and the pressure switch closes. The amount of time the pressure switch is closed is monitored by the timer relay TR1 in Figure 4. If the switch remains closed for more than 0.5 seconds, TR1 energizes timer relay TR2. TR2 automatically reverses the rotor by energizing the reverse solenoid and de-energizing the forward solenoid. It also de-energizes the floor solenoid, shutting off the floor and feed roll. The airlock will remain in reverse until TR2 times out, which is approximately 1 second. Timer relay TR3 will then restart the drag conveyor after allowing the airlock to clear itself.

The agitator circuit is also wired through timer relay TR3. The agitator will start on a delay just as the floor does and will stop during an airlock auto-reverse. The agitator circuit on the Bark Blower also has an auto-reverse feature for when the agitator may become "bogged down" and become unable to turn. This most often occurs at the beginning of a load when the hopper is completely full of wet or packed down mulch. Timer relay TR4 will activate when the pressure switch on the forward port of the agitator valve section closes due to the high pressure created by the stalled agitator motor. TR4 automatically energizes the reverse solenoid on the agitator valve circuit and de-energizes the forward solenoid, causing the agitator to rotate in reverse. TR4 is set for 15 seconds, after which time the forward solenoid will re-energize and the agitator will return to its normal rotation. This process may be repeated several times until the agitator sufficiently breaks up the packed mulch material. The agitator auto-reverse process does not interrupt or affect any other functions on the Bark Blower.

When the "Stop" button is pushed, power is cut to the relays. This stops the hydraulic motors on the floor, airlock, feed roll, and agitator 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 the folding door on the feed roll housing or the discharge pan is opened and cannot be restarted until they are closed and the Start button is pushed.

## **SUBSYSTEM 4: RADIO REMOTE CONTROL**

This Bark Blower is equipped with a Radio Remote to control the Material Feed Start and Stop, the Floor Speed, and the Engine Throttle. It also contains an Emergency Stop button that activates the Murphy shut-down system on the engine.

If using the Radio Remote, a certain start-up sequence must be followed to activate the remote. When using the remote, start as follows:

1. Place the Radio Remote ON/OFF switch, located on the control 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 Starting Procedure on Page 10.
4. Place the radio remote switch located on the control box to the "ON" position.
5. Place the radio transmitter switch to the "ON" position.

To utilize the Material Feed Start/Stop feature of the Radio Remote, the initial start must occur at the Start/Stop station on the Bark Blower. The hard-wired, Start/Stop on the unit is the primary and overriding set of controls. When either the "Stop" button is pushed or a loss of power to the relays occurs (i.e. the folding door on the feed roll housing or discharge pan is opened, or a circuit breaker trips), the Feed Start/Stop feature on the Radio Remote is deactivated. This feature will remain inactive until the initial start is once again made at the machine by pressing the Start button.

The Material Increase/Decrease function on the remote can be used to change the floor conveyor speed and effectively adjust the output of mulch from the machine. Adjustments to the floor speed made from the remote control will be shown on the Floor Speed display on the control box.

The Engine Increase/Decrease function on the remote adjusts the throttle actuator on the engine. For use of the engine RPM function refer to "Mulching with the Bark Blower" on page 15.

Pushing the red button located next to the antenna on the Radio Transmitter activates the Murphy shutdown system. This will shut off the engine, automatically return the engine throttle back to idle, and cut power to all the relays which will shut down all of the hydraulics. To reset the safety system:

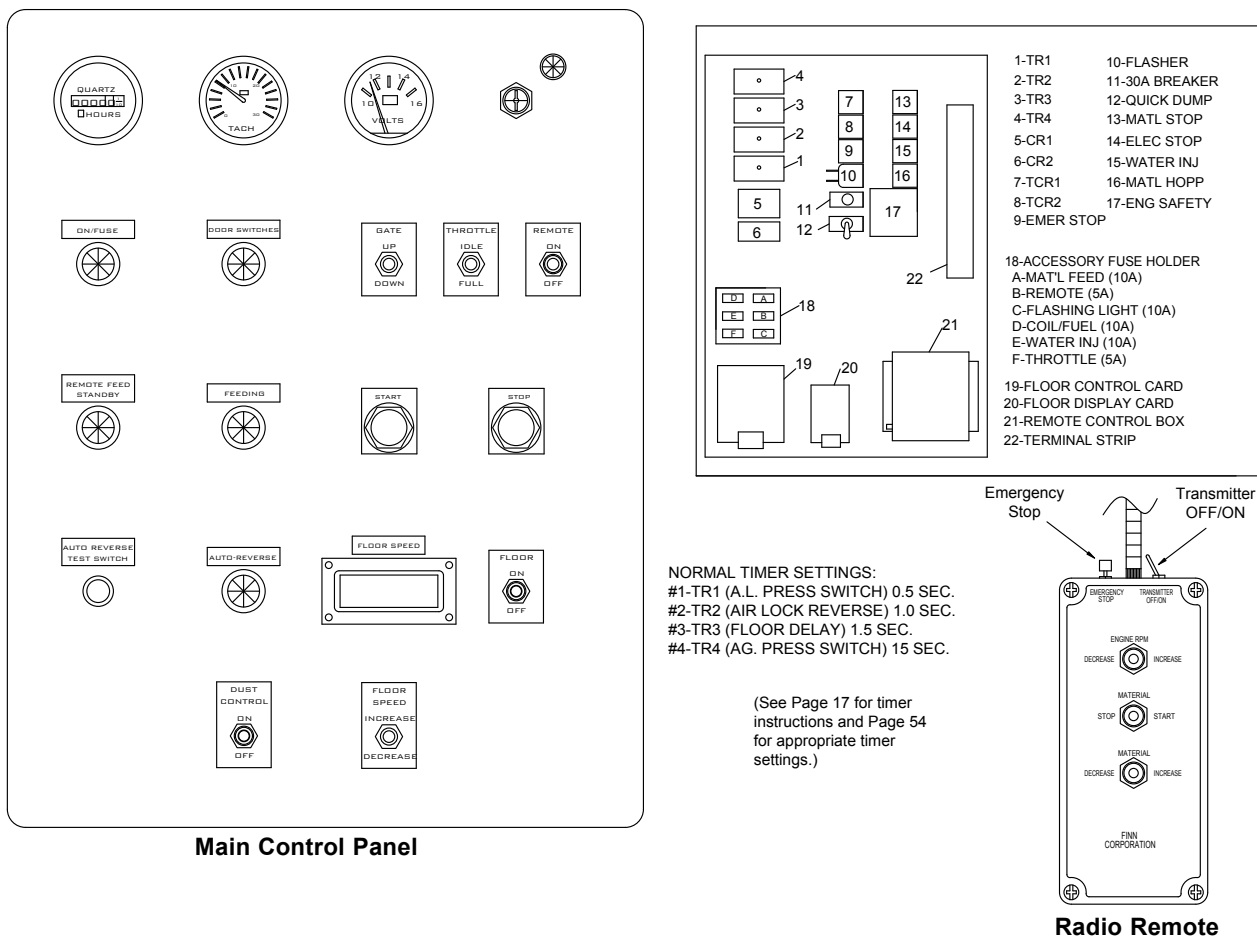
1. Flip the Radio Transmitter ON/OFF switch to "OFF".
2. Re-start the engine.
3. Flip the radio transmitter ON/OFF switch to "ON".

## **BARK BLOWER POWER STATUS LIGHTS: (SEE FIGURE 4)**

The Bark Blower is equipped with five Power Status Lights on the electrical 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:

<b><u>Light Color</u></b>	<b><u>Function</u></b>	<b><u>Indicator</u></b>
Blue	ON/FUSE	Should be glowing when engine key is on. Shows power from the ignition switch through the 10 amp circuit breaker into the electrical control box. (Will shut off when feeding)
Green	DOOR SWITCHES	Should be glowing when engine key is on if the folding door and discharge pan are closed and the interlock switches are making proper contact. (Will shut off when feeding)
Amber	FEEDING	Should be glowing whenever the Start button is pushed activating the Bark Blower hydraulic system*.
Clear	REMOTE FEED STANDBY	Should be glowing anytime feeding is stopped by pressing the Material Stop button on the Radio Transmitter. Warns other crew members that the Radio Transmitter is active and feeding can begin remotely.
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 4**

## MULCHING WITH THE BARK BLOWER:

1. Check all areas listed under “Pre-Start Equipment Check” (page 9).
2. Start the engine following all the steps listed under “Starting Procedure” (page 10).
3. Set the floor speed control to 3.
4. Open the gate to the maximum opening.
5. Refer to the remote control start-up procedure on pages 13-14.
6. Put the drag conveyor floor switch to the ON position.
7. To activate the dust control system, flip the dust control switch to ON. The dust control system will only operate when the floor switch is in the ON position. The needle valve above the airlock discharge pan can be adjusted for varying flow.
8. Press the "Start" button on the main control panel to activate the material start/stop feature on the remote and at the same time press the material stop on the remote. Remote functions are now active and the clear remote feed standby light should be on.
9. Increase the throttle to full.
10. With a firm grip on the end of the hose, press the material start button on the remote.
11. Floor speed can be adjusted from 3 for smooth flow. Watch for auto-reversing of the air lock as well as shock waves through the hose. Listen for the relief on the blower. Partial plugging in the airlock discharge or hose may cause it to open, causing a high pitched whine, indicating over-feeding of the airlock.
12. Use the engine RPM button on the remote to decrease and increase air and material flow. A lower engine RPM may require a lower floor speed to avoid auto-reversing or plugging.
13. At the end of the load, hit material stop and shut down the engine.

## **BARK BLOWER ADJUSTMENTS:**

Your Bark Blower has been designed to be as simple as possible to operate. The feed roll and airlock are designed to create a smooth, consistent flow of material from the hopper to the discharge. The agitator has been designed to eliminate possible material bridging in the hopper and to help improve mulch consistency as it enters the feed roll chamber. However, material conditions can change from one load to the next or from one day to the next. The only adjustment the operator should have to make is to the drag conveyor speed. Adjusting the floor speed will allow the Bark Blower to efficiently convey many different types of mulch.

Knowing when and how much to adjust the floor is the key to maximizing the machine's performance. The floor conveyor speed is controlled by the Floor Speed toggle switch on the electrical control box and by the Material Feed toggle switch on the remote. The floor speed can be adjusted from 0 to 10 on the Floor Speed display with 0 being the slowest (0 RPM) and 10 being the fastest (approx. 8 RPM). For most materials, a setting of 3 is a good starting point. The floor speed can be increased ( $\frac{1}{4}$  increments are recommended) until certain warning signs appear. They include the following:

### **A. CONSISTENT HOSE SHOCK**

The Bark Blower uses a large amount of air to blow the mulch material through the discharge hose, which can become difficult for an operator to handle. If rough shock waves become consistently tough on the operator at the end of the hose, the floor can be turned down to smooth out the flow of material into the airlock. Cutting back on the engine RPM can also smooth out the hose since there will be less air being pumped through the hose. Hose shock is usually due to partial plugging around the discharge. When the material gets dislodged, the larger clumps are shot through the hose and can make it jump significantly.

Another adjustment that could help with hose shock is the airlock speed itself. Refer to the Airlock section of the "Material Feed System" on pg. 10 for instructions on how to adjust the airlock speed. Certain materials may run more smoothly with a faster or slower airlock. Generally, the airlock should not be run any slower than 8 RPM and can be adjusted up to 15 RPM.

### **B. EXCESSIVE AUTO-REVERSING**

If the airlock starts to auto-reverse regularly, i.e. more than three times a minute, then the airlock is being overfed and the floor should be turned down. Excessive auto-reversing leads to less production than if the floor was just turned down to a lower RPM. This condition will occur more often with stringy mulch or less processed material that contains larger chunks of wood that the airlock may have to cut.

### **C. REGULARLY TRIPPING THE BLOWER RELIEF**

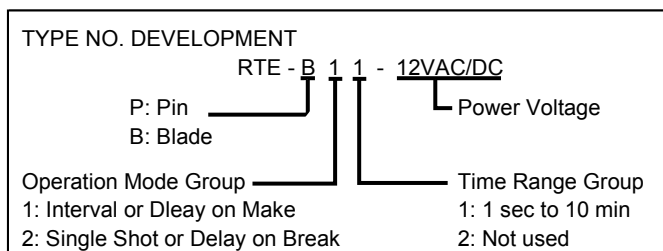
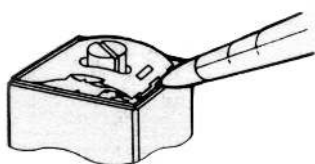
The blower on your machine has a relief valve in the air line to protect the blower against a large back pressure that could build if the line becomes plugged. The relief valve, set for 14 PSI, is located directly behind the blower in the engine area on the front of the machine. A blockage, temporary or otherwise, can trip the relief, which causes a loud whining noise to be heard from the engine area. Occasional blowing through the relief is expected, as long as the machine can clear itself. However, if the relief goes off repeatedly in a 10 second span, then the discharge area or hose is in danger of becoming completely blocked. The floor speed should be immediately reduced until the relief valve is not heard consistently going off. Partial plugging most often occurs with less processed material or if the mulch is wet and dense.

The gate may also be used to help smooth out the flow of material and improve production. Lowering the gate effectively shrinks the opening in the back of the machine that the material must pass through as it enters the feed roll housing and then the airlock. Sometimes reducing the size of that opening may produce a more consistent flow of material, especially with finer material such as compost.

## TIMER RANGE PROGRAMING INSTRUCTIONS:

Adjusting the timer relays should be unnecessary, but the operator should know how to set the timers if they become changed.

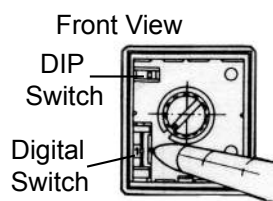
### 1. REMOVING THE FACE PLATE



### 2. SELECTING THE MODE OF OPERATION

Select the operation mode by moving the DIP switch to the right or the left position. (After installing the face plate, the knob set to the left position is visible through the face plate window.)

Dip Switch	Left = Interval
Position	Right = Delay on Make



### 3. SELECTING THE TIME RANGE

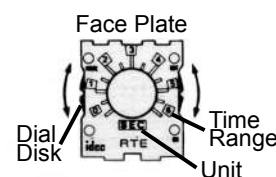
Select the time range by rotating the digital switch.

Digital Switch Position	0	1	2	3	4	5	6	7
Time Range	1 sec	3 sec	6 sec	10 sec	60 sec	30 sec	5 min	10 min
Face Color	Pink	Yellow	Yellow	Pink	Yellow	Yellow	Pink	Pink

**NOTE:** When the digital switch is at position 8 or 9, the time range setting is the same as at position 0 or 1, respectively.

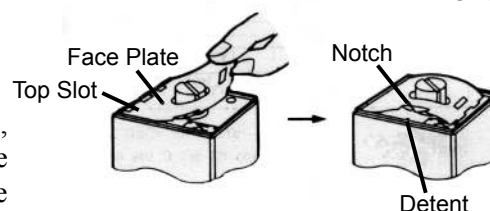
### 4. SETTING THE FACE PLATE

Each timer is provided with a face indicating the time range on both sides in different colors per time range group. The dial disk has four notches on its perimeter at every 90 degrees. Choose the side with the correct face color from above chart containing your required time range and turn the dial disk to the position where the required time range figure and unit appear in the windows.



### 5. INSTALLING THE FACE PLATE

When the operation mode and timer range settings are complete, place the face plate onto the timer by inserting the edge into the top slots. Bend the face plate slightly and insert the bottom edge into the bottom slot on the timer. Make sure the dial disk notch is retained in place.



See the Control Box Wiring Schematic on page 57 for full illustrations of timer faces with proper settings.

## TROUBLE SHOOTING CHART:

Symptom	Probable Cause	Remedy
Engine won't start	Engine safety system override delay expired	Return ignition key to "OFF" before starting
	No fuel	Check fuel gauge on engine sheet metal
Airlock not turning	Green light out on control panel	Make sure rear cleanout door and airlock discharge are closed tightly and interlock switches are working properly
	Blue light out on control panel	Check 10A circuit breaker in control box
	Airlock speed control turned down too far	Adjust airlock needle valve out. See page 12.
	Quick Dump feature activated / left on.	Flip Quick Dump switch inside control box to "OFF"
Floor not turning	Motorized flow control valve closed	Increase material feed control
	Make sure terminal "A+" on timer TR3 has 12V	No: Low voltage, check interlock switches for bad connections or bad switch
	"Out" light on TR3 should come on 1.5 sec after turning floor switch on	No: Bad timer, check settings or replace if bad

## TROUBLE SHOOTING CHART:

Symptom	Probable Cause	Remedy
Airlock constantly auto-reversing	Overfeeding airlock	Decrease floor speed, see pg. 16 for tips
	Dull airlock knives	Check knife clearance, sharpen if dull
	Pressure switch time delay set too low	Check timer TR1, should be set for 0.5 sec.
Airlock stalling, not auto-reversing	Pressure switch isn't closing at 2400 PSI	Check pressure switch connections or replace switch if necessary
Discharge material pulsing, not smooth	Too much air	Decrease engine throttle and floor speed accordingly
	Airlock turning too fast/slow	Adjust airlock speed, see pg. 16 for tips

## CLEARING A BLOCKAGE

If the unit does become plugged and the machine can not clear itself, immediately shut down the machine, either by pressing the emergency stop on the remote or with the ignition key on the control box. Perform the following steps:

1. Disconnect the discharge hose and determine if the blockage is in the airlock discharge. Any blockage should be seen through the outlet. If there is no blockage, then the hose is plugged somewhere.
2. If there is blockage, loosen the two swing bolts that hang down from underneath the airlock.
3. The outlet side of the discharge is hinged and should swing down away from the airlock housing. The seam has gaskets, so it may be tight.
4. Remove any blockage and clean the discharge of any mulch debris, especially on the gasket surface so that it can seal tightly.
5. Close the discharge outlet and tighten the swing bolts into place.
6. Reconnect the discharge hose if it is not plugged.
7. Restart the machine with the floor off, and run the engine full to clear out the airlock and any mulch lying in the hose.
8. Resume normal operation.

## QUICK DUMP FEATURE

The Bark Blower has a Quick Dump feature that can be used to unload bulk material quickly.

1. Shut off the feeding system by pressing the Stop button on the control panel.
2. Open the access door above the airlock and secure it in the notches located in the feed roll housing side panels.
3. Open the control panel and flip the Quick Dump switch to ON.



**CAUTION:** In Quick Dump mode, the feed roll is exposed and can cause material to be thrown from the rear of the machine, especially at higher floor speeds.

4. With the Floor Switch ON, press the Start button to begin unloading material. The material will pass through the feed roll housing and out the rear of the machine over the airlock, which will not be turning.
5. The floor conveyor speed can be adjusted higher for faster unloading.
6. When finished, press the Stop button, return the Quick Dump switch to the OFF position, and close the control box lid using the four latches.



**WARNING:** Do not place hands down inside the airlock vanes to remove material, the knives are sharp and can cause serious injury.

7. Close the rear access door securely using the hand knobs.
8. The Bark Blower should be run with the Floor Switch OFF for a few seconds so that the airlock has a chance to clear itself before resuming normal operation. The startup sequence on page 10 will need to be followed again before remote operation can be used.



## DUST CONTROL SYSTEM

The Dust Control System on the Bark Blower is helpful in reducing the amount of dust that can be generated by blowing very dry materials. Water is pumped from the 75 Gal. poly tank down to a nozzle in the discharge pan. A metering valve on the discharge pan allows for varying amounts of water to be sprayed into the mulch as it is blown from the machine. A pressure regulator set for 30 PSI is mounted near the pump and sends any excess flow produced by the pump through the recirculation hose back into the tank. The Dust Control System is activated by turning the Dust Control switch to On when the floor conveyor is operating.

The water pump has an internal thermal switch that will shut off the pump if it gets too hot. A clogged nozzle, clogged pump inlet, or too high of a regulator pressure setting can all cause excessive heat in the pump. If the pump shuts off frequently, make sure the water flow is not restricted and the regulator is not set above 30 PSI.

## MAINTENANCE



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

### DAILY - AFTER EVERY 4 - 8 HOURS OF OPERATION:

1. Check engine and blower air cleaner filters for dirt and debris. Remove and clean with dry, compressed air if necessary.
2. Check engine coolant and oil levels. See engine manual.
3. Check hydraulic oil level in reservoir. The oil should be about half way up the sight glass.
4. Check blower oil level. See blower manual.
5. Clean out front floor chain compartment. Pull the pin and remove the front cleanout door from the front of the hopper. Remove any built-up material from under the floor pan and around the sprockets. This will minimize material overflow through the front takeup bearings during daily operation.
6. Check fuel level.

### WEEKLY - AFTER EVERY 50 HOURS OF OPERATION:

1. Lubricate the bearings on the drag conveyor, the blower, the agitator, and on the feed roll shaft. See Lube Chart on pages 24-25. Wipe each bearing before lubrication to remove dirt and prevent overheating.
2. Blow out radiator fins with dry compressed air. Do not use a pressure washer. This will damage the radiator fins.
3. Remove and clean air cleaner elements on the engine and rotary blower using dry, clean compressed air.
4. Check the oil in the airlock gearbox, the drag conveyor gearbox, and the agitator gearbox.
5. Check the gear case on the blower (see blower manual).
6. Check airlock knife for wear, chips, and clearance. To adjust knife:

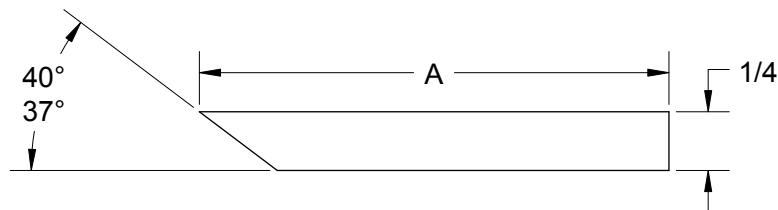


**DANGER:** Knives have very sharp edges that can cause serious injury. Adjust one at a time. Handle with care.

- a) Using a 3/16" allen wrench, remove the six set screw plugs in the access holes on the outside front/rear face of the airlock housing.

**NOTE:** To adjust the reversing knife, the rear catch pan will need to be removed to gain access to the reversing knife clamps.

- b) Loosen the two outer bolts on each of the three knife clamps in the top of the airlock.
- c) Barely loosen the center bolt on each of the three knife clamps.
- d) The knife adjusting screws are reachable through the access holes in the outside front/rear face of the airlock housing. Using a 5/32" allen wrench, adjust each of the screws in until there is a uniform .003" to .006" (.08 to .15 mm) gap between the knife and rotor. One full turn of the screws will move the knife approximately .055" (1.4 mm). Make sure that the two adjusting screws on each knife clamp are adjusted equally.
- e) Tighten the nine bolts on the three knife clamps and replace the set screw plugs in the access holes.
7. If a knife is worn past adjustment and needs replacing:
  - a) Remove the nine bolts that hold the three knife clamps in place and remove the clamps and knife.
  - b) Clean the knife shelf so that it is free of debris and smooth.
  - c) Compare the replacement knife to the one removed. If the new knife is wider, back out the adjusting screws by at least that amount. Count the turns and back the screws out evenly.
  - d) Lay the knife down on the knife shelf. Insure the knife is installed with the **cutting angle edge facing down** as shown in Figure 5. Loosely install the three knife clamps with the nine knife mounting bolts. Tighten the mounting bolts just enough to hold the knife in position while still allowing it to be moved.
  - e) Check the clearance between the knife and the rotor end walls and along the rotor vane using a feeler gauge. There should be .003" to .006" (.08 to .15 mm.) gap.
  - f) Use the jacking screws to close the gap, if necessary. One full turn of the screw moves the knife 0.055 inches (1.4 mm).
  - g) Tighten mounting bolts.
  - h) Immediately have removed knife sharpened. Do not attempt to grind the knife by hand. It must be ground straight and true on a surface grinder by an experienced knife sharpener. Grind the knife to the profile shown below:



**Figure 5**

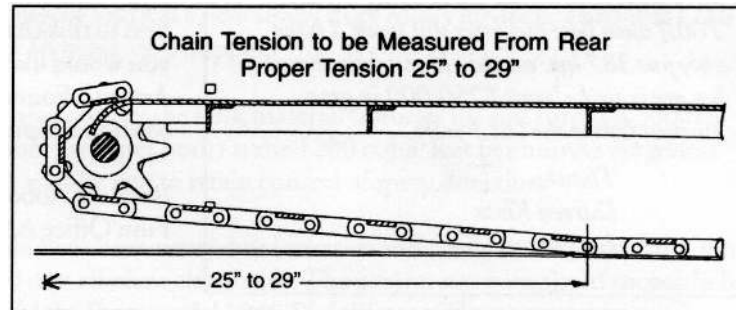
When dimension "A" has been reduced to 1-3/8 inches (3.5 cm) the knife must be discarded.

## FLOOR CHAIN ADJUSTMENT: EVERY 50 HRS

1. The floor chain tension should be checked every 50 hrs. If the chain is too loose, the chain flights can buckle under the floor pan and damage the chain linkages and flights. If the chain is too tight, it can put added wear on the floor bearings and cause excessive chain stretch. The chain originally contains 164 links. As the chain stretches over time, some links may need to be removed in order to tighten

the chain. When the chain has been shortened to 156 links, the entire chain must be replaced.

2. Shut the machine off and open the rear access door above the airlock. Remove any built-up material under the floor pan between the chain links and the rear catch pan so that an accurate measurement can be made. Check the tension on the floor chain in the Bark Blower as shown in Fig. 6 below:



**Figure 6**

3. To adjust the chain tension, find the takeup bearings on either side of the floor sill near the front of the hopper. Using a 1½" wrench, turn the tensioning rod clockwise to tighten the chain and counter-clockwise to loosen it. Always turn both tension rods the same amount so that the chain is always square with the drive shaft. A misaligned chain can jump off the sprocket and buckle.

## **AFTER FIRST 100 HOURS OF OPERATION:**

1. Change engine oil and filter after 100 hours, then every 250 hours after that following engine manufacturer's recommendations.
2. Change the gear box oil on the blower (see blower manual). Change oil every 500 hours thereafter.
3. Change the gearbox oil on the airlock, the drag conveyor and the agitator using SAE 80W90 oil, filling to the side plug. Change every 1000 hours thereafter.

## **WINTER SHUTDOWN AND STORAGE:**

1. Blow all material out of machine and turn off engine.
2. Remove the inlet elbow to the blower air chamber and coat internals of impeller cylinder with a rust preventative. Keep hands free of the impeller area. Reconnect piping to prevent foreign debris from entering blower chamber. Rotate drive shaft three or four revolutions after piping is reconnected. Repeat this process every month or as conditions may require.
3. Remove any material buildup in the airlock vanes and endplates. Coat the rotor vane tips and airlock housing with a rust preventative. Rotate the airlock as necessary to coat all internal surfaces. Repeat this process as needed to prevent excessive rust buildup.
4. Disconnect battery cables and store machine inside or protect as best as possible.

**IMPORTANT:** If the machine is stored outside, do not allow water to sit or ice to form in the airlock or the discharge pan. A severe buildup of rust on the rotor vanes can lock up an airlock and ice expansion can damage the airlock discharge. Also, drain the water tank and water pump hoses to prevent freezing water from damaging the tank and pump.

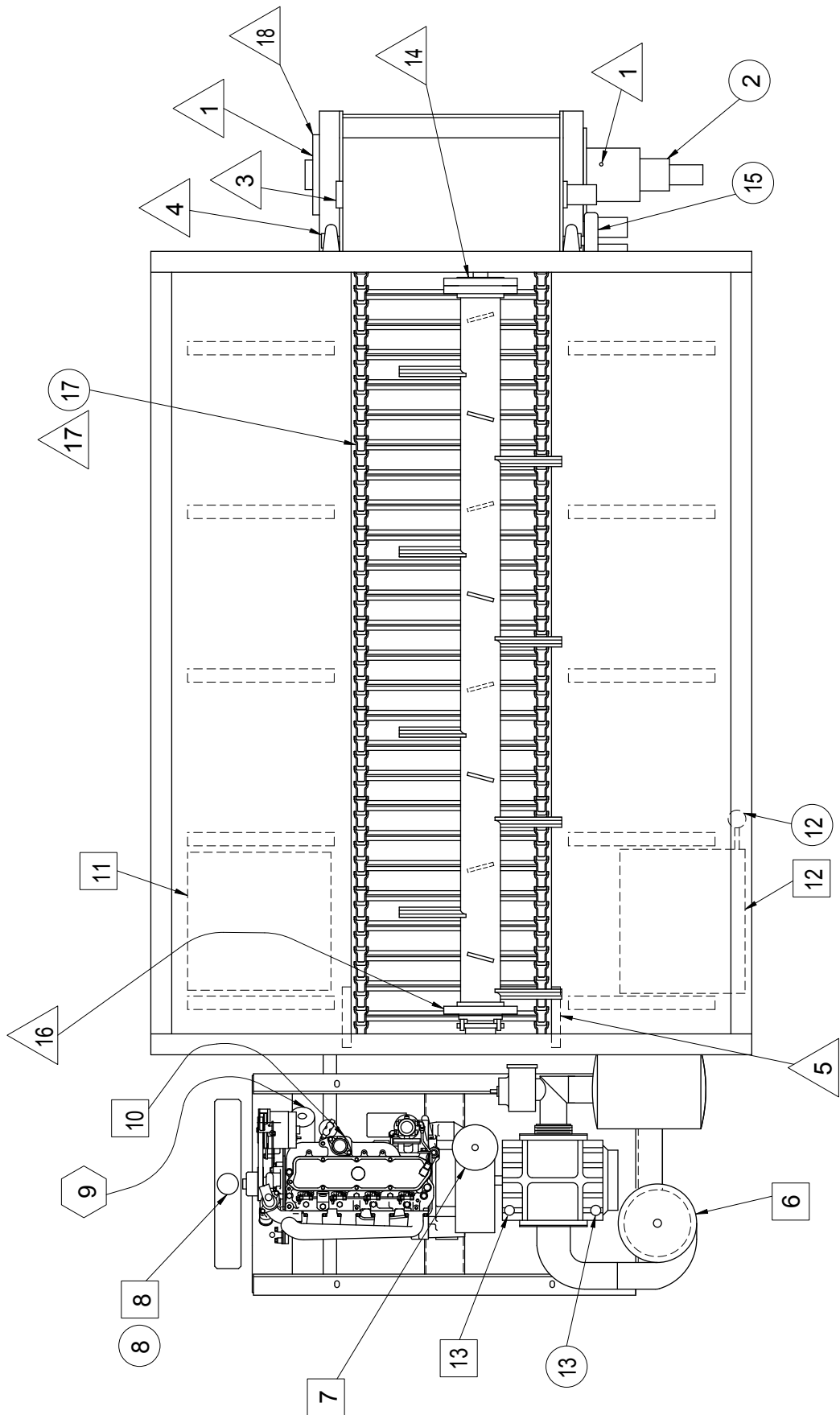






Figure 7

# LUBRICATION CHART

Ref. No.	Location	Lubricant	Frequency	Number
1	Air Lock Bearing	CL	Weekly	2
2	Change Air Lock Gearbox Oil	GO	50,100, then Seasonally	1
3	Feeder Roll Bearing	CL	Weekly	1
4	Floor Pillow Block Bearing	CL	Weekly	2
5	Floor Take-Up Bearing	CL	Weekly	2
6	Check Blower Inlet Filter		Daily	1
7	Check Engine Air Cleaner		Daily	1
8	Check Engine Coolant Level	AF	Daily	1
	Change Engine Coolant	AF	Seasonally	1
9	Change Engine Oil and Filter	HO	See Engine Manual	1
10	Check Engine Oil Level	HO	Daily	1
11	Check Fuel Level	DF	Daily	1
12	Check Hydraulic Oil Level	HO	Daily	1
	Change Hydraulic Oil and Filter	HO	Seasonally	1
13	Check Blower Oil Level	BO	Daily	2
	Change Blower Oil	BO	50,100, then Seasonally	2
14	Agitator Bearing	CL	Weekly	1
15	Change Floor Drive Gearbox Oil	GO	50,100, then Seasonally	1
16	Change Agitator Gearbox Oil	GO	50,100, then Seasonally	1
17	Check Chain Tension		Weekly	1
	Lubricate Floor Chain	CH	Seasonally	1
18	Airlock Shaft Seals	CL	Weekly	2

## TIME KEY

DAILY (8 hours)	
WEEKLY (50 hours)	
SEASONALLY (500 hours)	
SEE ENGINE MANUAL	

## LUBRICANT OR FLUID USED

CL	Chassis Lubricant
BO	Blower Oil Mobil SHC-630 Synthetic
AF	50/50 Anti-Freeze and Water Mixture
DF	Diesel Fuel
HO	Hydraulic Oil 10W-40 SE Motor Oil
GO	90W Gear Oil
CH	Mineral oil or chain lubricant

## FLUID CAPACITIES

Fuel - 38 Gallons (143 L)	Agitator Gearbox Oil - 2 Quarts (1.9 L)
Hydraulic Oil - 36 Gallons (136 L)	Airlock Gearbox Oil - 20 Oz. (0.6 L)
Engine Coolant - 4 Gallons (15.1 L) 50/50 Mix Only	Floor Gearbox Oil - Fill to Level Plug
Engine Oil - See Engine Manual	Blower Oil - See Blower Manual

## NOTES

## NOTES

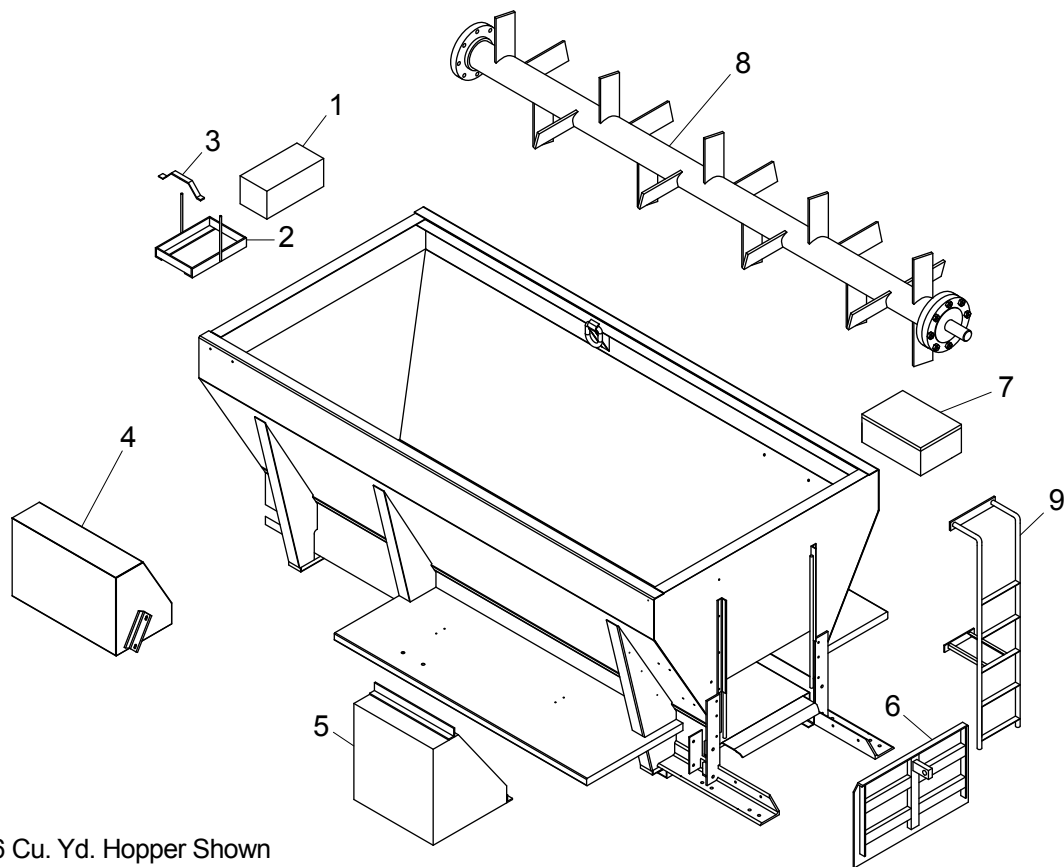
## NOTES



# **BARK BLOWER**

## **Model 1216 Parts Manual**

**Model SD**

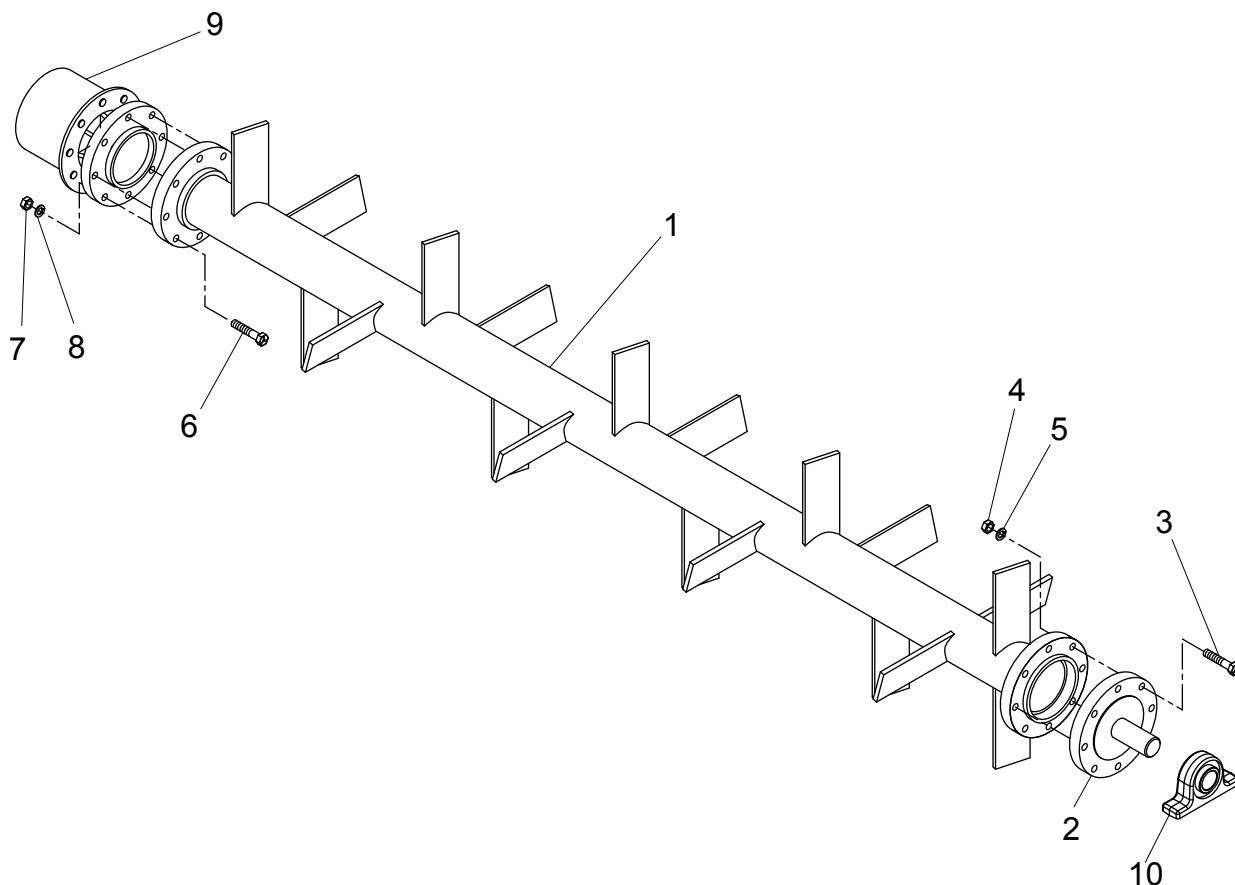


16 Cu. Yd. Hopper Shown

## LOOSE PARTS

Ref. No.	Part Number	Description	No. Req'd
1	011770	Battery Box	1
	011851	Battery	1
2	052862	Battery Tray	1
3	080220	Battery Holddown Strap	1
4	052541	Hydraulic Reservoir	1
	011927	Hydraulic Reservoir Suction Strainer	1
	011783	Hydraulic Reservoir Fill Cap	1
5	052850	Fuel Tank	1
	FW71978	Fuel Level Sender	1
	000575	Drain Cock	2
	007914	Fuel Tank Cap	1
6	052159	Rear Gate	1
7	052712	Tool Box	1
8	052873-02	Agitator Assembly (see pg. 31)	1
9	052360	Ladder	1
<b>NOT SHOWN</b>			
	052730-01	Hot Air Hose Cradle	1
	F916-0038-03	Hose Cradle Leg	2
	052742	Hose Cradle Draw Latch	2
	052731	2" Rubber Grommet	1

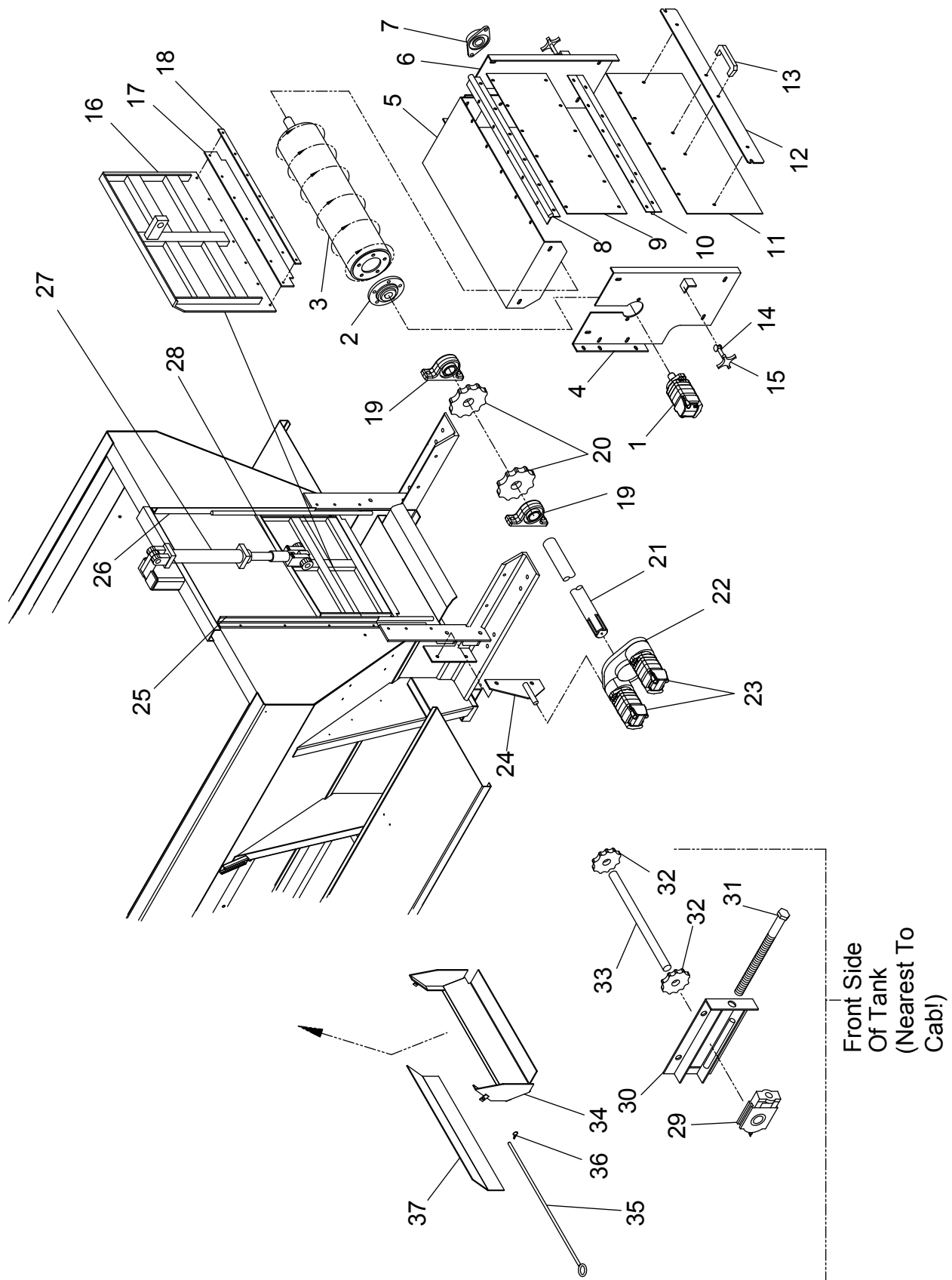
**WHEN ORDERING PARTS, BE SURE TO STATE  
SERIAL NUMBER OF MACHINE**



## AGITATOR ASSEMBLY

Ref. No.	Part Number	Description	No. Req'd
	052873-02	Agitator Assembly (Includes It. 1 thru 5)	1
1	052872-02	Agitator Shaft	1
2	052420	Special Agitator Stub Shaft	1
3	0X1260	3/4-10 UNC HHCS x 3-3/4" Lg.	8
4	00X12L	3/4-10 UNC Lock Nut	8
5	00W12L	3/4" Lock Washer	8
6	0X1040	5/8-11 UNC HHCS x 2-1/2" Lg.	8
7	00Y10L	5/8-11 UNC Lock Nut	8
8	00W10L	5/8" Lock Washer	8
9	052446	Gear Box	1
	WL7-122	1/2-20 Press-In Stud	8
10	052129	Agitator Bearing	1
	<b>NOT SHOWN</b>		
	052499	Hydraulic Motor	1

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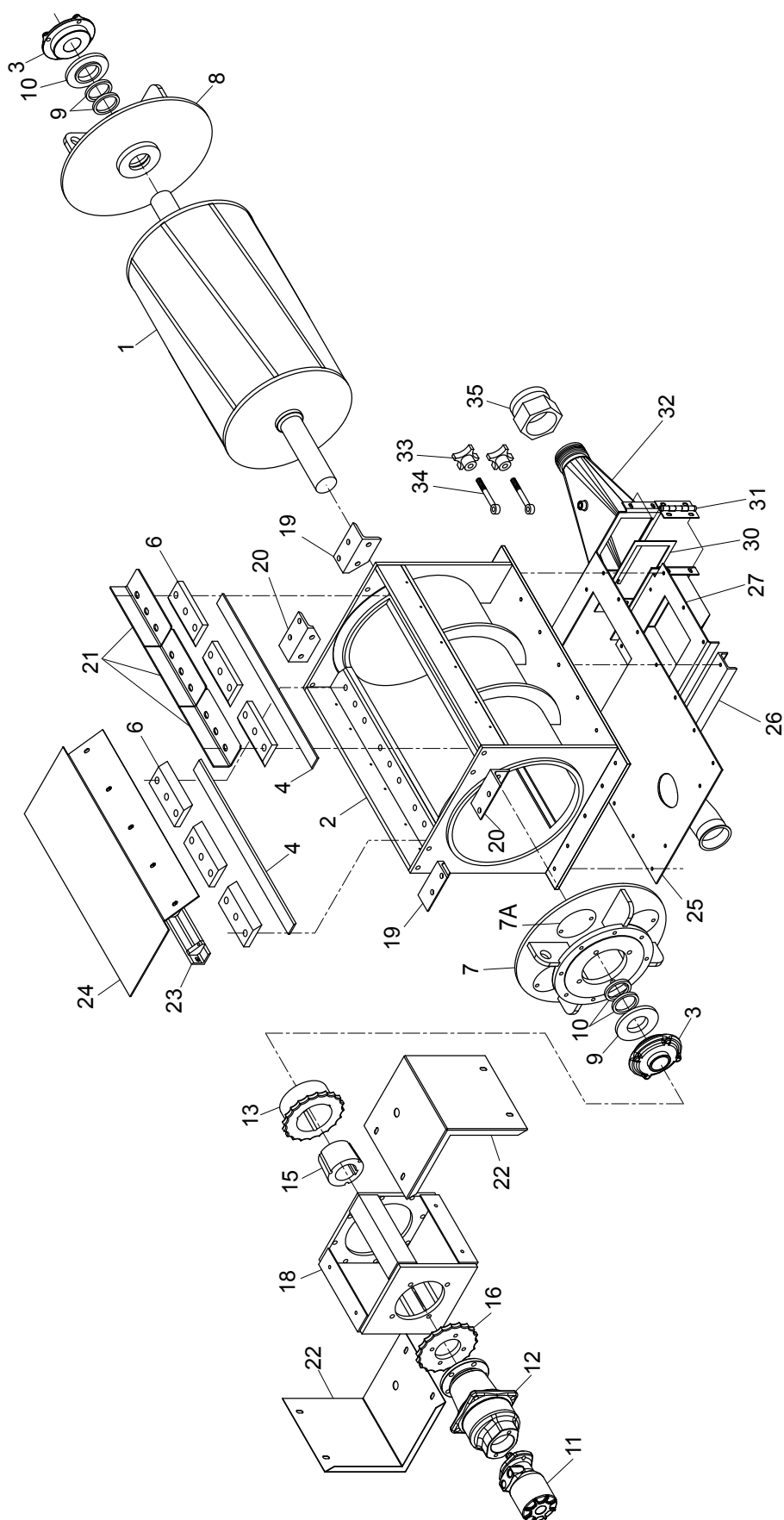
# FLOOR AND FEED ROLL PARTS

Ref. No.	Part Number	Description	No Req'd
1	052500	Feed Roll Hydraulic Motor	1
2	045031	Feed Roll Mount Hub	1
3	052676	Feed Roll	1
4	052517-01	Left-Hand Feeder Panel	1
5	F916-0004	Feeder Top Cover	1
6	052517-02	Right-Hand Feeder Panel	1
7	020586	2-Bolt Feed Roll Bearing	1
8	052506-01	Top Feeder Door Hinge	1
9	F916-0006-01	Top Feeder Door	1
10	052506-02	Lower Feeder Door Hinge	1
11	F916-0006-02	Bottom Feeder Door	1
12	052502-02	Door Stiffener Strap	1
13	055586	Feeder Door Pull Handle	1
14	052703	Swing Bolt	2
15	052699	Black Knob	2
16	052159	Rear Gate	1
17	052372-01	Rear Gate Seal	1
18	052372-02	Rear Gate Seal Strap	1
19	045019	Rear Floor Bearing	2
20	052224	Rear Floor Sprocket	2
21	052507	Rear Floor Drive Shaft	1
22	052226	Floor Drive Gear Box	1
23	055698	Floor Drive Hydraulic Motor	2
	055517	Floor Motor Gasket	2 per
	F816-0023	Floor Motor Shim	As Needed
24	052513-04	Gear Box Mount	1
25	F916-0001-07	Left-Hand Gate Rail	1
26	F916-0001-08	Right-Hand Rail	1
27	052185	Gate Hydraulic Cylinder	1
	HW58782	Pin	1
	HW58783	Clip	1
28	052370-04	Cylinder Spacer	1
29	052220	Idler Bearing	2
30	052780	Bearing Frame	2
31	052780-06	Adjustment Rod	2
32	075218	Front Idler Sprocket	2
33	052507-02	Front Idler Shaft	1
34	052816	Front Clean-out Frame	1
35	052352-08	Front Clean-out Door Rod	1
36	030894	Clean-out Rod Cotter Pin	1
37	052821	Front Clean-out Door	1

## NOT SHOWN

052820-01	Front Floor Seal	1
052820-02	Seal Extension Strap	1
052372-02	Seal Retaining Strap	1
052782	1216 Floor Drag Chain	1
HW36699	Link-Pintle	
HW36697	Pin-Chain Link	
HW20817	Link Cotter Pin	

**WHEN ORDERING PARTS, BE SURE TO STATE  
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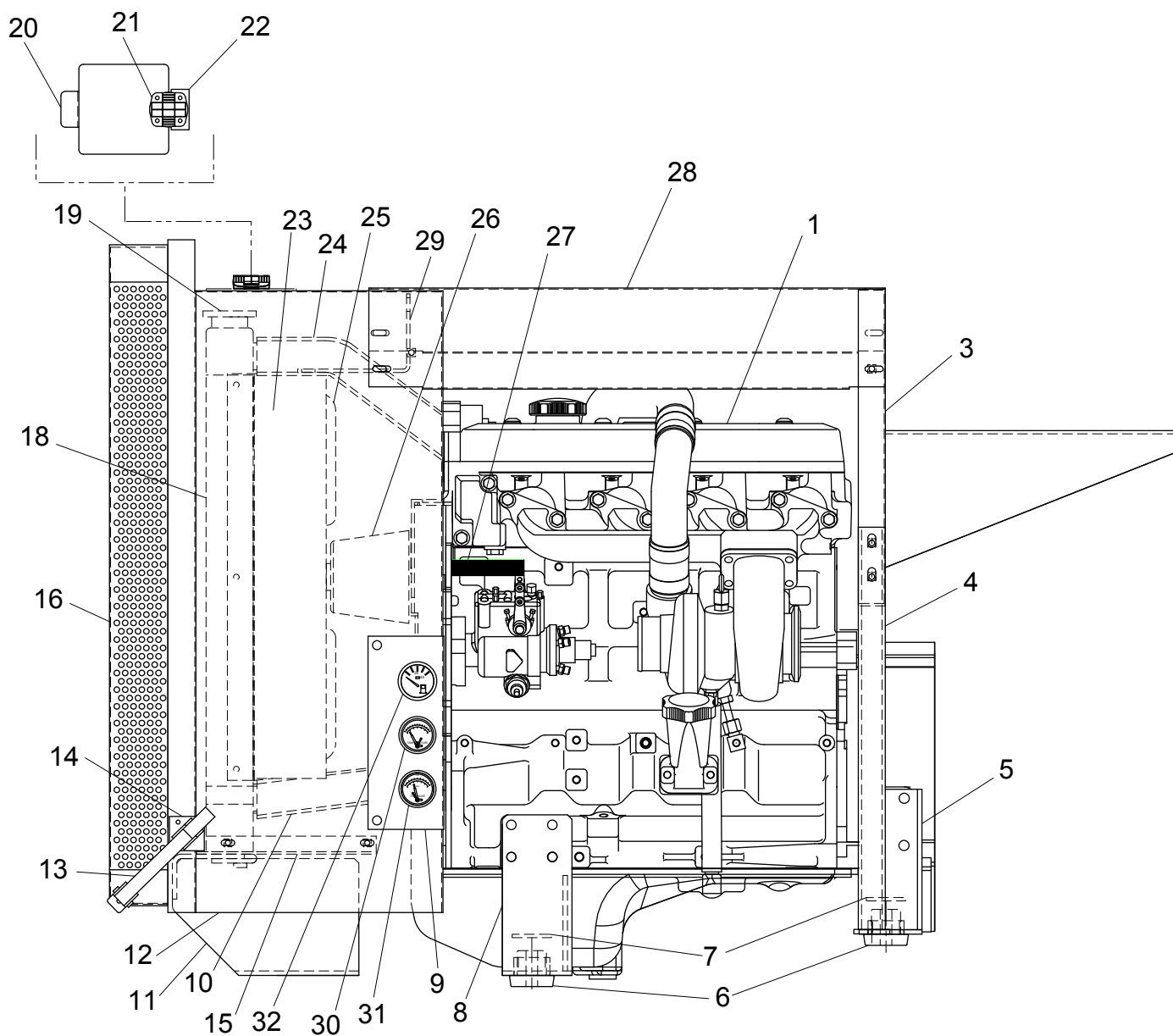


**WHEN ORDERING PARTS, BE SURE TO STATE  
SERIAL NUMBER OF MACHINE**

## AIRLOCK PARTS

Ref. No.	Part Number	Description	No. Req'd
	052665	18 x 33 Standard Duty Airlock	1
1	052752	Rotor Weldment	1
2	052753	Housing Weldment	1
3	052754	Flange Bearing	2
4	045296-01	Top Knife	2
5	045296-02	Bottom Wiper Knife (Not Shown)	1
6	052757	Top Knife Clamp	6
7	052758	Drive Endplate	1
7A	052762	Cleanout Door	8
8	052769	Discharge Endplate	1
9	052760	Packing Media	1
10	052761	Packing Gland	2
11	052535	Airlock Hydraulic Motor	1
12	045215	Airlock Gearbox	1
13	045199	Coupling Half	1
14	045201	Coupling Chain (Not Shown)	1
15	045202	Taper Bore Bushing	1
16	045230	Machined Coupling Sprocket	1
17	190131-48	3/4 Keystock x 3" Lg. (Not Shown)	1
18	045254	Gearbox Mount	1
19	045273-01	Left Mounting Angle	2
20	045273-02	Right Mounting Angle	2
21	F1240-0039-02	Knife Cover Plate	3
22	F1240-0041	Coupling Gaurd	2
23	052632	Rear Catch Pan Mount	1
24	F916-0007	Rear Catch Pan	1
25	052672	Inlet Pan Weldment	1
26	052664-04	Discharge Stiffener Channel	1
27	052701	Discharge Bowl Weldment	1
28	052436	Interlock Switch (Not Shown)	1
29	052707	Interlock Switch Hex Nut (Not Shown)	1
30	052668	Discharge Gasket	1
31	052664-02	Discharge Hinge	1
32	052670	Discharge Transition	1
33	052699	Fluted Black Knob	2
34	052703	Swing Bolt	2
35	012306	5" Male Aluminum Adapter	1

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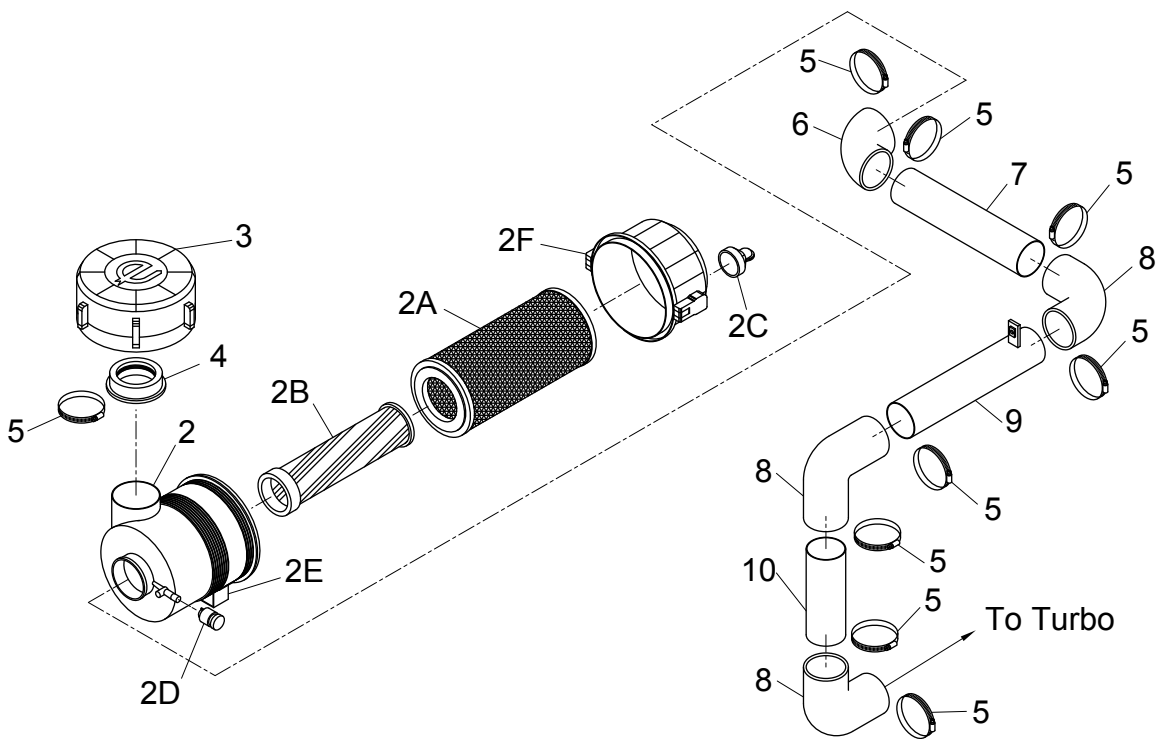
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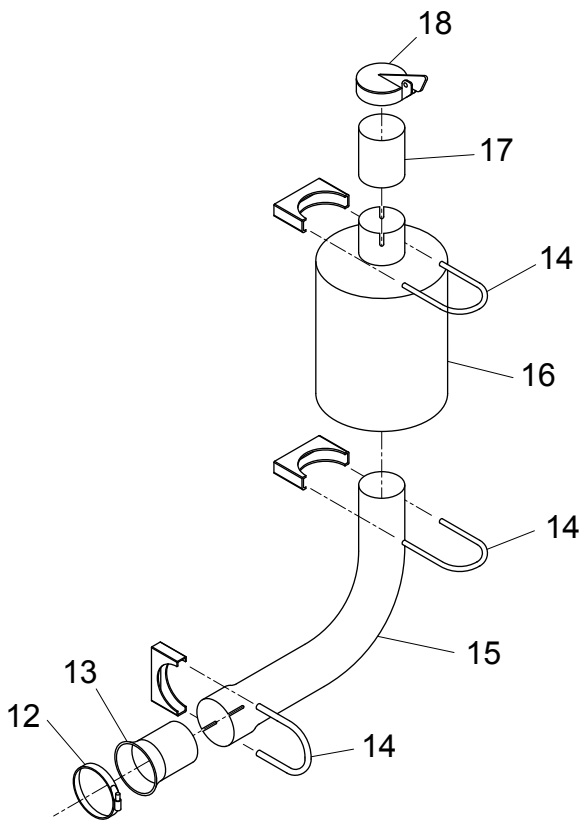
## POWER SYSTEM

Ref. No.	Part Number	Description	No. Req'd
1	012449	Engine Assembly	1
2	052696	Engine Cradle (Not Shown)	1
3	045329	Rear Engine Panel Weldment	1
4	052697-06	L-H Rear Panel Mount (shown on illustration)	1
	052697-01	R-H Rear Panel Mount (opposite side)	1
5	052397	Rear Engine Foot	2
6	007433	Rubber Shock Mount	4
7	007887	Snubbing Washer	4
8	052692-R	Front Engine Mount - Right	1
	052692-L	Front Engine Mount - Left	1
9	F916-0027	Three Gauge Panel	1
10	023845	Lower Radiator Hose	1
	022450	Hose Clamp	2
11	045330	Radiator Mount	1
12	045328	Radiator Shroud	1
13	023667	Rubber Draw Latch	2
14	045224-02	Latch Extension	2
15	F260-0009	Air Deflector	1
16	F1240-0036	Radiator Screen	1
17	190087	Radiator Sreen Trim Seal (Not Shown)	10.3'
18	012620	Radiator	1
	012610	Rubber Mount	2
	022452	Drain Cock	1
19	023807	Radiator Cap	1
20	F260-0006-02	Radiator Cap Cover	1
21	055669	Lock Positioning Hinge	1
22	F260-0006-03	Hinge Spacer	1
23	052378	Fan Shroud	1
24	JDR128455	Upper Radiator Hose	1
	022450	Hose Clamp	2
25	JDAR98090	Fan	1
26	JDR128443	Fan Spacer	1
27	023814	Electric Throttle Acuator	1
	F260-0007	Throttle Acuator Mount	1
28	F916-0033	Engine Top Cover	1
29	052651-05	Radiator Support Bracket	1
30	021839	Temperature Gauge	1
	012537	Temperature Switch Adapter	1
31	007706	Oil Gauge	1
	008473	Oil Line Kit	1
32	FW71972	Fuel Gauge	1
	FW71978	Fuel Level Sender	1
<b>NOT SHOWN</b>			
	F816-0008-01	Fan Guard	1
	F816-0008-02	Fan Guard Mounting Strap	1
	F1240-0003-01	Left Coupling Gaurd Half	1
	F1240-0003-02	Right Coupling Gaurd Half	1
	052817	Hydraulic Pump	1
	JDR96934	Hydraulic Pump Gasket	1
	012237	Hydraulic Pump Seal Kit	1
	190032	1/4" OD Copper Tubing	3"

**WHEN ORDERING PARTS, BE SURE TO STATE  
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1 Air Intake Assembly



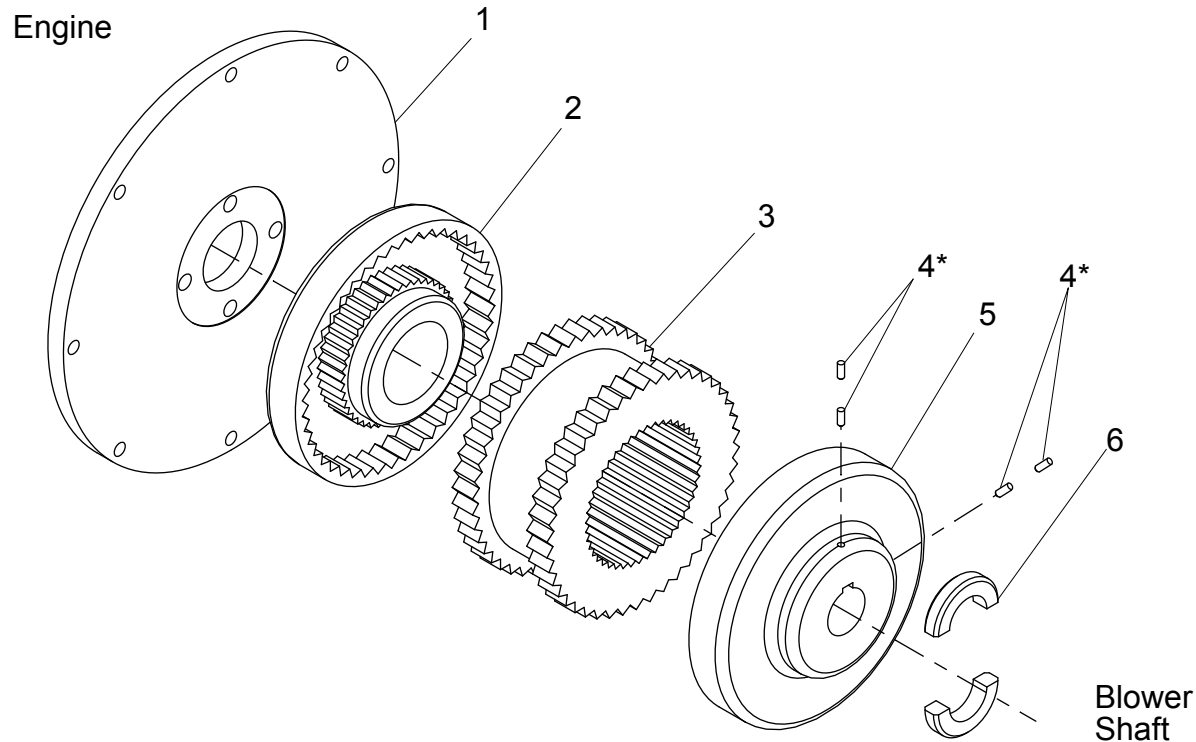
11 Exhaust Assembly

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

## AIR INTAKE AND EXHAUST SYSTEMS

Ref. No.	Part Number	Description	No Req'd
1	012626	Air Intake Assembly (Includes Items 2-10)	1
	012646	Air Cleaner Assembly (Includes Items 2-5)	
2	012621	Air Cleaner	1
2A	012622	Main Filter Element (3.75-E1)	1 per
2B	012623	Safety Filter Element (3.75-E2)	1 per
2C	012621A	Flapper Valve	1 per
2D	012621B	Dust Load Indicator Gauge	1 per
2E	012621C	Spring Loaded Mount	1 per
2F	012621D	Filter Cap	1 per
3	012608	Pre-Cleaner	1
4	012609	Pre-Cleaner Adapter	1
5	022657	4" Clamp	9
6	060325	Reducer Elbow	1
7	052700-07	Long Extension Pipe	1
8	011852	Rubber Elbow	3
9	052700-02	Panel Mount Extension Pipe	1
10	052700-05	Short Extension Pipe	1
11	045346	Exhaust Assembly (Includes Items 12 thru 18)	1
12	023800	V-Band Clamp	1
13	023799	Exhaust Elbow	1
14	023801	Muffler Clamp (#350)	3
15	052763-01	Exhaust Elbow	1
16	045012	Muffler	1
17	052763-02	Muffler Extension	1
18	045014	Rain Cap	1
<b>NOT SHOWN</b>			
	052515-03	Exhaust Angle	1
	023438	Rubber Shock Mount	1
	052516	Exhaust Bracket Weldment	1

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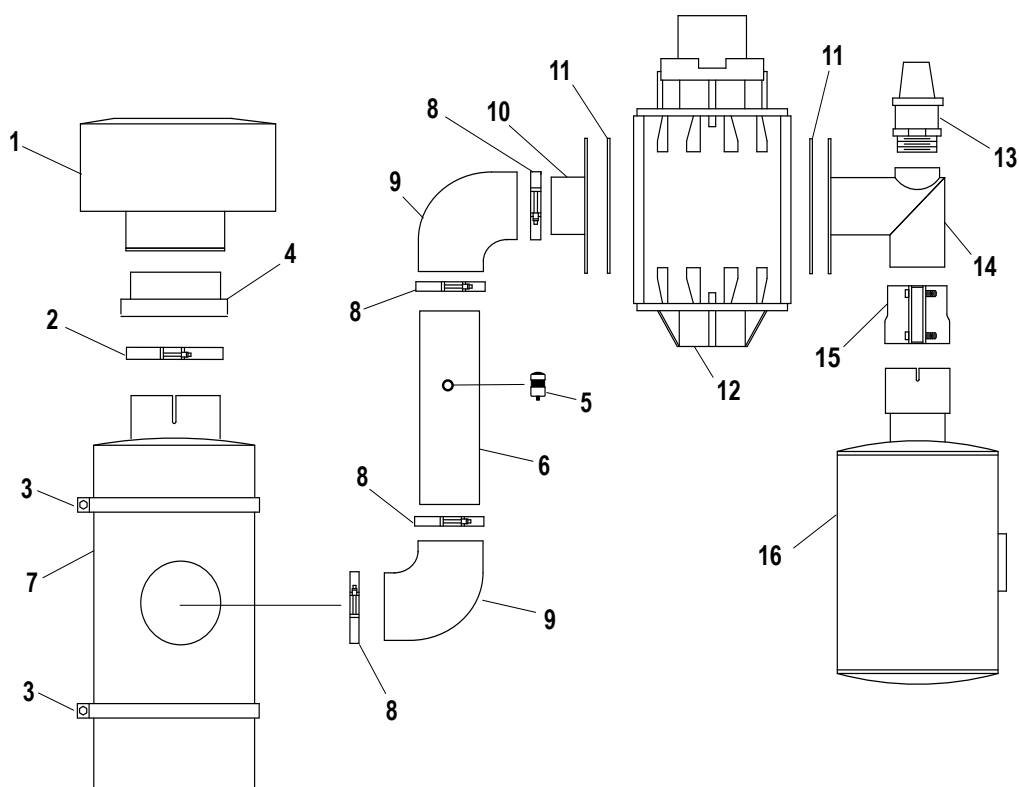


## BLOWER DRIVE ASSEMBLY

Ref. No.	Part Number	Description	No. Req'd
1	045039	Flywheel	1
2	045002	Flywheel Mount Coupling Half	1
3	045004	Coupling Insert	1
4	Z0606CPK	Coupling Set Screw	4
5	045003	Blower Coupling Half	1
6	045118	Lock Collar	1
<b>NOT SHOWN</b>			
	F1240-0003-01	Left Coupling Gaurd	1
	F1240-0003-02	Right Coupling Gaurd w/Weldnut	1

**\*Note:** Part number 045003 blower coupling half must be locked with double setscrews (two on top of each other.)

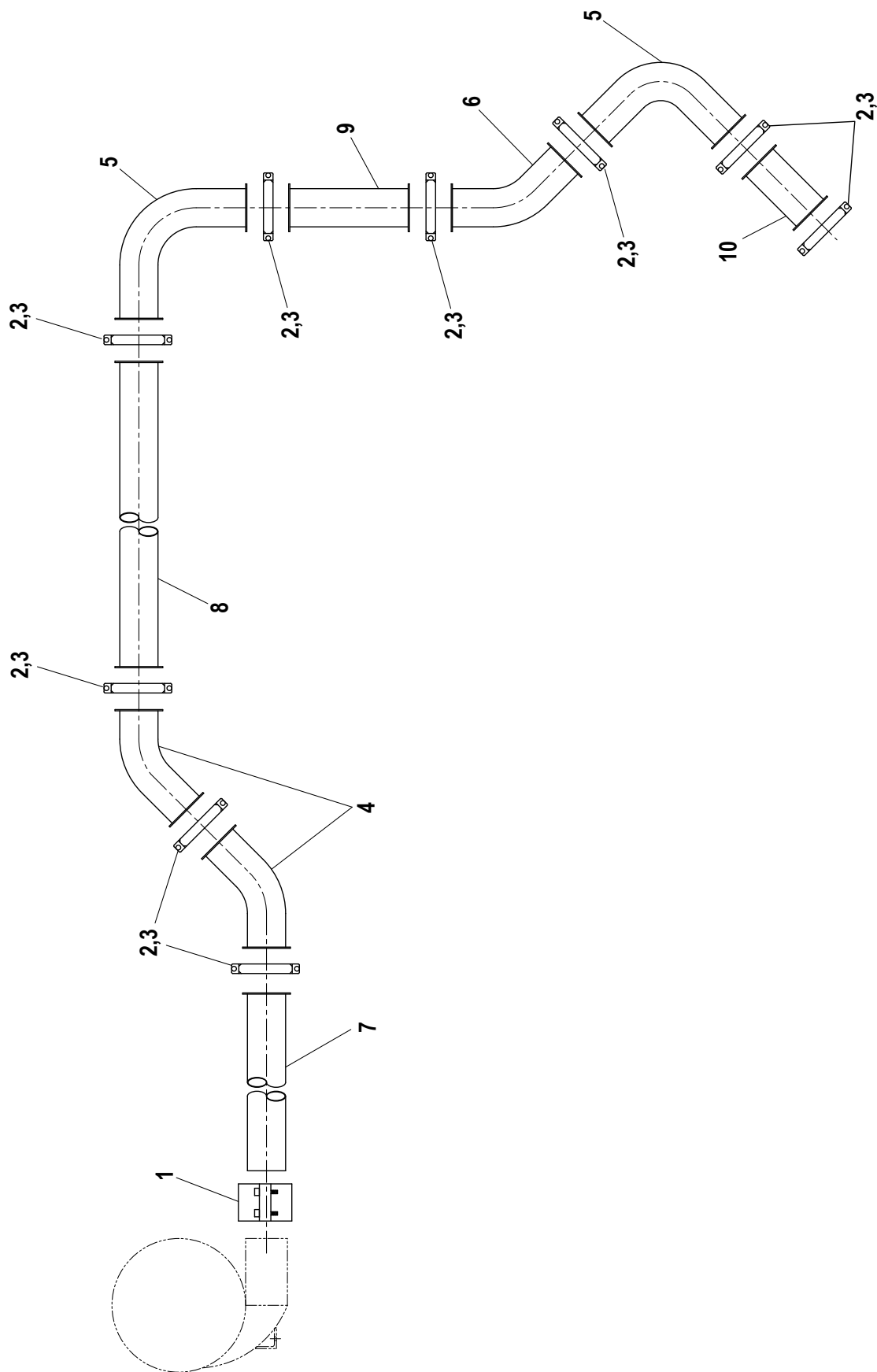
**WHEN ORDERING PARTS, BE SURE TO STATE  
SERIAL NUMBER OF MACHINE**



## BLOWER SYSTEM

Ref. No.	Part Number	Description	No. Req'd
1	052905	Pre-Cleaner	1
2	052905-C	Pre-Cleaner Clamp	1
3	052907	Filter Bracket	2
4	052905-B	Pre-Cleaner Bushing	1
5	045298	Restriction Gauge	1
6	052919-02	Inlet Tube	1
7	052906	Canister Filter	1
	052904-01	Filter Stand (Not Shown)	1
8	052908	7" Band Clamp	5
9	052915	7" Rubber Elbow	2
10	052919-01	Blower Inlet Flange	1
11	045192-01	Blower Gasket	2
12	045001	Blower Model 6012	1
	052532-01	Blower Foot (not shown)	2
13	052913	Relief Valve	1
	160775	3 x 2 Pipe Reducer (Not Shown)	1
14	052955-01	Blower Discharge Weldment	1
15	045185	5" Lap Joint Clamp	1
16	052533	Outlet Silencer	1
	F1240-0038	Outlet Silencer Mounting Shelf (not shown)	1

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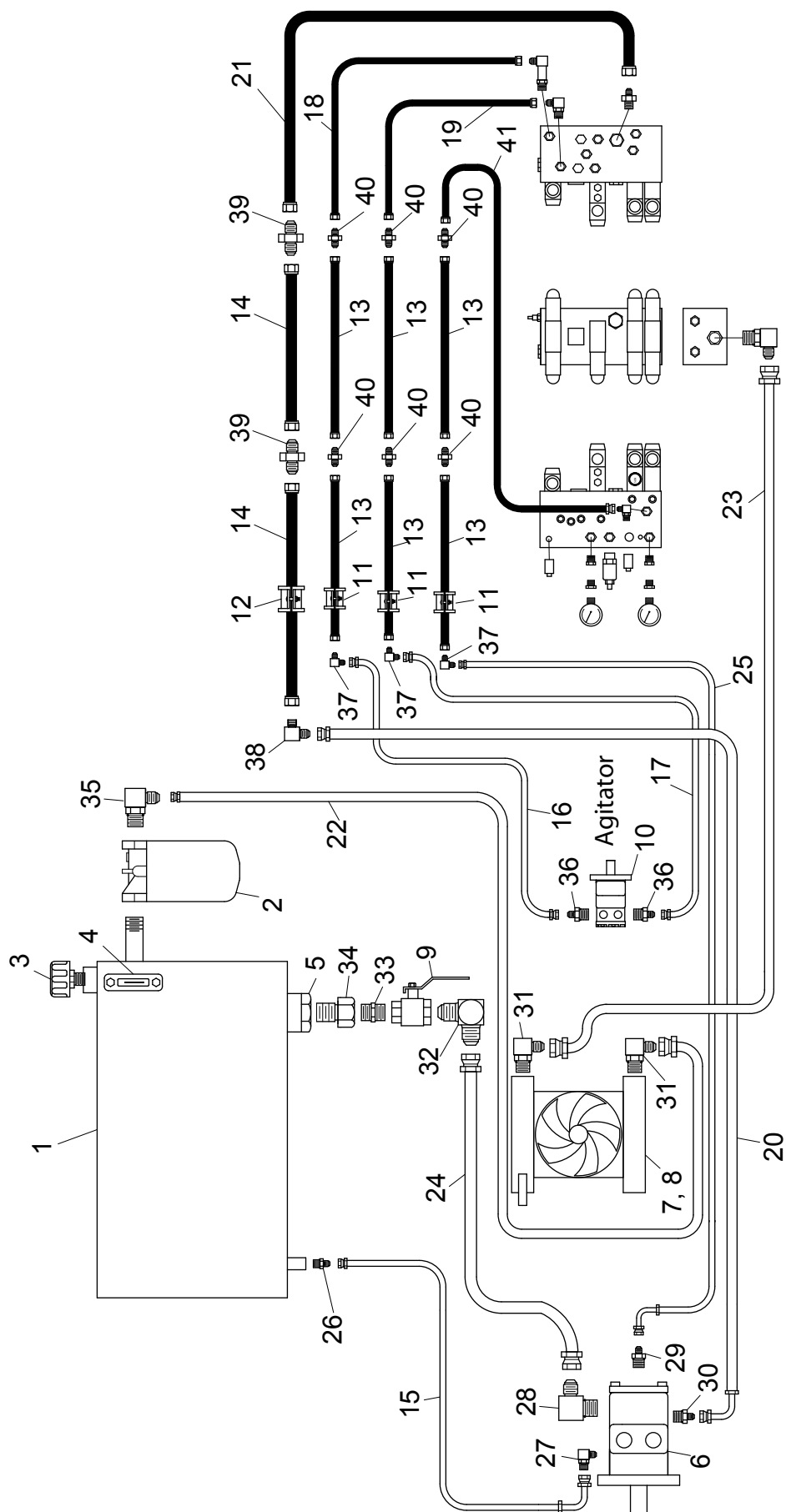


**WHEN ORDERING PARTS, BE SURE TO STATE  
SERIAL NUMBER OF MACHINE**

## BLOWER PIPING

Ref. No.	Part Number	Description	No. Req'd
		Model 1216 Blower Piping Assembly	1
1	045186	5" Buttjoint Clamp	1
2	045336	5" Bolted Pull Ring	9
3	045337	5" U-Shaped Gasket	9
4	045339	5" 45° Elbow	2
5	045338	5" 90° Elbow	2
6	045340	5" 30° Elbow	1
7	045368-08	1216 Short Air Tube	1
8	045368-09	1216 Long Air Tube	1
9	045368-10	1216 Vertical Air Tube	1
10	045368-11	1216 Inlet Air Tube	1

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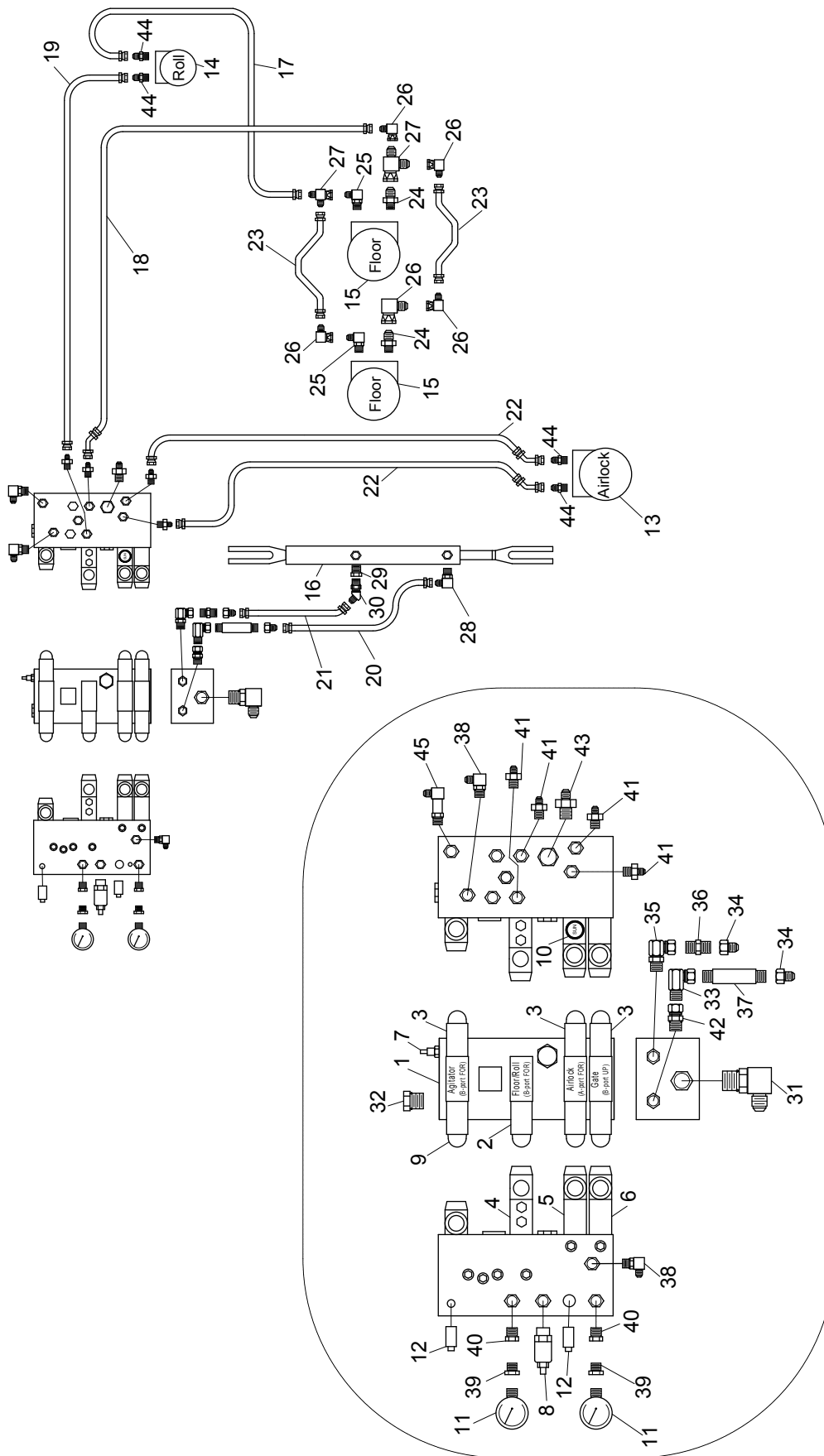
**WHEN ORDERING PARTS, BE SURE TO STATE  
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## HYDRAULIC SYSTEM - MACHINE FRONT

Ref. No.	Part Number	Description	No. Req'd.
1	052541	Hydraulic Reservoir Tank	1
2	011868	Hydraulic Filter	1
3	011783	Breather Cap	1
4	080329	Sight Gauge	1
5	011927	Suction Strainer	1
6	052817	Hydraulic Pump	1
7	FW75186	Oil Cooler w/Fan	1
8	FW75186-F	Fan Only	1
9	012083	Ball Valve	1
10	052499	Agitator Motor	1
11	045021	3/8" OD Tube Clamp	18
12	045022	1" OD Tube Clamp	6
13	052839	3/8" Hydraulic Tube	6
14	052840	1" Hydraulic Tube	2
15	052641	Pump Case Drain Hose	1
16	052603	Front Agitator Hose	1
17	052607	Front Agitator Hose	1
18	052833	Rear Agitator Forward Tube	1
19	052835	Rear Load Sense Tube	1
20	052600	Front Main Supply Hose	1
21	052832	Rear Main Supply Tube	1
22	052622	Front Main Return Hose	1
23	052599	Rear Main Return Hose	1
24	052598	Suction Hose	1
25	052640	Front Load Sense Hose	1
26	085015	Straight Pipe Adapter	1
27	FW71448	90° SAE Elbow Adapter	1
28	052401	90° SAE Elbow Adapter	1
29	055602	SAE Straight Adapter	1
30	012088	SAE Straight Adapter	1
31	023620	90° SAE Elbow Adapter	2
32	052030	90° Pipe Elbow Adapter	1
33	041150	Pipe Nipple	1
34	045080	Pipe Bushing	1
35	041195	90° Pipe Elbow Adapter	1
36	085014	SAE Straight Adapter	2
37	052846	90° Elbow Adapter	3
38	052847	90° Elbow Adapter	1
39	052845	Straight Union Fitting	2
40	071096	Straight Union Fitting	6
41	052834	Rear Agitator Reverse Tube	1

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## HYDRAULIC SYSTEM - MACHINE REAR

Ref. No.	Part Number	Description	No. Req'd
1	052863	Valve Manifold - Complete	1
2	045303	Proportional Solenoid Valve	1
3	052864	Directional Solenoid Valve	3
4	045308	Hydrostat Compensator	1
5	045309	Flow Control Valve	1
6	045321	Pilot Check Valve Stack	1
7	045302	Pressure Comp. Control Valve	1
8	045316	Relief Valve	1
9	045320	Boot w/ Override Stem	7
10	045342	Knob Kit	2
11	012044	Pressure Gauge	2
12	052336	Pressure Switch	2
13	052535	Airlock Motor	1
14	052500	Feed Roll Motor	1
15	055698	Floor Motor	2
16	052185	Hydraulic Cylinder	1
17	052591	Floor/Roll Jumper Hose	1
18	052715	Floor Return Hose	1
19	052552	Feed Roll Supply Hose	1
20	052609	Lower Cylinder Hose	1
21	052610	Upper Cylinder Hose	1
22	052553	Airlock Hose	2
23	052714	Floor Motor Connector Hose	2
24	085014	SAE Straight Adapter	2
25	055309	90° SAE Elbow Adapter	2
26	FW71636	90° Elbow Swivel Adapter	5
27	FW71784	Swivel Tee Adapter	2
28	052633	90° SAE Elbow Adapter	1
29	055229	Pipe Reducing Fitting	1
30	012421	45° Elbow Adapter	1
31	FW75113	90° SAE Elbow Adapter	1
32	012362	SAE Plug Fitting	1
33	025220	90° Elbow Swivel Adapter	1
34	045083	Straight Pipe Adapter	2
35	045082	90° Elbow Swivel Adapter	1
36	070487	Pipe Nipple	1
37	045085	Seamless Pipe Nipple	1
38	FW71448	90° SAE Elbow Adapter	2
39	045081	Pipe Reducing Fitting	2
40	022304	Straight Swivel Adapter	2
41	055601	SAE Straight Adapter	4
42	FW71496	SAE Straight Swivel Adapter	1
43	012087	SAE Straight Adapter	1
44	085014	SAE Straight Adapter	4
45	052831	90° SAE Long Elbow Adapter	1

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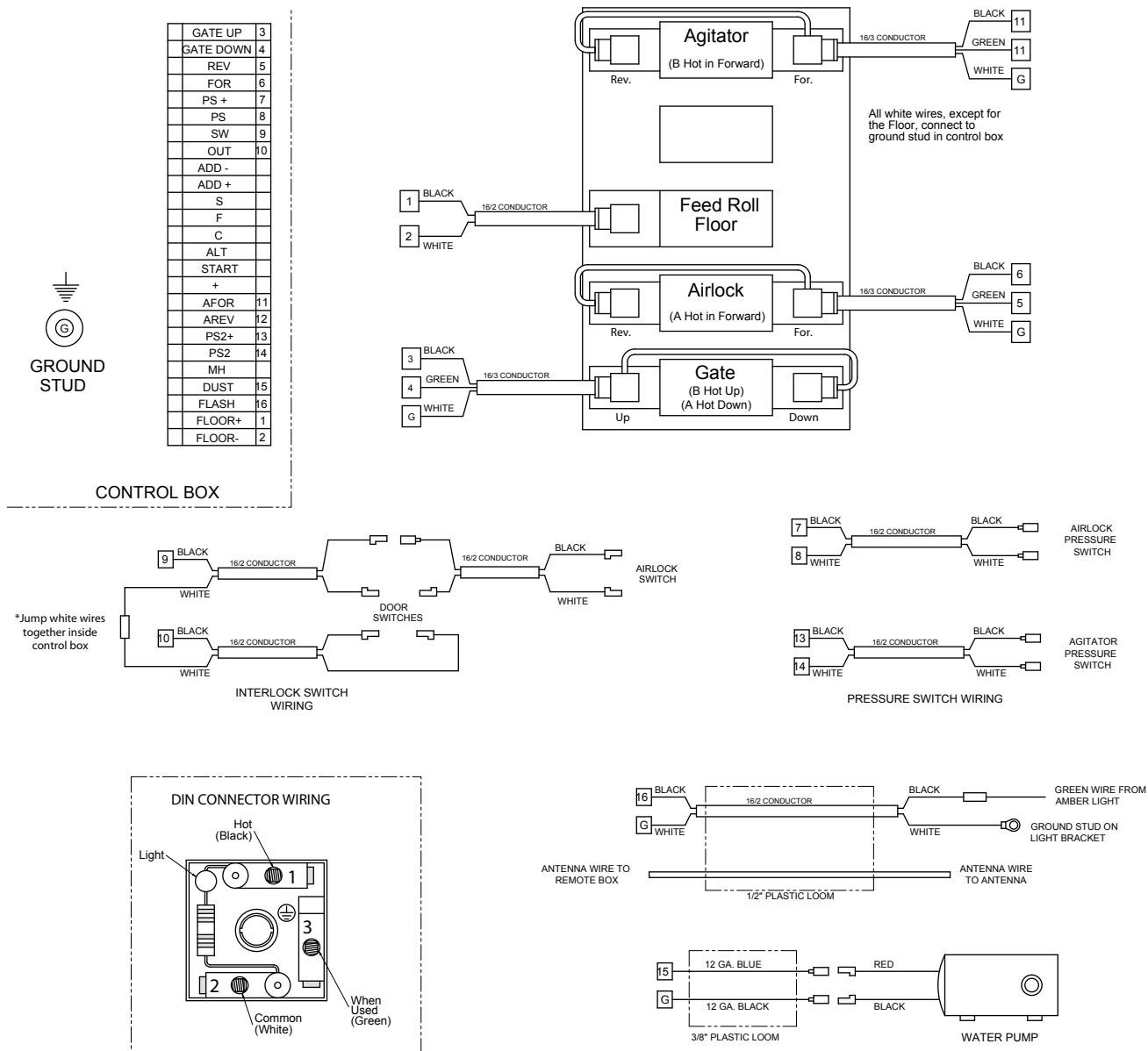
## ENGINE WIRING

Part Number	Description	No. Req'd
052768-01	Engine Wiring Harness	1
005561	Plug Housing	1
023602	Female Plug Insert	1
080304	Plug Housing Water Tight Fitting	1
022425	Bead Diode	1
052621-02	1216 Engine Cable	1
023604	Plug Housing	1
023601	Male Plug Insert	1
080304	Plug Housing Water Tight Fitting	1
FW71612	Control Box Water Tight Fitting	1
045127-05	1216 Hydraulic Cooler Wiring	1
012595	Electric Fan Control Kit (includes sender)	1

### ELECTRICAL COMPONENTS NOT INCLUDED IN HARNESSES

023814	Electric Throttle Actuator	1
FW71978	Fuel Level Sender	1
007706	Oil Gauge	1
008473	Oil Line Kit	1
021839	Temperature Gauge	1
012537	Temperature Adapter Kit	1
FW71972	Fuel Gauge	1
JDRE54092	Engine Starter	1
JDTY24485	95A Alternator	1
022891	Solenoid Relay	1
011851	12-Volt Battery	1
031031	Battery Cable	1
010516	Ground Strap	1
011770	Battery Box	1
FW75186	Hydraulic Oil Cooler w/Fan	1
FW75186-F	Fan Only	1

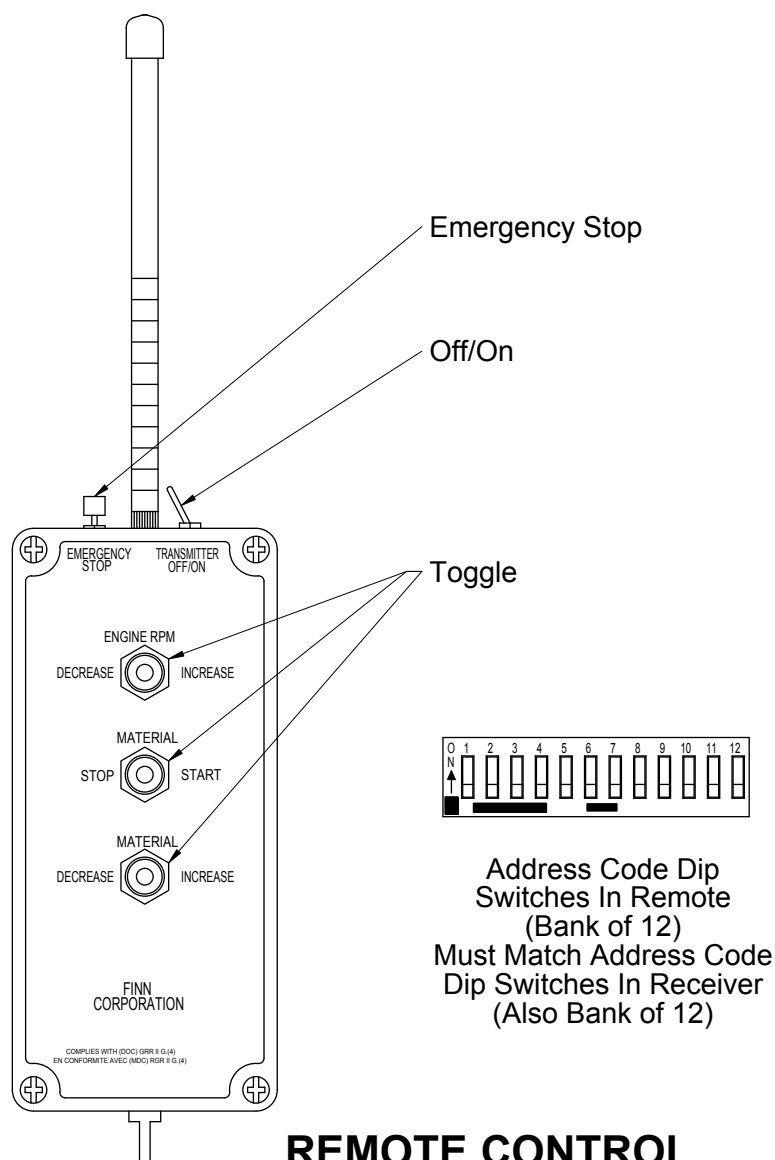
**WHEN ORDERING PARTS, BE SURE TO STATE  
SERIAL NUMBER OF MACHINE**



## CONTROLS WIRING

Part Number	Description	No. Req'd
045326-03	1216 Controls Wiring	1
045233	Jumper Wiring Assembly	3
045137	DIN Connector (3+GND.)	3
045136	DIN Connector (2+GND.)	1
052336	Airlock/Agitator Pressure Switch	2
052436	Door Switch	3
007336	Amber Flashing Light	1
060316	3-Bar Light (Option)	1

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## REMOTE CONTROL (3-FUNCTION)

Part Number	Description	No. Req'd
052133	3-Function Radio Remote Control (Complete Unit)	1
052133A	3-Function Hand Radio Remote Receiver (Spec Band)	1
052133T	3-Function Radio Remote Transmitter (Spec Band)	1
052009C	Antenna & Hardware for Remote; A003 Antenna, AY135 Hardware	1
052009D	Female Belt Clip w/Loop	1
052009E	Toggle Switch	3
052009F	Emergency Stop Switch	1
052009G	Belt Clip Set w/Loop	1
052009H	Cab Clip Set w/o Loop	1
052009I	Battery Door Clip	1
052009J	Single Battery Door	1
052009K	Female Belt Clip No Loop (Cab Clip)	1
052009L	Male Belt Clip (No Loop)	1
052009M	Off/On Power Switch w/Harness	1

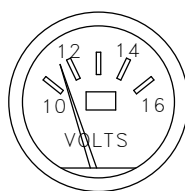
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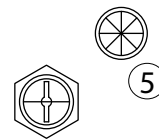
①



②



③



④



⑤

ON/FUSE

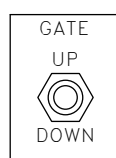


⑥

DOOR SWITCHES



⑦



⑧



⑧



⑨

REMOTE FEED  
STANDBY

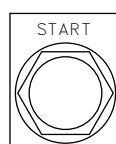


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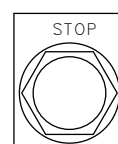
FEEDING



⑪



⑫



⑬

AUTO REVERSE  
TEST SWITCH



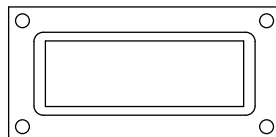
⑭

AUTO-REVERSE



⑮

FLOOR SPEED



⑯



⑨



⑨



⑧

**WHEN ORDERING PARTS, BE SURE TO STATE  
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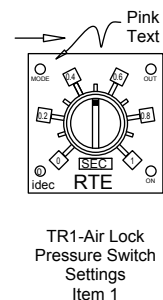
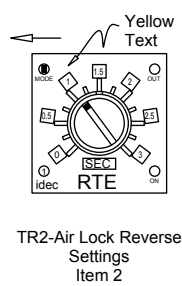
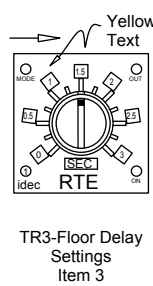
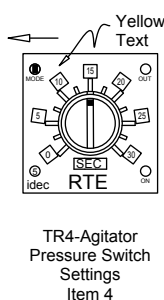
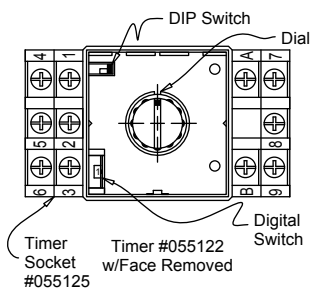
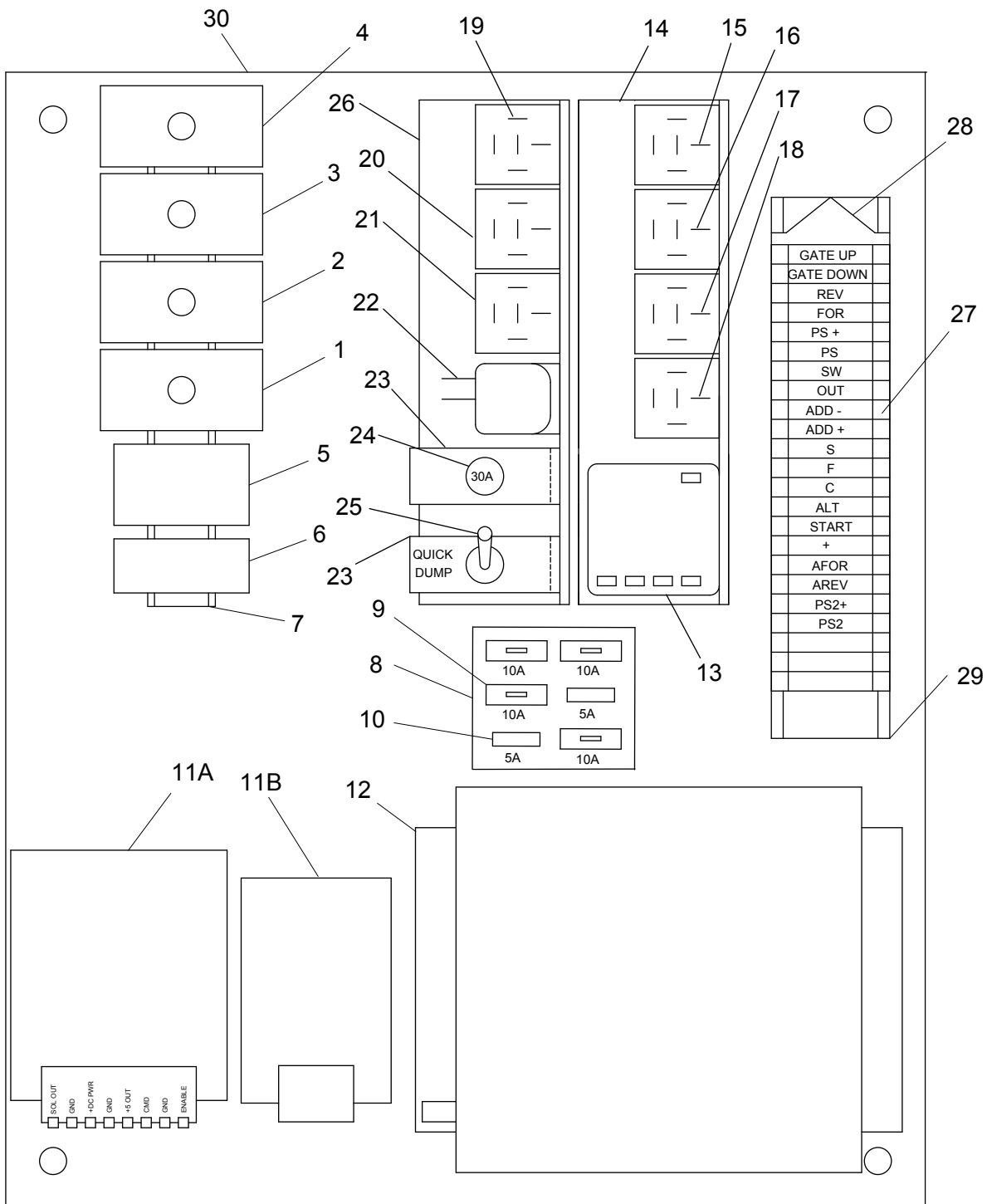
## CONTROL BOX LID COMPONENTS

Ref. No.	Part Number	Description	No. Req'd
	045322	Control Box Only (Drilled)	1
1	007274	Hourmeter	1
2	045265	Tachometer	1
3	007958	Voltmeter	1
4	052076	Ignition Switch	1
5	006245	Red Pilot Light	1
6*	045060	Blue, ON/FUSE Lens	1
	055468-03	ON/FUSE Placard	1
7*	045057	Green, DOOR SWITCHES Lens	1
	055468-04	DOOR SWITCHES Placard	1
8	FW71555	Gate/Throttle/Floor Speed Toggle Switch	3
	080526	Switch Rubber Boot	3
	045063-02	GATE UP/DOWN Placard	1
	045063-03	THROTTLE IDLE/FULL Placard	1
	045063-12	FLOOR SPEED INC/DEC	1
9	052112	Remote/Floor/Dust Cntrl ON/OFF Switch Toggle	2
	080526	Switch Rubber Boot	2
	045063-04	REMOTE ON/OFF Placard	1
	045063-05	FLOOR ON/OFF Placard	1
	045063-10	DUST CONTROL ON/OFF Placard	1
10*	045061	Clear, REMOTE FEED STANDBY Lens	1
	045063-01	REMOTE FEED STANDBY Placard	1
11*	045059	Amber, FEEDING Lens	1
	055468-05	FEEDING Placard	1
12	055127	Start Button	1
	055149	START Placard	1
13	055128	Stop Button	1
	055150	STOP Placard	1
14	020886	Auto Rev. Test Switch Button w/Boot	1
	055468-02	AUTO REV. TEST SWITCH Placard	1
15*	045058	Red, Auto Reverse Lens	1
	55468-06	AUTO REVERSE Placard	1
16	052916	LCD Floor Panel Speed Display	1
	F916-0060	Floor Display Bezel	1
	045063-13	FLOOR SPEED Placard	1

**\*NOTE:** 045067 Replacement 12V Bulb 1 per

045062 Light Socket Base 1 per

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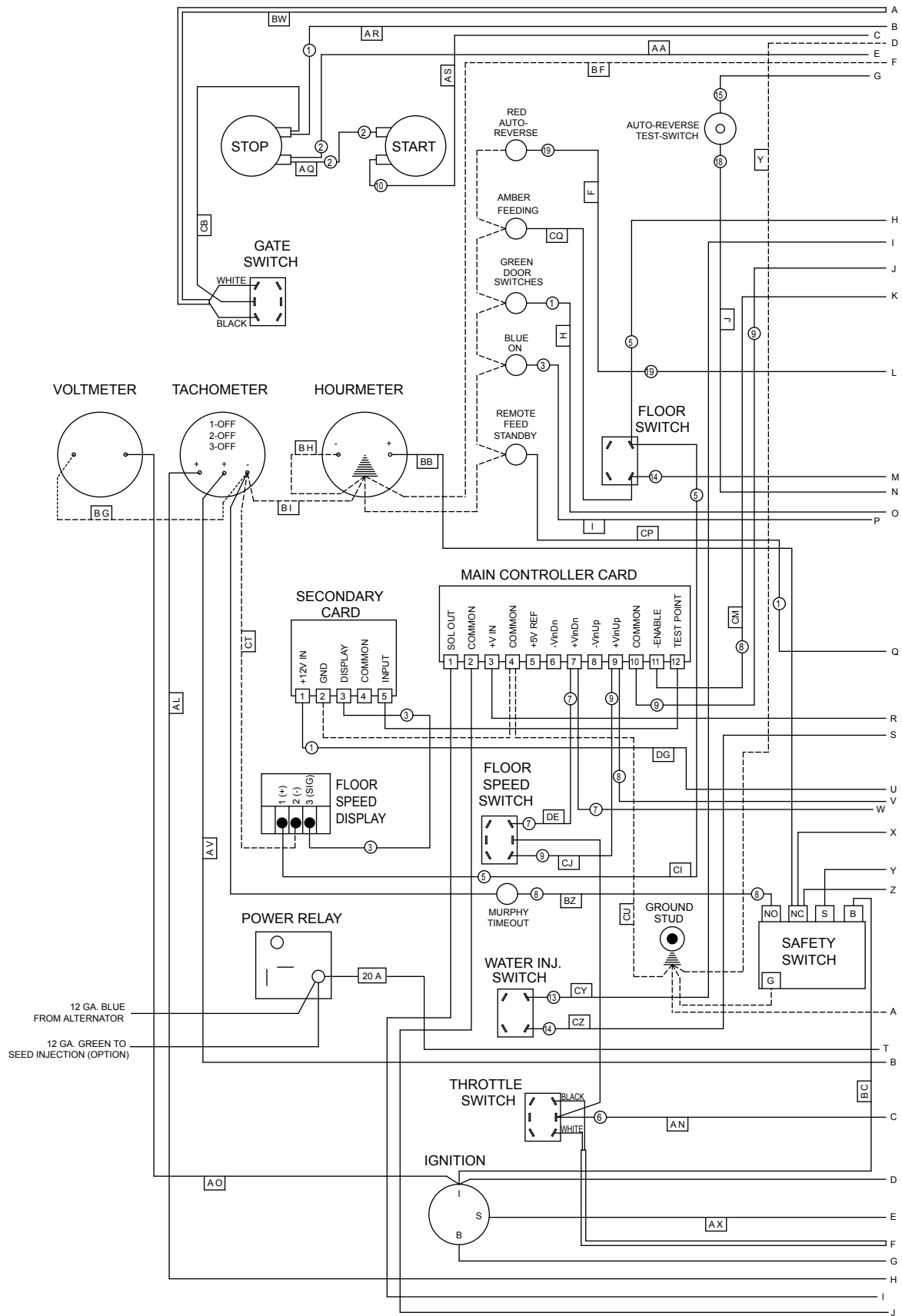
## CONTROL BOX ELECTRICAL COMPONENTS

Ref. No.	Part Number	Description	No. Req'd
1-4	055122	12-Volt Timer (TR1,TR2,TR3,TR4)	4
	055125	Timer Socket	4
5	055121	12-Volt Relay	1
	055124	Relay Socket	1
6	055120	12-Volt Relay	1
	055123	Relay Socket	1
7	045071-03	Timer DIN Rail	1
8	052118	6 Circuit Fuse Panel	1
9	045056	10A Circuit Breaker	4
10	055450	5A Fuse	2
11A	045289	Primary Controller Card	1
11B	045312	Secondary Filter Card	1
12	052133	Radio Remote Control	1
13	023802	Murphy Safety Switch	1
14	045071-08	Right Relay Mounting Angle	1
15-21	FW71749-02	30A Relay	6
22	021198	Flasher w/Bracket	1
23	045071-05	Circuit Breaker/Switch Mounting Angle	2
24	045055	30A Circuit Breaker	1
25	045311	Quick Dump Toggle Switch	1
26	045071-07	Left Relay Mounting Angle	1
27	055132	Terminal Block	23
28	055451	Terminal Block End Cap	1
29	045071-04	Terminal Block Mounting Rail	1
30	045071-01	Sub-Panel	1
	045322	Control Box (Not Shown)	1
	FW75307	Power Relay (Not Shown)	1

Ref. No.	Function
1	Air Lock Pressure Switch Timer
2	Air Lock Reverse Timer
3	Floor Delay Timer
4	Agitator Pressure Switch Timer
15	Material Stop Relay
16	Electric Stop Relay
17	Water Injection Relay
18	Open
19	Throttle Control Relay
20	Throttle Control Relay
21	Emergency Shutdown Relay

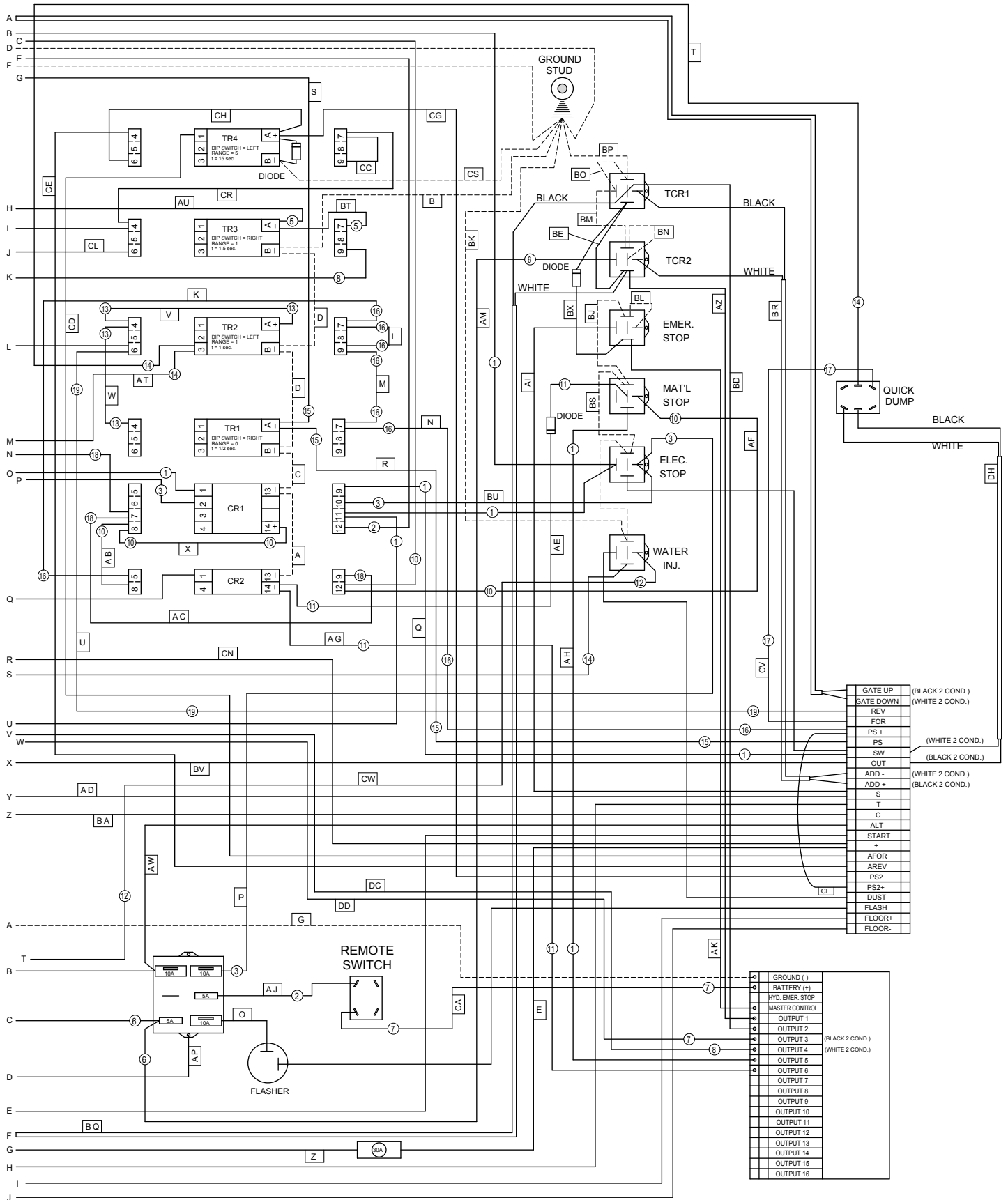
**WHEN ORDERING PARTS, BE SURE TO STATE  
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# CONTROL BOX WIRING

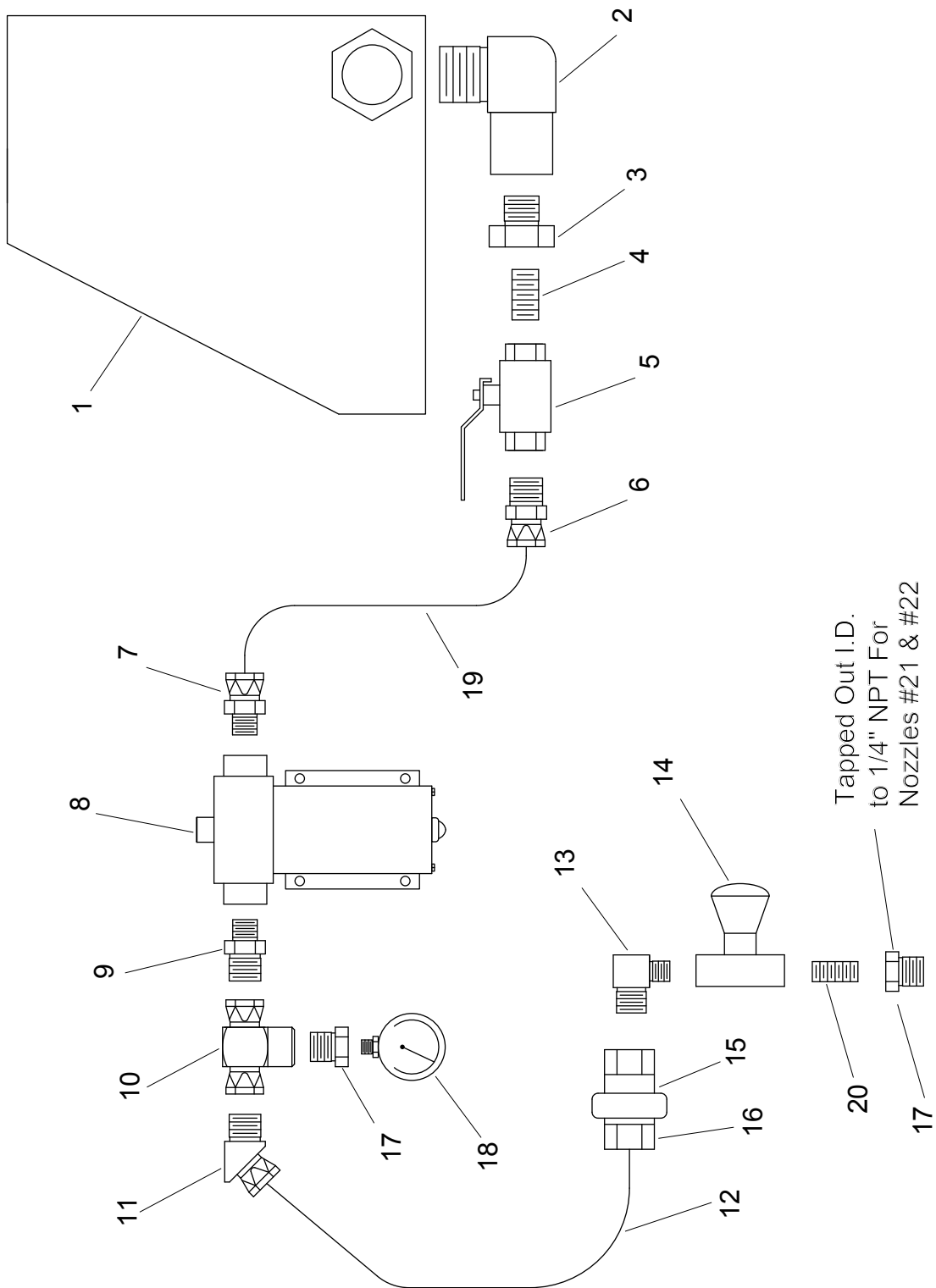


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# CONTROL BOX WIRING



**WHEN ORDERING PARTS, BE SURE TO STATE  
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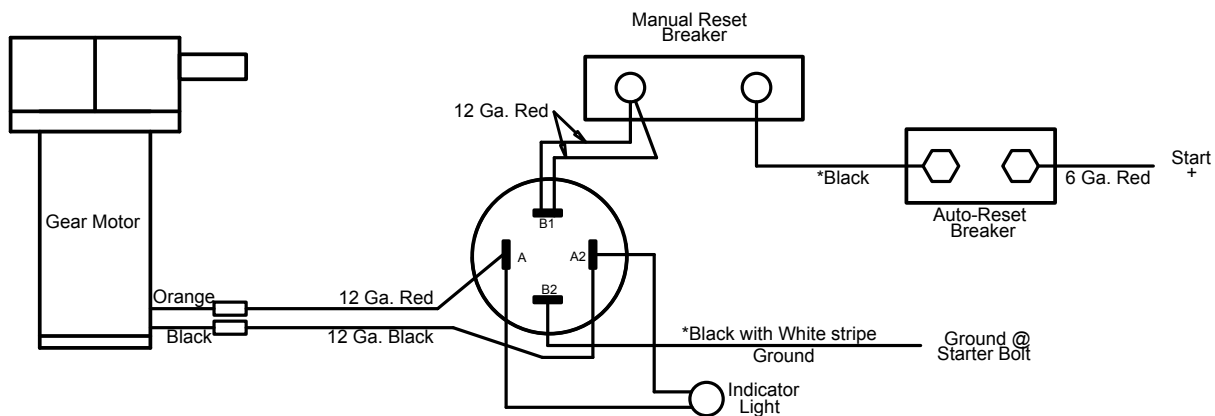
## DUST CONTROL SYSTEM

Ref. No.	Part Number	Description	No. Req'd
1	052718	75 Gal. Poly Tank	1
	052750	3/4" Bulkhead Fitting - Drain	1
	052751	3/4" Drain Plug	1
	052718-03	Tank Cap	2
2	052842	Poly Reducing Poly Elbow	1
3	052841	Reducer Bushing	1
4	011504	Pipe Nipple	1
5	070122	1/2" Ball Valve	1
6	022305	Male Straight Pipe Swivel	1
7	055236	Male Straight Pipe Swivel	1
8	052667	Water Pump	1
9	052032	Male Adapter Fitting	1
10	052901	Swivel Tee	1
11	011503	Swivel Pipe Elbow	1
12	052722-07	Discharge Hose	1
13	052749	Male Pipe Elbow	1
14	052941	Calibrated Needle Valve	1
15	052734	1/2" Quick Disconnect - Female	1
16	052735	1/2" Quick Disconnect - Male	1
17	055229	Reducer Bushing	2
18	052771	Pressure Gauge	1
19	052722-06	Suction Hose	1
20	052748	Pipe Nipple	1
21	052480	1/4" S10 Brass Nozzle	1
22	052481	1/4" S14 Brass Nozzle	1

### NOT SHOWN

052823	Front Tank Bracket	1
052711-03	Rear Tank Bracket	1
052743	Tank Hold Down Strap	2

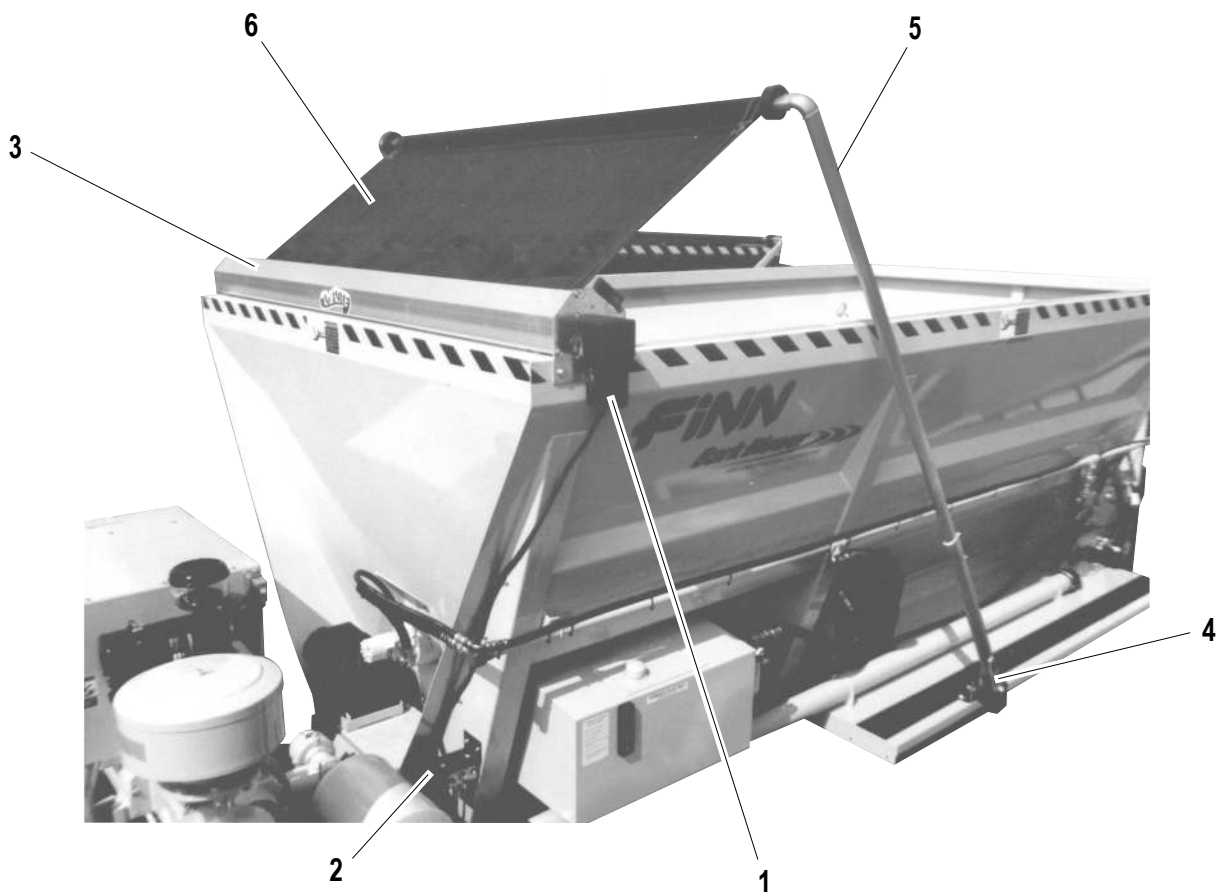
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## TARP WIRING

Part Number	Description	No. Req'd
RR1031	Electric Gear Tarp Motor	1
RR1050	Electric Tarp Kit (Switch, Mounting Bracket, Etc.)	1

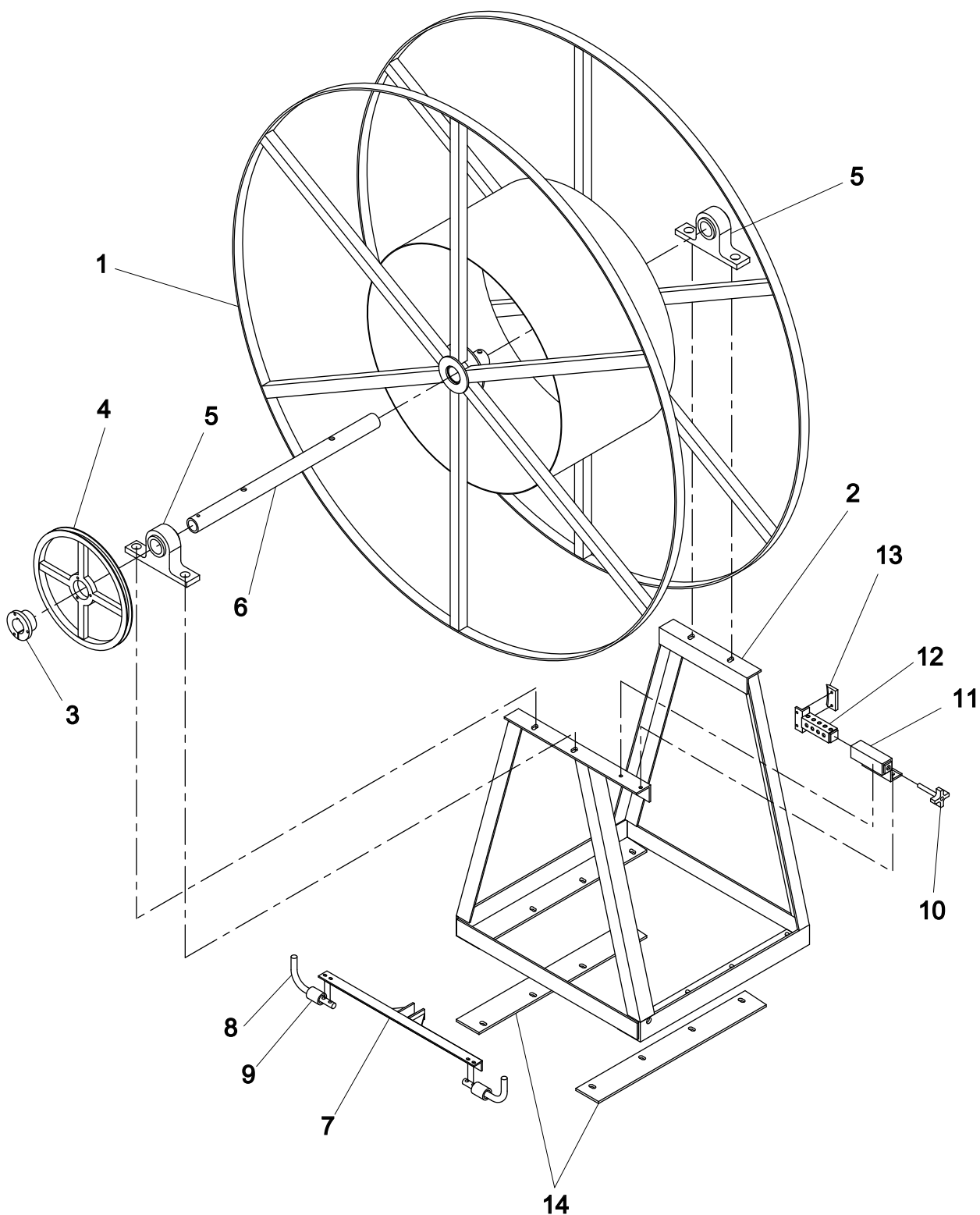




## TARP ASSEMBLY

Ref. No.	Part Number	Description	No. Req'd
	052865	Tarp Assembly Includes:	1
1	RR1031	Electric Gear Tarp Motor w/Protective Cover	1
	RR3103-16	Pre-Threaded Aluminum Tarp Axle	1
	RR3105	Flange Bearing	2
2	RR1050	Electric Kit (Switch, Bracket, Breaker, Etc.)	1
3	RR3636-16	Wind Deflector Housing	1
4	RR4643	3-Spring Pivot Set	2
5	RR7670-16	Tarp Bow Set	1
	RR7677-16	Crossbar	1
	RR7676-16	Upper Arm	2
6	RR8116	Knit Mesh Tarp	1

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## 200' HOSE REEL ASSEMBLY

Ref. No.	Part Number	Description	No. Req'd
	052417	200' Hose Reel Assembly includes:	1
1	052416	Hose Reel Drum	1
2	052383	Hose Reel Mounting Frame	1
3	052339	Locking Bushing	1
4	052338	Brake Sheave	1
5	052337	2" Pillow Block Bearing	2
6	052384-01	Drum Shaft	1
7	052350	Hose Reel Lock	1
8	052350-02	Lock Handle	2
9	052384-05	Handle Spacer	2
10	052346-02	Brake Adjusting Knob	1
11	052346-14	Brake Mount LH	1
12	052346-03	Brake Extension Arm	1
13	052347-02	Brake Pad	1
14	052384-06	Reel Mounting Pad	2

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## DECALS

Ref. No.	Part Number	Description	No. Req'd
1	011690	FINN Name Plate	1
1A	023174	"FINN" Decal	2
1B	055639	"Bark Blower" Decal	2
1C	031235	Small "FINN" Decal	1
2	190173	Yellow-Black Warning Tape	40'
3	KL2411303	Decal "IGN" Kohler	1
4	012278	Decal "DANGER! HOT EXHAUST" #SW-7	1
5	012279	Decal "WARNING! RADIATOR" #SW-600	1
6	055219	Decal "DANGER! SHARP KNIVES"	1
7	055280	Decal #SW805 "WARNING! OBJECTS ..."	2
8	007230	Decal "SERVICE DAILY"	3
9	007231	Decal "SERVICE WEEKLY"	8
10	022690	Decal "WEAR EYE PROTECTION"	2
11	007607	Decal "DRAIN WATER DAILY"	2
12	012179	Decal "WARNING! DO NOT OPERATE..."	1
13	012251	Decal "WARNING! ROTATING FAN"	2
14	012260	MAINTAIN SAFETY PLATE	1
15	020976	Decal "PATENT INFRINGEMENT"	1
16	021665	Decal "HYDRAULIC INSTRUCTIONS"	1
17	022357	Decal "WARNING! TURN OFF ENGINE"	2
18	052177	Decal "DANGER-ROTATING HAZARD"	4
19	052178	Decal "IMPORTANT"	1
20	012272	Decal "HYDRAULIC FLUID ONLY"	1
21	023391	Decal "DIESEL FUEL ONLY"	1
22	023519	Decal "CAUTION! WEAR EYE PROTECTION"	2
23	020068	Decal "DANGER! DO NOT OPEN DOOR"	1
24	055216	Decal "PATENT NUMBERS"	1
25	055217	Decal "MATERIAL FEED CONTROL"	1
26	055655	Decal "OPERATION INSTRUCTIONS"	1
27	045128	Decal "DO NOT RAISE TARP"	1

150209 Decal Kit Items #3-27

**NOTE:**

1. \* Located on opposite side
2. Item 26 not shown; located on fuel tank

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## TOOL KIT

Part Number	Description	No. Req'd
012681A	FINN Beige Touch-Up Paint (Aerosol - 4.5 Oz.)	1
012681T	FINN Beige Touch-Up Paint (Wet - 0.5 Oz.)	1
	Engine Parts Manual	1
	Engine Operators Manual	1
	Blower Operators Manual	1
	Radio Remote Control Manual	1
	Bark Blower Parts/Operators Manual	1

## DISCHARGE HOSE

Part Number	Description	No. Req'd
052952	Severe Duty Discharge Hose Assy (4" Dia x 50' Lg)	4
055377	Hose Adapter	8
055374A	Aluminum Male Coupler	4
055375A	Aluminum Female Coupler	4
052881	Discharge Deflector Cone	1
055337	Shoulder Strap	1
045347	5" x 4" Reducer w/ Couplings	1
045304	Hot Air Hose	1

## RECOMMENDED SPARE PARTS

Part Number	Description
011869	Hydraulic Oil Return Filter
011784	Hydraulic Reservoir Breather Filter
JDRE60021	Fuel Filter
JDRE59754	Engine Oil Filter
JDR123442	Fan Belt
012622	Main Filter Element
012623	Safety Filter Element
045296-01	Airlock Knife (2 per)
045296-02	Bottom Wiper Knife (1 per)
052436	Airlock Door/Discharge Interlock Switch
055122	12V Timer Relay

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

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## 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 PARTY 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

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

#### CALIFORNIA

##### Proposition 65 Warning

Battery posts, terminals and related accessories contain lead and lead compounds, chemicals known to the State of California to cause cancer and reproductive harm. Wash hands after handling.