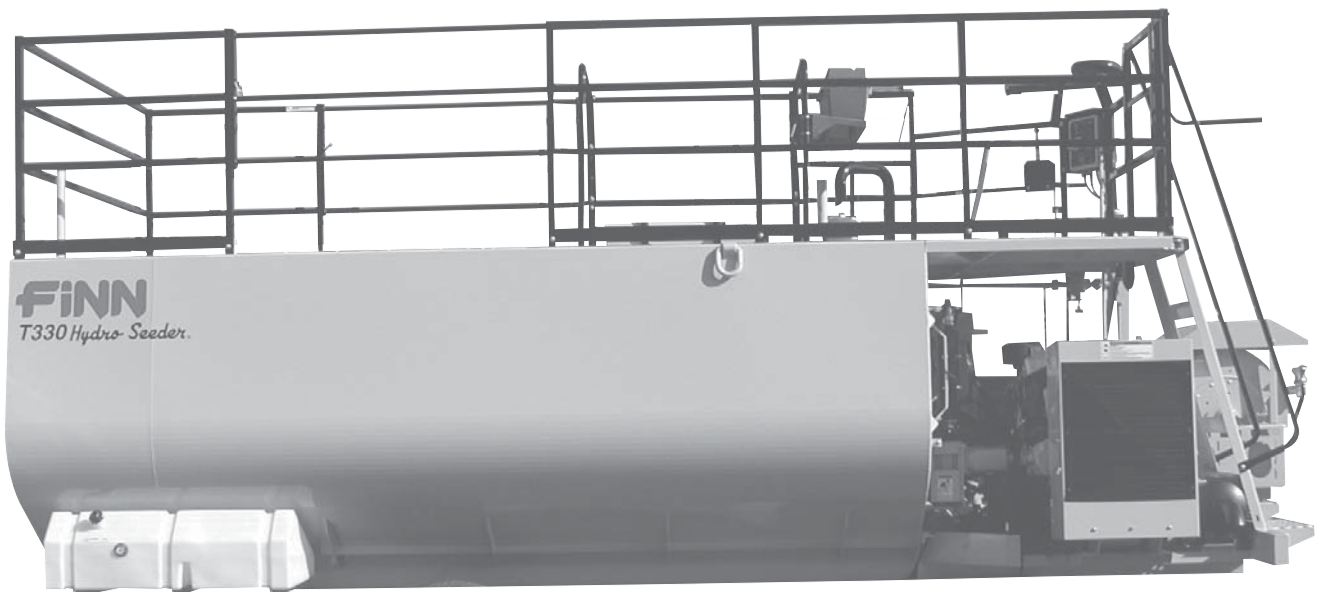




Activate
Your Warranty
By Registering
TODAY!!!

9281 LeSaint Drive • Fairfield, Ohio 45014
Phone (513) 874-2818 • Fax (513) 874-2914
Sales: 1-800-543-7166



T280/T330/T400 HydroSeeder®

Operator Instructions and Parts Manual

Model **MMA** Serial No. _____

FOR OFFICE USE ONLY

FOR OFFICE USE ONLY		
DATE	UPDATE DESCRIPTION	CODE
02/10/16	Initial release	MN0712
09/28/16	Revision A: Part number corrections	MN0928
10/12/16	Revision B: new identification light bar	MN1012
03/15/17	Revision C: Manual Canister added to unit; added to Structure and Railing parts list	MN2017
07/10/17	Revision D: additional agitator shaft seal to design	MN2017



ACTIVATE YOUR FINN EQUIPMENT WARRANTY

IMPORTANT INFORMATION ON ACTIVATING YOUR FINN EQUIPMENT WARRANTY!!!

IT IS IMPERATIVE THAT YOU, THE PURCHASER, COMPLETE THE FOLLOWING STEP IN ORDER TO ACTIVATE THE FINN CORPORATION LIMITED WARRANTY.



COMPLETE THE **EQUIPMENT REGISTRATION** FORM
AND MAIL TO THE FINN CORPORATION.

IF FINN CORPORATION DOES NOT HAVE YOUR COMPLETED REGISTRATION
FORM ON FILE, YOUR WARRANTY CLAIM WILL BE DENIED.

Once your FINN equipment has been registered, your FINN Limited Warranty will
be activated per the warranty statement on the next page.

<<What should you do if you need repairs or parts under Warranty?>>



1. NOTIFY FINN CORPORATION OF THE FAILURE OF MATERIAL OR WORKMANSHIP
1-800-543-7166 Extension (246)
WARRANTY@FINNCORP.COM



2. AFTER YOU OR YOUR SERVICE DEALER NOTIFY FINN, FINN WILL:

- VERIFY THAT WE HAVE YOUR REGISTRATION ON FILE
- VERIFY THAT THE WARRANTY PERIOD IS IN EFFECT
- VERIFY THAT THE RELATED PART(S) ARE INCLUDED IN THE SCOPE OF WARRANTY (PENDING FINN'S INSPECTION OF DEFECTIVE PARTS)
- SEND YOU REPLACEMENT PART(S) AND A WARRANTY INFORMATION PACKET
- REQUEST YOU FOLLOW ALL INSTRUCTIONS AS NOTED IN THE PACKET

- **Completely fill out the Parts Tag.**
- **Attach the Parts Tag to the defective part(s).**
- **Return the part(s) and the completed Warranty Claim Form to FINN Corporation using the return shipping label. (Within 2 weeks)**
- **Tape the Orange identifier sheet, marked with the W/RMA number, on the outside of the box in which you are shipping the defective part(s).**

**Warranty period:**

Hydroseeder & Straw Blowers 2 years or 2000 hrs which ever comes 1st
All other equipment 1 year or 1200 hrs which ever comes 1st

**Commercial Limited Warranty
Effective 4/1/2011****OUR WARRANTY TO YOU:**

Finn Corporation warrants to you, the original purchaser, for use (or rental to others for use) all new construction machinery, parts and attachments (except those referred to herein) that are manufactured by Finn to be free from defects in material and workmanship for a period noted above. Replacement parts provided under the terms of this warranty are warranted for the remainder of the warranty period applicable to the product to which parts are installed, as if parts were original components of the product.

WHAT FINN WILL DO:

Upon notification of Finn concerning a failure of material or workmanship in accordance with the above stated Warranty, Finn Corporation will:

- Verify claim falls within the valid warranty time frame.
- Verify the product and equipment has been registered with Finn in order to be eligible for warranty coverage.
- Upon affirmation of warranty period and registration, Finn will send to you a new or repaired replacement part(s), whichever Finn elects and a "Warranty Claim Information packet" containing instructions for processing the warranty claim.
- Evaluate the part when defective part is returned. Note: Failure to return defective part within two weeks will result in an invoice being sent to the customer. In addition, if damage to a part is determined not to be covered under the warranty, the customer will be billed.
- Reconcile costs with customer for parts and shipping, as determined by our inspection of failed parts, and confirmation of warranty coverage, per the terms of this warranty.
- Correction of nonconformities, in the manner provided above, shall constitute fulfillment of all liabilities of Finn Corporation.

WHAT YOU MUST DO TO OBTAIN WARRANTY SERVICE:

- As the purchaser covered under the above limited warranty you must REGISTER the equipment with Finn FAILURE TO REGISTER WILL VOID THE WARRANTY.
- Claim Number: Notify the warranty Dept. same day or next day of any intent to do warranty work and obtain a "Warranty Claim Number."
- All warranty labor must be pre-approved by providing Finn with an estimate of labor costs. Once approved, Finn will issue you a Work Authorization Number, prior to work being performed. (EXCEPTION: Unless the labor is per the Labor Allowance Schedule or less)
- The labor costs reimbursement will be based on the Labor Allowance Schedule established by Finn and where not applicable, on a reasonable number of hours as determined by Finn.
- Notify Finn Corporation of any failure of material or workmanship as described under this warranty.
 - Web notification: Warranty@Finncorp.com
 - Phone 1-800-543-7166 extension 246
- Complete the required steps in the "Warranty Claim Information packet" (which Finn will send you) and return the defective part(s) as directed in the packet to Finn Corporation.
- Should the failed part, be a hydraulic component, Finn may send you an "Oil Analysis Kit," requesting that a sample of oil from the hydraulic system be taken, and mail it to a lab. Follow the instruction sheet, on how to use your Finn Oil Analysis Kit that comes with the Kit. Failure to comply when requested will void the warranty.

WHAT THE WARRANTY DOES NOT COVER:

1. Normal wear parts and Allied Equipment or trade accessories not manufactured by it, such as but not limited to items such as various filters, fluids, brakes, clutch linings, belts, hoses, light bulbs, mechanical seal, over center clutches, tires, ignitions, starters, batteries, magnetos, carburetors, engines and labor, or like or unlike equipment or accessories. (Such being subject to the warranty, if any, provided by their respective manufacture).
2. Secondhand, used, altered, or rebuilt machines or parts.
3. Defects, malfunctions or failures resulting from accidents, abuse, misuse, improper servicing, or neglect of required operational guidelines and maintenance service, as outlined in the Finn Corporation's Operators Manual(s).

4. The warranty shall be null and void to the extent any defect or failure of the products warranted arises out of or is caused by accessories or component parts not manufactured or supplied by Finn Corporation, whether same are supplied by purchaser, dealers, or any other party.

5. This Warranty does **NOT** cover any costs associated with transporting the equipment for warranty service, such as mileage, fuel, or man hours; such is the responsibility of the equipment owner.

6. Dealers & Customers are responsible to follow all guidelines related to Seasonal & Long Term Storage of Equipment, as advised in operation & equipment manuals. i.e. Finn, Engine, Clutch, Pump, Motor, etc. Equipment failures caused by neglect of these guidelines are not warrantable.

THIS IS THE ONLY EXPRESS WARRANTY ON OUR PRODUCTS:

We neither assume nor authorize anyone to assume for us any other express warranty. The Distributor/Dealer has no authority to make any representation or promise on behalf of Finn Corporation or to modify the terms or limitations of this warranty in any way.

THIS WARRANTY THEREFORE 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.

LIMITATIONS ON OUR RESPONSIBILITY WITH RESPECT TO PRODUCTS PURCHASED:

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.

ALL WARRANTY REPAIR MUST BE DONE BY A FINN AUTHORIZED SERVICE PROVIDER OR AUTHORIZED REPAIR SHOP OF FINN'S CHOICE.

TRANSPORTATION, HAULING, STORAGE, OR OTHER SIMILAR COSTS ARE NOT PART OF FINN'S OBLIGATION UNDER THE LIMITED WARRANTIES AND IS THE RESPONSIBILITY OF THE EQUIPMENT OWNER.

THE ESSENTIAL PURPOSE of this exclusive remedy shall be to provide the original 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.

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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 stresses safe operation.

The first five pages of this manual are a summary of the main safety aspects associated with this unit. Be sure to read and understand completely before operating the machine.

The symbols below are used throughout the operation and maintenance sections of this manual to call attention to safety procedures.



Danger indicates an imminently hazardous situation which, if not avoided, WILL result in death or serious injury.



Warning indicates a potentially hazardous situation which, if not avoided, COULD result in death or serious injury.



Caution indicates a potentially hazardous situation which, if not avoided, MAY result in minor or moderate injury.



Notice indicates important information, that if not followed, MAY cause damage to equipment.

NOTE: This is helpful information.

CALIFORNIA PROPOSITION 65



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



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.

HYDROSEEDER® SAFETY SUMMARY SECTION

It is important that operators of this machine are familiar with all safety aspects covered in this section and have read the entire Operator's Manual before operating the machine. Always keep a copy of this manual with the machine. It is the responsibility of the operator of the machine to fully understand this safety summary 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 section is written for this type of machine only. Practice all other usual and customary safe working precautions. Above all, remember that safety is up to you.



TheFINN HydroSeeder® is designed to mix and apply water, seed, fertilizer, agricultural lime, and hydraulic mulch to the prepared seedbed. The resultant slurry from mixing one or more of the above materials may react, causing harmful or deadly gasses within the tank. Heat, evaporation, or extended emptying period can/will accelerate the formation of these gasses. Please contact your supplier(s) of these slurry components regarding their potential reactivity.

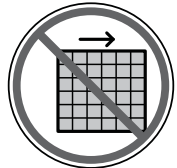
I. PRE-START EQUIPMENT CHECK (equipment check is to be made with the engine off)

1. If you have a chassis-mounted unit, check devices securing HydroSeeder® to the truck or trailer frame.
2. Make sure loading hatch bag cutter is in place and secure.
3. Check that all guard railings are in place and secure.
4. Verify that all guards are in place and secure.
5. With the ignition switch ON, verify that the signal horn is operating correctly.
6. By carefully looking down through the loading hatch, inspect the slurry tank for foreign objects. Never enter the tank without following the procedures described in step 3 of section IV. MAINTENANCE.
7. Remove unnecessary objects (or material) from the tank top.
8. Make sure no one is working on or inside the machine. Give a visual and audible signal that all is clear, before starting the engine.
9. Inspect all hydraulic hoses for cracks, bulges, or damage. If hoses are bad, replace immediately.
10. Inspect all discharge hoses for cracks, bulges, or damage. If hoses are bad, replace immediately.







II. MACHINE OPERATION

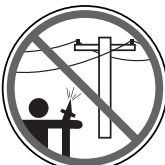
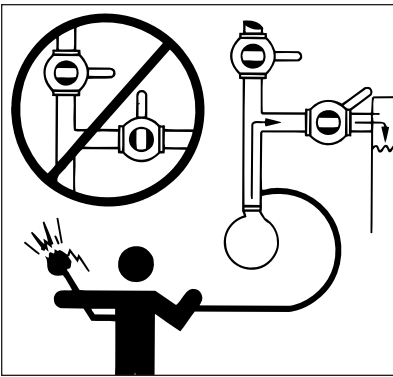
1. Always wear safety goggles when operating the machine. Other safety attire such as safety shoes, ear protection, gloves, hard hats, dust masks, etc. should be worn as required by warning decals on machine, operator's manuals, or job site requirements. Remove rings, watches, etc. Avoid wearing loose-fitting clothing that may get caught in rotating machinery.
2. Do not operate the machine without all guards in place.
3. Do not load unit while in transit. Load only when parked and unit is as level as possible. Take care not to drop pens, lighters, etc. or pieces of paper or plastic bags into the tank, as these objects might plug the slurry system. Should any object be dropped into the tank, do NOT reach into the tank to retrieve the foreign object. See step 3 under section IV. MAINTENANCE before allowing any personnel to enter the tank.
4. Make sure area to be sprayed is clear of all persons, animals, etc.
5. The driver of the carrying or towing vehicle is responsible for the safety of the operator(s) of the machine. Make sure the driver is aware of and avoids all possible hazards to the operator(s) of the machine, such as low tree limbs, low power lines, etc. Vehicles on which equipment is mounted or towed must be stopped and started gradually. Avoid abrupt starts or stops. Never operate on a slope or a hill that may endanger the driver and/or the operator(s). All personnel should review and be familiar with stop/start signals between the driver and operator(s) before going into operation. Only the operator should be located on the platform during operation.




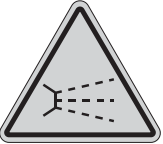
II. MACHINE OPERATION (Continued)

6. Operator(s) of equipment should never ride on the machine at speeds of greater than 5 mph (8 km/h). 
7. Never operate machine in an enclosed area without venting the engine exhaust of both the equipment and vehicle on which the equipment is mounted. Deadly carbon monoxide fumes can accumulate. 
8. Never operate this or any other machinery when fatigued, tired, under the influence of alcohol, illegal drugs, or medication. You must be in good physical condition and mentally alert to operate this machine. 
9. Never modify the machine. Never remove any part of the machine (except for service and then reinstall removed components before operating).
10. Use proper means (steps, ladder) for mounting and dismounting of the machine. Never mount or dismount a moving machine. 

III. SLURRY APPLICATION

1. Do not aim discharge spray toward power-lines, transformers, or other high voltage electrical conductors. Also do not aim discharge spray towards people, animals or anything other than the intended application area. 
2. Never engage (turn on) the slurry pump when both the recirculation and discharge valves are closed (as illustrated to the right). Operation with both valves closed will result in extreme heat generation that could cause severe bodily injury and damage to the equipment. 

III. SLURRY APPLICATION (Continued)

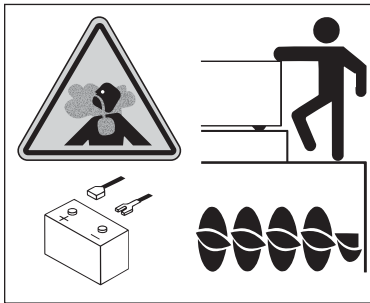
3. Recirculation valve must be open and material flowing back into the tank when using the remote valve. A closed or plugged recirculation line will cause extreme heat in the pump or discharge lines that will result in severe bodily injury and damage to the equipment.
4. During application through a hose, high pressure can be exerted at the end of the hose. Hose-holding personnel must establish good footing. The operator should apply gradual pressure to the hose only after hose-holding personnel are firmly positioned and have firm control of the hose. Additional personnel to direct hose may be necessary if working on slopes. The proper technique for grasping the hose used by hose-holding personnel is to route and firmly grasp the hose over the shoulder or under both arms. Never route/hold the hose so it goes between the legs. If the hose-holding personnel finds that it is uncomfortable for him to handle the hose by himself, additional hose-holding personnel should be positioned at the end of the hose.
5. Plan application so that the farthest area is covered first, then work back toward the HydroSeeder®, so individuals are not walking back over slippery ground.
6. Before opening any valves or pipe clamps, shut machine down and check if material in the pipe is hot. If hot, do **NOT** open valve or pipe clamps as the hot material may cause severe personal injury. Allow to cool and open with caution. 
7. Except when loading materials, keep loading hatch lid closed to protect operator and prevent splashing of wet material onto the tank top. 
8. Wash off spillage of slippery mulch or slurry additive from the tank top and platform before operating equipment.

IV. MAINTENANCE

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



2. Certain hydroseeding amendments, when combined with or without the addition of water or heat or the element of time, may react causing harmful or deadly gasses. Consult your material suppliers regarding reactivity information. The slurry tank must be flushed and drained after each day of operation.



3. Your slurry tank may be considered a confined space by OSHA under 29 CFR 1910.146. Before entering any confined space, your company must develop a procedure for safe entry. Make sure your company's plan meets all the requirements of 29 CFR 1910.146, or local legal requirement, including the following:

- a) Drain, flush, and ventilate tank interior.
- b) Turn off engine, disconnect battery cables, and perform lockout/tagout procedures (29 CFR 1910.147).
- c) Provide continuous ventilation or proper breathing apparatus.
- d) If tank must be entered, personnel entering the tank must be tethered to a lifeline.
- e) Provide a stand-by individual outside of tank who is able to communicate with person inside and haul him out with the lifeline if necessary.



4. Before loosening any clamps or opening any valves, determine if material in the line is hot by feeling the pipe. Do NOT allow material to come in contact with personnel. Severe bodily injury could result.



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



IV. MAINTENANCE (Continued)

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



7. Battery maintenance: Lead-acid batteries contain sulfuric acid, which will damage eyes or skin on contact. Always wear a face shield to avoid getting acid in the eyes. If acid contacts the 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.



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



IMPORTANT: 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 fluids and dispose of them in accordance with local municipal regulations.

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

10. 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.



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

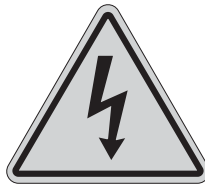


12. Make certain that all decals on the machine are maintained in good legible condition. Replacement decals are available through FINN Corporation. See next page for the current safety decals mounted on the unit. See the Parts Section of this manual for the location and quantity of all decals on this unit.

COMMON SAFETY DECALS



Hazard/
Attention



Electrical Shock
Hazard



Hearing Hazard



Arc Flash
Hazard or
Explosion
Hazard



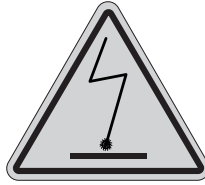
Electrocution
Hazard



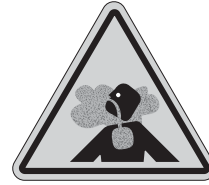
Fire Hazard



Body
Entanglement
Hazard



Electrostatic
Discharge
Hazard



Fumes/Dust
Hazard



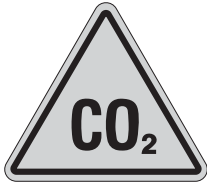
Burn Hazard



Electrostatic
Sensitive Area
Hazard



Pinch Point/
Entanglement
Hazard



Carbon Dioxide
Hazard



Explosive or
High Pressure
Hazard



Grounding
Required
Hazard



Corrosive
Hazard



Explosive
Material Hazard



Crush Hazard



Cut/Crush
Hazard



Vision Damage
Hazard



Crush/Pinch-
point Hazard



Cut/Sever
Hazard



Vision and
Hearing
Damage
Hazard



Crush/
Entrapment
Hazard



Sever/Reach
Hazard



Vision, Hearing
and Respiratory
Damage
Hazard



High Voltage
Hazard

COMMON SAFETY DECALS



Heavy Object Hazard



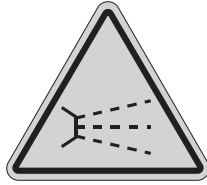
Skin Puncture Hazard



Vision Protection Required



Hot Surface Hazard



Splash/Spray Hazard



Hearing Protection Required



Loose Clothing Entanglement Hazard



Stumble Hazard



Vision, Hearing and Head Protection Required



Pinch Point/
Moving Belt Hazard



Trip Hazard



Breathing, Vision, Hearing and Head Protection Required



Poison Hazard



Watch Head/
Overhead Hazard



Foot Protection Required



Radio Frequency Hazard



Fall/Loss of Balance Hazard



Lockout/Tagout Procedure Required



Remote Start Hazard



Mandatory Operator Action Required



Gloves Required



Sever by Rotating Parts Hazard



Read Manual



Trailer Safety



Rotating Shaft Hazard



Breathing Protection Required

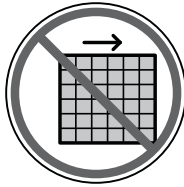


Lift Point

COMMON SAFETY DECALS



Do Not Ride on
Moving Vehicle



Do Not Remove
Guards



Do Not Obstruct
or Block



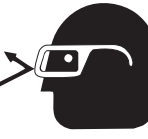


Do Not Spray
Power Lines



Do Not Touch

ADDITIONAL SAFETY DECALS





 DANGER	
	<p>CONFINED SPACE HAZARD! (Reference: OSHA 29 CFR 1910.146) Before entering tank:</p> <ol style="list-style-type: none"> 1. Drain, flush, and ventilate tank interior. 2. Turn off engine and disconnect battery cables. 3. Continuously ventilate area or wear appropriate breathing apparatus. 4. Provide standby individual outside tank able to communicate with person inside and able to remove him with a lifeline if necessary.
	<p>FLYING MATERIAL HAZARD! Wear eye protection around operating equipment. Failure to comply will result in death or serious injury.</p>

PIN 12686-01




 WARNING

<p>Do not operate without guards in place. Failure to comply could result in death or serious injury.</p>




PIN 12179

 WARNING	
	<p>SEVER HAZARD! Keep hands clear! Rotating fan and gears. DO NOT operate without guards or doors in place. Shut off engine, disconnect battery, and allow all moving parts to stop before servicing. FLYING DEBRIS! Wear eye protection around equipment. Failure to comply could result in death or serious injury.</p>
	<p></p>



PIN 31463

 WARNING
 
<p>BURN HAZARD! Contents could be under pressure. DO NOT come in contact with material. Ensure material in line is not hot before loosening clamps or opening valves. DO NOT operate pump with both recirculation and discharge valves closed. DO NOT use remote valve unless recirculation valve is open. Excessive heat or bodily injury could occur. Failure to comply could result in death or serious injury.</p>


PIN 5216

 WARNING	
	<p>BURN HAZARD! Cooling system is under pressure. Allow system to cool before handling. Remove radiator cap slowly. Wear appropriate safety gear. Failure to comply could result in death or serious injury.</p>
	<p>RADIATOR HANDLING INSTRUCTIONS</p> <ol style="list-style-type: none"> 1. Use a 50/50 solution of water and antifreeze. Using 100% antifreeze will result in engine damage. 2. Check and replenish water prior to use. More water will be consumed when operating in hot conditions. 3. If overflow pipe begins emitting vapor, check and replenish water. 4. Remove and clean screen when dirty. 5. Check and clean fins periodically. Clogged fins will increase water consumption. 6. Protect radiator from fertilizer corrosion by washing radiator core with water.

PIN 31462

 WARNING

<p>FALL HAZARD! All gates must be closed during operation. Failure to comply could result in death or serious injury.</p>

PIN 12681

 CAUTION
<p>FALL HAZARD! ALWAYS face ladder when mounting and dismounting. Failure to comply may result in moderate or minor injury.</p>

PIN 12688

 WARNING

<p>BURN HAZARD! Hot exhaust! Stay back! Failure to comply could result in death or serious injury.</p>

PIN 12276

OPERATION AND MAINTENANCE MANUAL FOR THE FINN T280/T330/T400 HYDROSEEDER®

This manual provides instructions for the operation and maintenance of the FINN HydroSeeder®. For best results and to ensure longer life of the equipment, please follow these instructions carefully. For your safety, read the entire manual before operating this unit.

DEFINITION OF HYDROSEEDING

Hydroseeding is the process whereby seed, fertilizer and/or lime, and wood fiber mulch (using water as a carrying medium) are applied on the soil to establish vegetation.

THE FINN HYDROSEEDER® AND HOW IT WORKS

The FINN HydroSeeder® will apply seed, fertilizer and/or lime, wood fiber mulch, or stabilizing materials in any prescribed or desired combination. The materials placed in the HydroSeeder® slurry tank are mixed with water and kept in suspension by a dual-agitation process, recirculation of slurry and mechanical agitation, thus, forming a slurry that is pumped to the discharge assembly and directed onto the seed bed by the operator. This equipment is designed to accomplish hydroseeding in one easy operation with maximum efficiency.

DIMENSIONS, CAPACITIES, AND TRUCK REQUIREMENTS

***CF** Back of cab to end of frame

C Distance from HydroSeeder® front to center of gravity

***CA** Back of cab to center of rear axle or trunnion on tandem

***F** Front axle weight – Empty

***FL** Front axle weight – Loaded

G Distance from center of bogie to HydroSeeder center of gravity

HW HydroSeeder® 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 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 HydroSeeder®, water, and full charge of granular solids only. No auxiliary equipment or loads included.

	T280		T330		T400	
	English	(Metric)	English	(Metric)	English	(Metric)
Truck GVW **	49,600 lb	(22,320 kg)	61,000 lb	(27,669 kg)	63,000 lb	(28,576 kg)
CA **	120 in.	(304+ cm)	157 in.	(398+ cm)	162 in.	(411+ cm)
C (loaded)	82 in.	(208 cm)	100 in.	(254 cm)	118 in.	(300 cm)
C (empty)	122 in.	(309+ cm)	134 in.	(340+ cm)	152 in.	(386+ cm)
OAL	209 in.	(530+ cm)	250 in.	(635+ cm)	273 in.	(693+ cm)
HW (empty)	11,690 lb	(5,300 kg)	12,340 lb	(5,600 kg)	10,436 lb	(4,734 kg)
HW (water only)	34,790 lb	(15,780 kg)	40,480 lb	(18,361 kg)	42,000 lb	(19,051 kg)
HW (full load) ***	38,350 lb	(17,390 kg)	44,750 lb	(20,300 kg)	44,000 lb	(19,958 kg)

TRUCK MOUNTING CALCULATIONS

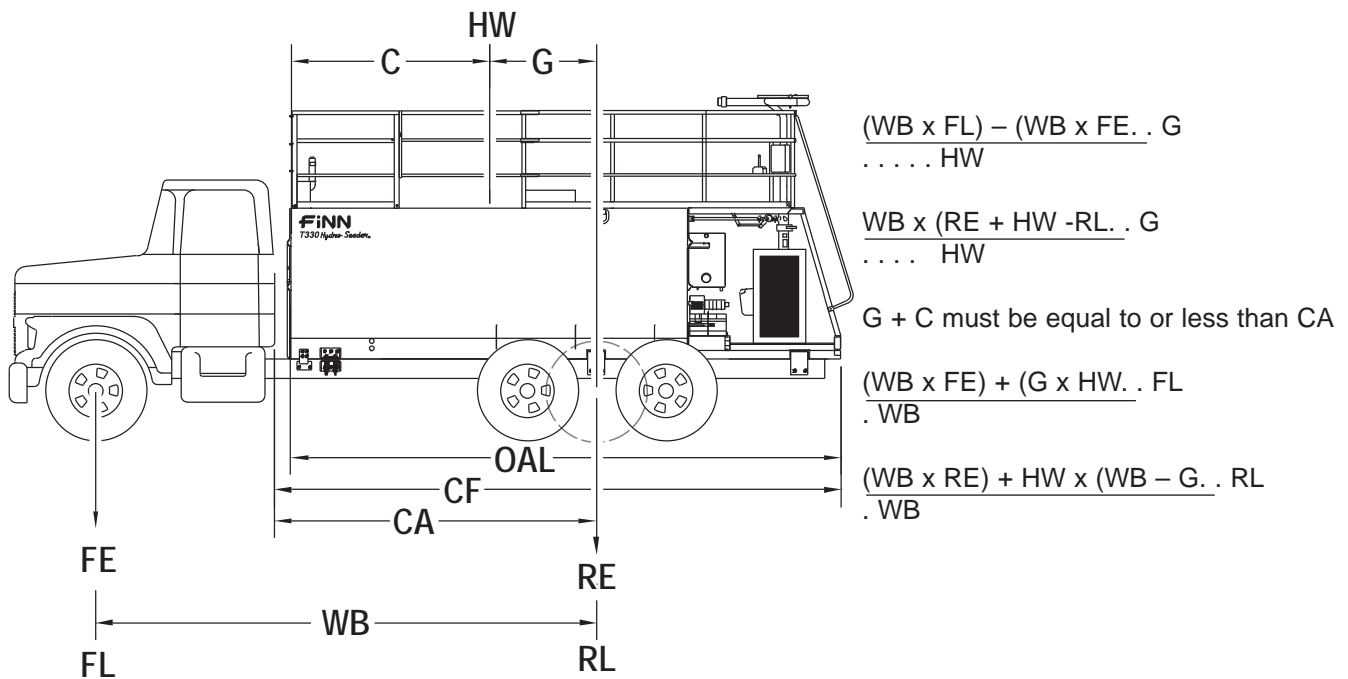


Figure 1 – Truck Mounting Calculations and Dimensions

GENERAL MOUNTING GUIDELINES

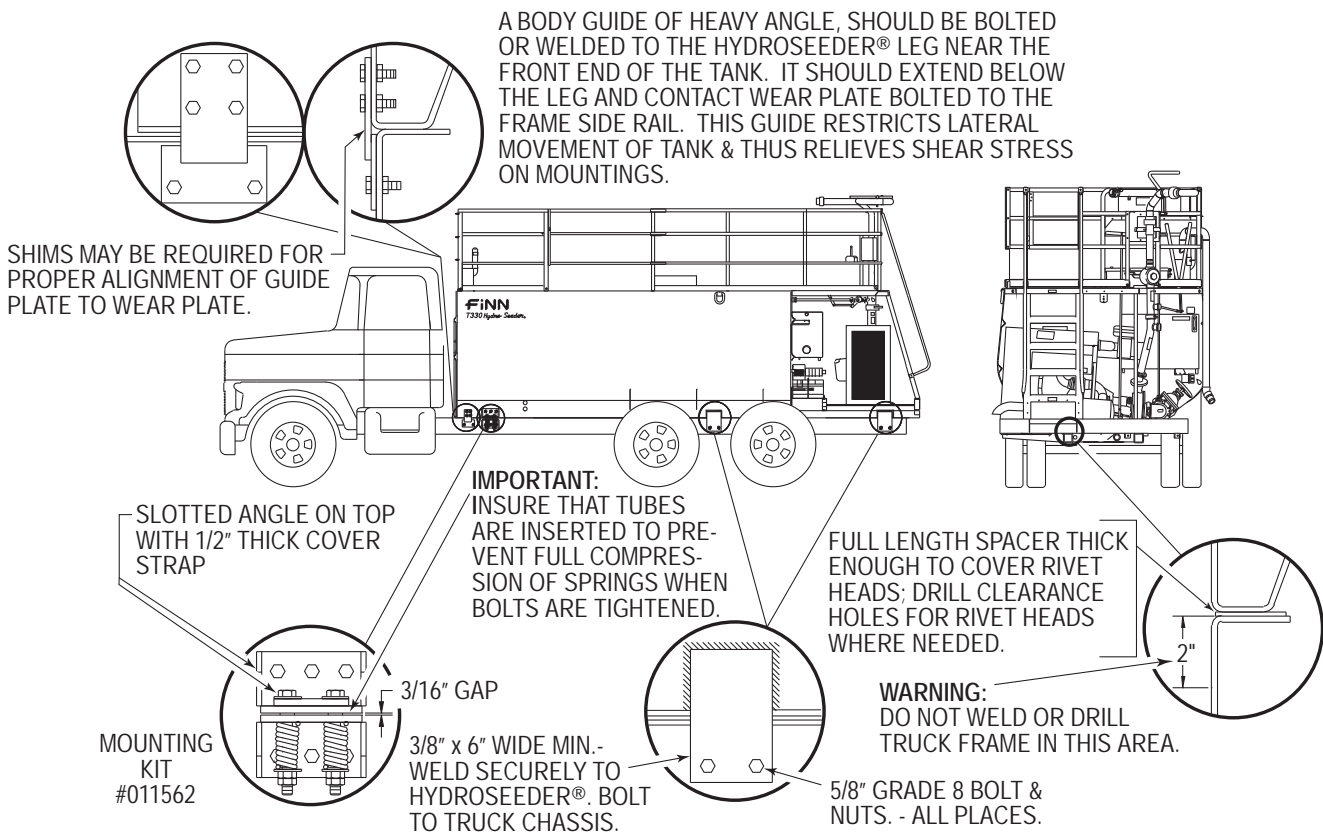


Figure 2 – General Truck Mounting Guidelines

MOUNTING THE HYDROSEEDER®

For speed and mobility of operation, the HydroSeeder® should be mounted on a truck or trailer. It is however, important to select a carrier with sufficient capacity to handle the added weight.

⚠ DANGER *Pickup hooks on HydroSeeders® are for lifting empty machines ONLY. Use appropriate spreader bar for the tank width. Ensure all capacities of lifting devices are rated for 15,000 lb (4,545 kg) or greater. Failure to comply will result in death or serious injury.*

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

⚠ CAUTION *Your FINN HydroSeeders® should be mounted by a qualified truck body installer. Failure to comply could result in minor or moderate personal injury. Product damage could also occur.*

When mounting the HydroSeeder® to the truck, one of the following methods of mounting is acceptable:

1. Bolt the HydroSeeder® directly to the truck bed. Installer must ensure that the bed, as well as the bed-to-truck and HydroSeeder®-to-bed connections, are adequate for the maximum weights loaded that are shown in the Dimensions, Capacities, and Truck Requirements section.
2. Mount the HydroSeeder® to the truck frame.
3. Place chains over the HydroSeeder® and around truck bed and secure with binders. Secure the HydroSeeder® with blocks tied to the truck bed.

⚠ CAUTION *When using a truck with a tilt bed, make sure to chain the truck bed down to prevent the bed from being accidentally hoisted.*

NOTICE *Mounting the HydroSeeder® to the truck must allow for tire clearance and frame twist. Place hard wood spacers along the length of truck rails or use FINN spring mounting kit (part number 011562) or equivalent. The T400 requires (2) Spring Mounting Kits.*

ATTACHMENTS

1. Extension hoses for reaching remote areas are available in 50 ft. (15m) lengths. All connections are camlock, quick-operating fittings. The hose is connected to the end of the discharge boom in place of a nozzle. The nozzle is connected to the end of the hose and controlled by the person on the ground. The flow is controlled by a second person on the HydroSeeder®. This allows for a full pressure and volume operation.

⚠ CAUTION *Since the extension hose is pressurized with the full output of the pump with the recirculation closed, the equipment operator and individual at the end of the hose should exercise extreme care when operating the unit at high pressure. The high pressure on the hose can exert strong forces, causing the potential for the hose operator to lose control of hose or footing. The hose will require additional hose holders when operation occurs on slopes. Engage (turn on) the slurry pump clutch only after the hose operator is firmly positioned and has firm control of hose. Failure to comply could result in minor personal injury or product or property damage.*

ATTACHMENTS (CONTINUED)

2. For lower-pressure applications, or for close-up work, i.e. around buildings, the remote valve attachment can be used. The attachment includes semi-rigid hose with quick-disconnect fittings along with a handheld valve which fits the end of the hose and accepts the standard nozzle assemblies. The hose is connected to the outlet on the discharge pipe above the pump. The machine is run at 1/2 to 3/4 throttle and material is applied where desired.

DANGER

The recirculation valve must be open when using a remote valve. Failure to comply WILL result in severe personal injury or death.

3. Hose Reel: The live hose reel will mount on the HydroSeeder[®] or on the truck frame. The 200-ft (61 m) capacity hydraulic-rewind reel will wind up and store empty hose. A pivoting feature provides three locking positions, enabling curb-side, 45 degree, and rear hose discharge. It is hydraulically connected to the HydroSeeder[®]. The entire hose reel is protected by a UV-protective canopy.
4. Hardened Pump Parts: Pump casing, impeller, and suction cover are treated with special material designed to resist wear.
5. Rear Spray Bar: The spray bar option is not designed for slurry application but for the dispersion of liquids for dust control, watering, feeding, and washing applications. Rear spray bar is arranged so that operation is remotely controlled from the truck cab.
6. Remote Transmitter: The Remote Transmitter option provides the operator with pump on/off control, throttle control, and engine shutdown at the end of the hose. With control of the engine throttle, the operator can precisely adjust the pump flow to whatever output the situation requires (i.e., for close-up work around buildings). The ability to remotely shut off the pump allows the operator to close the recirculation valve for increased performance during hose work. Carrying the remote valve at the end of the hose becomes unnecessary.

NOTE: For remote pump on/off control, clutch cylinder must be connected to an air supply.

7. Air Flush System: The air flush option uses compressed air to purge any remaining mulch slurry from the HydroSeeder[®] hose, the discharge boom, and the recirculation piping. To maximize performance, all discharge plumbing should be purged after every load. The air flush system provides a quick and easy means of purging without the need to acquire a flush tank and an additional water supply.

PRE-START CHECK

The following safety checks should be made to ensure operator safety:

1. Check condition of all mounting hardware that secures the HydroSeeder[®] to the truck frame.
2. Make sure bag cutter is in place and secure.
3. Inspect that all railings are in place and secure.
4. Ensure that all guards are in place.
5. With the ignition switch on, verify that the amber safety light under the operator's platform is flashing.

EQUIPMENT CHECK



WARNING

injury or death.

Equipment check should be made with the engine OFF and all rotating parts stopped. Failure to comply could result in severe personal

1. Ensure that the tool kit contains all the prescribed items. See TOOL KIT.
2. Inspect slurry tank for foreign objects. See steps 2 and 3 in Section IV, MAINTENANCE of the HYDROSEEDER® SAFETY SUMMARY SECTION.
3. Check fuel level. Fill if necessary.
4. Check hydraulic oil level and fill if necessary. See HYDRAULIC SYSTEM on page 29 for oil specifications.
5. Check engine oil level and fill if necessary. For oil type, refer to the engine manual.
6. Check fluid level in radiator and overflow tank.
7. Inspect air cleaner for dust and dirt; clean if necessary.
8. Secure drain plug on the outside-bottom of slurry tank.
9. Check to make sure the pump drain plug is in place.
10. Lubricate equipment - See LUBRICATION AND FLUIDS CHART.

A. Each lubrication point on the machine is marked with a decal.

B. Check automatic pressure lubricator at pump. If the stem is fully extended, with thumb nut all the way up, then automatic pressure lubricator contains lubricant. If not, lubricant must be replaced by the following procedure (See Figure 3):

1. Turn thumb nut clockwise until stem rises to maximum height.
2. Remove cap and fill cap with sodium- (water soluble) based grease (FINN part number 000698). Do not use lithium- based (chassis lube) grease.
3. Replace cap.
4. Turn thumb nut counterclockwise until thumb nut is at the top of the stem. The spring and pressure disc in the pressure lubricator forces the grease, under pressure, to the pump seal.

NOTE: When thumb nut has moved down to within 1/2 in. (1.25 cm) of touching the cap, reservice the automatic lubricator.

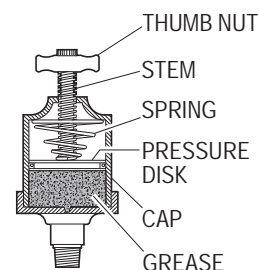


Figure 3
Pressure Lubricator

11. Engage (turn on) and disengage (turn off) clutch to determine if it snaps in and out.
12. Check nozzles and hoses and clear of any obstructions.
13. Check pump discharge and recirculation valve handles for free movement.
14. Make sure all tank vents are clean and open. Do not plug or cap.

TWO VALVE OPERATION

This HydroSeeder® is equipped with two independently operated ball valves to control slurry flow. One is located in the recirculation line below the platform, and the other is located in the discharge line above the platform.

The valve handles should be positioned as shown in Figures 4 through 6 for the particular application required.

⚠ WARNING *Never engage (turn on) the slurry pump clutch when both valve handles are positioned as shown in Figure 4. Both valves are closed and will result in extreme heat generation. Failure to comply could result in severe personal injury or death.*

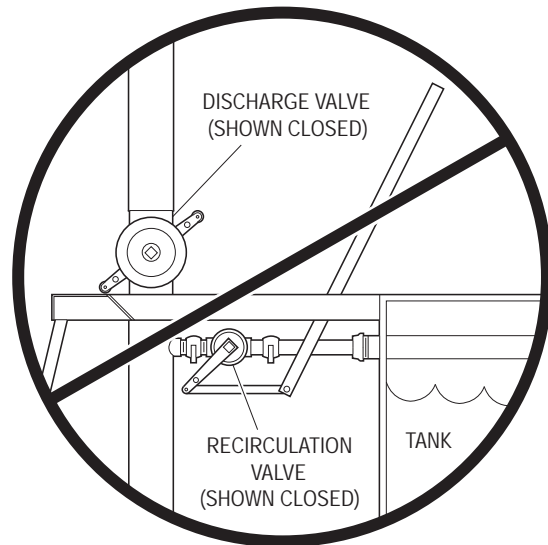


Figure 4 – DO NOT Engage (Turn On) the Slurry Pump Clutch

1. DISCHARGE THROUGH BOOM

Flow is through boom with no flow through closed recirculation valve (Figure 5). Flow through boom is controlled by engaging and disengaging slurry pump clutch. Do not use the discharge valve to control distance. Valve should be completely open. Control the spray volume and spray distance by adjusting the engine RPM.

2. EXTENSION HOSE THROUGH BOOM

Flow is through boom with no flow through closed recirculation valve (Figure 5). Extension hose is connected to boom and flow is controlled by engaging and disengaging the pump clutch, or by controlling the speed of the engine.

⚠ DANGER *Do not use remote valve in this application. Failure to comply WILL result in severe personal injury or death.*

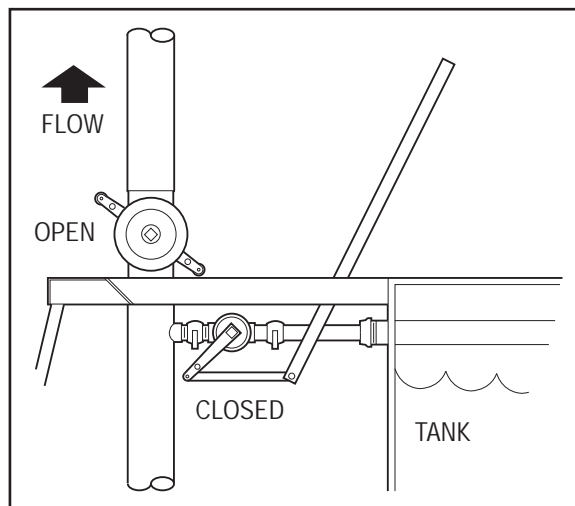


Figure 5 – Discharge Through Boom

NOTE: Do not use the discharge valve to control distance. Valve should be completely open. Control the spray volume and spray distance by adjusting the engine RPM.

TWO VALVE OPERATION (CONTINUED)

3. EXTENSION HOSE OR HOSE REEL THROUGH REMOTE PORT

Flow is through recirculation with no flow through closed discharge valve (Figure 6). Flow through hose is controlled by engaging and disengaging slurry pump clutch, or by use of the remote valve at end of hose. Opening the recirculation valve allows flow back into tank when the remote valve is closed.

⚠ DANGER *Recirculation valve must be open and material should be flowing back into tank when using a remote valve. A closed or plugged recirculation line will cause extreme heat. Failure to comply WILL cause severe personal injury or death.*

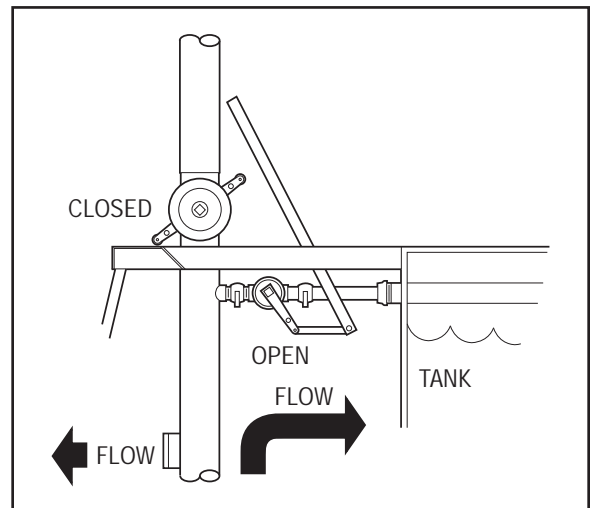


Figure 6 – Discharge Through Extension Hose or Hose Reel

STARTING PROCEDURE

⚠ WARNING

See HYDROSEEDER® SAFETY SUMMARY SECTION before operating the machine. Failure to comply could result in death or serious injury. Failure to comply could also result in product or property damage.

Before starting, open the recirculation valve, close discharge valve and recirculation valve (if applicable), disengage clutch, and place the agitator control in the NEUTRAL position.

1. Set throttle about 1/4 open.
2. Turn the key clockwise until the starter engages, and the engine starts.
3. Allow engine to warm up for 3 to 5 minutes.

NOTE: This engine has a safety system that will shut the engine off if the engine oil pressure drops below 7 psi (48 kPa) or if the water temperature reaches 230°F (110°C).

POWerview

The PowerView is a multifunctional tool that enables the operator to view many different engine parameters and service codes. A graphical back-lit LCD screen can display either a single parameter or a quadrant display showing four parameters simultaneously. Diagnostic capabilities include fault codes with text translation for the most common fault conditions.

The following relative engine parameters can be displayed in either English or Metric units, as well as in Spanish, French, or German:

- Engine Rpm
- Engine Hours
- System Voltage
- % Engine Load at Current RPM
- Coolant Temperature
- Oil Pressure
- Throttle Position
- Active Service Codes

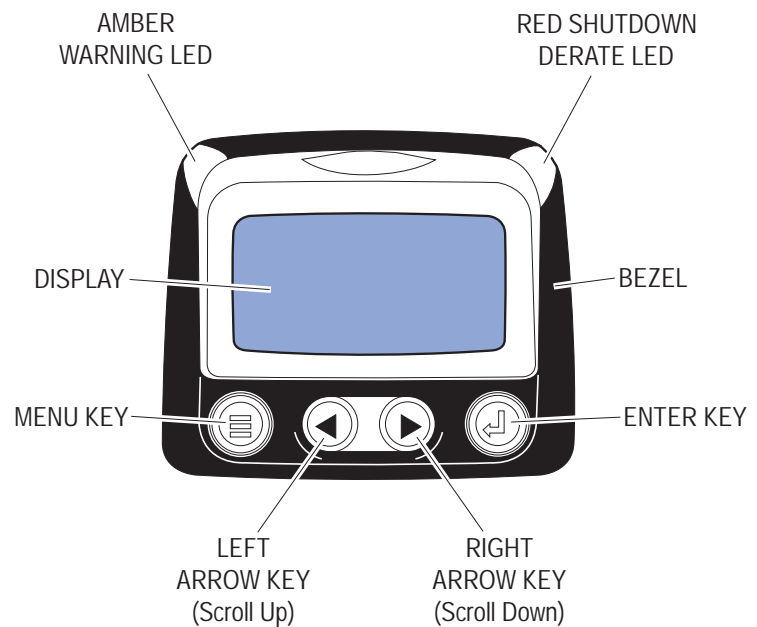


Figure 7 – Faceplate Features

POWerview (CONTINUED)

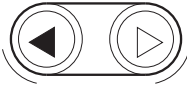
FACEPLATE

The keypad on the PowerView is a capacitive touch sensing system. There are no mechanical switches to stick or wear out. It can be operated in extreme temperatures, while wearing gloves, through ice, snow, mud, grease, etc. When the key is touched, feedback is provided by flashing the screen. The keys on the keypad perform the following functions (refer to Figure 7):



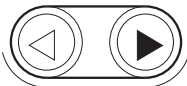
Menu Key

Menu Key is used to either enter or exit the menu screens.



Left Arrow Key

Left Arrow Key is used to scroll through the screen, either moving the parameter selection toward the left or upward.



Right Arrow Key

Right Arrow Key is used to scroll through the screen, either moving the parameter selection toward the right or downward.



Enter Key

Enter Key is used to select the parameter that is highlighted on the screen.

POWerview OPERATION

PowerView Menus (First Time Start-Up)

1. Once the engine has been started and the keyswitch is turned to RUN, the ENG RPM parameter is displayed (Figure 8).
2. To toggle through the various engine parameters, touch either the left or right arrow key.
3. To switch to the 4-Up Display, touch the Menu Key to display the first seven items of the Main Menu (Figure 9).
4. Since the first menu item listed is GO TO 4-UP DISPLAY, touch the Enter Key to select the four-parameter display.

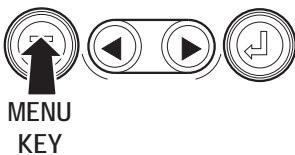
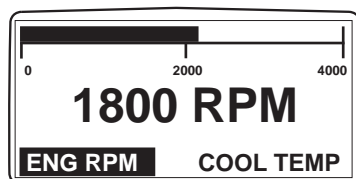


Figure 8 – 1-Up Display

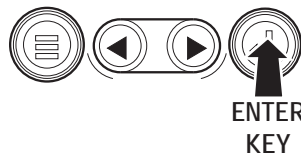
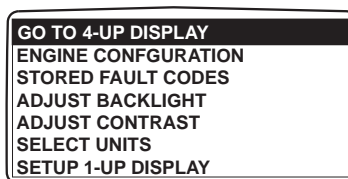


Figure 9 – Main Menu

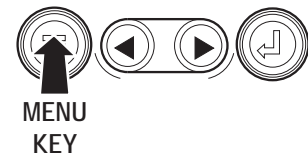
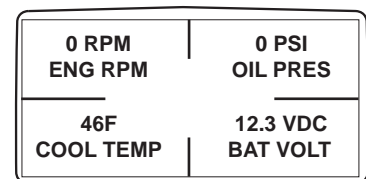


Figure 10 – 4-Up Display

POWerview (CONTINUED)

Stored Fault Codes

The PowerView Display will store any fault codes generated by the engine and display them along with a text description. To access these fault codes:

1. Touch the Menu Key to display the Main Menu.
2. Using the Right Arrow Key, toggle down the list until Stored Fault Codes is highlighted. See Figure 11.
3. Touch the Enter Key to view any stored fault codes. The display will respond by presenting a Requesting Fault Codes message while the system retrieves the codes. See Figure 12.
4. Once the stored fault codes have been retrieved, the initial code will be displayed along with a text description. See Figure 13.
5. If the word MORE appears at the bottom of the display, this indicates that there are additional fault codes being stored. Use the Right Arrow key to advance to the next code.
6. As long as the arrow appears to the right of the word MORE as you advance through the fault codes, this means there are more codes available for viewing. When the arrow shifts to the left of the word MORE, this is an indication that you have accessed the final fault code being stored. At this point, you can touch the Left Arrow Key to review the fault codes or touch the Menu Key to return to the Main Menu.

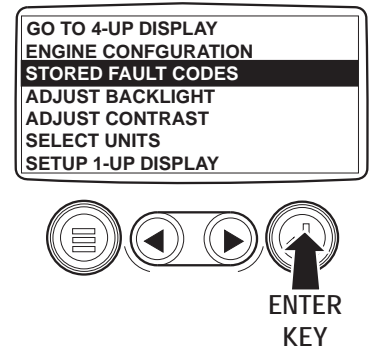


Figure 11 – Main Menu

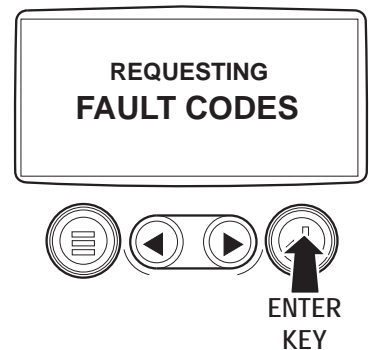


Figure 12 – Access Stored Fault Codes

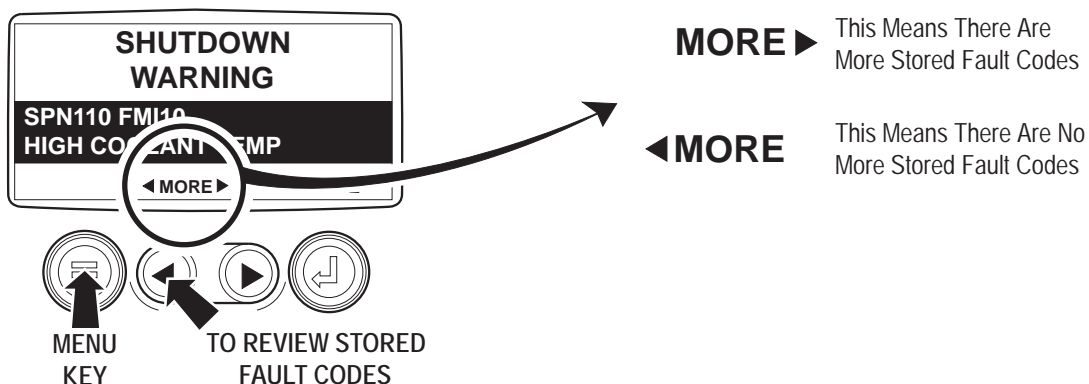


Figure 13 – Stored Fault Codes

AREA COVERAGE - MATERIAL CAPACITY

To determine the coverage per load for any HydroSeeder®, three questions must be answered prior to the application. First, is the job to be done a one-step process (which is when the seed, fertilizer and mulch are applied proportionally per load) or a two-step process (which is when the seed and fertilizer are applied alone and then covered by mulch as a second operation). Second, at what rates (usually in pounds per 1,000 square feet, or pounds per acre) are the seeding materials to be applied. Finally, what are the loading capacities of the HydroSeeder®?

Application rates vary for different geographic locations, but in general, seed is applied at 6 to 10 lb (2.7 to 4.5 kg) per 1,000 square feet. Fertilizer is applied at a rate of approximately 400 lb (181 kg) per acre, and fiber mulch is applied at 1,500 to 2,000 lb (680 to 907 kg) per acre. (Note: There are 43,560 square feet in an acre.) Local agronomists, agricultural extension agents, or soil and water conservation officials should be contacted for more specific information on application rates for a given area.

The tables on page 17 show loading-versus-coverage rates for the FINN HydroSeeder®. Table A shows rates for one-step applications. The coverage area is determined by the fiber mulch capacity of the HydroSeeder® and the rate at which it is applied. Table B shows the area coverage when seeding only, where little or no mulch is applied. The coverage area is determined by the granular solids capacity of the HydroSeeder® and the rate at which the solids are applied.

TABLE A – Using Seed, Fertilizer, and Mulch

<u>Unit</u>	<u>Amount of Material in Tank in lbs (kilograms)</u>			<u>Coverage Area in sq ft (sq m)</u>
	<u>Seed</u>	<u>Fertilizer</u>	<u>Mulch</u>	
T280	287 (130)	333 (151)	1,250 (567)	36,300 (3,372)
T330	345 (156)	400 (181)	1,500 (680)	43,560 (4,046)
T400	414 (187)	480 (218)	1,800 (816)	52,272 (4,856)

Table is based on 1,500 lb (680 kg) of mulch, 400 lb (181 kg) of fertilizer, and 345 lb (156 kg) of seed at 8 lb (3.6 kg) / 1,000 sq ft per acre.

Table A Example: For T330

$$\frac{1,500 \text{ lb (680 kg) Mulch per Tank}}{1,500 \text{ lb (680 kg) Mulch per Acre}} = 1 \text{ Acre per Load}$$

400 lb (181 kg) Fertilizer per Acre x 1 Acre = 400 lb (181 kg) Fertilizer per Load

345 lb (156 kg) Seed per Acre x 1 Acre = 345 lb (156 kg) Seed per Load

TABLE B – Seed and Fertilizer Only

<u>Unit</u>	<u>Amount of Material in Tank in lbs (kilograms)</u>			<u>Coverage Area in sq ft (sq m)</u>	
	<u>Seed</u>	<u>Fertilizer</u>	<u>Total</u>	<u>sq ft (sq. m)</u>	<u>Acerage (Hectare)</u>
T280	3,136 (1,422)	3,600 (1,633)	6,736 (3,055)	392,040 (36,420)	9 (3.64)
T300	3,485 (1,580)	4,000 (1,814)	7,485 (3,395)	435,600 (40,467)	10 (4.04)
T400	4,140 (1,878)	4,800 (2,177)	8,940 (4,055)	522,720 (48,562)	12 (4.86)

Table is based on rates of 8 lb (3.6 kg) seed and 9.2 lb (4.2 kg) fertilizer per 1,000 sq ft

Table B Example: For T330

$$\frac{7,485 \text{ lb (3,395 kg) Tank Capacity (Solids)}}{8 \text{ lb (3.6 kg) Seed} + 9.2 \text{ lb (4.2 kg) Fertilizer per 1,000 sq ft}} = 435,600 \text{ sq ft per Load}$$

$$\frac{8 \text{ lb (3.6 kg) Seed}}{1,000 \text{ sq ft}} \times 435,600 \text{ sq ft} = 3,485 \text{ lb (1,581 kg) Seed per Tank}$$

T280

T280		
Gallons (Liters)	in. (cm) from top of load hatch	in. (cm) from bottom
2,750 (10,410)	8 (20.3)	58.5 (148.6)
2,700 (10,220)	11.75 (29.8)	54.75 (139.1)
2,600 (9,840)	13.75 (34.9)	52.75 (134)
2,500 (9,465)	15.5 (39.4)	51 (129.5)
2,400 (9,085)	17.75 (45.1)	48.75 (123.8)
2,300 (8,705)	19.5 (49.5)	47 (119.4)
2,200 (8,325)	21.25 (54)	45.25 (114.9)
2,100 (7,950)	23.25 (59)	43.25 (109.9)
2,000 (7,570)	25 (63.5)	41.5 (105.4)
1,900 (7,190)	26.75 (67.9)	39.75 (101)
1,800 (6,815)	28.75 (73)	37.75 (95.9)
1,700 (6,435)	30.75 (78.1)	35.75 (90.8)
1,600 (6,055)	32.5 (82.6)	34 (86.4)
1,500 (5,675)	34.25 (87)	32.25 (81.9)
1,400 (5,300)	36 (91.4)	30.5 (77.5)
1,300 (4,925)	38 (96.5)	28.5 (72.4)
1,200 (4,545)	39.75 (101)	26.75 (67.9)
1,100 (4,165)	41.75 (106)	24.75 (62.9)
1,000 (3,785)	43.25 (109.9)	23.25 (59.1)
900 (3,405)	45 (114.3)	21.5 (54.6)
800 (3,025)	47 (119.4)	19.5 (49.5)
700 (2,650)	49 (124.5)	17.5 (44.4)
600 (2,270)	50.75 (128.9)	15.75 (40)
500 (1,890)	52.5 (133.4)	14 (35.6)
400 (1,515)	54.5 (138.4)	12 (30.5)
300 (1,135)	56.75 (144.1)	9.75 (24.8)
200 (755)	59 (149.9)	7.5 (19.1)
100 (375)	61.5 (156.2)	5 (12.7)

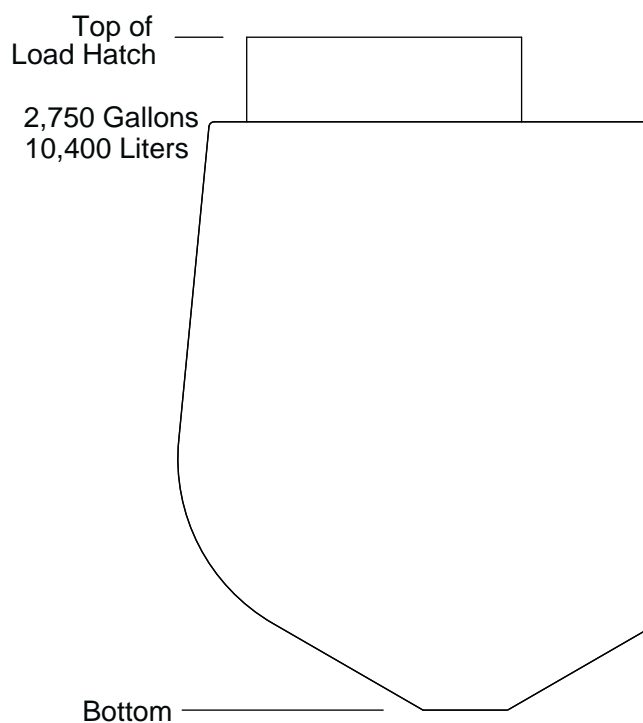


Figure 14 – Tank Capacity Charts

T330

T330		
Gallons (Liters)	in. (cm) from top of load hatch	in. (cm) from bottom
3,300 (12,490)	9 (29.9)	58.5 (148.6)
3,200 (12,115)	13.25 (33.7)	54.25 (137.8)
3,100 (11,735)	14.75 (37.5)	52.75 (134)
3,000 (11,360)	16.5 (41.9)	51 (129.5)
2,900 (10,975)	18 (45.7)	49.5 (125.7)
2,800 (10,600)	19.75 (50.2)	47.75 (121.3)
2,700 (10,220)	21.25 (54.0)	46.25 (117.5)
2,600 (9,840)	22.75 (57.8)	44.75 (113.7)
2,500 (9,465)	24.5 (62.2)	43 (109.2)
2,400 (9,085)	26 (66.0)	41.5 (105.4)
2,300 (8,705)	27.5 (69.9)	40 (101.6)
2,200 (8,325)	29 (73.7)	38.5 (97.8)
2,100 (7,950)	30.75 (78.1)	36.75 (93.3)
2,000 (7,570)	32.25 (81.9)	35.25 (89.5)
1,900 (7,190)	33.75 (85.7)	33.75 (85.8)
1,800 (6,815)	35.25 (89.5)	32.25 (81.9)
1,700 (6,435)	36.75 (93.3)	30.75 (78.1)
1,600 (6,055)	38.25 (97.2)	29.25 (74.3)
1,500 (5,675)	39.75 (101.0)	27.75 (70.5)
1,400 (5,300)	41.25 (104.8)	26.25 (66.7)
1,300 (4,925)	42.75 (108.6)	24.75 (62.9)
1,200 (4,545)	44.25 (112.4)	23.25 (59.1)
1,100 (4,165)	45.75 (116.2)	21.75 (55.2)
1,000 (3,785)	47.75 (121.3)	19.75 (50.2)
900 (3,405)	49 (124.5)	18.5 (47)
800 (3,025)	50.25 (127.6)	17.25 (43.8)
700 (2,650)	52 (132.1)	15.5 (39.4)
600 (2,270)	53.5 (135.9)	14 (35.6)
500 (1,890)	55.25 (140.3)	12.25 (31.1)
400 (1,515)	57 (144.8)	10.5 (26.7)
300 (1,135)	58.75 (149.2)	8.75 (22.2)
200 (755)	60.5 (153.7)	7 (17.8)
100 (375)	63 (160.0)	4.5 (11.4)

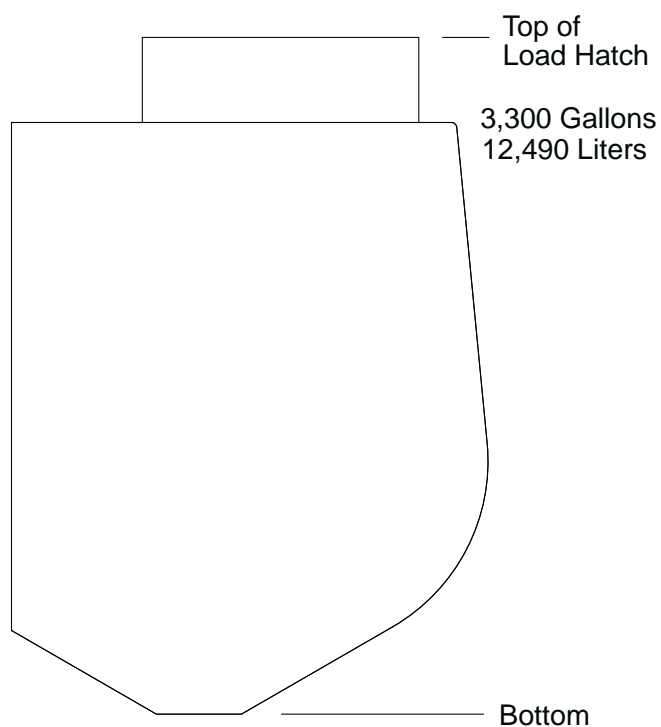


Figure 14 – Tank Capacity Charts (Continued)

T400

T400		
Gallons (Liters)	in. (cm) from top of load hatch	in. (cm) from bottom
3,975 (15,045)	9 (22.9)	58.5 (148.6)
3,900 (14,762)	10 (25.4)	57.5 (146.1)
3,800 (14,383)	11.5 (29.2)	56 (142.2)
3,700 (14,005)	12.5 (31.8)	55 (139.7)
3,600 (13,626)	14 (35.6)	53.5 (135.9)
3,500 (13,248)	15.25 (38.7)	52.25 (132.7)
3,400 (12,869)	16.5 (41.9)	51 (129.5)
3,300 (12,490)	18 (45.7)	49.5 (125.7)
3,200 (12,115)	19.5 (49.5)	48 (121.9)
3,100 (11,735)	20.75 (52.7)	46.75 (118.7)
3,000 (11,360)	22 (55.9)	45.5 (115.6)
2,900 (10,975)	23.25 (59.1)	44.25 (112.4)
2,800 (10,600)	24.5 (62.2)	43 (109.2)
2,700 (10,220)	25.75 (65.4)	41.75 (106.0)
2,600 (9,840)	27 (68.6)	40.5 (102.9)
2,500 (9,465)	28 (71.1)	39.5 (100.3)
2,400 (9,085)	29.5 (74.9)	38 (96.5)
2,300 (8,705)	30.75 (78.1)	36.75 (93.3)
2,200 (8,325)	32 (81.3)	35.5 (90.2)
2,100 (7,950)	33.25 (84.5)	34.25 (87.0)
2,000 (7,570)	34.75 (88.3)	32.75 (83.2)
1,900 (7,190)	36 (91.4)	31.5 (80.0)
1,800 (6,815)	37.25 (94.6)	30.25 (76.8)
1,700 (6,435)	38.5 (97.8)	29 (73.7)
1,600 (6,055)	39.75 (101.0)	27.75 (70.5)
1,500 (5,675)	41 (104.1)	26.5 (67.3)
1,400 (5,300)	42 (106.7)	25.5 (64.8)
1,300 (4,925)	43.25 (109.9)	24.25 (61.6)
1,200 (4,545)	44.5 (113.0)	23 (58.4)
1,100 (4,165)	46 (116.8)	21.5 (54.6)
1,000 (3,785)	47.25 (120.0)	20.25 (51.4)
900 (3,405)	48.75 (123.8)	18.75 (47.6)
800 (3,025)	49.75 (126.4)	17.75 (45.1)
700 (2,650)	51 (129.5)	16.5 (41.9)
600 (2,270)	52.5 (133.4)	15 (38.1)
500 (1,890)	54 (137.2)	13.5 (34.3)
400 (1,515)	55.5 (141.0)	12 (30.5)
300 (1,135)	57 (144.8)	10.5 (26.7)
200 (755)	58.5 (148.6)	9 (22.9)
100 (375)	60.25 (153.0)	7.25 (18.4)

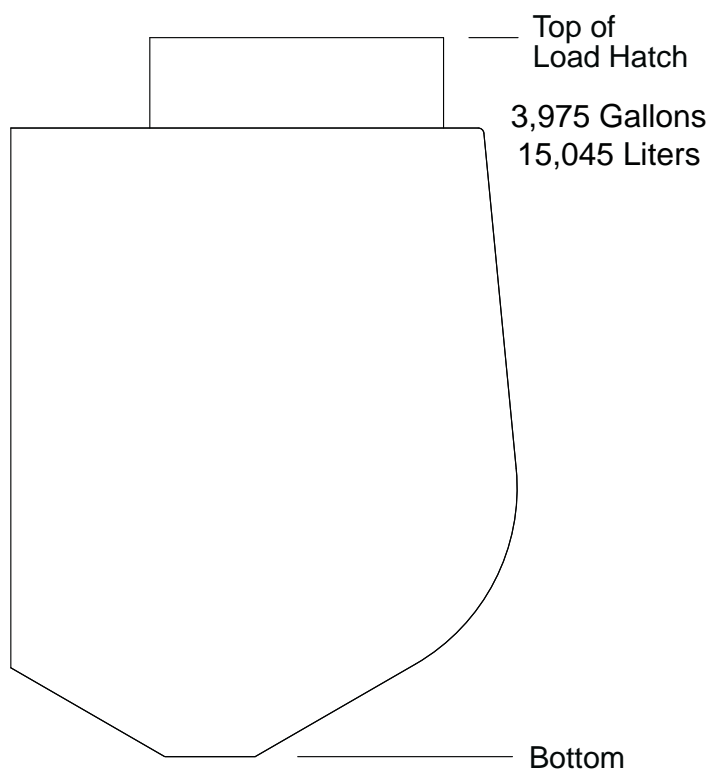


Figure 14 – Tank Capacity Charts (Continued)

NOTES

LOADING PROCEDURE



Take care not to lose pens, lighters, etc. from shirt pockets, or drop pieces of paper or plastic bags into the tank, as these might plug the slurry system. Failure to comply could result in minor or moderate personal injury. Failure to comply could also result in product or property damage.

1. With clutch disengaged (turned off) and agitator control in the NEUTRAL position, start engine and allow it to warm up. See STARTING PROCEDURE on page 13.
2. Start filling unit with water using one of the sources of water. When water reaches the top of agitator shaft, move agitator control to full REVERSE position.

Acceptable Water Sources

- A. Water from any stream or pond using a fill pump. When filling from a pond or stream, make sure to use a suction strainer to filter out contaminants that could damage the pump and unit.
 - B. Any pressure source, eg. fire hydrant. This unit is supplied with an air gap fill port. Consult with local authorities before using a water main in order to abide by all local ordinances.
 - C. Water tanker.
3. Piping System Cleanout Procedure (Purging Line):
 - A. Remove discharge nozzle and gasket from discharge boom.
 - B. Aim discharge boom assembly into an open area away from any persons, obstructions, or high voltage power lines.
 - C. Open discharge valve and close recirculation valve.
 - D. Increase engine speed to approximately 1/2 to 3/4.
 - E. Engage (turn on) clutch with a firm snap. Do NOT allow clutch to slip.
 - F. When discharge stream is clear, flush the hose on the reel (if applicable), open recirculation valve, and close discharge valve. After recirculation stream is clear, disengage (turn off) clutch.
 - G. Replace nozzle and gasket in discharge boom.
 4. Continue filling tank with water.
 5. Increase engine speed to full rpm. Governed speed of the engine on the FINN HydroSeeder® should be 2,550 to 2,600 Rpm under load.

LOADING PROCEDURE (CONTINUED)

6. Start loading dry material, loading the lightest material first. Agitator control should be in full REVERSE for mixing.
 - A. Seed – Cut open the seed bag and dump contents into slurry tank. (When using inoculant, add it in the tank along with the seed. When using quick-swelling seeds, load them just prior to application.
 - B. Wood Fiber Mulch – Empty the entire bag in or cut open bag and drop in the sections of fiber. The amount of mulch to be used should be loaded by the time the water level is at 3/4 full. If agitator stalls or a high-pitch squeal comes from the hydraulic system, reverse agitation to FORWARD for a moment to clear the obstruction, then return agitation to REVERSE.

CAUTION

Hydraulic system will overheat if agitator shaft is jammed for extended period. This will damage hydraulic oil and system components.

DANGER

Keep hands and arms away from tank interior and agitator. Failure to comply will result in death or serious injury.

- C. Fertilizer – Stand over hatch opening and drop the bag onto the bag cutter. Grasp both ends of the bag and dump material.
 - D. All other additives – Consult with manufacturer for proper loading technique.
7. When all materials are loaded and in suspension, and the tank is full, move the agitator to NEUTRAL, then full speed FORWARD to ensure all material is mixed. It may be necessary to change the agitator direction more than once to ensure a thorough mixture.
8. After material is thoroughly mixed, slow agitator in forward direction to 1/2 to 3/4 speed or enough to create movement in all of the corners of the tank. Do not over-agitate the slurry. Always discharge the material with the agitator control in FORWARD position.
9. Close hatch lid on slurry tank.

NOTE: The slurry should not be recirculated for more than 15 minutes prior to discharge to reduce wear and keep seed from swelling.

NOTE: If foaming occurs, reduce agitator speed.

LOADING AND MIXING BFM, FGM, SMM AND OTHER HIGHLY VISCOUS SLURRIES

1. With clutch disengaged (turned off) and agitator control in the NEUTRAL position, start engine and allow it to warm up. See STARTING PROCEDURE page 13.
2. Start filling unit with water using one of the sources of water listed below. When water reaches the top of the agitator paddle blades, move agitator to full REVERSE position.

Acceptable Water Sources

- A. Water from any stream or pond using a fill pump. When filling from a pond or stream, be sure to use a suction strainer to filter out any contaminants, which could damage the pump and unit. Other sources of water are as follows:
 - B. Any pressure source, eg. fire hydrant. This unit is supplied with a 6 in. (15.2 cm) air gap fill port, but it is necessary to consult local authorities before using water main in order to abide by local ordinances.
 - C. Water tanker.
3. Piping System Cleanout Procedure:
 - A. Remove discharge nozzle and coupler gasket from the remote valve coupler at the end of the discharge hose (or from boom on the platform option).
 - B. Aim discharge hose (or boom on the platform option) into an open area away from any persons, obstructions, or high voltage power lines.
 - C. Open discharge and remote valves and close recirculation valve.
 - D. Open throttle to approximately 1/2 to 3/4 full.
 - E. Engage (turn on) clutch with a firm snap. Do NOT allow clutch to slip.
 - F. When discharge stream is clear, open recirculation valve and close discharge valve. After recirculation stream is clear, disengage (turn off) clutch.
 - G. Replace coupler gasket in the remote valve coupler (or in boom on the platform option).
 4. Continue filling tank with water.
 5. Increase throttle to 3/4 of full throttle.

LOADING AND MIXING BFM, FGM, SMM AND OTHER HIGHLY VISCOUS SLURRIES (CONTINUED)

6. Start loading dry material, loading the lightest materials first. Agitator control should be in full REVERSE for mixing.

Seed - Cut open the seed bag and dump contents into slurry tank. (When using inoculant, add it in the tank along with the seed.) When using quick-swelling seeds, load them just prior to application.

BFM, FGM, SMM, and other highly viscous slurries - When the water level is above the top of the agitator blades, begin adding the entire bag of material into the tank. It may become necessary to slow the rate of water being added to the tank. Add all bales before the tank is 3/4 full. If agitator stalls or a high-pitch squeal comes from the hydraulic system, reverse agitation to FORWARD for a moment to clear obstruction, then return agitator to REVERSE.

NOTE: BFM, FGM, and other viscous slurries will entrain air if proper mixing procedures are not followed. Ensure that the agitator blades are completely submerged prior to the addition of this material. This will prevent air from entering the slurry. Follow manufacturers suggested rates of materials as indicated on the packaging. Generally, this recommendation is 50 pounds of material to 125 gallons of water.

Fertilizer – Cut open the fertilizer bag and dump contents into slurry tank.

All other additives - Consult with manufacturer for proper loading technique.

7. When all materials are loaded and in suspension and the tank is full, move the agitator to NEUTRAL then full speed FORWARD to ensure all material is mixed. It may be necessary to change the agitator direction more than once to ensure a thorough mixture.
8. Agitate per the manufacturer's recommendations. Generally, the agitation time is 10 minutes to allow the proper viscosity to be generated. Follow manufacturer's recommendations.
9. Once material is thoroughly mixed, place the agitator in FORWARD direction to 1/4 speed, or just enough to create movement in all corners of the tank. DO NOT OVER-AGITATE the slurry. Always discharge the material with the agitator control in FORWARD and at a slow speed.

NOTE: As the application process commences and the slurry level is decreased, which will expose the agitator blades, it is extremely important to ensure that the speed of the agitators is slow.

NOTE: Use of recirculation should be kept to a minimum.

NOTE: If foaming occurs, reduce agitator speed.

PRIOR TO APPLICATION

1. Operator should familiarize themselves with the area to be seeded and develop a plan to ensure uniform application.
2. Develop a plan for communication between operator and driver of the carrying or towing vehicle to signal for start, stop, turn, etc. through the use of the signal horn.
3. Operator takes up position on the platform. From this point, application will be controlled by the use of the clutch, valve, discharge assembly, and throttle.

DISCHARGE NOZZLE SELECTION

Nozzles are stored in the tool box. This HydroSeeder® is equipped with six nozzles – two long distance and four fan nozzles. The smaller long distance nozzle is generally better suited for seed, fertilizer, and/or lime application while the large long distance nozzle is better for wood fiber mulch application. All of the fan nozzles are generally suited for both types of application.

Nozzle	Part Number	Distance (A)	Width (B)	T330 Discharge Time
Lg. Long Distance	011775	Up to 230 ft (70 m)		7.5 min.
Sm. Long Distance	011703	Up to 150 ft (46 m)		30 min.
Sm. Narrow Fan	011707	Up to 75 ft (23 m)	15 ft (4.6 m)	30 min.
Sm. Wide Fan	011706	Up to 45 ft (14 m)	25 ft (7.6 m)	30 min.
Lg. Narrow Fan	011891	Up to 90 ft (28 m)	23 ft (7 m)	10.6 min.
Lg. Wide Fan	011890	Up to 50 ft (15 m)	35 ft (10.5 m)	10.6 min.

NOTE: T280 discharge times will be slightly shorter.

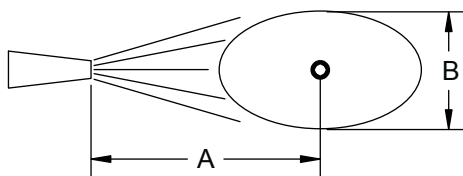


Figure 15 – Nozzle Spray Dimensions

APPLICATION OF SLURRY

I. GENERAL APPLICATION TECHNIQUES

⚠ DANGER

Do not spray toward power lines, transformers or other high voltage conductors. Failure to comply WILL result in severe personal injury or death.



⚠ CAUTION

The driver of the carrying vehicle should remain alert for hazards to the operator, such as low power lines, hanging branches, etc. Driver should never start or stop abruptly. Failure to comply could result in minor personal injury, or product or property damage.

1. Determine which nozzle would best suit the application needs according to the DISCHARGE NOZZLE SELECTION table.
2. Application of seed, fertilizer, and lime: Elevate discharge nozzle no less than 10 degrees above the area to be sprayed, allowing the slurry to gently rain onto the seed bed.
3. Application of wood and paper fiber: Whenever possible, aim the stream towards the ground to create a surface with small pockmarks which will help get seed in contact with ground. Do not allow the stream to blast away the surface of the seed bed.
4. Generally, the most remote area of the seed bed should be covered first. Distance is controlled by engine speed and nozzle selection.

⚠ CAUTION

Do NOT partially close the boom discharge valve to control the distance. Failure to comply could result in minor personal injury, or product or property damage.

5. While moving along area to be seeded, the operator should move the nozzle back and forth in a slow, even arc.
6. If application is to be interrupted for a short period of time, disengage (turn off) the slurry pump clutch. If shutdown is going to be for an extended period of time (i.e., lunch break, reloading, etc.), close the valves to prevent slurry from dewatering. Re-engage (turn on) the slurry pump clutch to continue application.
7. It may be necessary to slow the agitator as the tank empties to reduce foaming.

II. DISCHARGE THROUGH THE BOOM

1. Move the discharge valve foot pedal to the **OPEN** position, the recirculation valve handle to the **CLOSED** position, and with the engine at low idle engage (turn on) the slurry pump clutch. At this time, should the operator want to stop spraying for a short period, disengage (turn off) the slurry pump clutch. When ready to resume spraying, simply re-engage (turn on) the slurry pump clutch.

⚠ CAUTION

Do NOT engage the slurry pump clutch above 1,000 RPM's or damage to the slurry pump clutch will occur.

2. When the tank is empty, or when discontinuing discharge for an extended period of time, disengage (turn off) the slurry pump clutch, then immediately move the discharge valve to the **CLOSED** position, and idle the engine. This will maintain moisture in the discharge piping and help prevent plugging. Move the agitator control to the **NEUTRAL** position.

APPLICATION OF SLURRY (CONTINUED)

III. PROCEDURES WHEN USING HOSES

Always pump clear water through the hose before pumping mulch. If the inside hose liner is dry, it will dewater the mulch, causing the hose to plug.

A. PUMP TAKE-OFF SYSTEM OR HOSE REEL WITH REMOTE VALVE

1. Open recirculation valve, close discharge valve, and close remote valve at the end of the hose.
2. With the engine at low idle, engage (turn on) the slurry pump clutch. When stream is flowing freely through the recirculation line, open the pump take-off valve.

⚠ CAUTION *The high pressure on the hose can exert strong forces, causing the potential for the hose operator to lose control of hose or footing. The hose will require additional hose holders when this operation occurs on slopes. Open the pump take-off valve and the remote valve slowly and only after the hose operator is firmly positioned and has firm control of hose. Failure to comply could result in minor personal injury, or product or property damage.*

3. With the engine running at approximately 3/4 speed, open the remote valve at the end of the hose to discharge the load.
4. When finished spraying, close the remote valve, disengage (turn off) the slurry pump clutch, and stop the engine. If using fiber mulch, retain as much water as possible in the hose by elevating the hose ends or by coupling the hose ends together.
5. If another load is to be done, see RELOADING PROCEDURE. If finished for the day, follow the clean-up procedure and flush out the hose.

⚠ DANGER *The recirculation valve must be open when using a remote valve. Failure to comply will result in serious injury or death.*

B. EXTENSION HOSE SYSTEM - WITHOUT REMOTE VALVE

1. Connect the extension hose into the end of the discharge boom.
2. A person controlling the end of the hose directs a second operator at the machine to control the slurry pump clutch and to adjust the engine speed.

⚠ CAUTION *Since the extension hose will be seeing the full output of the pump with the recirculation closed, the equipment operator and individual at the end of the hose should exercise extreme care when operating the unit on high pressure. The high pressure on the hose can exert strong forces, causing potential for the hose operator to lose control of hose or footing. The hose will require additional hose holders when operation occurs on slopes. Engage the pump clutch only after the hose operator is firmly positioned and has firm control of hose. Failure to comply could result in minor personal injury, or product or property damage.*

3. When hose operator is ready and the engine is at low idle, signal the second operator to engage the slurry pump clutch and slowly increase the engine RPM until the desired discharge pressure is reached.
4. When finished spraying, disengage the slurry pump clutch, stop the engine, and close the discharge valve. If using fiber mulch, retain as much water as possible in the hose by elevating the hose ends or by coupling the hose ends together.
5. If another load is to be done, see RELOADING PROCEDURE. If finished for the day, follow clean-up procedure and flush out the hose.

APPLICATION OF SLURRY (CONTINUED)

C. HOSE WORK WITH REMOTE TRANSMITTER

1. Begin with the engine around 1/4 throttle (1,400 rpm).
2. Close recirculation valve. If using an extension hose connected to the discharge boom, open discharge valve. If using the hose reel, close discharge valve and open pump take off valve to the hose reel.
3. Switch Remote On/Off switch on the control panel to the ON position.
4. When the operator is in position, engage the pump using the remote transmitter and increase throttle to the desired output.

NOTE: To quickly shut off engine at any time, press the red Emergency Stop button on the transmitter. To restart engine, the key switch on the control panel must be returned to the OFF position and then restarted.

5. When finished spraying, turn pump off and decrease engine throttle to idle.

CAUTION

When using the remote transmitter option, the secondary operator(s) must be aware that the machine can be activated remotely at any time after the Remote On/Off switch on the control panel is switched ON. If any maintenance or troubleshooting needs to be performed while the engine is running, the Remote On/Off switch must be in the off position. Failure to comply could result in minor or moderate personal injury. Failure to comply could also result in product or property damage.

RELOADING PROCEDURE

1. Start at step 2 in LOADING.
2. After last load of the day, refer to CLEANING AND MAINTENANCE section.
3. If the unit is equipped with an Air Flush System, refer to the Air Flush System Parts and Operator's Manual.

LIMING WITH THE HYDROSEEDER®

When using large concentrations of granular solids through the HydroSeeder®, it is advisable to keep the slurry moving through the pump at all times. This keeps the solids from settling in the lines, and creating a clog. This unit was designed for the application of agricultural-grade lime or FINN-HLL liquid lime only.

PROCEDURE

1. With the slurry pump clutch disengaged (turned off), agitator control in the NEUTRAL position and hydraulic system off, start engine and allow it to warm up. See STARTING PROCEDURE.
2. After engine has warmed up, turn on the hydraulics system by flipping the hydraulics toggle switch to the **HYDRAULICS ON** position (all the way up). The switch will automatically center itself, which is the **ON** position.
3. Start filling the unit with water. When water reaches the top of the agitator shaft, move agitator control to approximately 1/2 speed in REVERSE.
4. Open both the recirculation and discharge valves.
5. Remove discharge nozzle and gasket from discharge boom.
6. Aim discharge boom assembly into an open area away from any persons, obstructions, or high voltage power lines.
7. With the engine at low idle, engage (turn on) the slurry pump clutch, and increase engine speed until you have reached maximum engine speed. A stream of water should be coming from the end of the recirculation pipe beside the hatch opening as well as from the boom.

CAUTION

Do NOT engage the slurry pump clutch above 1,000 RPM's or damage to the slurry pump clutch will occur.

8. As soon as both streams are clear, close discharge valve and make sure water is being recirculated back to the tank.
9. Decrease throttle to 3/4 speed. Increase agitator speed to full REVERSE.

NOTICE

Do not disengage (turn off) the slurry clutch.

10. Twenty (20) lbs (9 kg) of granular solids displaces approximately 1 gallon (3.8 L) of water. When filling the tank with water, the volume of granular solids must be accounted.

Use this method to determine how many gallons will be displaced by the granular solids.

$$\frac{X \text{ (number of lbs of granular solids being used)}}{20} = \text{number of gallons displaced}$$

For example:

If using the maximum recommended capacity of 5,000 lbs (2,268 kg) of granular solids, then 5,000 divided by 20 equals 250, so 250 gallons (946 L) would have to be subtracted from the total tank capacity. If the total tank capacity is 1750 gallons (6,624 L) minus 250 gallons (946 L) equals 1500 gallons (5,678 L). If 1000 pounds (454 kg) of solids were used, 50 gallons (189 L) would have to be subtracted, thus 1750 gallons (6,624 L) minus 50 gallons (189 L) equals 1700 gallons (6,435 L).

11. Fill the tank to the required capacity for the rate of granular solids to be applied.
12. Load the material (see LOADING section, steps 5 through 8).
13. When ready to apply slurry, install gasket and nozzle into boom.
14. Move agitator control to 3/4 speed, forward.

LIMING WITH THE HYDROSEEDER® (CONTINUED)

15. With the slurry pump clutch still engaged (turned on), re-open discharge valve to commence application.

CAUTION

*To decrease pump wear and increase discharge distance, it may, at this point be desirable to close the recirculation valve. However, the recirculation valve must be open **BEFORE** closing the discharge valve if the application of slurry is to be interrupted. Extreme heat, which will cause damage and/or bodily injury, will occur if both valves are closed.*

16. Apply the slurry. See APPLICATION OF SLURRY section.
17. If another load is to be applied, start again at step 1. If finished, follow the clean-up procedure.

CLEANING AND MAINTENANCE

AFTER FIRST 4 TO 8 HOURS OF OPERATION

Check and adjust clutch – see clutch manual.

DAILY

1. Cleaning the HydroSeeder®

- A. Fill slurry tank to center of agitator shaft with clean water.
- B. Move agitator lever to full speed to flush off inside of tank top and walls.
- C. Remove discharge nozzle and gasket from discharge boom.
- D. While aiming discharge hose or boom toward an open area, move discharge valve handle to discharge position and engage (turn on) clutch. Allow to discharge until clear water is coming out.
- E. Move recirculation valve handle to recirculation and allow to run momentarily.
- F. Disengage (turn off) clutch, idle the engine, move valve handle to DISCHARGE position, move agitator handle to NEUTRAL, and turn off the engine.
- G. Remove drain plug and allow tank to drain.
- H. In freezing weather, leave main tank drain plug out and remove pump drain plug. Move all slurry valves to open position.
- I. Wash the outside of HydroSeeder®, including radiator, to remove any corrosive materials.
- J. If using lime, DAILY maintenance should be performed after every load.
- K. Clean out extension hoses.
- L. Replace coupler gasket before reinstalling discharge nozzle onto remote valve coupler

2. Lubricating the HydroSeeder (See LUBRICATION AND FLUIDS CHART):

NOTE: Lubrication should be performed IMMEDIATELY AFTER cleaning of the equipment with the engine not running.

- A. Lubricate the agitator shaft bearings located on the outside front and rear of slurry tank.
- B. Service the automatic pressure lubricator on pump as needed.
- C. Check the engine oil and replenish when necessary. Change oil and filter after first 100 hours, then every 250 hours thereafter. Consult the engine operator's manual for the correct grade of oil and the engine break-in procedure.
- D. Lubricate the swivel on the discharge assembly and the swivel on the hose reel.
- E. If equipped with the Air Flush Option, refer to the Air Flush System Manual.

CLEANING AND MAINTENANCE (CONTINUED)

WEEKLY OR EVERY 40 HOURS OF OPERATING TIME

1. Clean the air cleaner following the instructions in the engine operator's manual.
2. Lubricate all the points on the HydroSeeder® as outlined in DAILY on page 28. Additionally, lubricate the four grease fittings on the clutch/pump.
3. Check the level in the hydraulic oil reservoir. Maintain level at sight gauge.
4. Check the clutch adjustment to ensure that it snaps in and out of engagement. Adjust the clutch with the engine off.
5. Check the antifreeze in the radiator.
6. Inspect the slurry tank for buildup of residue in the suction area and clear if necessary.
7. Check and clean engine radiator. Flush with clear low pressure water and blow dry with compressed air. Do NOT use high pressure water spray.
8. Check pivoting hose reel swivel bolt. Ensure proper torque. Replace bolts if any show signs of wear.

SEASONAL AND WINTER STORAGE MAINTENANCE

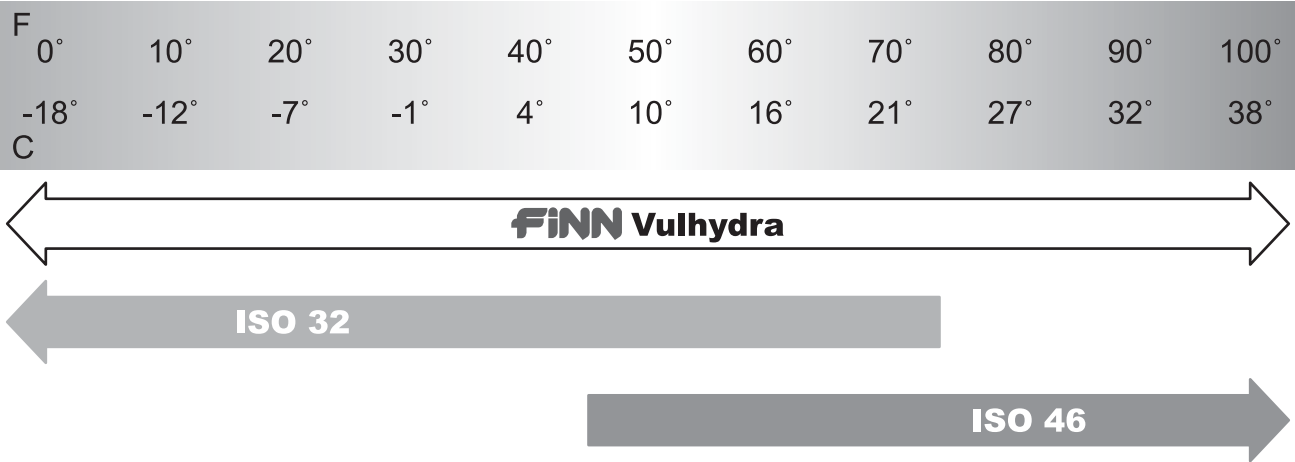
1. Remove drain plug and drain the slurry tank of all water prior to storage. Leave drain plug removed.
2. If possible, cover machine with tarp or park inside of an enclosure.
3. Store the HydroSeeder® with all slurry valve handles in the open position. To prevent damage from freezing, it is advisable to remove all slurry valves and store in a heated area.
4. Store the HydroSeeder® with all slurry valve handles in the open position. To prevent damage from freezing, it is advisable to remove all slurry valves and store in a heated area.
5. Pour 1 quart (0.95 L) of mineral oil or environmentally safe lubricant into the pump housing and spin pump by hand to prevent rust in the pump. Remove drain plug.
6. Chip and steel-brush any interior rust spots in the slurry tank and touch up with paint. See steps 2 and 3 in IV. MAINTENANCE of the HYDROSEEDER® SAFETY SUMMARY SECTION.
7. Lubricate all fittings.
8. Check antifreeze in radiator.
9. Lubricate equipment again just prior to putting into operation after having been in storage.
10. Change hydraulic oil and filter. (500 hours)
11. Disconnect battery cables. In cold weather, remove battery and store it in a safe, warm place.
12. Add fuel stabilizer to fuel tank.

HYDRAULIC SYSTEM

The hydraulic system on your FINN HydroSeeder® is designed to give trouble-free service, if maintained as required. The most important areas of maintenance are the hydraulic oil and filtration. The reservoir holds 22 gallons (83 L) of hydraulic oil. The hydraulic oil should be replaced per the lubrication schedule or if the oil becomes milky or gives off a burnt odor. The hydraulic oil filter must be replaced on schedule with a 5 micron absolute filter (FINN part number 008703). The hydraulic system relief is factory-set at 2,650 psi (18,271 kPa).

At time of manufacture, this unit contains Finn Vulhydra hydraulic oil. The chart below illustrates the operating temperature range of the Finn Vulhydra hydraulic oil as well as the closest ISO equivalents.

NOTE: The Finn Vulhydra hydraulic oil may be substituted for either of the two ISO oils listed below. Please use the temperature chart to determine what oil works best in your situation.



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CLUMP MAINTENANCE SECTION

NOTE: Refer to Figure 16 for all in-text callouts mentioned.

⚠ CAUTION

Clump maintenance should be done only while engine is not running and battery cables are disconnected. Failure to comply could result in minor or moderate personal injury. Failure to comply could also result in product or property damage.

A. FACTORY TOLERANCES

1. To check clump tolerances, loosen the two clamps on the pump suction piping and remove the inlet elbow. Through the pump suction hole, insert a feeler gauge between impeller (7) and suction cover (1). This measurement on a new clump is between .040 to .045 in. (1.00 to 1.15 mm).

B. IMPELLER CLEARANCE

NOTICE

Tightening of the bolts should be performed in a criss-cross pattern. DO NOT TIGHTEN OVER 15 lb-ft (20 N•m). Overtightening will crack the flange of the pump suction cover.

TO BRING THE CLUMP BACK TO PROPER TOLERANCE, PROCEED AS FOLLOWS:

1. Loosen four bolts (2) and push suction cover (1) into casing (8) until suction cover touches impeller (7). Impeller should be in full contact with suction cover.
2. Tighten bolts (5) finger tight. Impeller (7) should rub the suction cover (1) and not turn easily through one revolution.
3. Tighten bolts (2) to 15 lb-ft (20 N•m). Impeller (7) should turn freely through one revolution.
4. Back off bolts (5) 3/4 turn.
5. Tighten bolts (2) 3/4 turn and tighten nuts (3) to 15 lb-ft (20 N•m).
6. Tighten bolts (5) to 15 lb-ft (20 N•m). Clearance gap should be about 0.040 in. (1.00 mm). Check to make sure if impeller (7) turns freely through one revolution.

C. CLEANING

1. To clean impeller (7), loosen the two victaulic pipe clamps and remove the suction pipe assembly. The eye of the impeller (7) can then be seen through the suction cover (1) and is readily accessible for cleaning.
2. To remove impeller (7), remove eight bolts (5) holding suction cover (1) in place. Remove suction cover (1), being careful not to damage O-ring (4).
3. Take impeller wrench, which is stored in the toolbox, and position it so that the hole is aligned with any of the eight tapped holes in the front of the clump casing (8). The 90-degree leg of the wrench should face in toward the impeller and be positioned between any two of the impeller fins. Bolt the wrench securely in place with one of the suction cover bolts (5). Using a pipe wrench on clump shaft (17), unscrew impeller (7) turning shaft in a clockwise direction. Be careful not to unscrew impeller too far before removing puller wrench.

⚠ CAUTION

Do not turn the shaft backward with a pipe wrench. This will unscrew pump impeller from pump shaft. Consequently, when clutch is engaged (turned on), the pump impeller will screw onto pump shaft with a force great enough to break pump impeller. Failure to comply could result in minor or moderate personal injury. Failure to comply could also result in product or property damage.

CLUMP MAINTENANCE SECTION (CONTINUED)

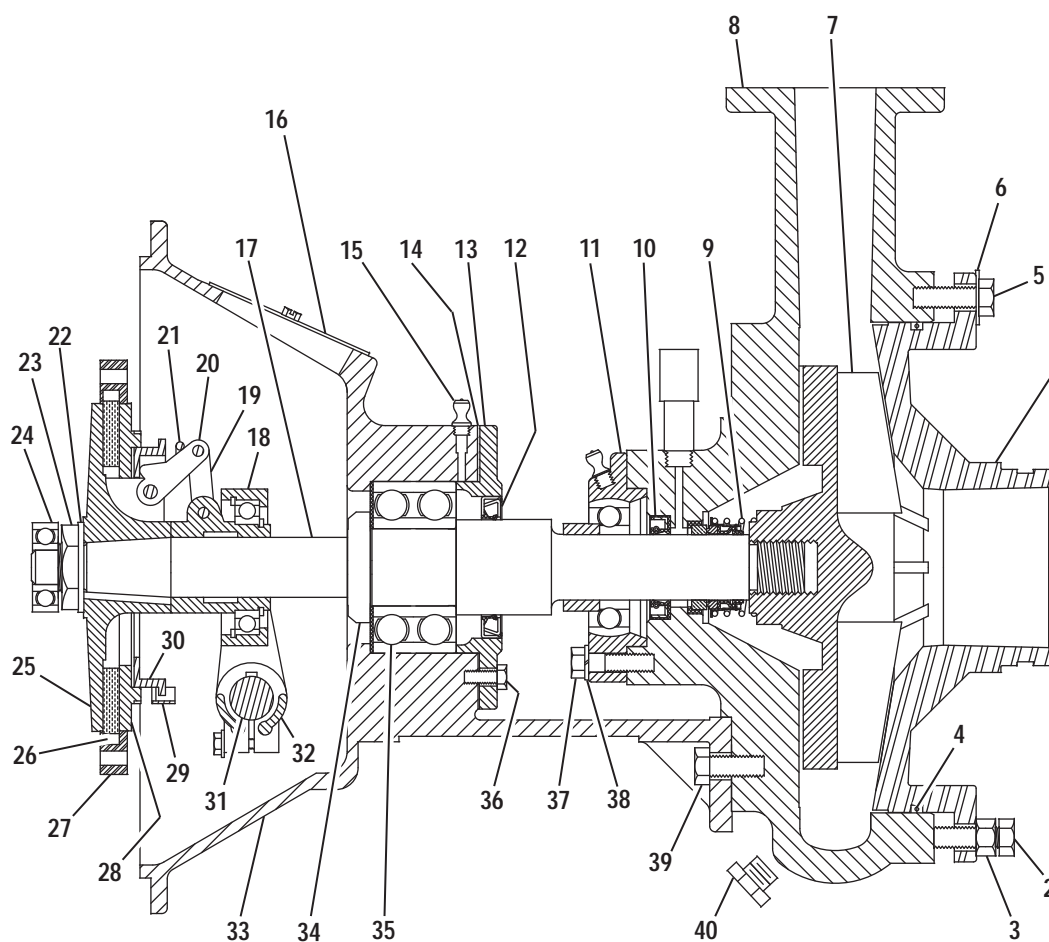


Figure 16 – Cross-Section Through Clump

Ref. No.	Description	No. Req.	Ref. No.	Description	No. Req.
1	Suction Cover	1	21	Lever Spring	1
2	Suction Cover Bolt	4	22	Lockwasher	1
3	Suction Cover Nut	4	23	Drive Shaft Nut	1
4	O-ring	1	24	Pilot Bearing	1
5	Suction Cover Bolt	8	25	Clutch Body	1
6	Suction Cover Washer	8	26	Clutch Facing	1
7	Impeller	1	27	Driving Ring	1
8	Clump Casing	1	28	Pressure Plate	1
9	Mechanical Shaft Seal	1	29	Adjusting Ring	1
10	Grease Retainer	1	30	Adjusting Ring Plate	1
11	Flange Pilot Bearing	1	31	Cross Shaft	1
12	Grease Retainer	1	32	Clutch Yoke	1
13	Bearing Retainer Ring	1	33	Clump Housing	1
14	Sealing Gasket	1	34	SN-11 Nut	1
15	Grease Fitting	2	35	Bearing	1
16	Clump Nameplate	1	36	Thrust Bearing Retainer Bolt	6
17	Clump Shaft	1	37	Flange Bearing Bolt	4
18	Release Bearing	1	38	Flange Bearing Lockwasher	4
19	Connecting Link	6	39	Bolt	3
20	Release Lever	6	40	Pipe Plug	2

CLUMP MAINTENANCE SECTION (CONTINUED)

D. INSTALLING NEW SEAL ASSEMBLY (9) (Do not unwrap the new seal assembly until you are ready to install. All parts of the assembly are packed in sequence of installation.)

1. To replace seal assembly (9), perform the operations under CLEANING, and remove clump casing (8) by removing three bolts (39) that hold the clump casing to the clump housing (33).
2. After cleaning all parts, including clump shaft (17), begin reassembly of clump. Install grease retainer (10) with the cavity portion of the seal facing outward. Rebolt casing onto clump frame using three bolts (39). Using a light oil lubricant (such as 3-in-1 oil), install the ceramic seat with its neoprene holder into the seal recess, making sure it is square with shaft. Lubricate inside of the bellows assembly with a light oil lubricant and check to make sure the steel ring is stuck (glued) to end of assembly. Slide bellows assembly onto the shaft and push until steel ring is against ceramic seat.
3. Install the seal spring on the hub of impeller. After coating the threads on the clump shaft (18) with an antiseize compound, install impeller (7), seating it securely.
4. Utilizing O-ring (4), reinstall suction cover (1) using eight bolts (5). At this time, check to see that the clump runs freely. If impeller (7) rubs cover plate, you do not have impeller tight on clump shaft (17) or suction cover needs to be readjusted. See IMPELLER CLEARANCE. Tighten bolts uniformly using 15 lb-ft (20 N•m) on the torque wrench.
5. After reinstalling the suction pipe assembly, lubricate, and tighten the victaulic clamps. Service the automatic lubricator.

CLUMP ASSEMBLY VIEW

NOTE: Refer to Figure 17 for an illustration of the clump disassembled. Callouts for Figure 17 are listed below.

Ref. No.	Description	No. Req.	Ref. No.	Description	No. Req.
1	Suction Cover	1	24	Bearing Carrier	1
2	O-ring	1	25	Release Bearing	1
3	Impeller	1	26	Internal Snap Ring	1
4	Mechanical Shaft Seal	1	27	Lube Fitting	1
5	Clump Casing	1	28	Release	1
6	Grease Retainer	1	29	Lever Spring	1
7	Flange Pilot Bearing	1	30	Adjusting Ring Plate	1
8	Seal	1	31	Adjusting Ring	1
9	Bearing Retainer Ring	1	32	Pressure Plate	1
10	Clump Shaft	1	33	10 in. Clutch Disc	1
11	Bearing	1	34	Driving Ring	1
12	SN-11 Nut	1	35	Clutch Body	1
13	Clutch Lever	1	36	Retaining Ring	6
14	1-1/2 in. Bore x 4 in. Stroke Cylinder	1	37	Connecting Link	6
15	Air Clutch Cylinder Clevis	1	38	Release Lever	6
16	Clump Nameplate	1	39	Clevis Pin	6
17	Clump Housing	1	40	Lockwasher	1
18	Clutch Yoke	1	41	Drive Shaft Nut	1
19	Woodruff Key	2	42	Pilot Bearing	1
20	Yoke Shaft	1	43	Pressure Lubricator Assembly	1
21	Modified Clutch Lever	1	44	Screw, Nut, Follower, and Spring	1
22	10 in. Clutch Assembly Kit	1	45	Spring	1
23	External Snap Ring	1	46	Plunger	1

CLUMP ASSEMBLY VIEW (CONTINUED)

NOTE: This is for reference use -- a parts list for the clump assembly can be found in the parts section of this manual. These numbers DO NOT match the numbers called out in the Clump Maintenance Section.

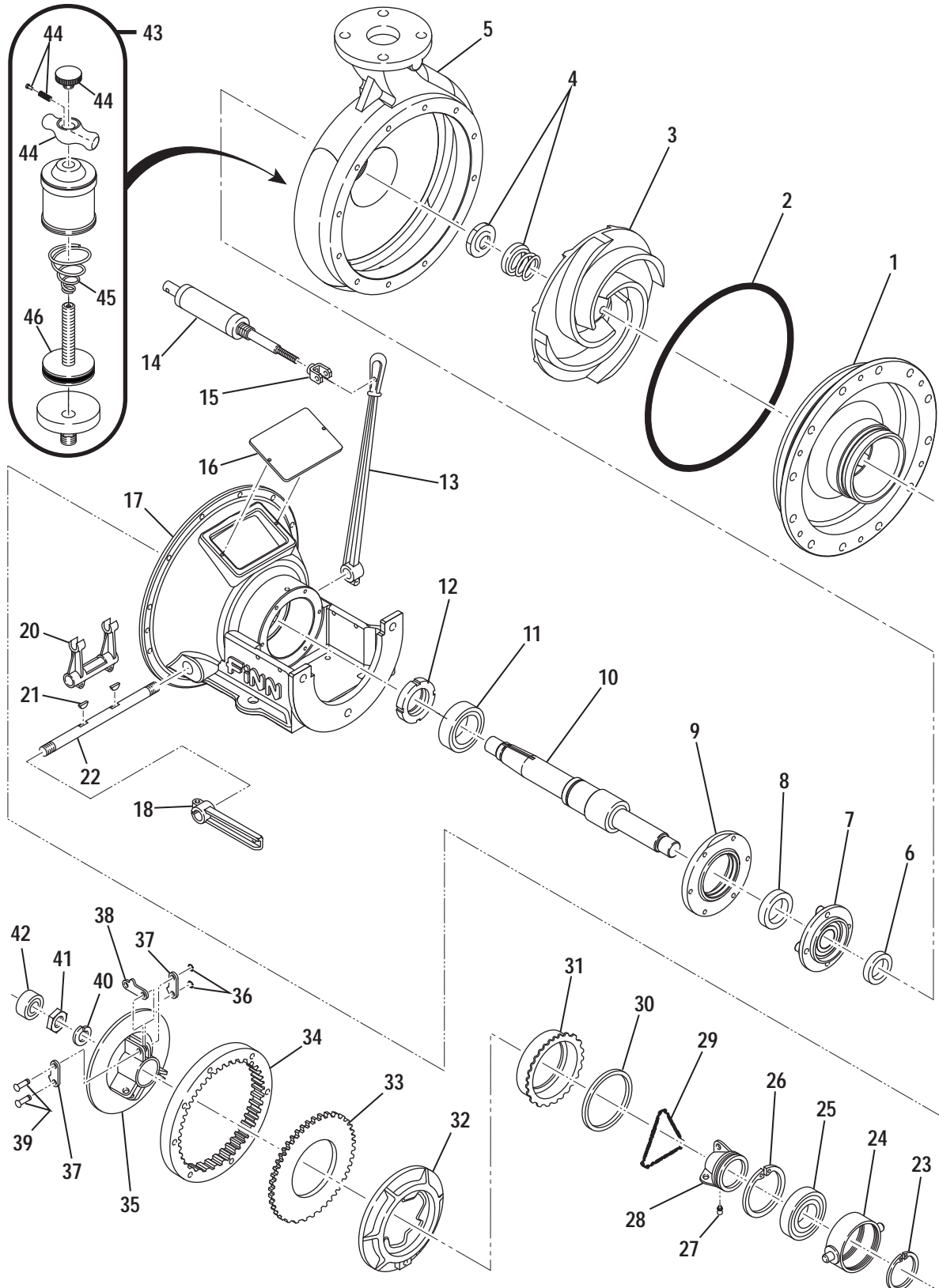


Figure 17 – Clump Assembly

CLUTCH MAINTENANCE SECTION

NOTE: Refer to Figure 16 for all in-text callouts mentioned.

⚠ CAUTION *Clutch maintenance should be done only while engine is not running and battery cables are disconnected. Failure to comply could result in minor or moderate personal injury. Failure to comply could also result in product or property damage.*

A. ADJUSTMENT – If the clutch does not pull, overheats, or the clutch operating lever pops out, the clutch must be adjusted. Proceed as follows:

- 1. Remove clump nameplate (16) in the drive housing (33), and rotate clutch until adjusting lock collar and lock screw can be reached. To avoid dropping the adjusting lock into the housing, use caution when removing or disengaging.
- 2. Turn adjusting ring (29) counterclockwise to obtain recommended operating lever pressure.

HANDLE PRESSURE

Clutch Size	Reference Handle Length	Pressure at Lever
7-1/2"	7-5/8"	110–130 lb

Variation in handle length directly affects the required handle pressure needed for clutch adjustment. See the table above to determine the correct handle pressure.

NOTICE *A new clutch generally requires several adjustments until the friction surfaces are worn in. Do not let clutch slip, as this will glaze the friction plates and may ruin them.*

B. LUBRICATION

- 1. Lubricant – Use any high-grade, lithium based number 2, short-fiber grease having an operating temperature of 200°F (93°C), recommended for roller bearings may be used.

NOTICE *Do not mix sodium- or calcium-based grease with lithium-based grease. Lubricate sparingly to avoid oil seepage onto clutch facings.*

- 2. Anti-Friction Bearings – Shaft bearings should be lubricated after every 50 hours of operation. Shaft bearings can be lubricated through the fittings with a short-fiber, high-grade, high-temperature, lithium-based number 2 lubricant that has an operating temperature of 200°F (93°C). On occasion, use the same lubricant to lubricate the two fittings at the cross-shaft (26).
- 3. Clutch Lever and Linkage – Clutch levers and linkage should be lubricated with engine oil after every 500 hours of operation.

IMPORTANT: Lubricate sparingly to avoid oil seepage onto clutch facings.

CLUTCH MAINTENANCE SECTION (CONTINUED)

C. REMOVAL OF CLUTCH/PUMP ASSEMBLY (CLUMP) FROM ENGINE

1. Remove clamps and piping from the suction and discharge side of pump.
2. Place a jack under bell housing of engine to support the rear of the engine after clump has been removed.
3. Place clutch control in the ENGAGE position to hold clutch facings in place when removing clutch from engine. Unbolt the rod which connects the clutch operating lever to operator's platform clutch handle
4. Attach a suitable lifting device to clutch/pump drive housing (33). Remove bolts that secure the drive housing to the engine flywheel housing and the two bolts that hold the drive housing to the HydroSeeder® frame.

CAUTION

Caution should be exercised when removing clutch/pump housing from the engine so that the facings and pilot bearing are not damaged.

5. Support the housing assembly on blocks with the output end of the shaft down.
6. Remove the clump nameplate (16) from the housing for improved access to internal parts.

D. CLUTCH FACING PLATES REPLACEMENT

A common indication that the facing's friction surface is worn out is that the adjusting ring cannot be turned any tighter. To replace the facing plates, remove the clutch/pump from the engine as described above and proceed as follows:

1. Disengage (turn off) clutch operating lever and remove the old facing plates.
2. Insert the new facing plates (three segments) in between clutch body (25) and pressure plate (28), and center the facings as close as possible.
3. Lock clutch facings between pressure plates as follows:
 - A. Remove drive ring (27) from engine flywheel so that it can be used to center the facings.
 - B. With clutch assembly resting on a workbench, turn clutch adjusting ring counterclockwise until pressure plate (28) almost contacts clutch facing (26).
 - C. Place clutch driving ring over clutch facings with teeth in driving ring in mesh with teeth of clutch facings, and locate driving ring centrally relative to the pressure plate and clutch body.

NOTICE

If driving ring is not properly located relative to the pressure plate and clutch body, the clutch cannot be assembled to the flywheel, as the teeth of clutch facings will not enter the teeth of driving ring, even though the clutch drive shaft enters the pilot bearing.

- D. Engage (turn on) clutch by applying pressure on top of release sleeve and collar assembly and lock clutch facings between pressure plate and clutch body. If clutch facings are still free to move, disengage (turn off) clutch and turn adjusting ring counter-clockwise just enough to lock the clutch facings in place when clutch is engaged (turned on).

NOTICE

Engage clutch (turn on) until the clutch assembly is attached to the engine.

CLUTCH MAINTENANCE SECTION (CONTINUED)

D. CLUTCH FACING PLATES REPLACEMENT (CONTINUED)

4. Remove clutch driving ring (27) from clutch facings and attach it to the flywheel with the specified bolts and lock washers.
5. Before reinstalling clutch onto engine, lubricate release sleeve through the grease fitting mounted on its side.
6. To reinstall the clutch/pump assembly onto the engine, reverse the procedure outlined under REMOVAL OF CLUTCH/PUMP FROM ENGINE.
7. When clutch/pump are reinstalled, check handle, engage pressure, and adjust if necessary.

Sometimes, when a stoppage occurs, you will not be able to find anything in the line. When this happens, it means that the system became airbound. To remedy this, see FOAMING OF SOLUTION AND LACK OF DISTANCE. Plugging is caused by either foreign objects or dewatered fiber. Plugging can occur in any of four places: the valve and recirculation nozzle, the discharge nozzle, the pump area, and the sump area. If plugging does occur, perform any of the following tasks to clear the obstruction:

TROUBLESHOOTING YOUR HYDROSEEDER®

Because of the tremendous work load usually placed upon the HydroSeeder®, minor malfunctions will occur from time to time. If these are not remedied immediately, they could lead to poor performance and damage to the equipment. This section describes symptoms, possible causes, and the corrective action(s) to take.

1. Foam in the tank and air entrainment.

The mixture of dry materials with water will sometimes cause excessive foaming while other dry materials-with-water mixes will cause air entrainment. These situations will reveal themselves with the occurrences of an erratic slurry discharge, a drop in the pressure of the discharge, and a drop off in distance of slurry discharge.

Some solutions are:

- A. As slurry level drops in the tank, slow the agitator speed.
- B. Add 2 to 3 oz (59 to 89 ml) of an antifoaming agent to tank.
- C. If you can determine which additive is causing the air problem, either add it last or not at all – unless it's the water.
- D. Limit recirculation time as much as possible.
- E. Open pump suction bleed valve to exhaust air trapped in the pump or suction line. Close valve as soon as the air stops.

2. Plugging or clogging:



Turn off engine and disconnect battery cables before working on equipment. Failure to comply WILL result in severe personal injury or death.

Sometimes, when a stoppage occurs, you will not be able to find anything in the line. When this happens, it means that the system became airbound instead of plugged. To remedy this, see FOAM IN THE TANK AND AIR ENTRAINMENT section. Plugging can occur in any one of four places: the valve and recirculation nozzle, the discharge nozzle, the slurry pump area, and the sump area. The plugging is caused by either foreign objects or dewatered mulch.

TROUBLESHOOTING YOUR HYDROSEEDER® (CONTINUED)

- A. Obstruction in discharge nozzle is determined by a change in or stoppage of the spray pattern. To clear an obstruction, perform the following steps:
1. Disengage (turn off) clutch.
 2. Remove nozzle.
 3. Ensure that pump has stopped turning.
 4. Clean the discharge nozzle. To clean the discharge nozzle, use the nozzle cleaning rod attached to the underside of the guard rail. Insert the nozzle cleaning rod into nozzle to push and buildup out of the nozzle. Repeat procedure until nozzle is completely cleaned. (Platform Option only.)



Before loosening any clamps, determine if the pipe is hot. If so, let it cool before attempting to perform repair. Failure to comply WILL result in severe personal injury or death.

- B. If the recirculation system is not working:
1. Disengage (turn off) clutch and stop engine.
 2. Remove clamp that attaches recirculation valve.
 3. Slide rubber seal back and remove valve assembly.
 4. Check valve assembly, recirculation nozzle in discharge pipe, and recirculation pipe going into tank. Clear any obstructions.
 5. Replace valve assembly and slide seal back into place. Lubricate outside of seal.
 6. Replace clamp.
- C. Obstruction in pump can be indicated by a drop in pressure. If a drop in pressure is accompanied by a frothy or whitish discharge stream, blockage is in the suction line or sump area. To clear the pump:
1. Disengage (turn off) clutch and stop engine. Close suction shutoff valve if applicable.
 2. Loosen suction pipe clamps. If there is material in tank, stuff a rag into the suction piping.
 3. Remove suction pipe clamp closest to pump.
 4. Remove elbow and slowly open suction shutoff valve.
- NOTE:** If no water comes out, the obstruction is in sump area.
5. Reach into pump and remove obstruction. If it is jammed, the pump suction cover may have to be removed.
 6. Reassemble, removing pipe plug in process.
- D. Obstruction in sump area, which is located at the bottom of the tank on the inside where the suction pipe is attached. Three methods to remove an obstruction in the sump area are as follows:
1. Clear the sump by backflushing through the discharge plumbing with the water supply hose. This is the easiest method.
 2. Remove the drain plug and run a long pole through the opening and into the sump area. Remove the obstruction and replace the drain cap.
 3. Use a pipe or pole through the loading hatch opening to dislodge the obstruction.

TROUBLESHOOTING YOUR HYDROSEEDER®

Because of the tremendous work load usually placed upon the HydroSeeder®, minor malfunctions will occur from time to time. If these are not remedied immediately, they could lead to poor performance and damage to the equipment. This section describes symptoms, possible causes, and the corrective action(s) to take.

1. Foam in the tank and air entrainment.

The mixture of dry materials with water will sometimes cause excessive foaming while other dry materials-with-water mixes will cause air entrainment. These situations will reveal themselves with the occurrences of an erratic slurry discharge, a drop in the pressure of the discharge, and a drop off in distance of slurry discharge.

Some solutions are:

- A. As slurry level drops in the tank, slow the agitator speed.
- B. Add 2 to 3 oz (6 to 9 cl) of an antifoaming agent to tank.
- C. If you can determine which additive is causing the air problem, either add it last or not at all – unless it's the water.
- D. Limit recirculation time as much as possible.
- E. Open pump suction bleed valve to exhaust air trapped in the pump or suction line. Close valve as soon as the air stops.

2. Plugging or clogging:

⚠ DANGER *Turn off engine and disconnect battery cables before working on equipment. Failure to comply WILL result in severe personal injury or death.*

Sometimes, when a stoppage occurs, you will not be able to find anything in the line. When this happens, it means that the system became airbound instead of plugged. To remedy this, see FOAM IN THE TANK AND AIR ENTRAINMENT section. Plugging can occur in any one of four places: the valve and recirculation nozzle, the discharge nozzle, the slurry pump area, and the sump area. The plugging is caused by either foreign objects or dewatered mulch.

- A. Obstruction in the discharge nozzle is determined by a change in or stoppage of the spray pattern.
 - a) Disengage (turn off) the slurry pump clutch and shut down the engine.
 - b) Make certain that pump has stopped rotating.
 - c) Slowly and carefully remove nozzle.
 - d) Using the nozzle cleaning rod attached to the underside of the guard rail, clear the nozzle.

⚠ DANGER *Before loosening any clamps, determine if the pipe is hot. If so, let it cool before attempting to perform repair. Failure to comply WILL result in severe personal injury or death.*

B. If the recirculation system is not working:

- a) Disengage (turn off) the slurry pump clutch and shut down engine.
- b) Remove two clamps on each side of the recirculation valve.
- c) Slide rubber seals back and remove valve assembly.
- d) Check valve assembly, recirculation nozzle in the discharge pipe, and the recirculation pipe going into tank. Clear any obstructions.
- e) Replace valve assembly and slide the seals back into place. Lubricate the outside of the seals with grease.
- f) Re-install the clamps.

TROUBLESHOOTING YOUR HYDROSEEDER® (CONTINUED)

3. Obstruction in the pump, which can be determined by a drop in pressure. If the drop in pressure is accompanied by a frothy or whitish discharge stream, the blockage is in the suction line or sump area. To clear the pump:
 - A. Disengage (turn off) the slurry pump clutch and stop the engine.
 - B. Loosen the suction pipe clamps. If there is material in the tank, shut off the suction line valve.
 - C. Remove the clamp closest to the pump.

NOTE: If no water comes out, obstruction is in sump area.

- E. Reach into the pump and remove the obstruction. If jammed, the pump suction cover may need to be removed.
 - F. Reassemble all removed components.
 - G. Open suction line valve.

4. Obstruction in sump area, which is located at the bottom of the tank on the inside where the suction pipe is attached.

Three methods to remove an obstruction in the sump area are as follows:

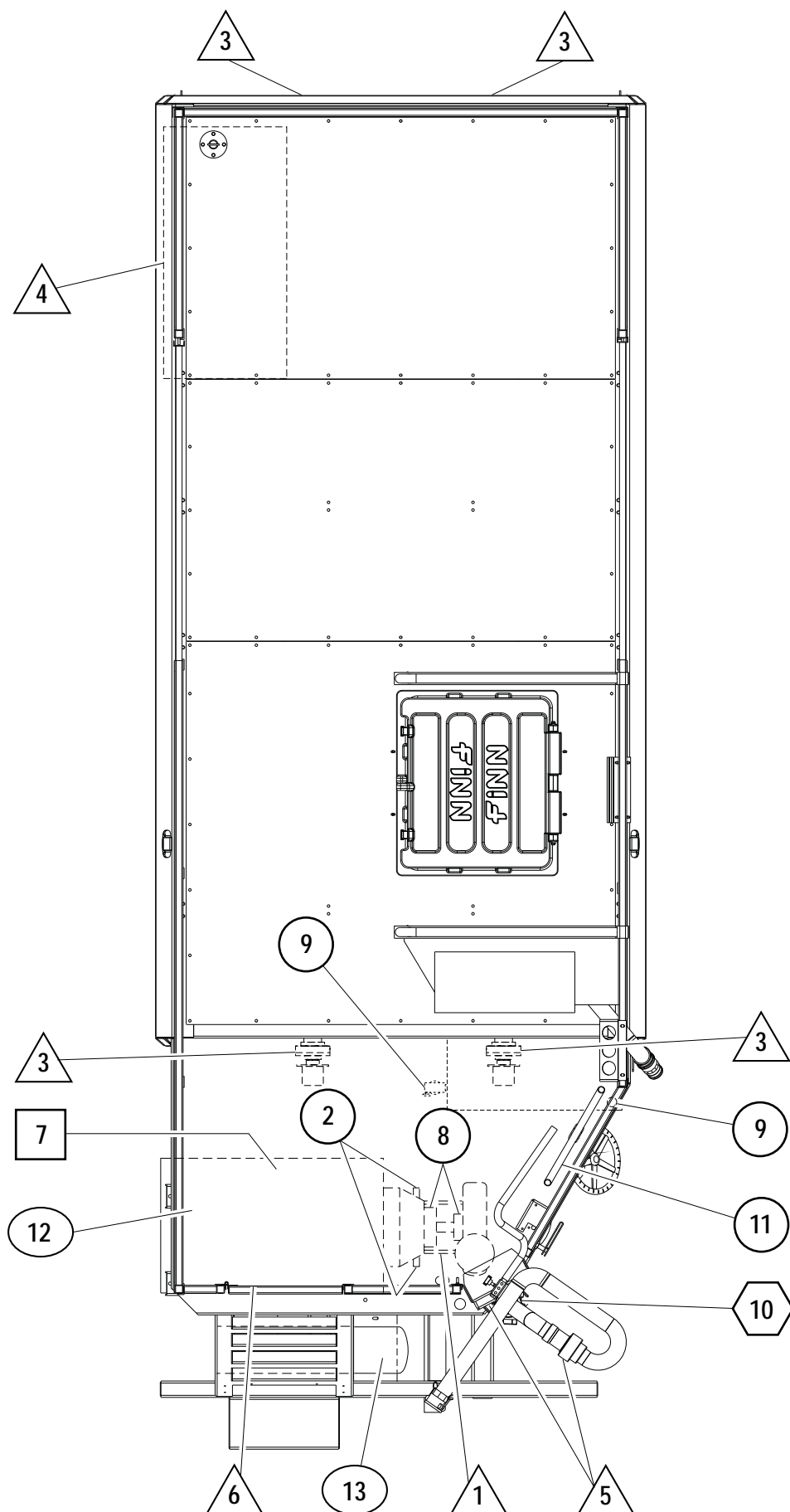
- A. Clear the sump by backflushing through the discharge plumbing with the water supply hose.
- B. Remove the drain plug and run a long pole through the opening and into the sump area. Remove the obstruction and replace the drain cap.
- C. Use a pipe or pole through the loading hatch opening to dislodge the obstruction.

CAUTION

Do not turn the pump shaft backward with a pipe wrench. This will unscrew pump impeller from pump shaft. Consequently, when the slurry pump clutch is engaged (turned on), the pump impeller will screw onto pump shaft with a force great enough to break pump impeller. Failure to comply could result in minor or moderate personal injury. Failure to comply could also result in product or property damage.

TROUBLESHOOTING CHART		
Symptom	Probable Cause	Suggested Solutions
LEAKS		
Tank Bearing	Lack of lubrication - seal worn.	Replace seal and follow lube schedule.
	Bolts not tightened.	Tighten uniformly to 25 lb-ft (34 N•m).
Pressure Pipe Clamps	Rubber seal cracked, pinched, torn or missing.	Replace, always grease seal before clamping shut.
Suction Pipe Clamps	Rubber seal cracked, pinched, torn or missing.	Replace, always grease seal before clamping shut.
Discharge Swivels	Not greased often enough.	Rebuild swivels with repair kit (part number 012397, qty. 2 required).
Pump Shaft	Pressure lubricator not serviced.	Replace pump seal. Service automatic pressure lubricator daily. See EQUIPMENT CHECK section.
Pump Suction Cover	O-ring cracked, pinched, torn or missing.	Replace O-ring; use grease when replacing.
Discharge Boom or Nozzle Camlock Fittings	Worn or no gasket.	Replace gasket.
MACHINE JUMPS DURING OPERATION		
Agitator	Agitator shaft bent by heavy object falling on it.	Straighten agitator shaft or shim so it runs true.
Bent Paddles	Loading wood fiber mulch into tank before tank is half full.	Straighten agitator paddle; realign agitator to run true.
FOAMING OF SOLUTION AND LACK OF DISTANCE		
Pump loses prime - lacks distance - leaves excessive amount in tank - 100 gal (378 L) or more	Sucking air in suction lines.	Check all suction connections to ensure that rubber seals are in good shape. Grease seals before replacing clamps.
	Air entrainment.	See TROUBLESHOOTING YOUR HYDROSEEDER®.
	Low engine RPM (Below 2,500 RPM - No load).	See authorized engine dealer.
	Soft water.	Slow the agitator.
	Too much agitation.	Slow the agitator.
	Pump worn.	Reset pump tolerance. See CLUMP MAINTENANCE section.
	Suction partially plugged.	Clean out machine. See CLEANING AND MAINTENANCE section.
	Nozzle worn or plugged.	Clean nozzles; replace if necessary.
	Fertilizer	Change type.
	Clutch slipping due to wear.	Readjust clutch; See CLUTCH MAINTENANCE section.

TROUBLESHOOTING CHART		
Symptom	Probable Cause	Suggested Solutions
VALVE		
Valve stuck	Frozen	Thaw out ice and lubricate valves; leave valves in the open position during storage.
Constant plugging during operation	Foreign material in slurry.	Drain and clean out tank; check sump area for foreign materials.
Constant plugging during loading and discharging	Loading HydroSeeder® before tank is half full of water.	Reinstruct your operator. See LOADING section.
	Incorrect loading procedure.	See LOADING section.
	Improper operation by operator.	Reinstruct your operator. Review OPERATOR'S MANUAL.
	Clutch slipping.	Readjust clutch. See CLUTCH MAINTENANCE section.
	Restricted material flow by partially closed discharge valve.	Valve should be fully open.
	Machine not being flushed out prior to reloading.	See LOADING section.
	Machine not being run at correct RPM during loading.	Reinstruct your operator. See LOADING section.
Extension hose plugs after use	Letting water run out, leaving wood fiber mulch to dry out.	If hose has to be uncoupled, seal ends, to keep water in hose and prevent wood fiber mulch from drying out.
CLUTCH		
Does not pull load or overheats	Out of adjustment.	Readjust clutch. See CLUTCH MAINTENANCE section.
Jumps out of engagement	Too loose or too tight.	Readjust clutch. See CLUTCH MAINTENANCE section.
PUMP		
Excessive wear	Fertilizer with highly abrasive fillers.	Change fertilizer – avoid abrasive fillers.
	Overloading machine with dry material.	Load machine to recommended capacities.
	Too much time allowed between loading and discharging.	After loading and mixing has been completed, set agitator at 1/4 speed in reverse and disengage the slurry pump.
	Recirculating all the time.	Close recirculation valve when discharging through the boom.
Will not turn	Frozen	Warm housing to melt ice.
	Jammed with fertilizer or lime.	Remove cover and clean interior.
	Impeller rusted to suction cover plate.	Pull cover and remove rust.



LUBRICATION AND FLUIDS CHART

Ref. No.	Location	Lubricant	Frequency	Number
1	Check Grease Level in Pressure Lubricator	BL	Daily	1
2	Check Clutch Lever Bearings	CL	Weekly	2
3	Grease Agitator Shaft Bearings	CL	Daily	4
4	Check Fuel Level	DF	Daily	1
5	Grease Discharge Swivels	CL	Daily	2
6	Check Engine Oil Level	MO	Daily	1
7	Check Engine Oil and Filter	MO	See Engine Manual	1
8	Grease Pump Bearings	BL	Weekly	2
9	Check Hydraulic Fluid Level	HO	Weekly	1
	Change Hydraulic Fluid and Filter	HO	Seasonally or 500 Hours	1
10	Grease Discharge and Recirculation Valves	SL	Each Load	2
11	Grease Valve Arm Lever	CL	Weekly	1
12	Change Engine Coolant	AF	Seasonally	1
13	Remove Muffler Drain Plug	-	Seasonally	1

LUBRICANT OR FLUID USED

BL	Bearing Lube (Sodium-Based)
CL	Chassis Lubricant
MO	See Engine Manual
HO	Mobil DTE-13M or Equivalent Hydraulic Oil
SL	Special Stick Lubricant
AF	50/50 Anti Freeze and Water Mixture
DF	Diesel Fuel






FLUID CAPACITIES

Fuel – 38 gal (144 L)

Hydraulic Oil – 50 gal (189 L)

Engine Coolant – 4.25 gal (16 L) 50/50 Mix Only

Engine Oil – See Engine Manual

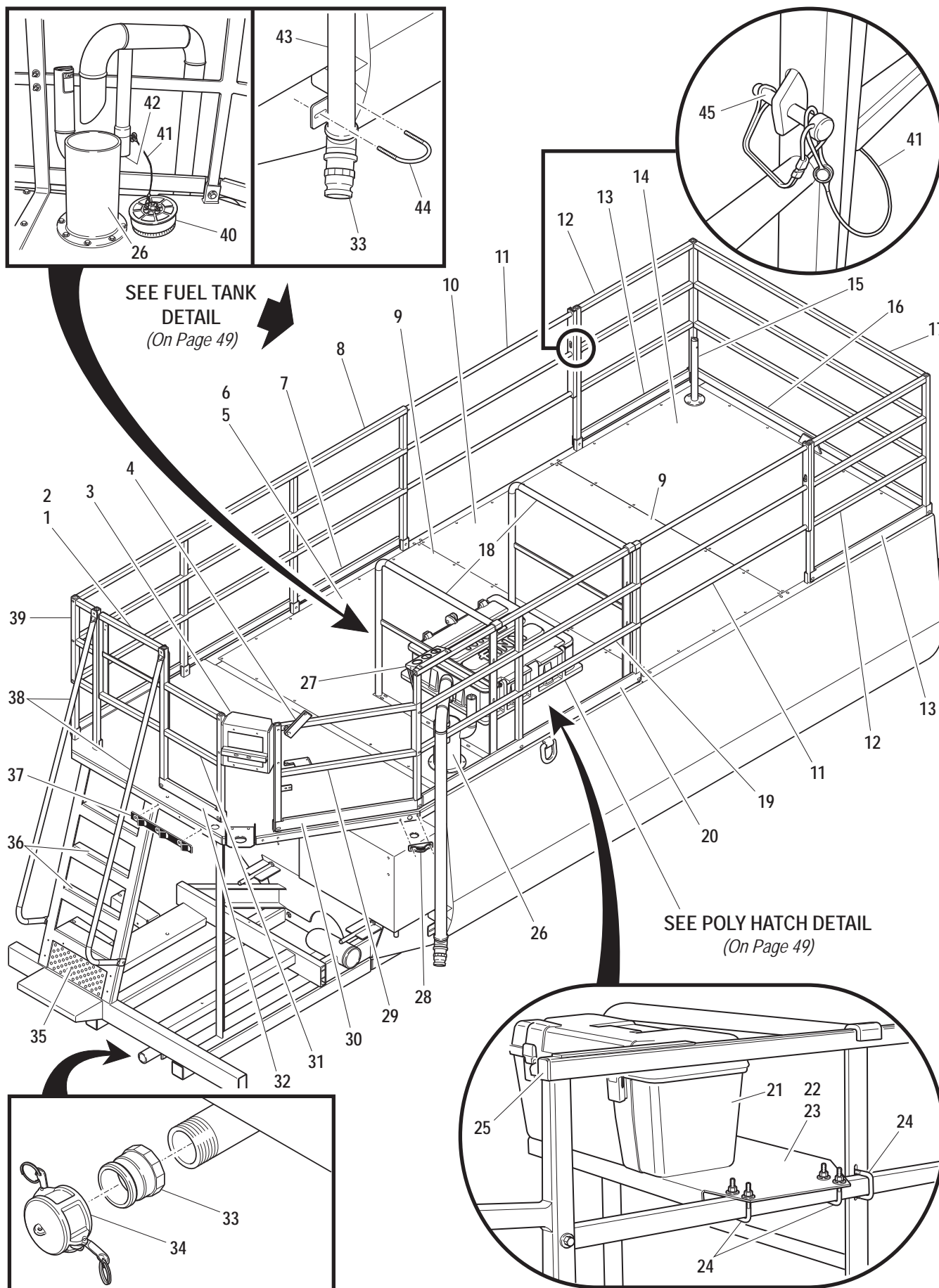
TIME KEY	
	DAILY (8 Hours)
	WEEKLY (40 Hours)
	EACH LOAD
	SEASONALLY (500 Hours)
	SEE ENGINE MANUAL

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T280/T330/T400 HydroSeeder[®]

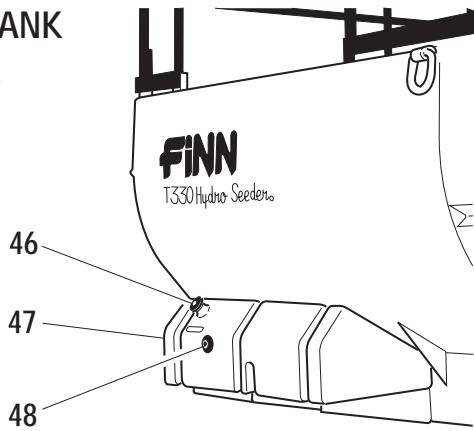
Parts Manual

Model MMA

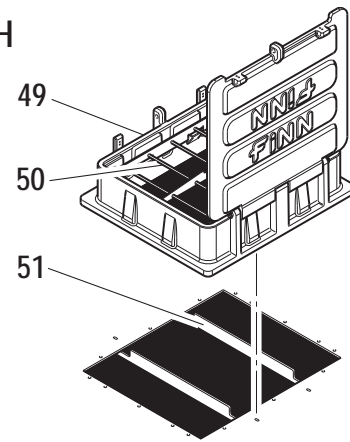


**WHEN ORDERING PARTS, BE SURE TO STATE
SERIAL NUMBER OF MACHINE**

FUEL TANK DETAIL



POLY HATCH DETAIL



STRUCTURE AND RAILING

Ref. No.	Part Number	Description	No. Required
1	013149	Swing Gate	1
2	013122	Spring Hinge	1
3	F330-0095	Control Box Mount	1
4	F330-0081	Boom Hold Down	1
5	F330-0125	Main Tank Top	1
6	190047	Foam Gasket	A/R (Ft)
7	F330-0085	Left Rear Toe Rail	1
8	012706	Left Rear Guard Rail	1
	005613	Square Tubing Plug	25
9	F400-0009-03	Narrow Top Support	1 (280) / 4 (330) / 6 (400)
9A	F400-0009-04	Wide Top Support	4 (280) / 4 (330) / 6 (400)
10	F330-0126	Small Tank Top	1
11	012703	Slide Gate	2
12	SE0200-04	T400 Front Side Guard Rail	2
	012704	T330 Front Side Guard Rail	2
	012737	T280 Front Side Guard Rail	2
13	SE0200-05	T400 Front Side Toe Rail	2
	F330-0083	T330 Front Side Toe Rail	2
	F280-0005	T280 Front Side Toe Rail	2
14	F330-0127	Front Tank Top	0 (280) / 1 (330) / 1 (400)
14A	F400-0052	Tank Top Extension	0 (280) / 0 (330) / 1 (400)
15	005714-01	Vent Port	1
16	F330-0082	Front Toe Rail	1
17	012705	Front Guard Rail	1
18	012708	Hatch Guard Rail	2
19	012702	Right Rear Guard Rail	1
20	F330-0086	Right Rear Toe Rail	1

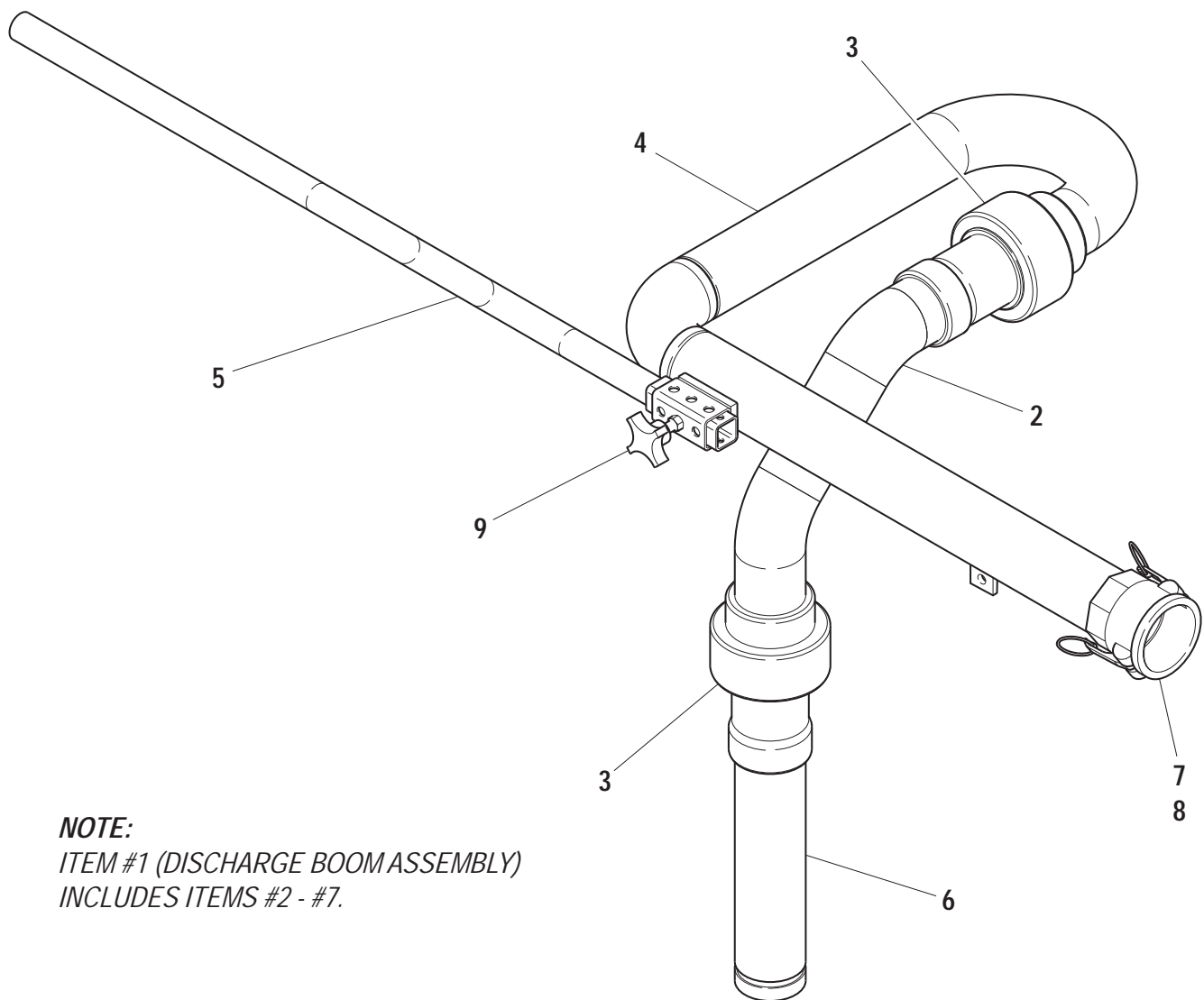
Continued . . .

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

STRUCTURE AND RAILING (CONTINUED)

Ref. No.	Part Number	Description	No. Required
21	012669	Toolbox	1
22	F330-0078	Tool Box Mount	1
23	005619	U-Bolt For 1-1/4 in. Round Pipe	2
24	012514	Square U-Bolt For 1-1/2 in. Square Pipe	6
25	005613	Square Tubing Plug	10
26	012750	Fill Stack Extension	1
27	F330-0075	Nozzle Holder	1
28	002290	Rear Marker Light – Red	2
29	012736	Rear Corner Guard Rail	1
30	F330-0084	Rear Corner Toe Rail	1
31	012701	Long Rear Guard Rail	1
32	F330-0089	Long Rear Toe Rail	1
33	002191	2-1/2 in. Male Brass Adapter	2
34	002190	Dust Cap w/ Gasket – Main Tank Drain	1
35	F330-0099	Muffler Shield	1
36	190018	2 in. Wide Conformable Safety Walk	A/R (Ft)
37	005944	LED Identification Light	1
	005945	Wire Sleeve	1
38	012771	Ladder Hand Rail	2
39	012707	Short Rear Guard Rail	1
40	008470	Fill Port Plug	1
41	005700	Nylon Lanyard	3
42	012515	1-1/4 in. Pipe Plug	1
43	012829	2-1/2 in. Fill Port	1
44	085148	U-Bolt	1
45	FW712	25 Snapper Pin	2
46	005726	Fuel Tank Cap	1
47	012693	Poly Fuel Tank	1
48	012694	Fuel Gauge	1
49	012833	Poly Hatch Assembly	1
50	005433	Soft Latch	2
51	012834	Bag Cutter – Stainless Steel	1
52	F330-0128	Hatch Safety Rail	1
NOT SHOWN			
	A1096-001	Manual Canister	1

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



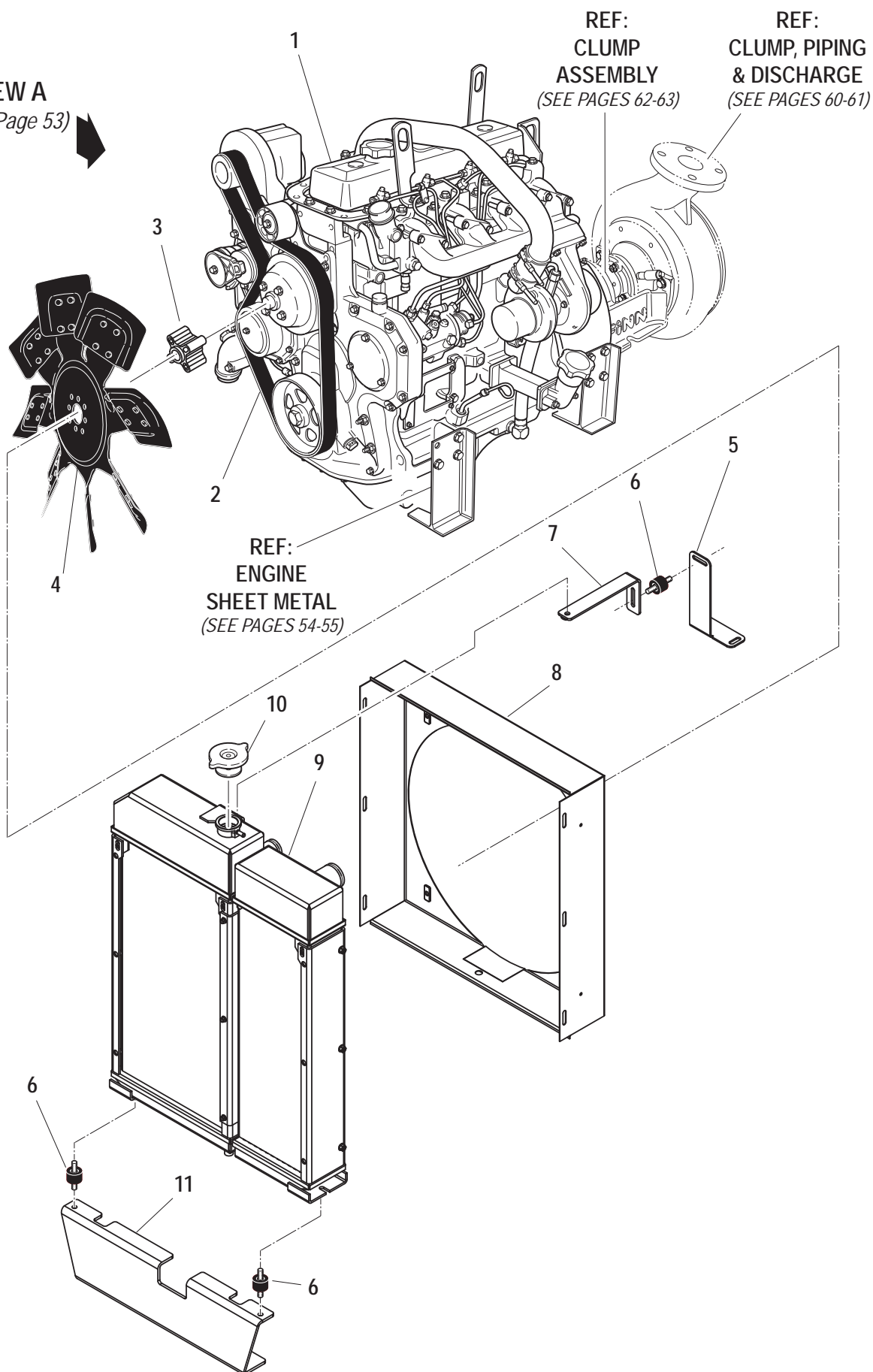
NOTE:
ITEM #1 (DISCHARGE BOOM ASSEMBLY)
INCLUDES ITEMS #2 - #7.

DISCHARGE BOOM ASSEMBLY

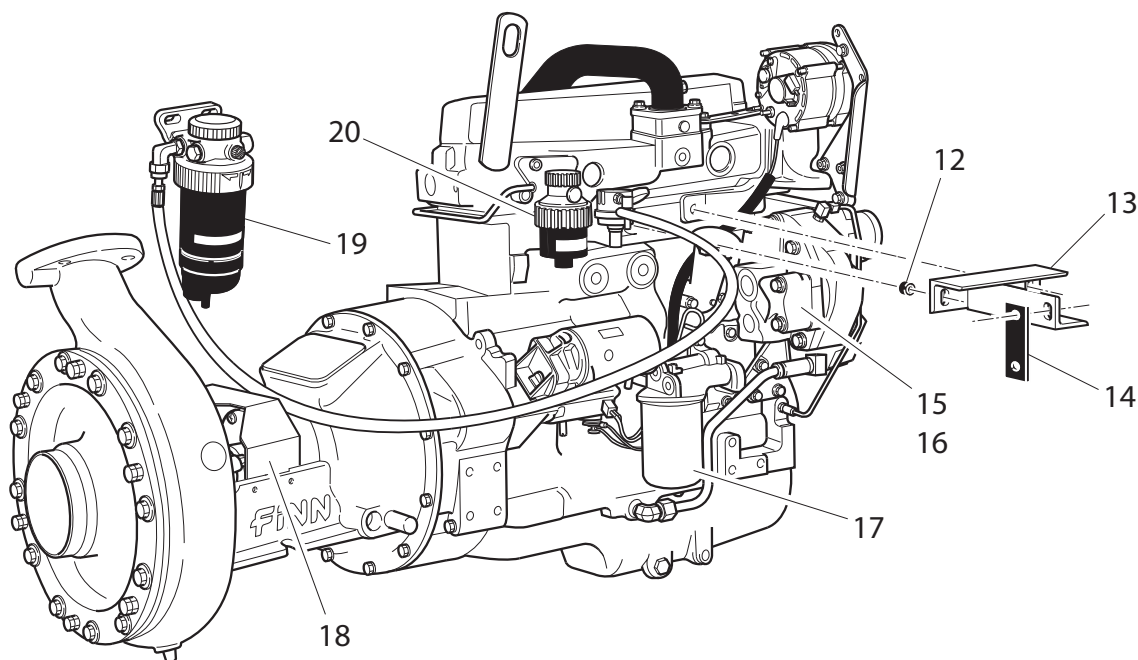
Ref. No.	Part Number	Description	No. Required
1	012764	Discharge Boom Assembly	1
2	012763	Lower Boom Discharge Weldment	1
3	012283	2-1/2 in. Straight Swivel	2
4	012762	Upper Boom Discharge Weldment	1
5	013159	Boom Discharge Handle	1
6	012726-01	Boom Stand Pipe	1
7	010544	2-1/2 in. Female Coupler	1
8	006513	2-1/2 in. Coupler Gasket	1
9	011914	Black Hand Knob	1
NOT SHOWN			
	012397	Swivel Repair Kit	2

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

VIEW A
(See Page 53)



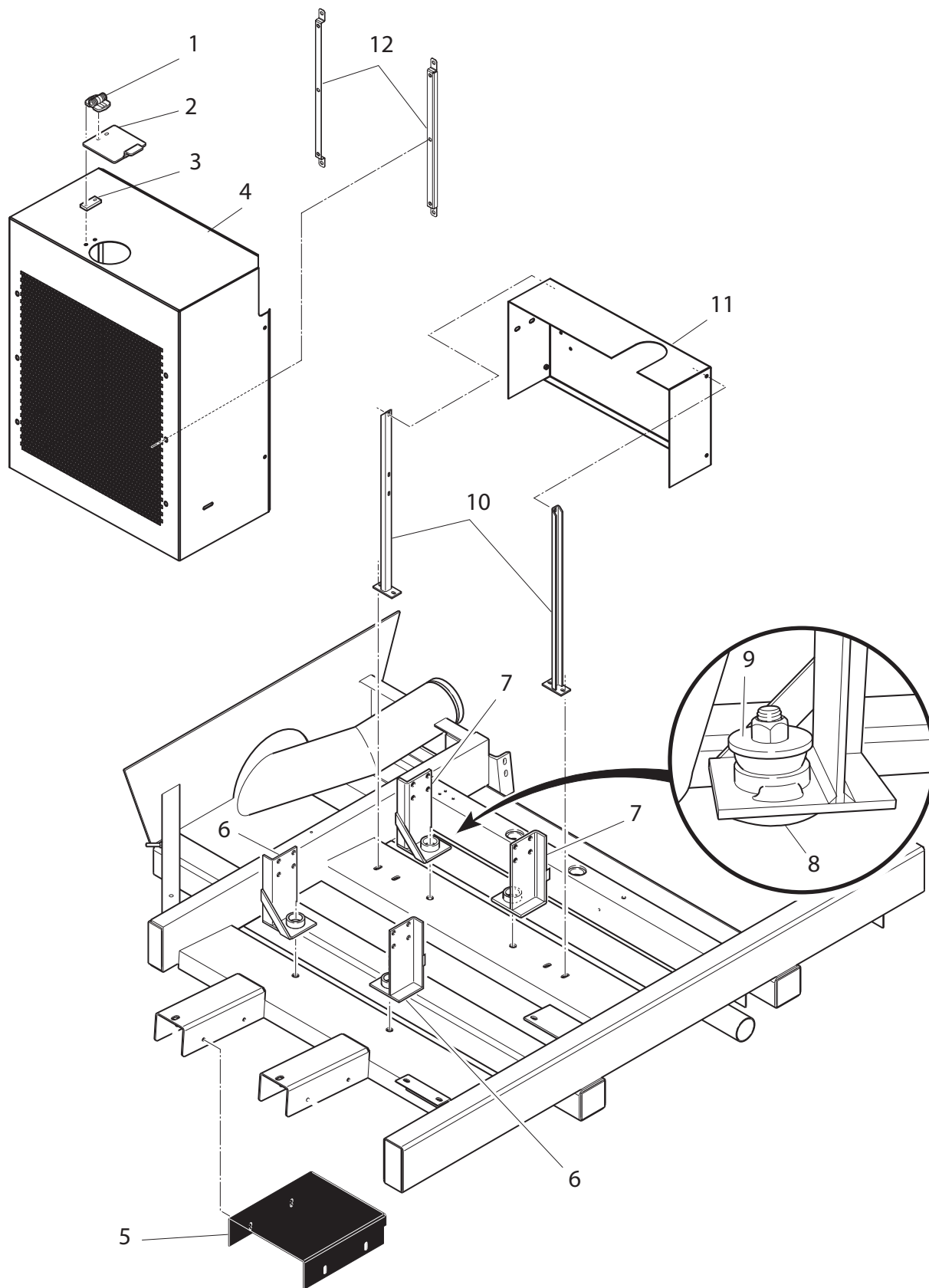
**WHEN ORDERING PARTS, BE SURE TO STATE
SERIAL NUMBER OF MACHINE**



ENGINE AND RADIATOR

Ref. No.	Part Number	Description	No. Required
1	023916	John Deere 4045T Tier 3 Engine Assembly	1
2	JDR524005	Fan Belt	1
3	JDSD443	Fan Spacer	1
4	JDAT24834	Pusher Fan	1
5	F330-0135	Radiator Arm Support Bracket	1
6	023438	Rubber Shock Mount	3
7	F330-0131	Radiator Support Bracket	1
8	JDSD284	Fan Guard	1
9	JD50-0532	Radiator	1
10	023807	Radiator Cap	1
11	F330-0130	Radiator Mount	1
12	012831-04	Spacer	1
13	012831	Hydraulic Pump Support	1
14	012831-03	Support Stop	1
15	011922	Hydraulic Pump	1
16	022452	Drain Cock	1
17	JDRE541420	Oil Filter	1
18	005470	Pump Shaft Guard	1
19	JDRE522878	Secondary Fuel Filter	1
20	JDRE529643	Primary Fuel Filter	1

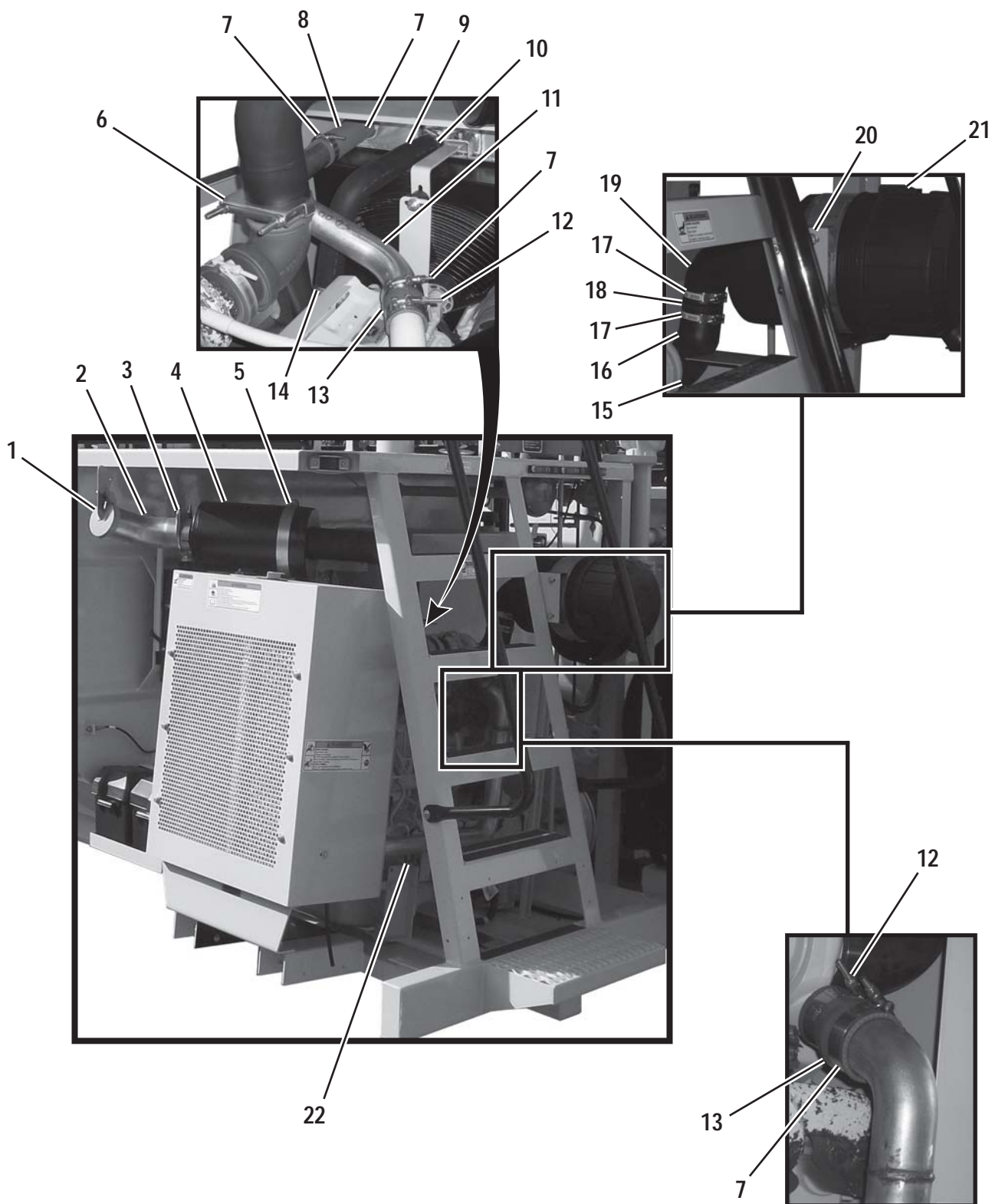
**WHEN ORDERING PARTS, BE SURE TO STATE
SERIAL NUMBER OF MACHINE**



ENGINE SHEET METAL

Ref. No.	Part Number	Description	No. Required
1	055669	Door Positioning Hinge	2
2	F260-0006-02	Radiator Cap Cover	2
3	F260-0006-03	Hinge Spacer	2
4	F330-0140	Radiator Shroud	2
5	F170-0020	Radiator Pan	1
6	012753	Front Engine Mount	2
7	052397	Rear Engine Mount	2
8	007433	Shock Mount	6
9	007887	Snubbing Washer	6
10	008664	Rear Engine Panel Mount	2
11	F330-0132	Rear Engine Panel	1
12	F330-0134	Radiator Shroud Spacer	1

NOTE: Item 8 and Item 9 (2 are for pump frame and 4 for the engine)

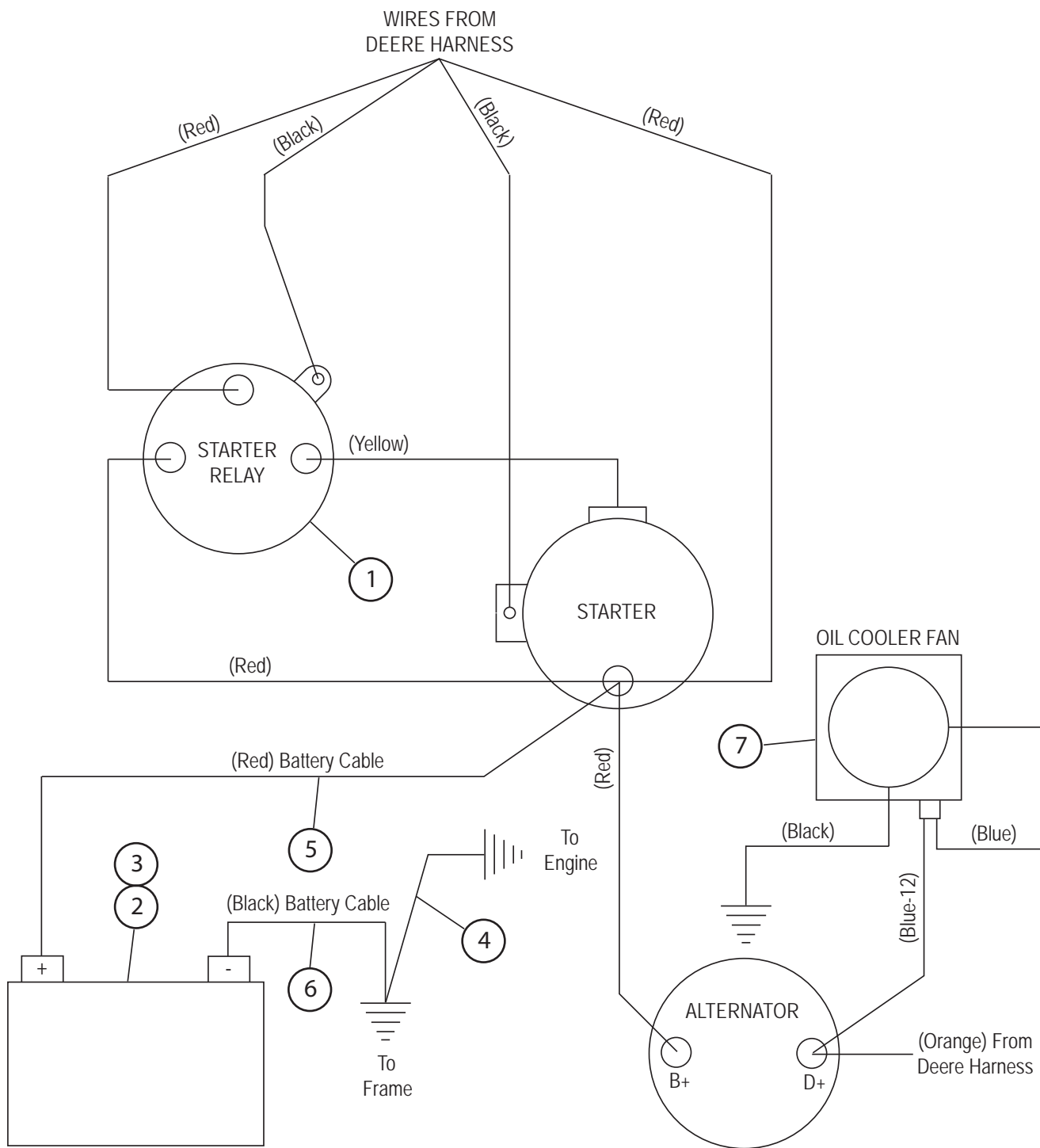


**WHEN ORDERING PARTS, BE SURE TO STATE
SERIAL NUMBER OF MACHINE**

AIR INTAKE AND EXHAUST SYSTEM

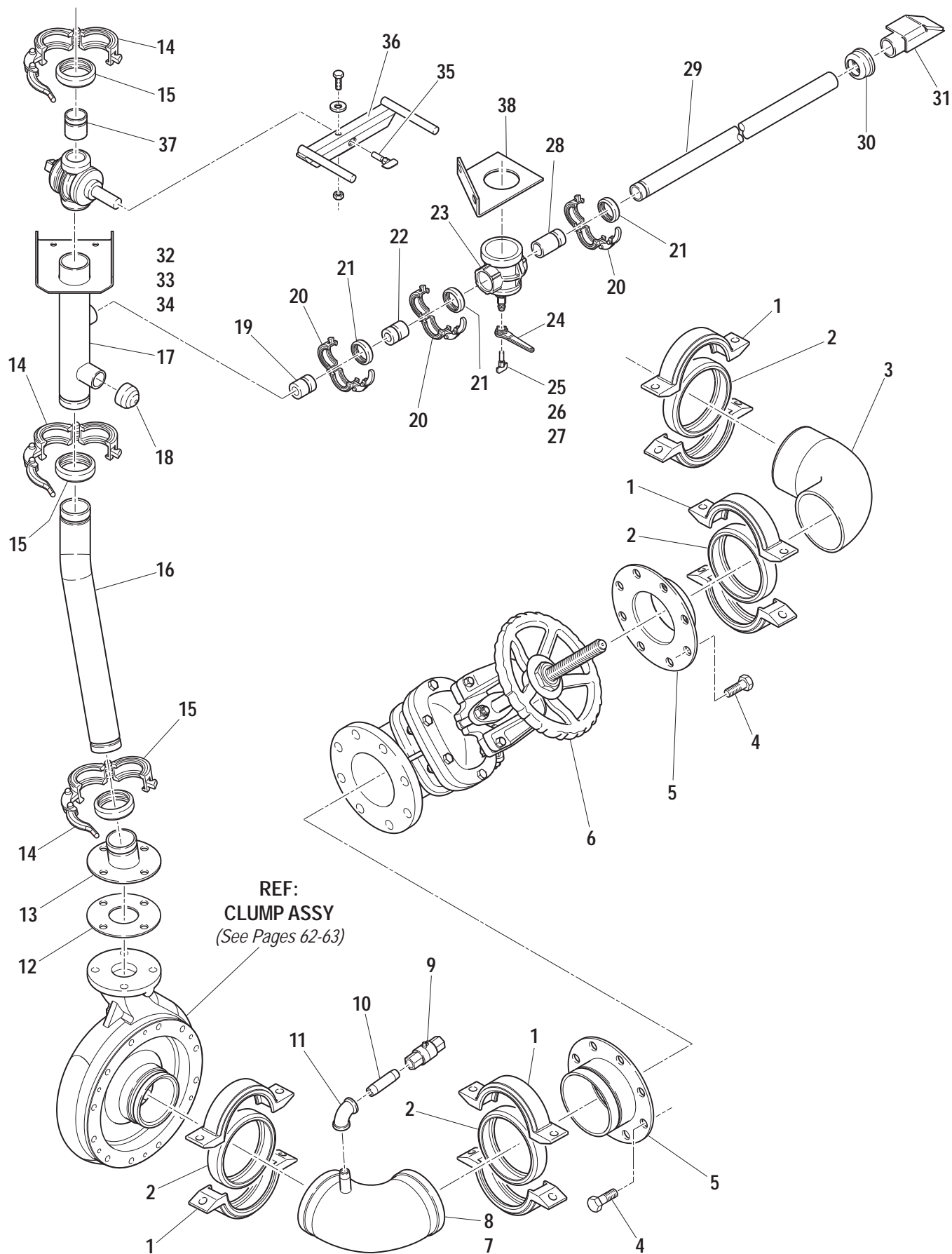
Ref. No.	Part Number	Description	No. Required
1	JDRC400	Rain Cap	1
2	013176	4 in. 60° Exhaust Elbow	1
3	055336	4 in. Muffler Clamp	1
4	013174	Exhaust Elbow Weldment	1
5	013178	Muffler Mounting Bracket	1
6	JDP206602	4 in. Exhaust Clamp	1
7	JD94100-0256	2.56 in. T-Bar Clamp	6
8	JDP532949	2.25 in. Silicone Hose	2
9	JDR128455	Upper Radiator Hose	1
10	JD32-H	Hose Clamp	1
11	JD50-0073	Upper Radiator Pipe	1
12	JDP148337	2 in. T-Bolt Clamp	2
13	JDR135730	2 in. x 2.25 in. x 3 in. Hose Adapter	2
14	JD28-H	Hose Clamp	2
15	055335	4 in. Air Intake Clamp	1
16	325075	Reducing Elbow	1
17	055496	3 in. Air Intake Clamp	3
18	013183	Air Cleaner Tube	1
19	011852	3 in. 90° Rubber Elbow	1
20	F330-0144	Air Cleaner Mount	1
21	013135	Air Cleaner Assembly	1
	013135-M	Main Filter	1
	013135-S	Safety Filter	1
22	JD50-0265	Lower Radiator Pipe	1
NOT SHOWN			
	JDR128475	Lower Radiator Hose	1
	JD28-H	Hose Clamp	(See Above)
	JD36-H	Hose Clamp	(See Above)

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



ENGINE WIRING DIAGRAM

Ref. No.	Part Number	Description	No. Required
1	022891	Starter Relay	1
2	011851	12V Battery - Interstate #C27-XHD	1
3	011770	Battery Box w/ Lid	1
4	007091	Ground Strap	1
5	012979-03	Battery Cable – Red	1
6	012979-05	Battery Cable – Black	1
7	075523	Oil Cooler	1
	075494-TS	Oil Cooler Temperature Switch	1
	013224	Engine Wiring Harness	1

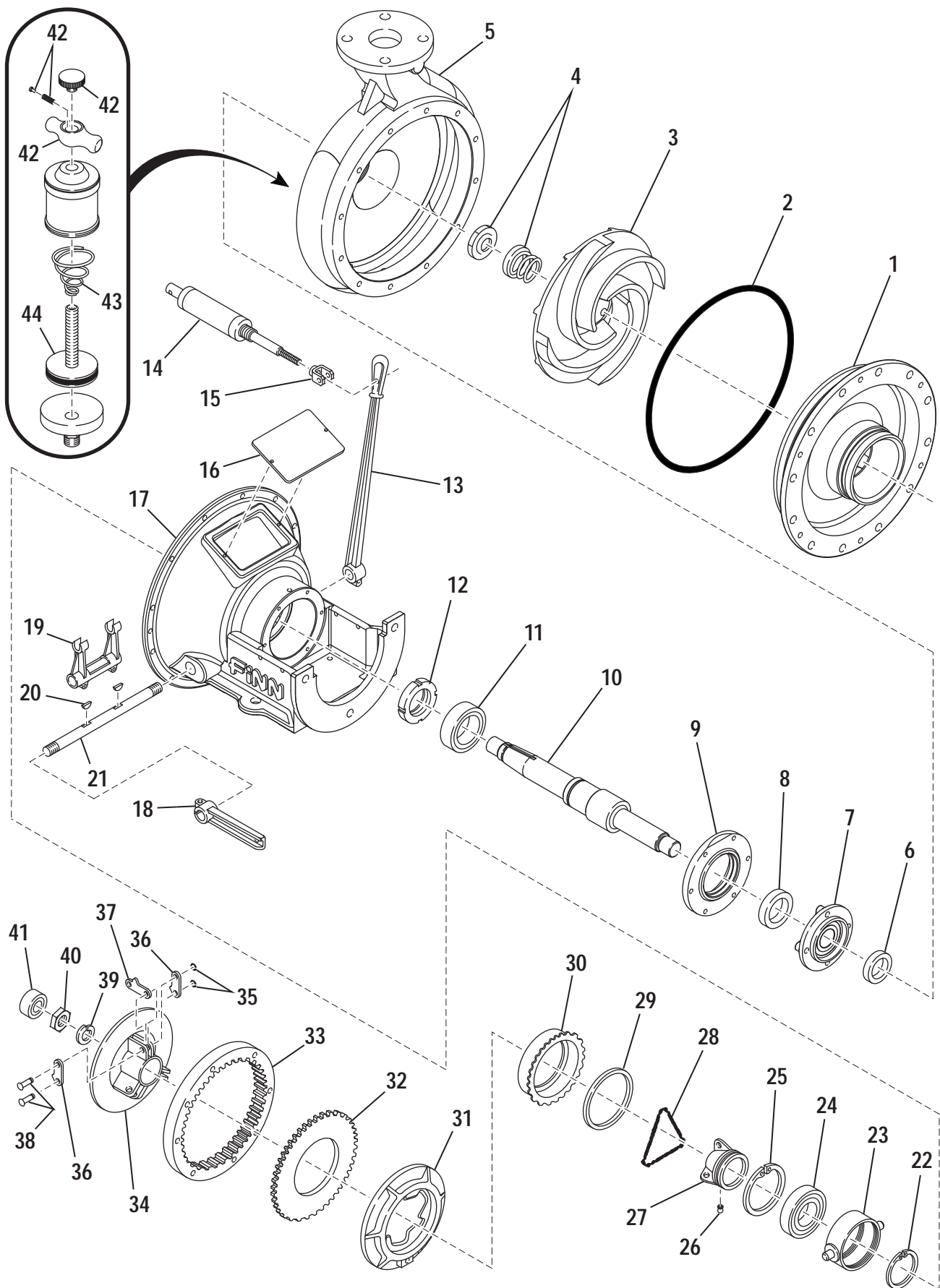


**WHEN ORDERING PARTS, BE SURE TO STATE
SERIAL NUMBER OF MACHINE**

CLUMP, PIPING, AND DISCHARGE ASSEMBLY

Ref. No.	Part Number	Description	No. Required
1	011736	5 in. Victaulic Pipe Clamp	4
2	011919	Seal For 5 in. Victaulic Pipe Clamp	1 per
3	008259	5 in. Dia x 90° Pipe Elbow	1
4	0X1232	3/4-10 Hex Bolt	16
5	012722	Suction Valve Flange Weldment	2
6	012058	5 in. Flanged Suction Gate Valve	1
7	012491	Suction Valve Bleeder Valve Assembly	1
8	012491-02	Suction Elbow Weldment	1 per
9	012457	1/2 in. Dia. Stainless Steel Ball Valve	1 per
10	160428	1/2 in. Dia. x 4 in. Lg. SCH 40 Nipple	1 per
11	160006	1/2 in. Dia. x 90° Elbow	1 per
12	011787	Pump Discharge Gasket	1
13	012761	Pump Flange Weldment	1
14	002771	2-1/2 in. Victaulic Pipe Clamp	3
15	002820	Seal For 2-1/2 in. Victaulic Pipe Clamp	1 per
16	012809	Lower Discharge Pipe	1
17	012724	Discharge Valve Stand Pipe	1
18	160263	1-1/2 in. Dia. Pipe Cap	1
19	011727-09	Recirculation Nozzle	1
20	006721	1-1/4 in. Victaulic Pipe Clamp	3
21	006722	Seal For 1-1/4 in. Victaulic Pipe Clamp	1 per
22	011727-10	Recirculation Nozzle	1
23	011776	1-1/4 in. Round Port 2-Way Valve	1
24	012786	Recirculation Lever	1 per
25	004962	Lube Screw	1 per
26	011950	Gasket For 1-1/4 in. Valve	1 per
27	011951	Spring For 1-1/4 in. Valve	1 per
28	011727-11	Recirculation Nozzle	1
29	012726-03	Recirculation Pipe	1
30	012462-05	Recirculation Pipe Seal/Coupling	1
31	005703-02	1-1/4 in. Coupling Deflector	1
32	011777	2-1/2 in. Round Port 2-Way Valve	1
33	011953	Spring	1
34	008487	Gasket	1
35	004962	Lube Screw	1
36	012758	Valve Foot Pedal	1
37	011882	2-1/2 in. SCH 40 x 3 in. Toe-Goe Pipe	1
38	F330-0090	Recirculation Valve Stabilizer	1

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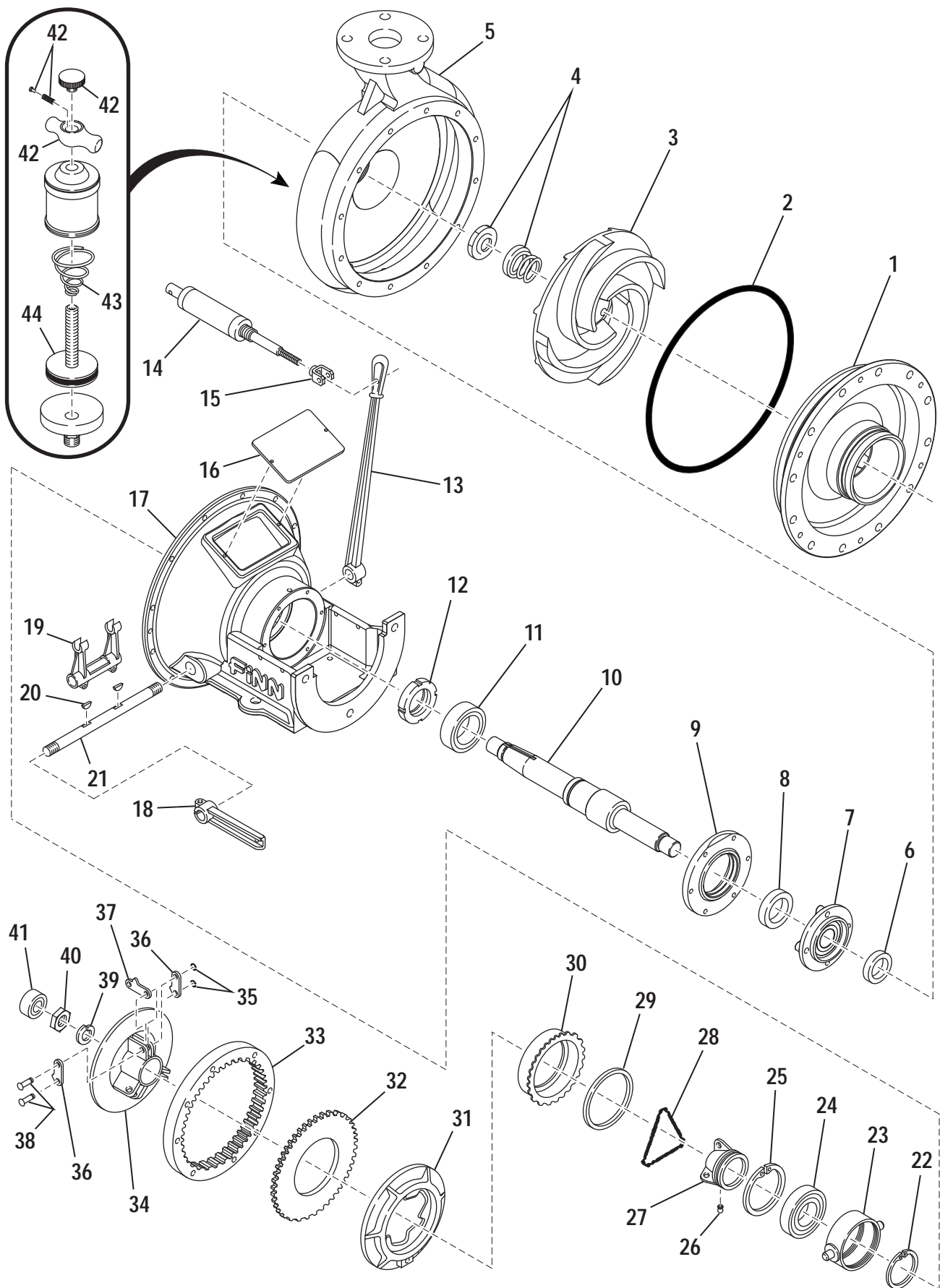
**WHEN ORDERING PARTS, BE SURE TO STATE
SERIAL NUMBER OF MACHINE**

CLUMP ASSEMBLY

Ref. No.	Kit Ref.	Part Number	Description	No. Required
1	▽	011759	Suction Cover	1
2	▽	011920	O-ring	1
3	▽	011758	Impeller	1
4	▽	006443	Mechanical Shaft Seal	1
5	▽	012730	Clump Casing	1
6	▽	006444	Grease Retainer	1
7	▽	005446	Flange Pilot Bearing	1
8	▽	012733	Seal	1
9	▽	012734	Bearing Retainer Ring	1
10	▽	012729	Clump Shaft	1
11	▽	012731	Bearing	1
12	▽	012732	SN-11 Nut	1
13	▽	100306	Clutch Lever	1
14	▽	012765	1-1/2 in. Bore x 4 in. Stroke Cylinder	1
15	▽	F400-0046	Air Clutch Cylinder Clevis	1
16	▽	005570	Clump Nameplate	1
17	▽	012695	Clump Housing	1
18	▽	005574-02	Modified Clutch Lever	1
19	▽	012783-017	Clutch Yoke	1
20	▽	012783-015	Woodruff Key	2
21	▽	012783-014	Yoke Shaft	1
22	▲▽	012783-06	External Snap Ring	1
23	▲▽	012783-126	Bearing Carrier	1
24	▲▽	012783-127	Release Bearing	1
25	▲▽	012783-05	Internal Snap Ring	1
26	▲▽	012783-148	Lube Fitting	1
27	▲▽	012783-04	Release	1
28	▲▽	012783-412	Lever Spring	1
29	▲▽	012783-146	Adjusting Ring Plate	1
30	▲▽	012783-113	Adjusting Ring	1
31	▲▽	012783-112	Pressure Plate	1
32	▲▽	012783-110	10 in. Clutch Disc	1
33	▲▽	012783-935	Driving Ring	1
34	▲▽	012783-03	Clutch Body	1
35	●▽	100008	Retaining Ring	6
36	●▽	100019	Connecting Link	6

Continued . . .

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



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

CLUMP ASSEMBLY

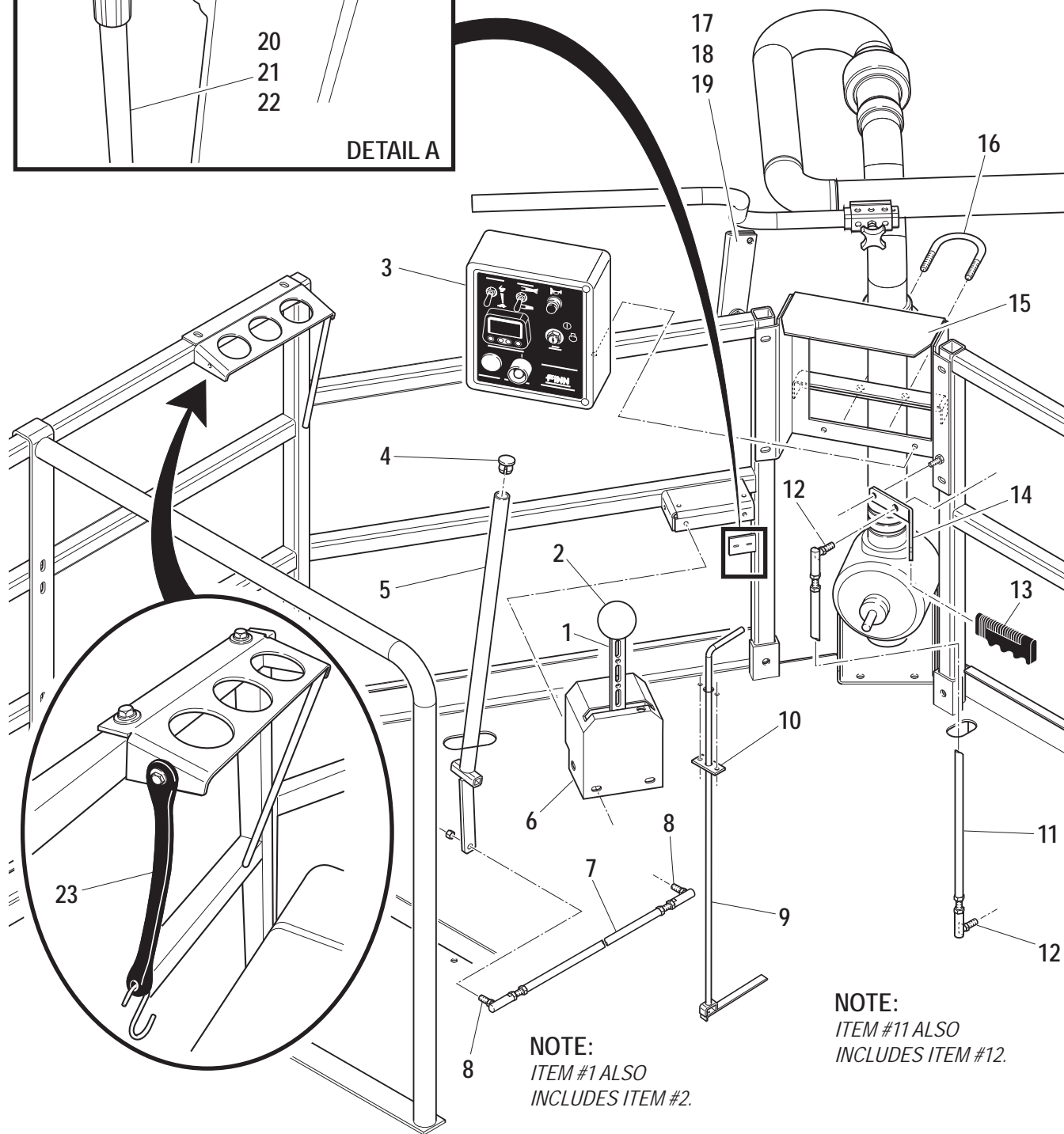
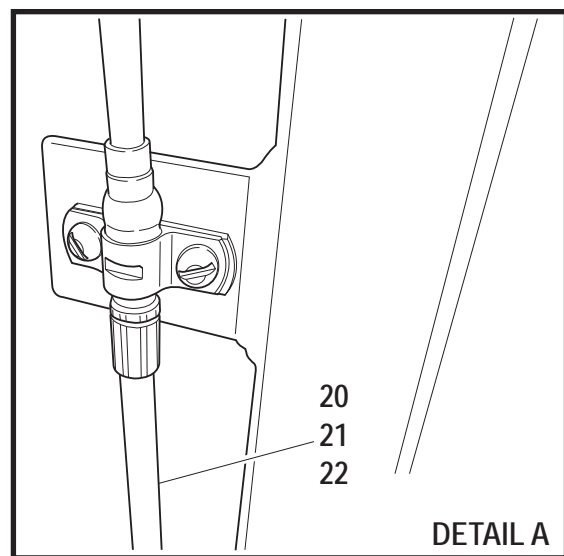
Ref. No.	Kit Ref.	Part Number	Description	No. Required
37	●▽	100018	Release Lever	6
38	●▽	100009	Clevis Pin	6
39	▽	012783-02	Lockwasher	1
40	▽	012783-01	Drive Shaft Nut	1
41	▽	022314	Pilot Bearing	1
42	■	008190	Screw, Nut, Follower and Spring	1
43	■	007954	Spring	1
44	■	008189	Plunger	1

NOT SHOWN

	▽	012341	Clutch Solenoid	1
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KITS AND MARKERS

▽	012770	Clump Assembly
▲	012783	10 in. Clutch Assembly Kit
■	002383	Pressure Lubricator Assembly
●	012783-SPK	Driving Ring Lever Kit



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

BOOM LEVEL CONTROLS

Ref. No.	Part Number	Description	No. Required
1	011785	Agitator Control Assembly	1
2	011954	Black Knob - 1-3/16 in. Dia.	1 per
3	013223	T330 Tier III Control Box Assembly	1
4	004996	1 in. Pipe Plug	1
5	012777	Recirculation Handle	1
6	F330-0102	Agitator Control Box	1
7	012780-05	Recirculation Valve Rod Assembly	1
8	006737	Ball Joint	2 per
9	012493-02	Bleeder Valve Handle	1
10	012493-09	Handle Bearing Pad	1
11	012780-02	Clutch Rod Assembly	1
12	006737	Ball Joint	2 per
13	000427	Black Handle Grip	1
14	012760	Clutch Handle	1
15	F330-0095	Control Box Mount	1
16	085148	U-Bolt	1
17	031245	Snapper Pin	1
18	005700	Lanyard	1
19	F330-0081	Boom Holddown	1
20	006596	Agitator Control Cable	1
21	007675	Ball Joint	2
22	004983	Clamp and Shim	1
23	007913	Rubber Strap w/ S-Hooks	1

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

CONTROL BOX WIRING

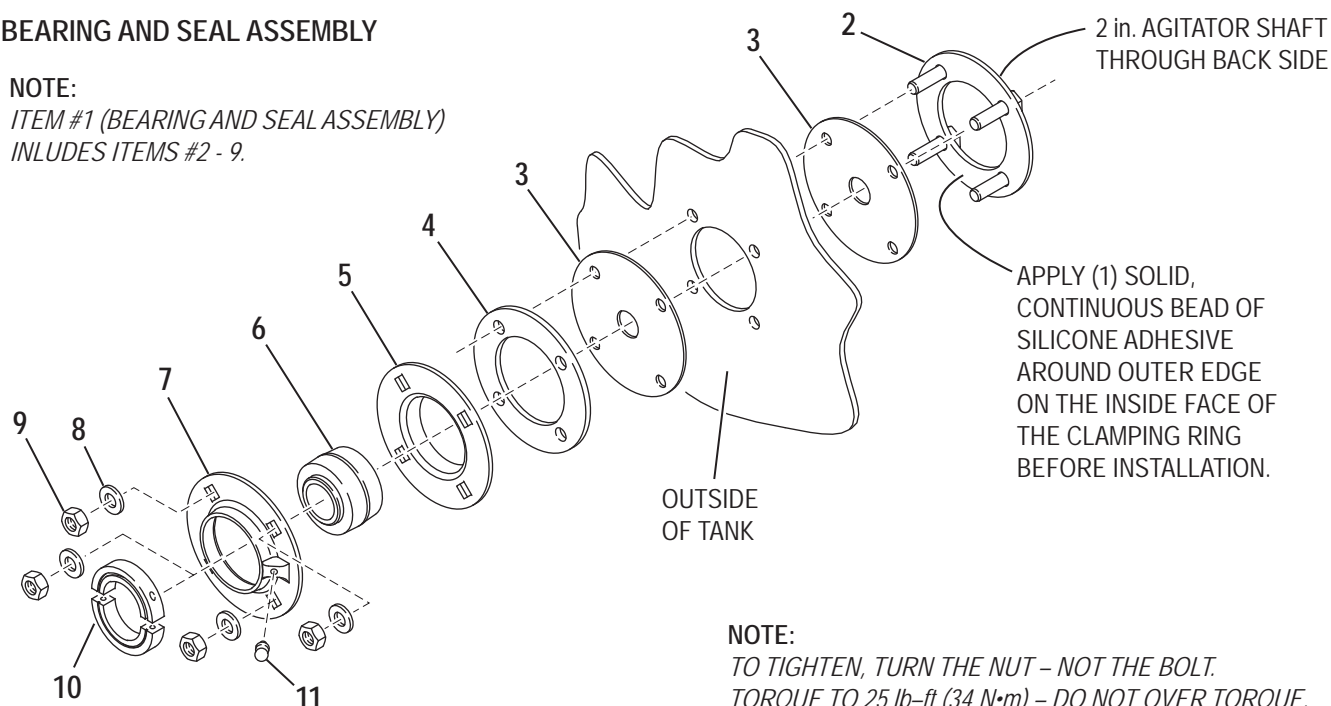
Part Number	Description	No. Required
013121	Control Box Assembly	
012774	Control Box Wiring	
012743	Modified Control Box	1
012742	Modified Subpanel	1
012739	PowerView	1
023892	PowerView Cable	1
052118	6 Circuit Fuse Panel	1
012727	Throttle Control Card	1
012784	1-1/2 in. Hole Plug	1
080526	Switch Boot	2
022425	Diode	1
020886	Horn Button	2
052076	Ignition Switch	1
023076	Key for Ignition Switch	1
055449	10 Amp Fuse	5
FW71555	Toggle Switch	2
FW71749-02	30 Amp Relay	3
012839	3/4 in. Conduit Hole Plug - Gray w/ Seal	1
080304	Liquid Tight Fitting	1
FW71612	Cord Connector with Locknut	1
170028	30 Amp In-Line Fuse and Holder	1

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

BEARING AND SEAL ASSEMBLY

NOTE:

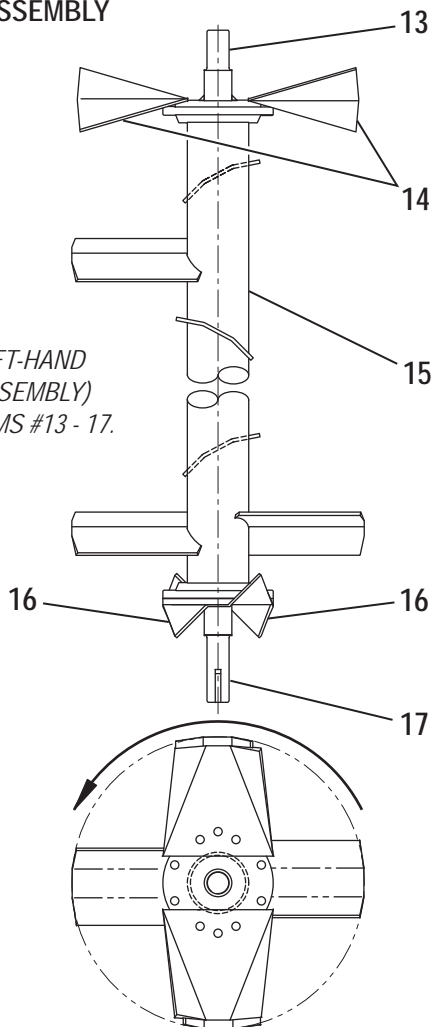
ITEM #1 (BEARING AND SEAL ASSEMBLY)
INCLUDES ITEMS #2 - 9.



AGITATOR ASSEMBLY

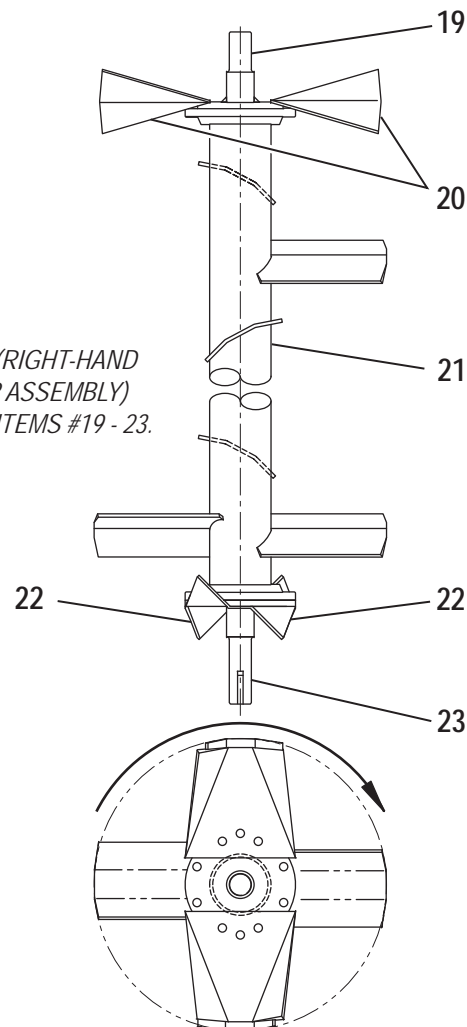
NOTE:

ITEM #12 (LEFT-HAND
AGITATOR ASSEMBLY)
INCLUDES ITEMS #13 - 17.



NOTE:

ITEM #18 (RIGHT-HAND
AGITATOR ASSEMBLY)
INCLUDES ITEMS #19 - 23.



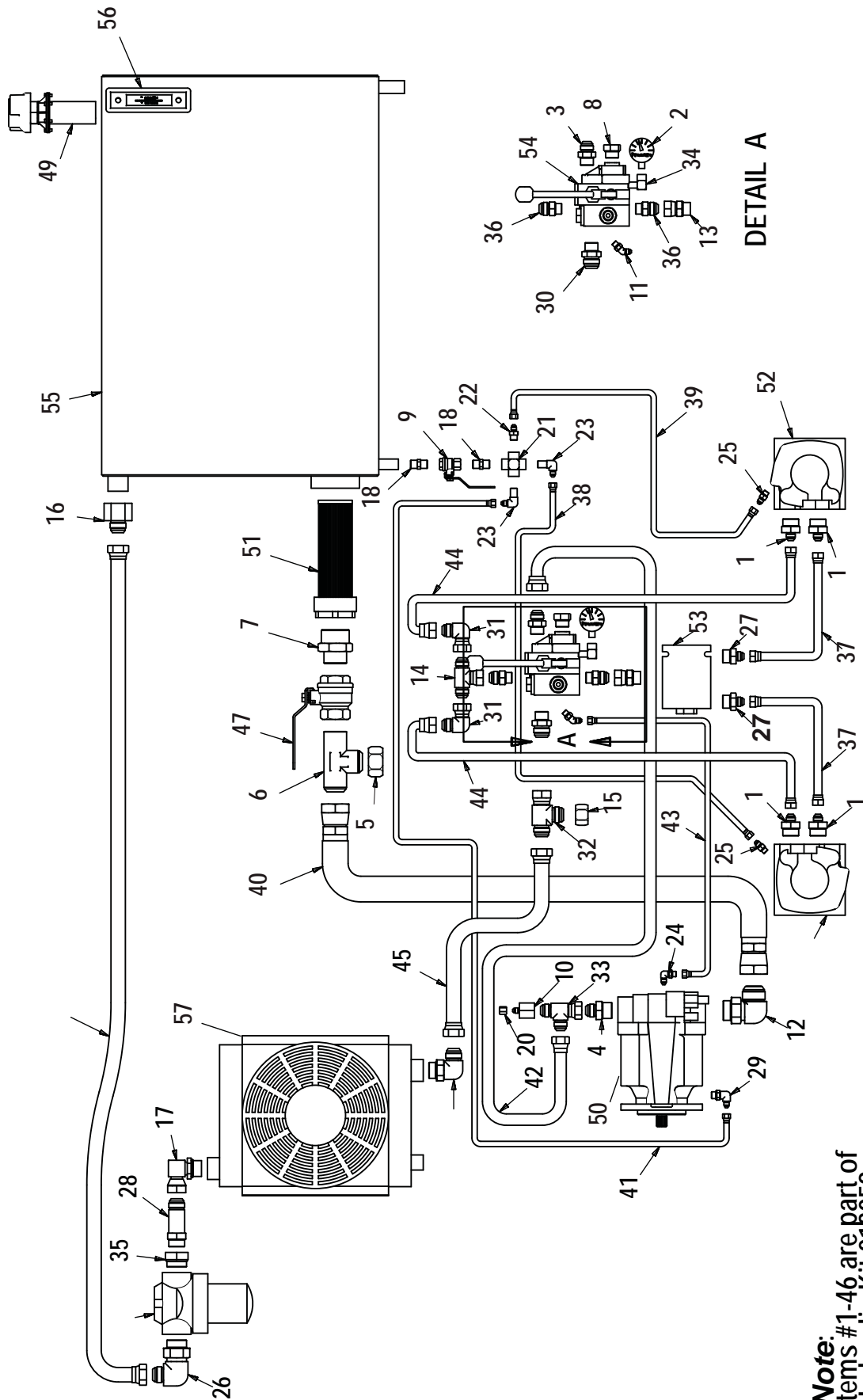
DRIVE END

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

AGITATOR AND SEAL ASSEMBLY

Ref. No.	Part Number	Description	No. Required
1	012529	Bearing and Seal Assembly	4
2	012527	Inner Clamping Ring w/ Studs	1 per
3	012528	Agitator Shaft Seal	2 per
4	012525	Outer Clamping Ring	1 per
5	012451	Flangette w/ Lube Coupling	1 per
6	012450	2 in. Dia. Ball Bearing	1 per
7	012452	Flangette w/o Lube Coupling	1 per
	008154	Lube Coupling Adapter	1 per
8	012605	Agitator Seal Washer	4 per
9	000Y08	Agitator Hex Nut	4 per
10	012625	2 in. Split Lock Collar	4
11	007705	Grease Fitting	4
	022407	Grease Line Elbow	4
	012520	Bulk Head Fitting	4
	012521	Grease Line Hose	4
12	012504-02	Left-Hand Agitator Assembly (T280)	1
	012503-02	Left-Hand Agitator Assembly (T330)	1
13	012496-01	Idle Stub Shaft	1 per
14	F330-0010-01	Bolt-On Paddle	2 per
15	012501-02	Left-Hand Agitator Section (T280)	1 per
	012500-02	Left-Hand Agitator Section (T330)	1 per
	SE0064-03-02	Left-Hand Agitator Section (T400)	1 per
16	F330-0010-02	Bolt-On Paddle	2 per
17	012495-01	Drive Stub Shaft	1 per
18	012504-01	Right-Hand Agitator Assembly (T280)	1 per
	012503-01	Right-Hand Agitator Assembly (T330)	1 per
19	012496-01	Idle Stub Shaft	1 per
20	F330-0010-01	Bolt-On Paddle	2 per
21	012501-01	Right-Hand Agitator Section (T280)	1 per
	012500-01	Right-Hand Agitator Section (T330)	1 per
	SE0064-03-01	Right-Hand Agitator Section (T400)	1 per
22	F330-0010-02	Bolt-On Paddle w/ Identification Hole	2 per
23	012495-01	Drive Stub Shaft	1 per

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



Note:
Items #1-46 are part of
Hydraulic Kit 013059

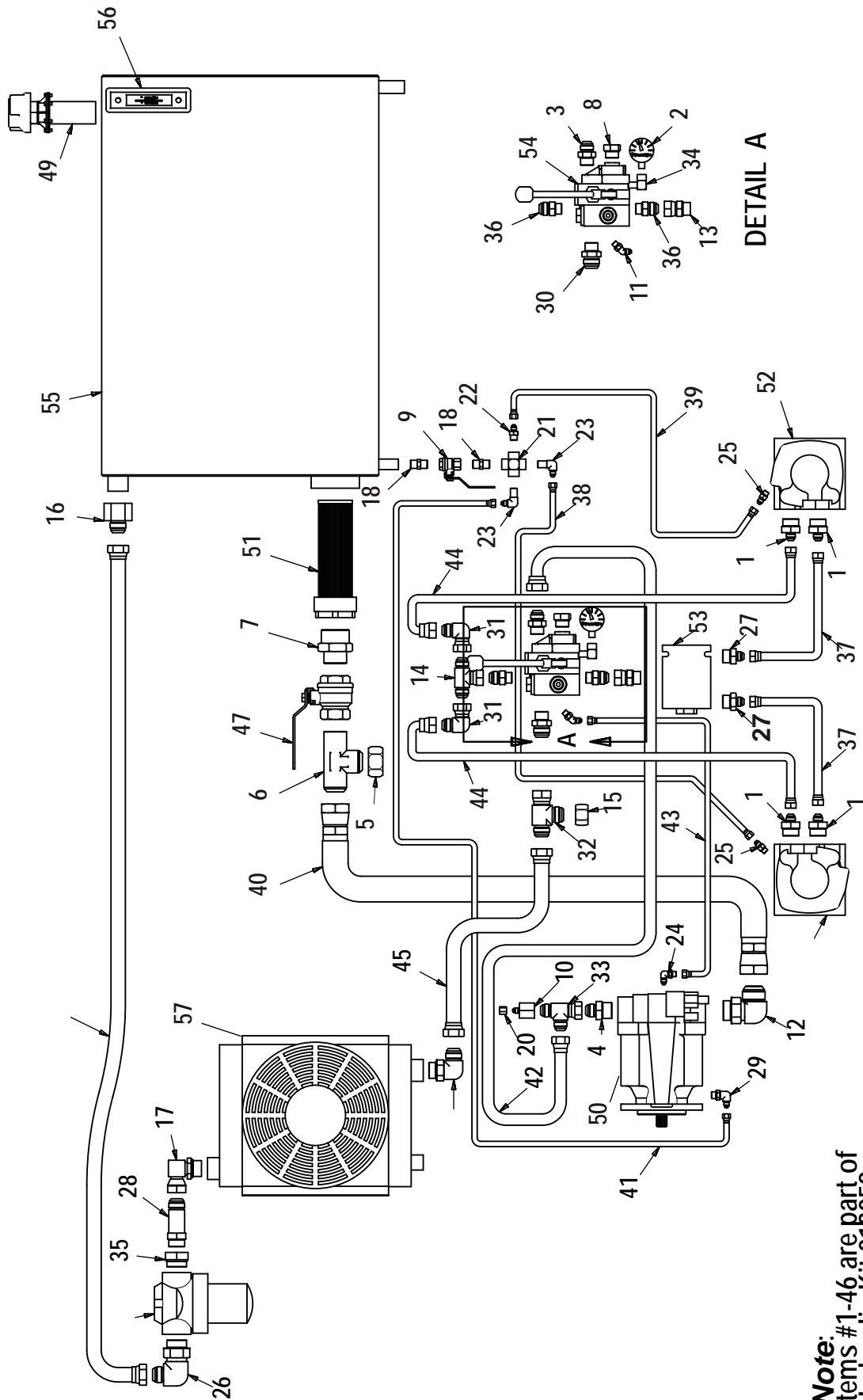
**WHEN ORDERING PARTS, BE SURE TO STATE
SERIAL NUMBER OF MACHINE**

HYDRAULIC SYSTEM

Ref. No.	Part Number	Description	No. Required
1	008606	MSAE - MJIC Adapter	4
2	012044	Pressure Gauge	1
3	012087	MSAE - MJIC Adapter	1
4	012088	MSAE - MJIC Adapter	1
5	012359	JIC Cap	1
6	012360	Male Run Tee	1
7	012361	Reducing Pipe Nipple	1
8	012362	NPT Plug	1
9	012635	3/8 in. Ball Valve	1
10	012420	JIC Reducer	1
11	012516	MSAE - MJIC 45° Elbow Adapter	1
12	012517	MSAE - MJIC 90° Elbow Adapter	1
13	013054	MSAE - FJIC Adapter	1
14	013055	Swivel Branch Tee	1
15	013056	JIC Cap	1
16	013057	FNPT - MJIC Adapter	1
17	013058	MSAE - FJIC 90° Elbow Adapter	1
18	022263	NPT Nipple	2
19	023620	MSAE - MJIC 90° Elbow Adapter	1
20	040494	JIC Cap	1
21	055271	Female Pipe Cross	1
22	055272	MNPT - MJIC Adapter	1
23	055273	MNPT - MJIC 90° Elbow Adapter	2
24	055274	MSAE - MJIC 90° Elbow Adapter	1
25	055308	MSAE - MJIC Adapter	2
26	055358	MSAE - MJIC 90° Elbow Adapter	1
27	055359	MSAE - MJIC Adapter	2
28	345082	MSAE - MJIC Adapter - Long	1
29	FW65216	MSAE - MJIC 90° Elbow Adapter	1
30	FW65225	MSAE - MJIC Adapter	1
31	FW71492	JIC Swivel Elbow	2
32	FW71714	Swivel Run Tee	1
33	FW17873	Swivel Run Tee	1
34	FW71892	NPT Street Elbow	1
35	FW71897	SAE Reducer	1
36	FW75148	MSAE - MJIC Adapter	2
37	012366	1/2 in. Hyd. Hose x 33 in.	2

Continued . . .

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



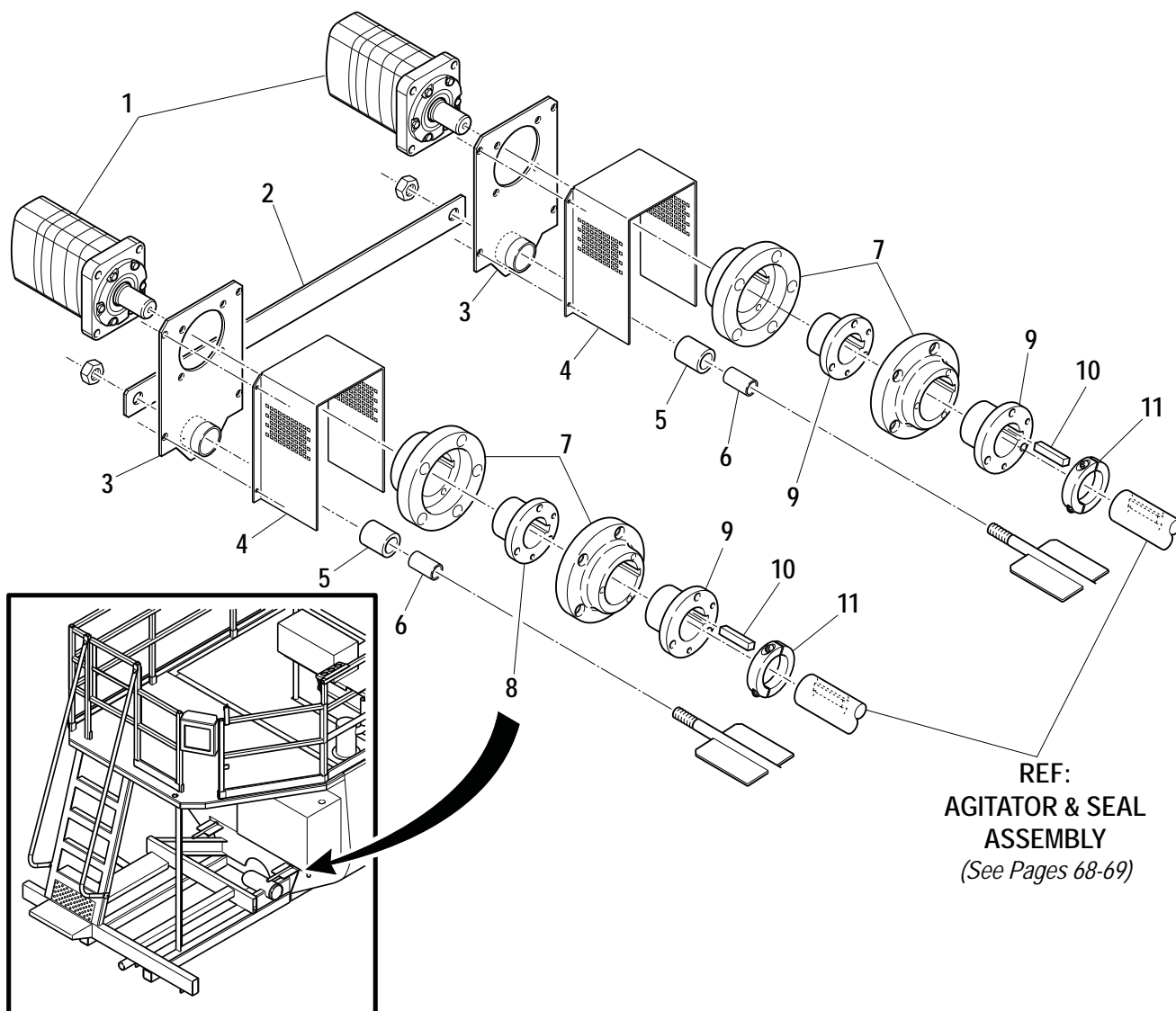
Note:
Items #1-46 are part of
Hydraulic Kit 013059

**WHEN ORDERING PARTS, BE SURE TO STATE
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HYDRAULIC SYSTEM

Ref. No.	Part Number	Description	No. Required
38	012368	1/4 in. Hyd. Hose x 33 in.	1
39	012369	1/4 in. Hyd. Hose x 20 in.	1
40	012508	1-1/2 in. Suction Hose x 29 in.	1
41	012509	1/4 in. Hyd. Hose x 45 in.	1
42	012510	3/4 in. Hyd. Hose x 52 in.	1
43	012511	1/4 in. Hyd. Hose x 32 in.	1
44	013059-01	1/2 in. Hyd. Hose x 33 in.	2
45	013059-02	1 in. Hyd. Hose x 35 in.	1
46	013059-03	1 in. Hyd. Hose x 24 in.	1
47	007710	1-1/2 in. Ball Valve	1
48	008702	Hydraulic Filter	1
	008703	Hydraulic Filter Element	1
49	008706	Hydac Filler / Breather Assembly	1
50	011922	Hydraulic Pump	1
51	011927	Suction Strainer	1
52	012333	Hydraulic Motor	2
53	012334	Flow Divider	1
54	012336	Hydraulic Valve	1
55	012352	Hydraulic Reservoir	1
56	080329	Hydraulic Level Site Gauge	1
57	013192	Hydac Oil Cooler	1

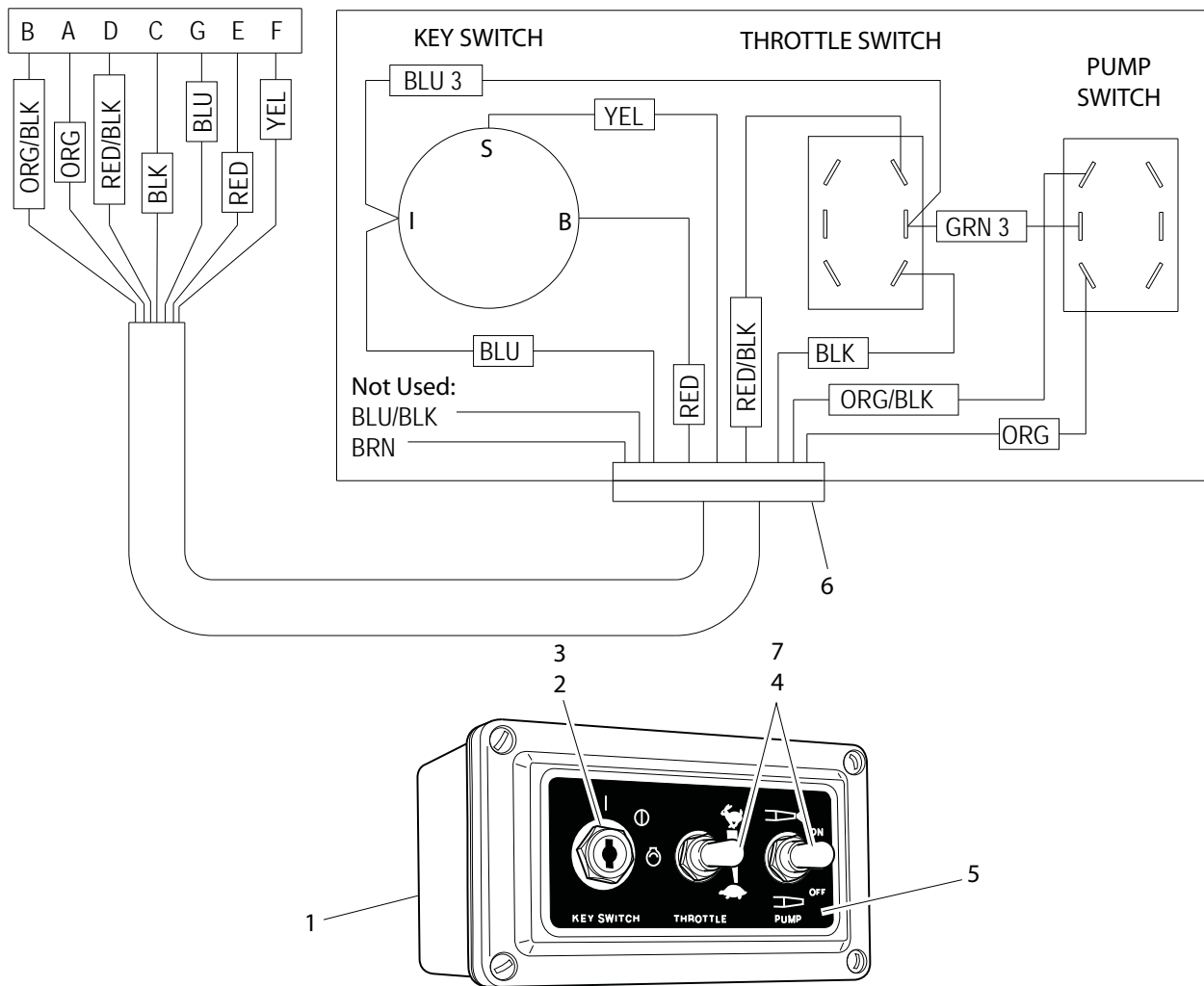
**WHEN ORDERING PARTS, BE SURE TO STATE
SERIAL NUMBER OF MACHINE**



HYDRAULIC AGITATOR DRIVE

Ref. No.	Part Number	Description	No. Required
1	012333	Hydraulic Motor	2
2	012522-01	Torsion Bar	1
3	012354	Hydraulic Motor Mount	2
4	F330-0029	Agitator Coupling Guard	2
5	012522-02	Rubber Bushing	2
6	012522-04	Torque Arm Insert	2
7	011780	Rigid Coupling	2
8	003055B	Motor Bushing	2
9	055103	Agitator Bushing	2
10	190127-40	Key	2
11	012625	Split Lock Collar	4

**WHEN ORDERING PARTS, BE SURE TO STATE
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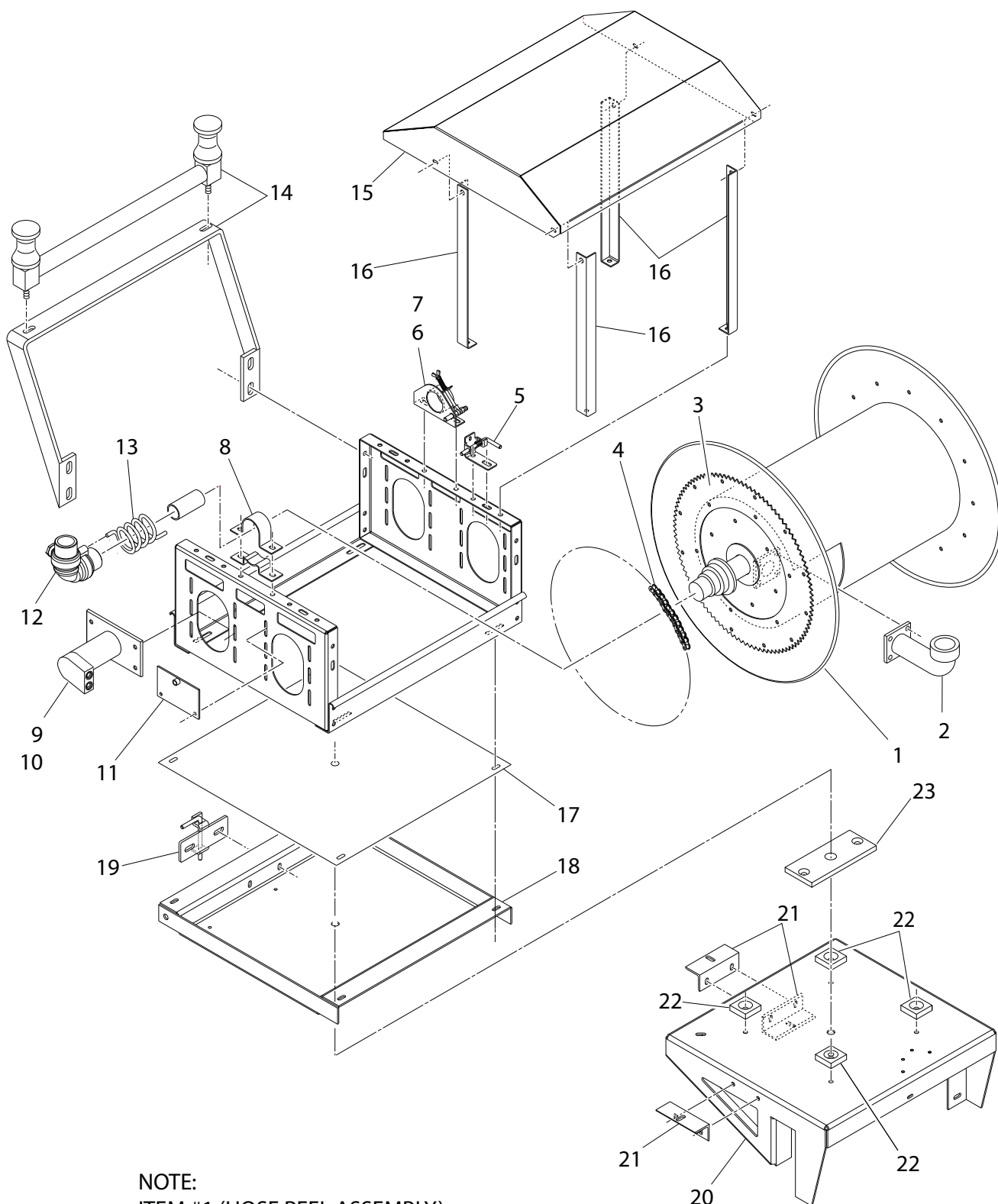
GROUND LEVEL CONTROLS

Ref. No.	Part Number	Description	No. Required
1	012779	Ground Level Control Box	1
2	052076	Ignition Switch	1
3	023076	Key For Ignition Switch	1
4	FW71555	Toggle Switch	2
5	012759-02	Ground Level Control Box Decal	1
6	080304	Liquid Tight Fitting	1
7	080526	Switch Boot	2

NOT SHOWN

012775	Ground Level Controls Wiring	1
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**WHEN ORDERING PARTS, BE SURE TO STATE
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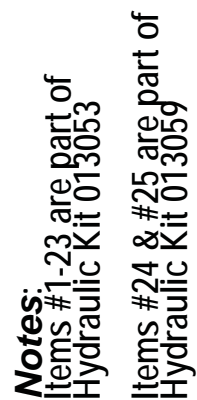
NOTE:
ITEM #1 (HOSE REEL ASSEMBLY)
INCLUDES ITEMS #2 - 10.

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

HOSE REEL ASSEMBLY

Ref. No.	Part Number	Description	No. Required
1	008212	Hose Reel and Swivel Assembly	1
2	080302	Flanged Riser	1
3	008144	Hose Reel Gear	1
4	008200	Hose Reel Chain (69 ft)	1
5	008433	Pinlock w/Brackets Assembly	1
6	008313	Idle Side Bearing	1
7	008111B	Brake Assembly	1
8	008314	Drive Side Bearing	1
9	008635	Hydraulic Motor	1
10	008199	Chair Sprocket - 11 Tooth	1
11	012757-01	Spring Retainer Plate	1
12	003207	1-1/2 in. Dia. X 90 Degree Swivel Joint	1
13	003299	Torsion Spring	1
14	011894	Hose Roller and Spool Guide	1
15	F330-0077	Hose Reel Canopy	1
16	F330-0094	Hose Reel Canopy Support	4
17	F330-0104	Hose Reel Mount Cover	1
18	F330-0068	Upper Hose Reel Bracket	1
19	008433	Pinlock w/ Brackets Assembly	1
20	F330-0067	Lower Hose Reel Bracket	1
21	012781	Hose Reel Lock Angle	3
22	012798	Hose Reel Bearing Block	4
23	012861	Hose Reel Washer	1

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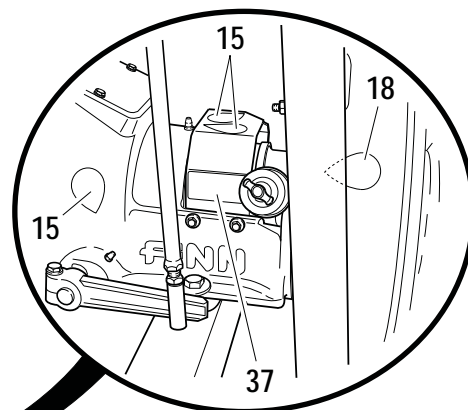
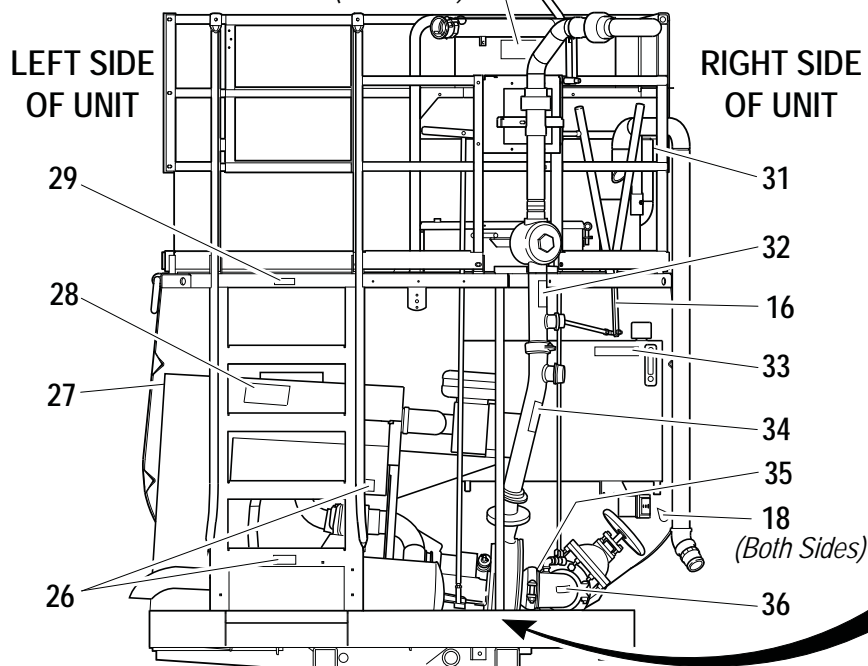
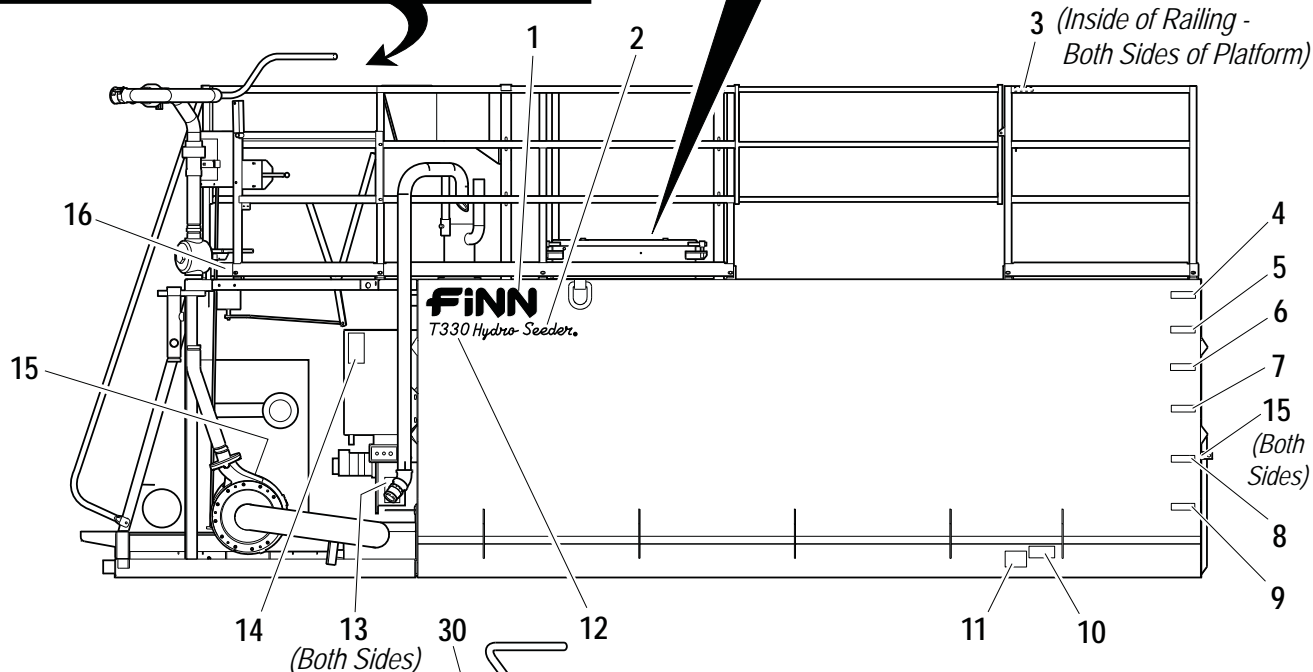
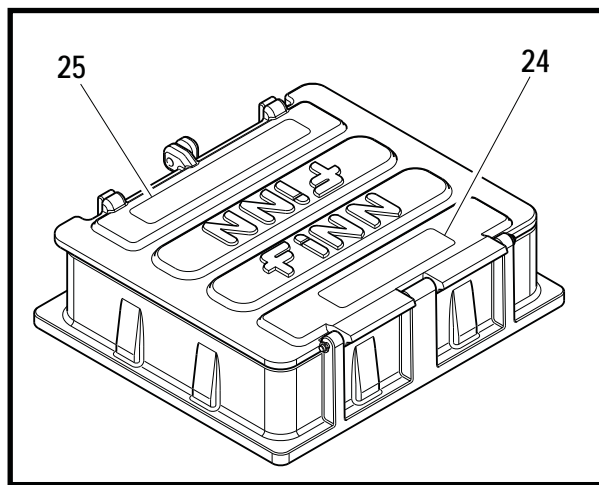
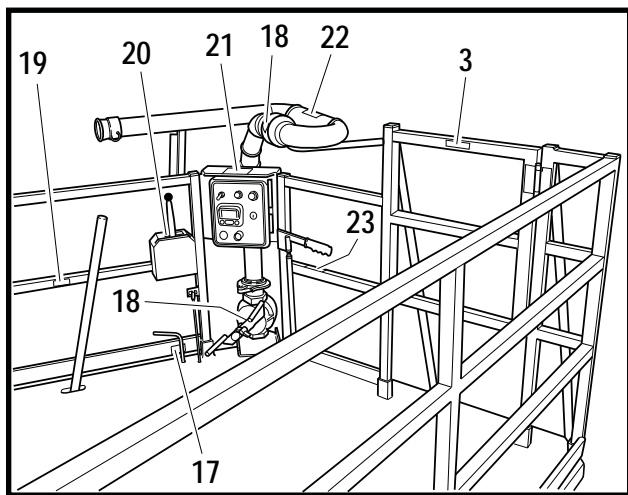


T280/T330/T400
MMA2017 Rev.D

HOSE REEL HYDRAULIC ASSEMBLY

Ref. No.	Part Number	Description	No. Required
1	012044	Pressure Gauge	1
2	012086	MSAE - MJIC Adapter	1
3	012555	JIC Reducer	1
4	012869	SAE Reducer	1
5	012870	SAE Run Tee	2
6	012871	SAE Reducer	1
7	012872	SAE Reducer	4
8	012873	MSAE - FJIC Adapter	1
9	012874	FNPT - FJIC Adapter	1
10	012875	JIC Reducer	1
11	013052	JIC Reducer	1
12	055274	MSAE - MJIC 90° Elbow Adapter	3
13	055308	MSAE - MJIC Adapter	1
14	055359	MSAE - MJIC Adapter	1
15	FW65217	MSAE - MJIC Adapter	2
16	FW71870	JIC 90° Swivel Elbow	1
17	FW75101	JIC 45° Swivel Elbow	1
18	012691	1/2 in. Hyd. Hose x 30 in.	1
19	012864-02	1/4 in. Hyd. Hose x 147 in.	1
20	012865-03	1/4 in. Hyd. Hose x 27 in.	1
21	012866-04	1/4 in. Hyd. Hose x 70 in.	1
22	012864-05	1/4 in. Hyd. Hose x 68 in.	1
23	013053-01	1/4 in. Hyd. Hose x 165 in.	1
24	012360	Male Run Tee	1
25	FW71714	Swivel Run Tee	1
26	008635	Hydraulic Motor	1
	008635	Seal Kit for 008635	1
27	012689	Hydraulic Pump	1
28	012857	Control Valve	1
	SF310B	Hydraulic Valve Handle	1
	0SF311	Handle Knob	1
	0SF312	1/8 in. x 1-3/8 in. Roll Pin	1
	023120	Seal Kit for 012857	1
	023470	Handle Bracket	1
	008293-RC	Brand Valve Relief Cartridge	1
29	055746	Flow Divider	1
	055140-SK	Seal Kit for 055746	1
	023890-K	Indicator Knob	1
	023890-L	Indicator Lever	1

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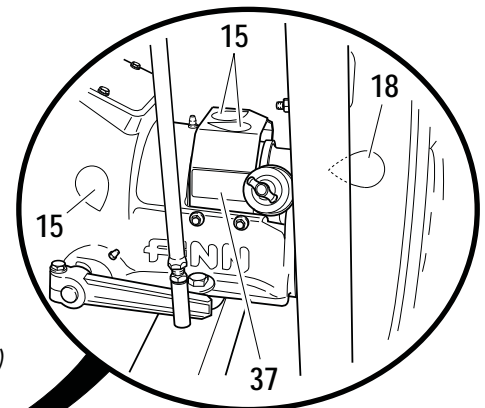
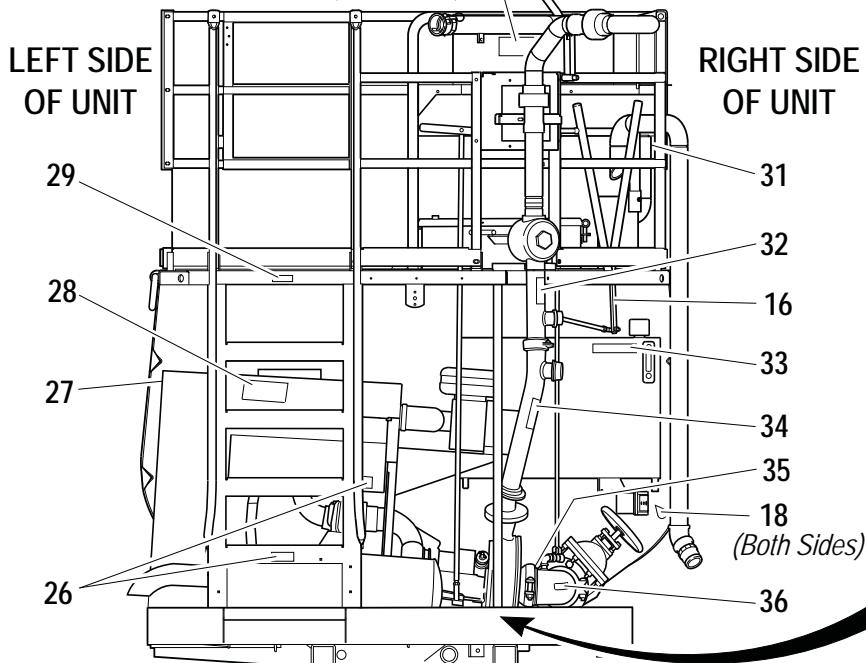
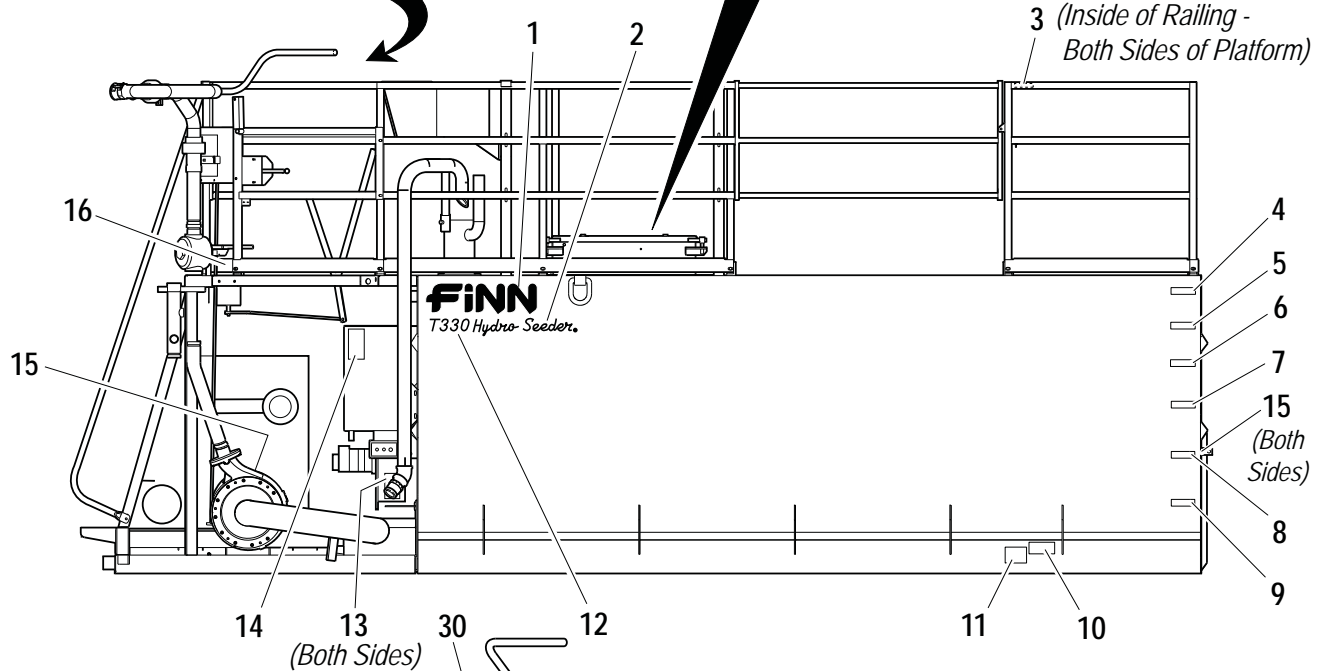
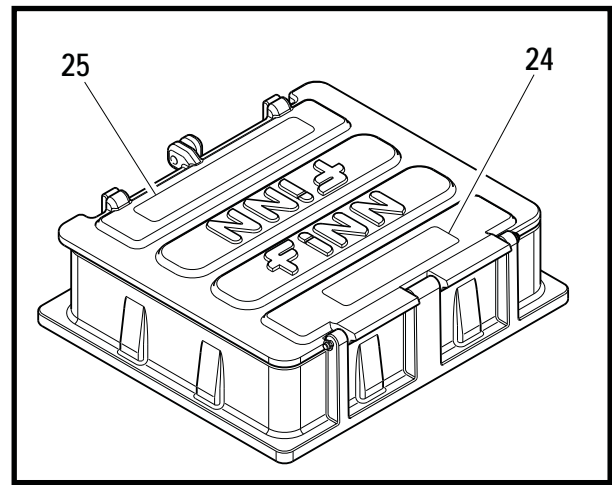
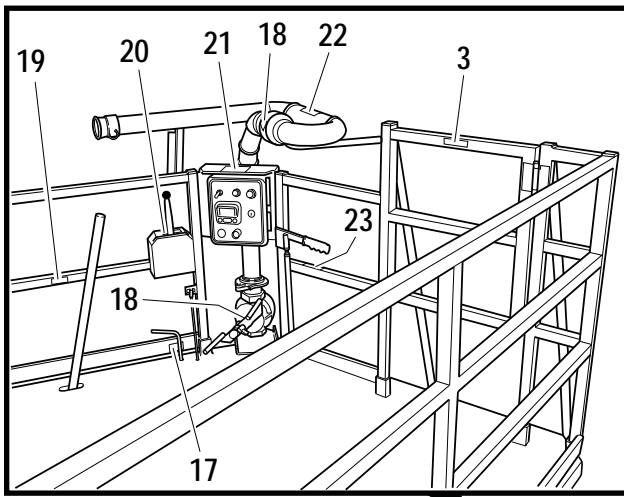
**WHEN ORDERING PARTS, BE SURE TO STATE
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DECALS

Ref. No.	Kit Ref.	Part Number	Description	No. Required
1		023174	"FINN" Decal	2
2		011595	"HydroSeeder®" Decal	2
3	▲	-----	"Fall Hazard" Decal	3
4	▲	-----	"3,000 Gallon" Decal <i>(T330 Only)</i>	1
5	▲	-----	"2,500 Gallon" Decal	1
6	▲	-----	"2,000 Gallon" Decal	1
7	▲	-----	"1,500 Gallon" Decal	1
8	▲	-----	"1,000 Gallon" Decal	1
9	▲	-----	"500 Gallon" Decal	1
10		011690	FINN Nameplate	1
11	▲	-----	"U.S. Patent No." Decal	1
12		012661-01	"T330" Decal	2
		012661-02	"T280" Decal	2
		012661-08	"T400" Decal	2
13	▲	-----	"WARNING! Do Not Operate . . ." Decal	2
14	▲	-----	"CAUTION. Hydraulic System Instructions" Decal	1
15	▲	-----	"Service Weekly" Decal	3
16	▲	-----	"Service Daily" Decal	1
17	▲	-----	"BLEEDER VALVE - Open/Close" Decal	2
18	▲	-----	"Service Weekly" Decal	7
19	▲	-----	"RECIRCULATION VALVE - Close/Open" Decal	1
20	▲	-----	"AGITATOR OPERATION" Decal	1
21	▲	-----	"VALVE - Open/Closed" Decal	1
22	▲	-----	"DANGER! Electrocuting Hazard . . ." Decal	1
23	▲	-----	"CLUTCH - Engage/Disengage" Decal	1
24	▲	-----	"DANGER! Confined Space Hazard . . ." Decal	1
25	▲	-----	"HydroSeeder® Operating Instructions . . ." Decal	1
26	▲	-----	"DANGER! HOT EXHAUST!" Decal	2
27	▲	-----	"WARNING! Burn Hazard . . ." Decal	1
28	▲	-----	"WARNING Sever Hazard . . ." Decal	1
29	▲	-----	"CAUTION. Fall Hazard!" Decal	1
30	▲	-----	"CAUTION. Do Not Ride . . ." Decal	1
31	▲	-----	"IMPORTANT - This is a Tank Vent . . ." Decal	2
32	▲	-----	"CAUTION. Hose Reel Remote . . ." Decal	1
33	▲	-----	"HYDRAULIC FLUID ONLY" Decal	1

Continued . . .

**WHEN ORDERING PARTS, BE SURE TO STATE
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**WHEN ORDERING PARTS, BE SURE TO STATE
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DECALS

Ref. No.	Kit Ref.	Part Number	Description	No. Required
34	▲	-----	"DANGER! Do Not Use Remote . . ." Decal	1
35	▲	-----	"Tighten Suction Cover . . ." Decal	1
36	▲	-----	"Pressure Lubricator" Decal	1
37	▲	-----	"New Clutch Info . . ." Decal	1
NOT SHOWN				
	▲	-----	"DIESEL FUEL ONLY" Decal <i>(This Decal is located on the fuel tank on the left side of the unit.)</i>	1
		012260	"IMPORTANT" Metal Plate	1
KITS AND MARKERS				
	▲	012820	T280/T330/400 Decal Sheet	

Note: Items marked by a triangle (▲) are part of decal kit # 012820.
These decals must be ordered by their kit number and cannot be ordered separately.

The Reference Numbers that do have corresponding part numbers are decals that are NOT part of the T280/T330/T400 Decal Sheet Kit (# 012820) and must be ordered separately.

**WHEN ORDERING PARTS, BE SURE TO STATE
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DISCHARGE HOSE EXTENSIONS

Part Number	Description	No. Required
BOOM TAKE OFF SYSTEM		
007930-02	Boom Discharge Extension Hose Assembly	As Ordered
007929	1-1/2 in. x 50 ft Extension Hose with Nipples	1 per
002191	2-1/2 in. Male Brass Adapter	1 per
160768	2-1/2 in. to 1-1/2 in. Reducer Bushing	1 per
010544	2-1/2 in. Female Coupler	1 per
006513	2-1/2 in. Quick-Coupler Gasket	1 per
PUMP TAKE OFF SYSTEM		
007930-01	Pump Remote Discharge Hose Assembly	As Ordered
007929	1-1/2 in. x 50 ft Extension Hose w/ Nipples	1 per
001207	1-1/2 in. Male Brass Adapter	1 per
002158	1-1/2 in. Female Brass Coupler	1 per
006515	1-1/2 in. Coupler Gasket	1 per
007711	Pump Take Off Valve Assembly	1
007710	1-1/2 in. Full Port Ball Valve	1
002158	1-1/2 in. Female Brass Coupler	1
160309	1-1/2 in. SCH 40 Close Nipple	1
007740	Remote Valve Assembly	1
007710	1-1/2 in. Full Port Ball Valve	1
003243	1-1/2 in. Aluminum Nipple Pipe	1
160309	1-1/2 in. Std. Close Nipple	1
160763	2 in. x 1-1/2 in. Tank Bushing	1
006102	2 in. Female Coupler	1
001207	1-1/2 in. Male Brass Adapter	1
006621	Wide Fan Nozzle Assembly	1
006604	Wide Fan Nozzle	1
006096	2 in. Male Adapter	1
160761	2 in. to 1 in. Reducer Bushing	1
006622	Narrow Fan Nozzle Assembly	1
006605	Narrow Fan nozzle	1
006096	2 in. Male Adapter	1
160761	2 in. to 1 in. Reducer Bushing	1

**WHEN ORDERING PARTS, BE SURE TO STATE
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RECOMMENDED SPARE PARTS AND REPAIR KITS

Part Number	Description	No. Required
RECOMMENDED SPARE PARTS		
000698	Pump Seal Lubricator Grease (1 lb Can)	2
011919	Suction Pipe Seal - 5 in.	3
002820	Discharge Pipe Seal - 2-1/2 in.	3
006722	Recirculation Pipe Seal - 1-1/4 in.	2
006513	Nozzle Coupler Gasket - 2-1/2 in.	2
006514	Coupler Gasket 2 in.	2
007469	Lube Sticks For Recirculation and Discharge Valves (Box of 24)	4
013135-S	Air Cleaner Safety Filter Element (4.50-E2)	1
013135-M	Air Cleaner Main Filter Element (4.50-E1)	1
JDR123442	Fan Belt	1
JDRE529643	Primary Fuel Filter	1
JDRE522878	Secondary Fuel Filter	1
JDRE504836	Oil Filter	1
031245	Snapper Pin – Boom Hold Down	1
008703	Hydraulic Filter Element	2
JDR96934	Hydraulic Pump Gasket	1
REPAIR KITS		
012397	Swivel Repair Kit	
011920	O-ring	1
006443	Mechanical Seal Assembly	1
006444	Grease Retainer	1
012733	Grease Seal	2

NOTE: *Recommended spare parts are available to avoid unnecessary down time.
Repair Kits are available to recondition parts, which periodically need service.*

**WHEN ORDERING PARTS, BE SURE TO STATE
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TOOL KIT

Part Number	Description	No. Required
011775	Long Distance Nozzle (Large Hole)	1
011703	Long Distance Nozzle Assembly (Small Hole)	1
001042	Long Distance Nozzle	1
002191	2-1/2 in. Brass Male Adapter	1
160309	Close Nipple	1
160768	2-1/2 in. To 1-1/2 in. Reducer Bushing	1
011706	Wide Fan – Small Nozzle Assembly	1
006604	Wide Fan – Small Nozzle (50500)	1
002191	2-1/2 in. Brass Male Adapter	1
160766	2-1/2 in. To 1 in. Reducer Bushing	1
011707	Narrow Fan – Small Nozzle Assembly	1
006605	Narrow Fan – Small Nozzle (25500)	1
002191	2-1/2 in. Brass Male Adapter	1
160766	2-1/2 in. To 1 in. Reducer Bushing	1
011890	Wide Fan – Large Nozzle Assembly	1
011861	Wide Fan – Large Nozzle (501500)	1
002191	2-1/2 in. Brass Male Adapter	1
160769	2-1/2 in. To 2 in. Reducer Bushing	1
011891	Narrow Fan – Large Nozzle Assembly	1
011860	Narrow Fan – Large Nozzle (251500)	1
002191	2-1/2 in. Brass Male Adapter	1
160769	2-1/2 in. To 2 in. Reducer Bushing	1
021375	Grease Gun (<i>Hose Not Included</i>)	1
021741	12 in. Whip Hose for Grease Gun	4
020365	Multi-Purpose Grease Cartridge	1
000698	Grease For Pressure Lubricator (1 lb Can)	1
007469	Lube Sticks For Discharge and Recirculation Valves (Box of 24)	1
002190	Main Tank Dust Cap w/ Gasket	1
006513	2-1/2 in. Quick-Coupler Gasket	1
005220	Impeller Wrench	1
012681A	Touch-Up Paint (FINN Beige - 4.5 Oz. Aerosol)	1
	Engine Operator's Manual	1
	HydroSeeder [®] Operator Instructions and Parts Manual	1

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