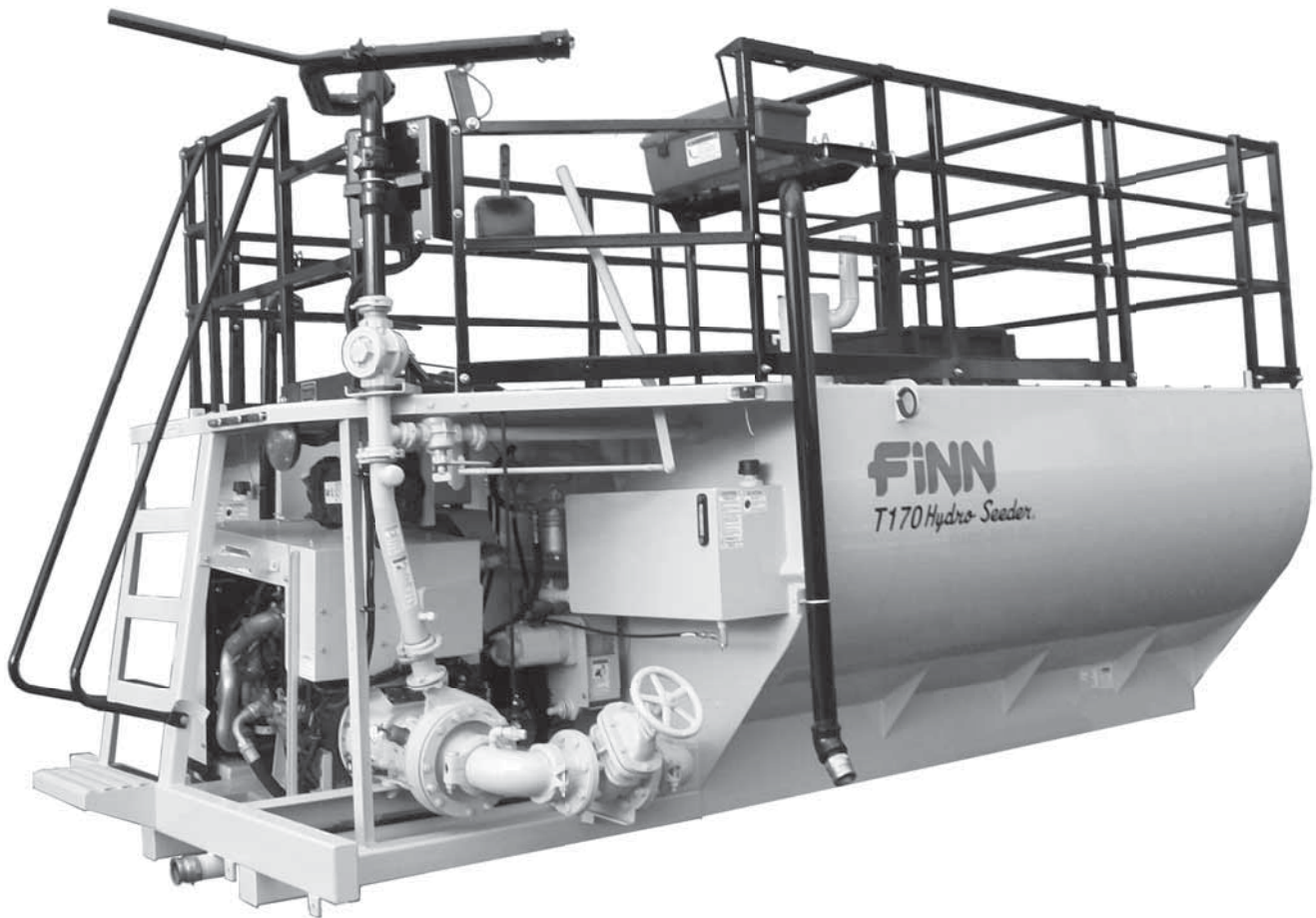




Activate
Your Warranty
By Registering
TODAY!!!

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



T170 HydroSeeder®

Operator Instructions and Parts Manual

Model ML Serial No. _____

[illegible]



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 ON THE NEXT PAGE 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 other side of this notice.

<<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:
Hydroseeders & 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.

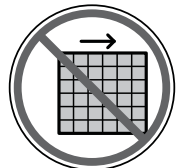
I. PRE-START EQUIPMENT CHECK (equipment check is to be made with the engine off)

1. If you have a chassis-mounted unit, check devices securing HydroSeeder® to the truck or trailer frame.
2. If HydroSeeder® is a trailer unit, check hitch and hitch bolts, lights, brakes, and all safety components.
3. Make sure loading hatch bag cutter is in place and secure.
4. Check that all guard railing is in place and secure.
5. Verify that all guards are in place.
6. With the ignition switch ON, verify that the signal horn is operating correctly.
7. 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.
8. Remove unnecessary objects (or material) from the tank top.
9. 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.
10. Inspect all hydraulic hoses for cracks, bulges, or damage. If hoses are bad, replace immediately.
11. 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.



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.



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.

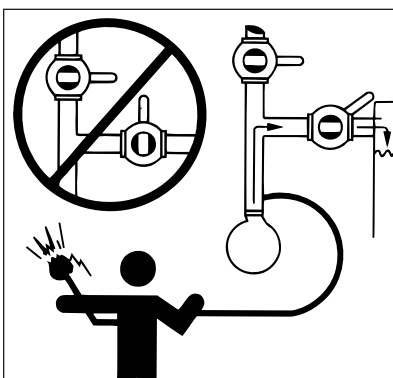


III. SLURRY APPLICATION

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 pump clutch 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.

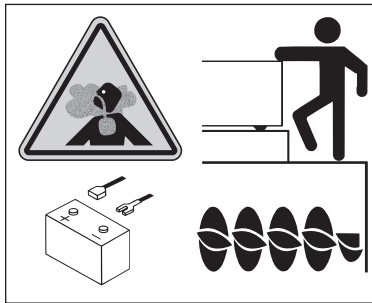
7. Except when loading materials, keep loading hatch lid closed to protect operator and prevent splashing of wet material onto the tank top.
8. Wash off spillage of slippery mulch or slurry additive from the tank top and platform before operating equipment.

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.



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.

CURRENT SET OF SAFETY DECALS

⚠ DANGER



CONFINED SPACE HAZARD!
(Reference: OSHA 29 CFR 1910.146)
Before entering tank:


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.


FLYING MATERIAL HAZARD!
Wear eye protection around operating equipment.
Failure to comply will result in death or serious injury.



PIN 12886-01

⚠ DANGER





ELECTROCUTION HAZARD!


DO NOT aim stream toward electrical lines.


Avoid spraying toward bystanders.

Failure to comply will result in death or serious injury.

PIN 11560

⚠ WARNING






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.

PIN 5216

⚠ WARNING




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

BREAKAWAY SWITCH
DO NOT use for parking.
Attach cable to towing vehicle with enough slack for turning.
Engine battery on trailer must be charged and hooked-up for proper breakaway function.

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

PIN 31461

⚠ WARNING



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.

RADIATOR HANDLING INSTRUCTIONS

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




Do not operate without guards in place.


Failure to comply could result in death or serious injury.


PIN 12175

⚠ WARNING



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.





PIN 31463

⚠ WARNING



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

012278


⚠ WARNING



FALL HAZARD!
DO NOT ride on equipment when moving at speeds in excess of 5 MPH (8 km/h).
Failure to comply could result in death or serious injury.

PIN 12820

⚠ WARNING



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

PIN 12821

⚠ WARNING



FALL HAZARD!
DO NOT ride on hitch when vehicle is moving.
ALWAYS use step when mounting and dismounting.
Failure to comply could result in death or serious injury.

PIN 88007

⚠ CAUTION

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

PIN 12836

OPERATION AND MAINTENANCE MANUAL FOR FINN T170 HYDROSEEDERS®

This manual provides instructions for the operation and maintenance of the FINN T170 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.

MOUNTING THE HYDROSEEDER®

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

HYDROSEEDER® MOUNTING INFORMATION

C Distance from HydroSeeder® front to center of gravity

OAL Overall length of the HydroSeeder®

HW HydroSeeder® weight

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

	T170	
	English	Metric
C (loaded)	71.5 in.	181.6 cm
C (empty)	97.0 in.	246.4 cm
OAL	198.0 in.	502.9 cm
HW (empty)	6766 lbs.	3,069 kg
HW (water only)	21,379 lbs.	9,697 kg
HW (full load)*	24,291 lbs.	11,018 kg

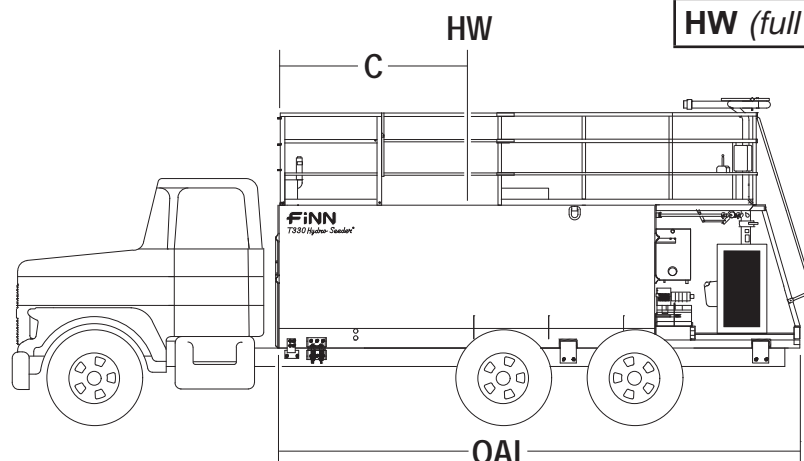


Figure 1 – Mounting Information Visual Guide

GENERAL MOUNTING GUIDELINES

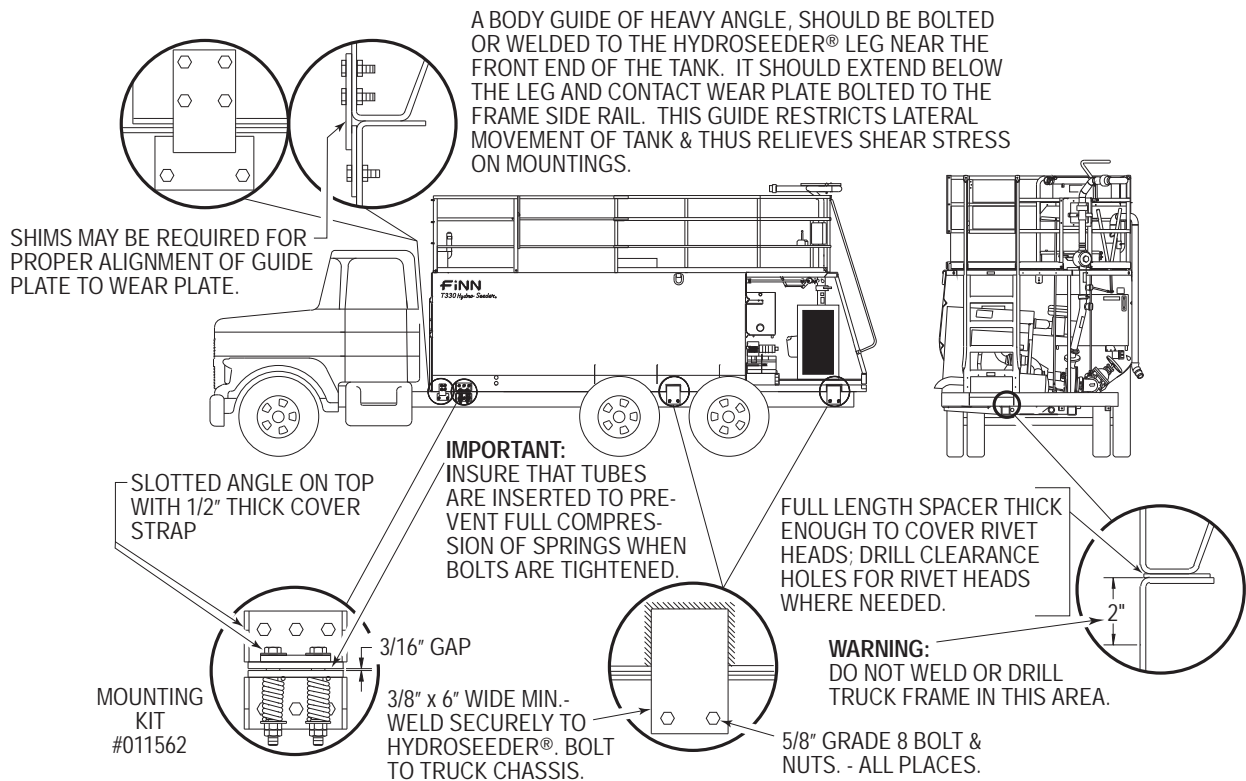


Figure 2 – General Truck Mounting Guidelines

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

CAUTION *Your FINN HydroSeeder® should be mounted by a qualified truck body installer. Failure to comply could result in minor personal injury or product or property damage.*

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.*

ATTACHMENTS

1. Extension hoses for reaching remote areas are available in 50 ft. (15 m), 100 ft. (30m), and 200 ft. (60m) 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) 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.

2. For lower pressure applications, or for close-up work, such as around buildings, the remote valve attachment can be used. The attachment includes a semi-rigid hose with quick-disconnect fittings along with a hand-held valve that 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 to apply material 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. The entire hose reel is protected by a UV-protective canopy.
4. Hardened Pump Parts: Pump casing, impeller, and suction cover are treated with a special material that is 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. 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 check should be made to ensure operator safety:

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

EQUIPMENT CHECK

⚠ WARNING

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

1. Make sure that tool kit contains all the prescribed items. See TOOL KIT list in parts section.
2. Inspect the slurry tank for foreign objects. See numbers 2 and 3 in IV. MAINTENANCE of the HYDROSEEDER® SAFETY SUMMARY SECTION.
3. Check fuel level and fill if necessary.
4. Check the hydraulic oil level and fill to proper level if necessary. See HYDRAULIC SYSTEM for oil specifications.
5. Check engine oil level and fill to proper level if necessary. For oil type refer to the engine manual.
6. Check fluid level in radiator and fill to proper level if necessary.
7. Inspect air cleaner for dust and dirt; clean or replace if necessary.
8. Secure the tank drain cap on the slurry tank drain pipe.
9. Check to be certain all pump drain plugs are in place.
10. Verify that the suction line shut-off valve is completely open.
11. Engage (turn on) and disengage (turn off) pump clutch to determine if it snaps in and out.
12. Check nozzle for obstructions and clean as required.
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.
15. Lubricate equipment - See LUBRICATION AND FLUIDS CHART.
 - A. Each lubrication point is marked.
 - 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:
 - a) Turn thumb nut clockwise until stem rises to maximum height.
 - b) Remove cap and fill cap with sodium-(water soluble) base grease. (FINN part number 000698). Do not use lithium-base (chassis lube) grease.
 - c) Replace cap.
 - d) Turn thumb nut counterclockwise until the thumb nut is at the top of the stem. The spring and pressure disc in the lubricator forces the grease, under pressure, to the pump seal.

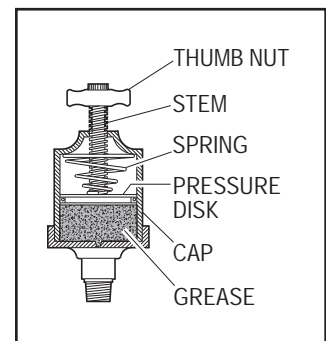


Figure 3 – Automatic Pressure Lubricator

NOTICE

When the thumb nut has moved down to within 1/2 in. (1.25 cm) of touching the cap, re-service the automatic pressure lubricator.

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) 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.*

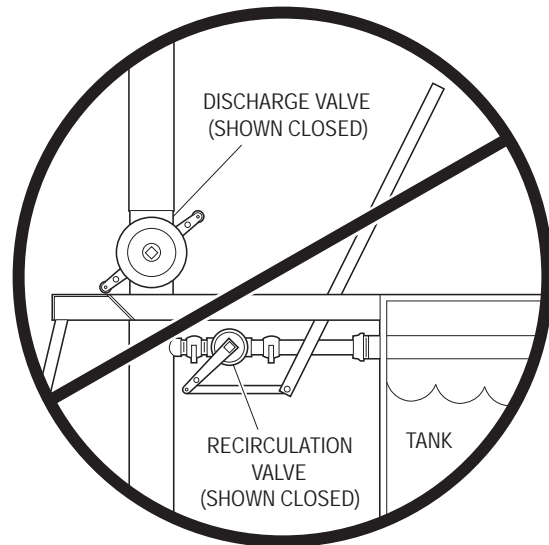


Figure 4 – DO NOT Engage (Turn On) Pump Clutch

1. DISCHARGE THROUGH BOOM:

Flow is through the boom with no flow through the closed recirculation valve (Figure 5). Flow through the boom is started and stopped by engaging or disengaging the slurry pump clutch. The operator controls the spray volume and flow by adjusting the engine's RPMs.

2. EXTENSION HOSE THROUGH BOOM:

Flow is through the boom with no flow through the closed recirculation valve (Figure 5). Flow through the extension hose is started and stopped by engaging or disengaging the slurry pump clutch. The operator controls the spray volume and flow by adjusting the engine's RPMs.

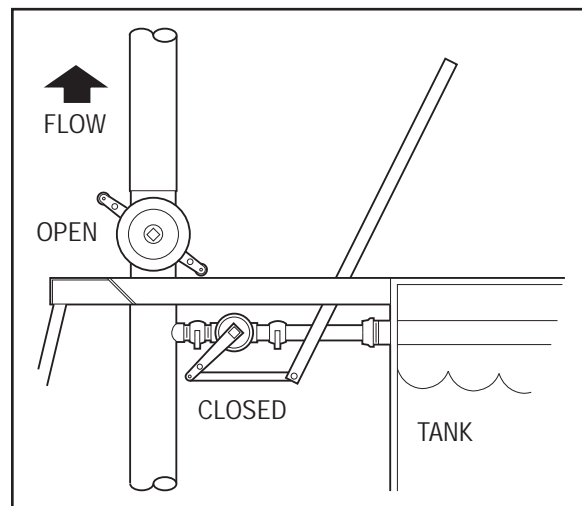


Figure 5 – Discharge Through Boom

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

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.

3. EXTENSION HOSE OR HOSE REEL THROUGH REMOTE PORT:

Flow is through the open recirculation valve with no flow through the closed boom discharge valve (Figure 6). Flow through the hoses is started and stopped by engaging or disengaging the slurry pump clutch. The operator controls the spray volume and flow by adjusting the remote ball valve attached to the end of the hose. With the use of the remote ball valve, all excess flow is directed back into the slurry tank through the recirculation valve.

⚠ 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.*

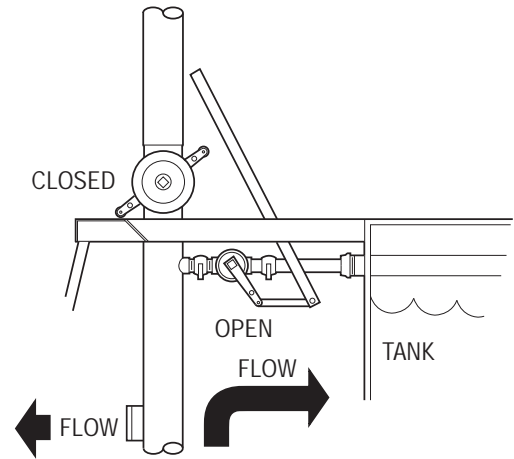


Figure 6 – Discharge Through Extension Hose or Hose Reel

CONTROL PANEL GUIDE

NOTE: This information is to explain the function and use of the control panel when starting the unit. **DO NOT** start the unit at this point. Refer to **STARTING PROCEDURE** section for actual operation.

SYSTEM POWER UP

The control panel is powered from the engine battery connection from the engine harness connector. Make sure the engine harness is connected to the control panel before proceeding. Power up the system by turning the key switch to the **ON** “**I**” position. This will activate the control panel and apply power to the engine ECU.

If the control panel indicates a fault condition, **DO NOT** start the engine. Review the fault condition and correct the condition before starting the engine. See Fault Codes section for details on system faults.



ENGINE START

To start the engine, turn the key switch clockwise to the **START** “**⏻**” position. If a fault condition exists, the engine ECU may prevent the engine from starting. All fault conditions will be indicated by the digital display. The display will indicate the active fault(s) by presenting a pop-up graphic describing the fault condition.

ENGINE SPEED CONTROL (THROTTLE)

Once the engine is started, the control panel will set the engine speed to the minimum RPM speed setting. To change the engine speed, toggle the throttle control switch (“Fast-Rabbit/Slow-Turtle”) to the desired speed setting. The engine speed cannot be set below the minimum RPM speed setting or above the maximum RPM speed setting.

Pressing the throttle up or down increases or decreases the RPM by 10 RPM. If the throttle switch is held down in one direction for three seconds, the RPM will ramp at a faster rate.



EMERGENCY STOP

EMERGENCY STOP EQUIPMENT

A critical safety component of this equipment is the Emergency Stop (E-Stop) switch. This device is located next to the control panel, and the button is colored red to be visible and to indicate a "stop" function based on color association. The button is made increasingly visible and distinct by the bright yellow plastic enclosure that the button sits on.

The button extends outward from the enclosure's surface. The E-Stop will cut all power to the machine when pushed (engaged). E-Stop devices should NEVER be disabled under any circumstances.



EMERGENCY STOP USE

When the E-Stop button is pushed (engaged), it will override all other functions and machine operating modes. The objective of the E-Stop is to remove power as quickly as possible from the equipment without creating additional hazards.

Emergency stop devices are considered complimentary or secondary safeguarding equipment. They are not considered primary safeguarding devices because they do not prevent access to a hazard nor do they detect access to a hazard.

Remember that SAFETY is FIRST in working with any piece of equipment.

- As operating personnel change, full training and complete understanding of this equipment must be given to the personnel prior to their operation of the equipment.
- Manufacturer and its agents disclaim any liability on such equipment operating without adhering to the aforementioned safety procedures.

Once pushed or engaged, the E-Stop will prevent the operation of this unit. Until the button is turned clockwise (released) and returned to its original position, the E-Stop will still be engaged. The E-Stop effectively turns OFF this equipment. After the E-Stop is released, follow the Starting Procedure to resume use of this equipment.

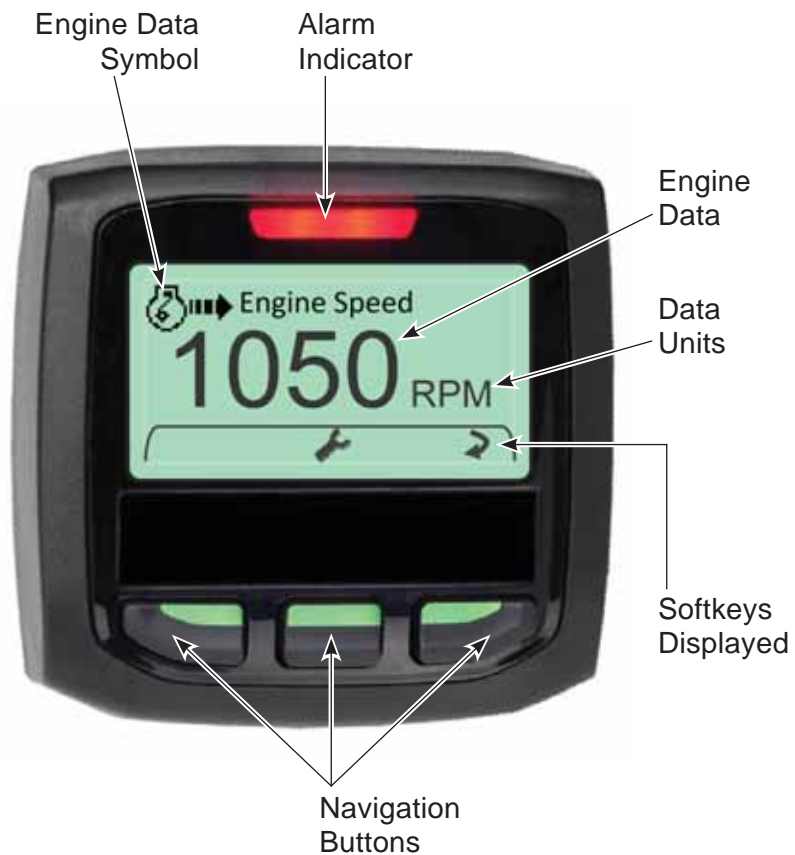
CONTROL PANEL GUIDE AND SYSTEM OPERATION

MENU NAVIGATION


The control unit has three navigation buttons which are configured as softkeys. The system softkeys are used to navigate between displays, select menu items and change data. Pressing any of the three navigation buttons will display the softkey menu that is associated with each button.

Softkeys Displayed

-  : Main Menu
-  : Exit
-  : Change
-  : Scroll Up
-  : Scroll Down
-  : Next
-  : Increase Value
-  : Decrease Value
-  : Acknowledge
-  : More Information



CHANGING DATA DISPLAYS

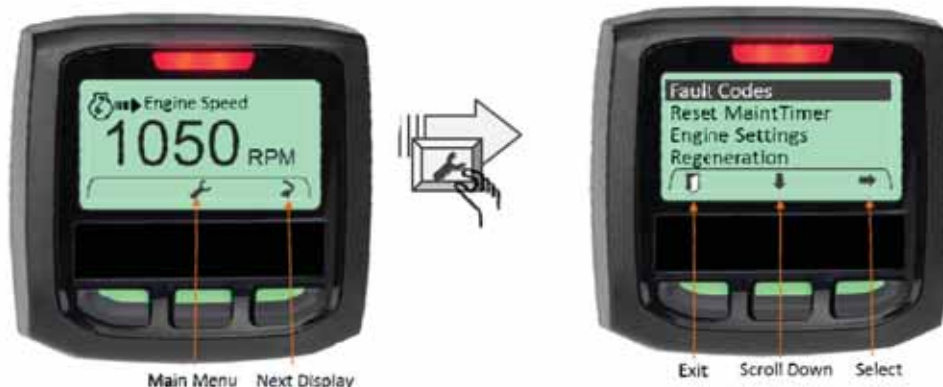
To change the data being displayed, press any key to activate the softkey menu. Press the Change “” softkey to access the next data display available.

See System Display List for complete selection of data displays available.



MAIN MENU ACCESS

To access the Main Menu, press any of the three navigation buttons. The unit will display a softkey popup window defining the available navigation possibilities. Select the Main Menu using the center softkey as shown.



MAIN MENU NAVIGATION

Access the main menu using the center softkey. The main menu will be displayed along with the main menu softkey popup window. Navigate through the main menu selections by using the “↓” key. When the desired menu item is highlighted, press the “→” key to select the menu item. To exit the main menu and return to the data displays press the EXIT “⏏” softkey.



CHANGING PARAMETER SETTINGS

Parameter settings can be changed in one of two ways: using the “+” / “-” softkeys to increase or decrease a numeric value or using the Change “↔” softkey to toggle through a list of programmed settings.

FAULT CODES

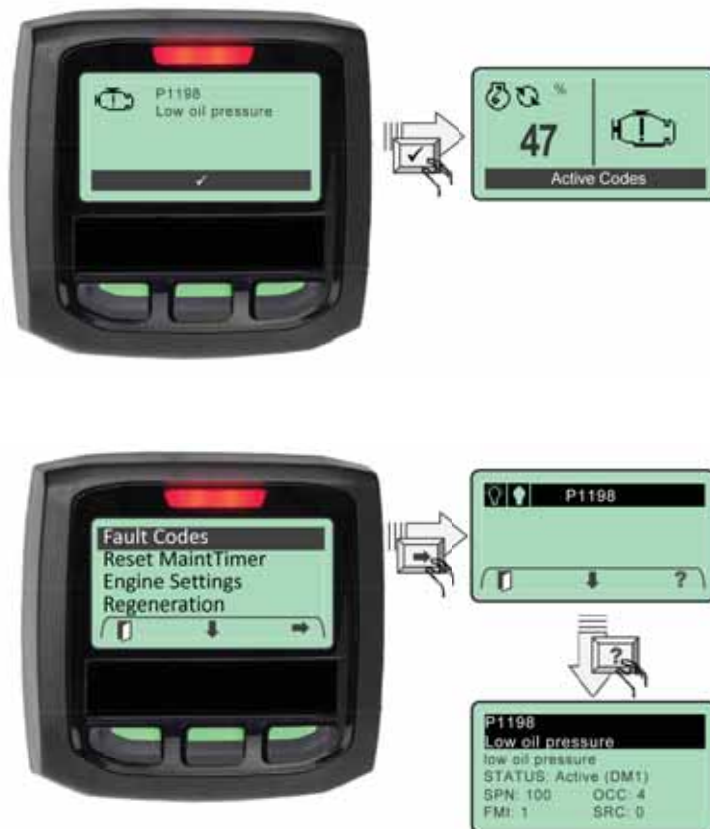
Engine fault codes (active and stored) are generated by the engine ECU and communicated to the control panel.

ACTIVE FAULT CODES

The control system reads standard messages to indicate active fault codes. When a fault is active the control system activates a popup fault display containing a check engine icon, fault code number (if applicable), a description of the active fault and an “Active Codes” alarm stripe at the bottom of the display. The control system will activate the red LED fault indicator above the digital display.

When an active fault is presented, the user must acknowledge the fault by pressing the softkey indicated. See “Acknowledging Active Faults” section.

After acknowledging a fault condition, the system will return to normal display operation. The controller will indicate that an active fault is present by displaying a “Check Engine” icon on the main data display. The system will also display an “Active Codes” alarm stripe at the bottom of the display.



ACKNOWLEDGING ACTIVE FAULTS

When the control system receives a new fault, the digital display responds by overlaying a fault pop-up graphic onto the currently active runtime display. This alerts the operator, signaling a response is needed by the operator. The display above (top) represents an unacknowledged fault for an oil pressure fault condition. To acknowledge an active fault, press the “Acknowledge” softkey (middle) button. This will remove the pop-up graphic. The control system will continue to inform the operator that a fault is active or until the fault is corrected.

Note: If the fault condition is cleared the associated pop-up will be automatically removed.

STORED FAULT CODES

The control unit allows the operator to request any stored fault codes that may be contained in the engine ECU. To view stored faults select the “Fault Codes” menu selection from the main menu. The control system will send a request to the engine ECU for any faults that the ECU may have stored. Should any faults exist, the control unit will display a list of the active and stored faults. The list will show if the fault is Active, Stored or both. The list will contain the engine manufacturer specific Fault Code (if available) for the fault condition. To view more detailed information about any of the fault conditions listed, navigate to the desired fault condition and select the “?” softkey. A more detailed description of the fault will be presented along with the current Status.

MAINTENANCE TIMER

The control system provides an engine maintenance timer feature. The maintenance timer is a countdown timer and indicates the amount of engine runtime remaining until maintenance is due. The maintenance timer is configurable and resettable by the operator. If the system is powered but the engine is not running maintenance hours will not be accumulated.

Note: Setting the timer to 0 will disable the maintenance timer operation.

The Maintenance Timer is factory-set to 250 hours.

MAINTENANCE TIMER ALERT

When the maintenance timer expires the system will activate an “Engine Maintenance Due” alert popup window. If the maintenance due alert is acknowledged but the timer is not reset the alert popup will re-initiate for each key “ON” cycle.

ACKNOWLEDGING MAINTENANCE TIMER

Acknowledge the maintenance alert by selecting the acknowledge “✓” softkey.



RESETTING MAINTENANCE TIMER

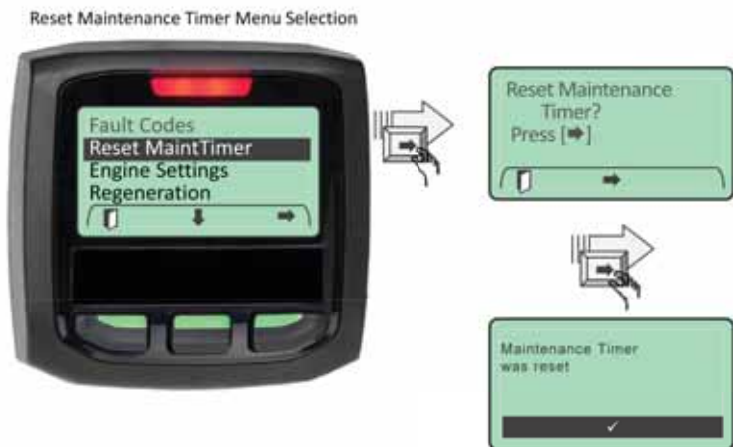
The maintenance timer is operator configurable and can be accessed through the engine settings menu. See “Reset MaintTimer” selection in engine settings menu. When the maintenance timer has expired, a pop-up alert window indicating that “Engine Maintenance is Due” will be displayed. The operator must acknowledge this pop-up to return the control unit to normal display operation.

To reset the maintenance timer enter the Main Menu and then scroll to the “Reset MaintTimer” entry using the “↓” softkey. Press the “→” softkey to select the reset maintenance timer menu item.

Press the “→” softkey to reset the timer.

Acknowledge the timer was reset by pressing the Acknowledge “✓” softkey.

Note: The maintenance hours data display will indicate 0 hrs when the timer has expired and the operator has not yet reset the timer.



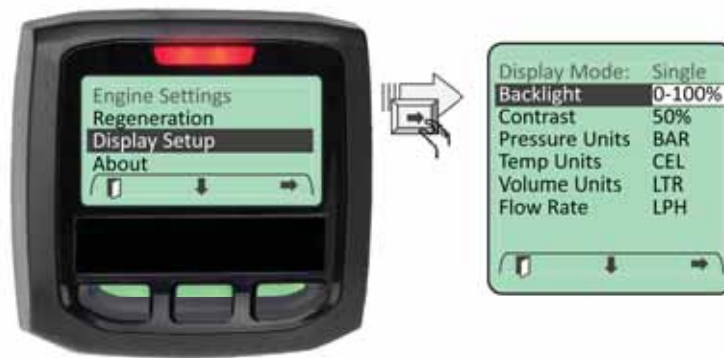
BACKLIGHT SETTING

The LCD backlight is adjustable from 0 to 100%. To adjust the LCD backlight enter the Main Menu and navigate to the “Display Setup” menu using the “↓” softkey.

When highlighted enter the Display Setup menu by selecting the “→” softkey. Navigate through the “Display Setup” menu using “↓” softkey until the “Backlight” entry is highlighted.

Press the “→” softkey to select the backlight parameter setting.

Use the “+” / “-” softkeys to set the backlight value.



CONTRAST SETTING

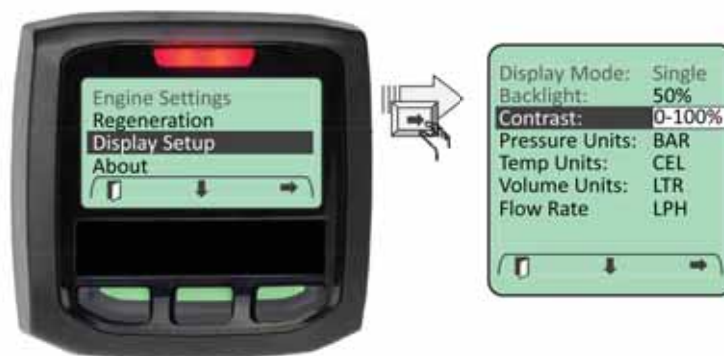
The LCD contrast is adjustable from 0 to 100%. To adjust the LCD contrast enter the Main Menu and navigate to the “Display Setup” menu using the “↓” softkey.

When highlighted enter the Display Setup menu by selecting the “→” softkey. Navigate through the “Display Setup” menu using “↓” softkey until the “Contrast” entry is highlighted.

Press the “→” softkey to select the contrast parameter setting.

Use the “+” / “-” softkeys to set the contrast value.

Note: Setting the contrast value below 30 may render the display to be unreadable.



DISPLAY MODE SETTING

Two display formats are available: “Single” display and “Dual” display formats. To access the display format setting, enter the Main Menu. Navigate to the “Display Setup” menu entry using “↓” softkey. When highlighted, enter the Display Setup menu by selecting the “→” softkey. Navigate through the “Display Setup” menu using “↓” softkey until the “Display Mode” entry is highlighted.



Display Mode:	Single
Backlight	Dual
Contrast	50%
Pressure Units	BAR
Temp Units	CEL
Volume Units	LTR
Flow Rate	GPH

Choose the desired display mode setting by cycling through the list of choices using the Change “↔” softkey.

DEFAULT DISPLAY

To configure a particular display as the default startup display, access the desired display and leave active for 5 minutes. The system will automatically set this display as the default startup display



Language	English
Display Mode	Single
Backlight	80
Contrast	50



Language	English
Display Mode	Single
Backlight	80
Contrast	50



Language	English
Display Mode	Single
Backlight	80
Contrast	50



Display Mode	Single
Backlight	80
Contrast	50
Pressure Units	PSI



Backlight	80
Contrast	50
Pressure Units	PSI
Temp Units	FAHR



Contrast	50
Pressure Units	PSI
Temp Units	FAHR
Volume Units	GAL



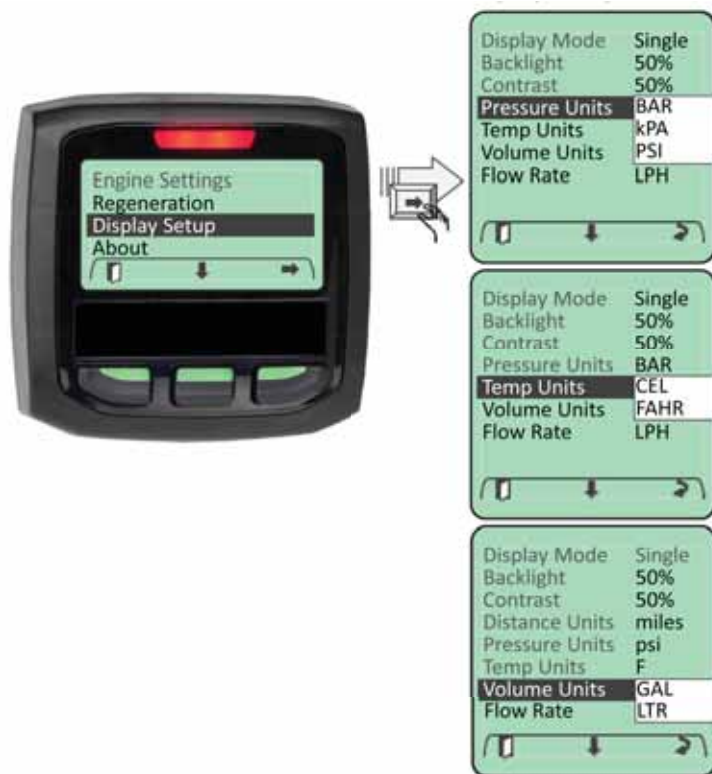
Contrast	50
Pressure Units	PSI
Temp Units	FAHR
Volume Units	GAL

ENGINEERING UNITS

Displayed engineering units can be configured for Pressure, Temperature and Volume. To access the engineering unit's settings, enter the Main Menu. Navigate to the "Display Setup" menu entry using "↓" softkey.

When highlighted enter the Display Setup menu by selecting the "→" softkey. Navigate through the "Display Setup" menu using "↓" softkey until the desired engineering unit's parameter is highlighted.

Choose the desired parameter setting by cycling through the list of choices using the change soft key.

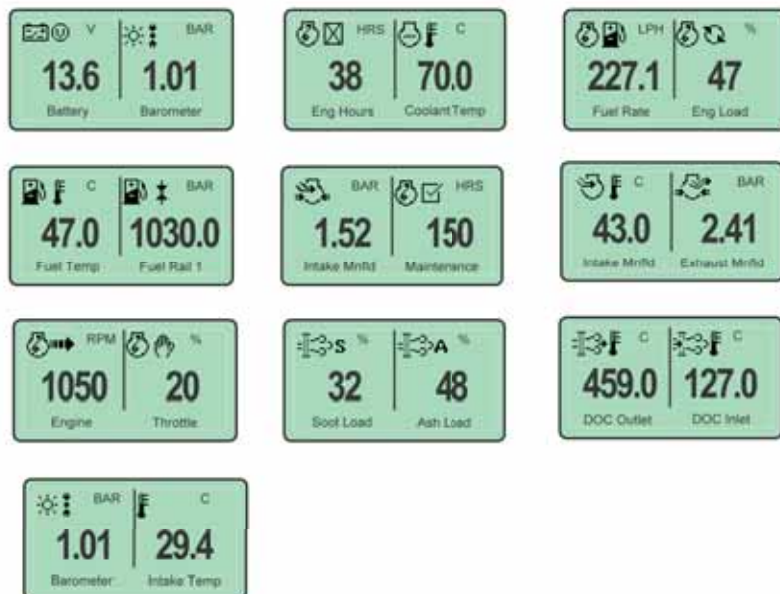


DISPLAY LIST

SINGLE DATA FORMAT



DUAL DATA FORMAT



MISCELLANEOUS DISPLAYS



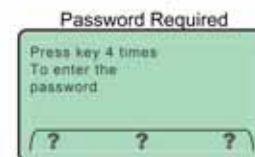
ABOUT MENU

The About Menu indicates the software information used for programming the control unit.



ENGINE SETTINGS

The Engine Settings are factory-specified. This feature is password-protected to ensure the correct use of the engine in this unit.




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 recirculation valve, close discharge valve, disengage (turn off) pump clutch, place agitator control in the **NEUTRAL** position and turn the hydraulic switch to the **REGEN INTERLOCK** (down) position.

1. Turn key clockwise to the **ON** “**I**” position. This will activate the control panel and apply power to the engine ECU. Check the digital display of the control panel for any fault codes.
If there are fault codes, determine and fix the fault problem before moving on. If a fault condition exists, the engine ECU may prevent the engine from starting.
2. Turn the key clockwise to the **START** “” position until the starter engages and the engine starts.
3. Allow engine to warm up for 3 to 5 minutes before operation.



NOTE: This engine has a safety system that will shut the engine off if the engine oil pressure drops below 10 psi (69 kPa) or if the water temperature reaches 225°F (107°C).

4. 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.

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 pounds per 1,000 square feet; fertilizer is applied at a rate of approximately 400 pounds per acre; and fiber mulch is applied at 1,500–2,000 pounds per acre. (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 following tables show loading versus coverage rates for the FINN T170 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 pounds (kilograms)</u>			<u>Coverage Area</u>	
	<u>Seed</u>	<u>Fertilizer</u>	<u>Mulch</u>	<u>sq. ft. (sq. m)</u>	
T170	172 (78)	200 (91)	750 (340)	21,780 (2,023)	

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

TABLE A EXAMPLE:

$$\frac{400 \text{ lbs. (181 kg) Mulch per Tank}}{1,500 \text{ lbs. (680 kg) Mulch per Acre}} = 0.267 \text{ Acre per Load}$$

$$400 \text{ lbs. (181 kg) Fertilizer per Acre} \times 0.267 \text{ Acre} = 107 \text{ lbs. (48 kg) Fertilizer per Load}$$

$$345 \text{ lbs. (156.5 kg) Seed per Acre} \times 0.267 \text{ Acre} = 92 \text{ lbs. (42 kg) Seed per Load}$$

TABLE B

Seed and Fertilizer Only

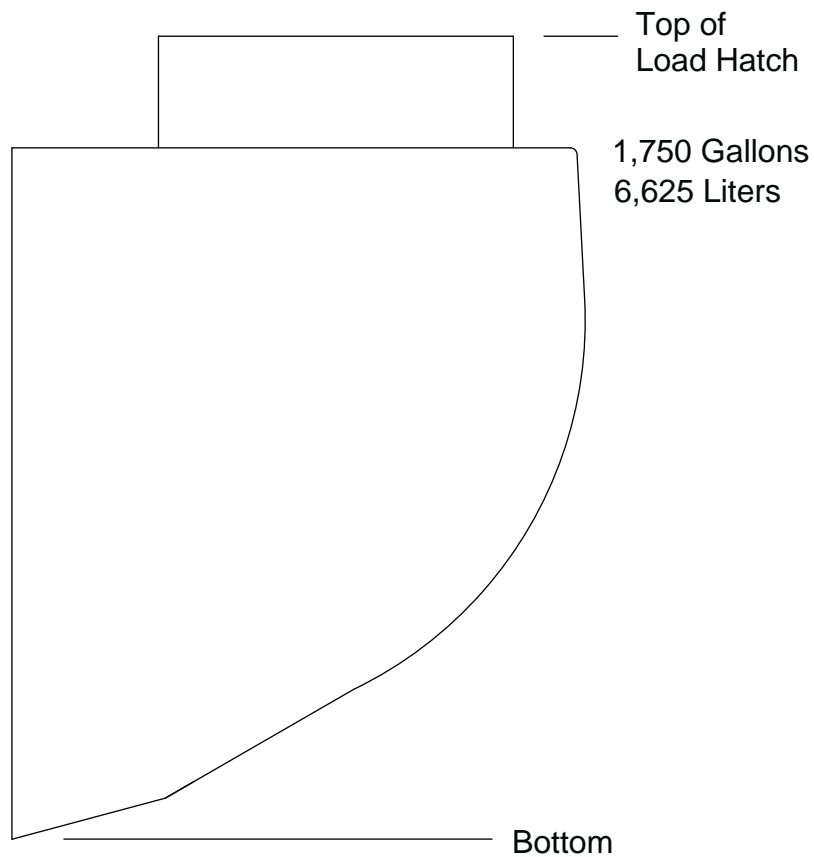
<u>Unit</u>	<u>Amount of Material in Tank in pounds (kilograms)</u>			<u>Coverage Area</u>	
	<u>Seed</u>	<u>Fertilizer</u>	<u>Total</u>	<u>sq. ft. (sq. m)</u>	<u>Acreage (Hectare)</u>
T170	1,742 (790)	2,000 (907)	3,742 (1,697)	217,800 (20,233)	5 (2.02)

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

TABLE B EXAMPLE:

$$\frac{3,742 \text{ lbs. (1697 kg) Tank Capacity (Solids)}}{8 \text{ lbs. (3.6 kg) of Seed} + 9.2 \text{ lbs. (4.2 kg) of Fertilizer per 1,000 sq. ft.}} = 217,800 \text{ sq. ft. per Load}$$

$$\frac{8 \text{ lbs. (3.6 kg) of Seed}}{1,000 \text{ sq. ft.}} \times 217,800 \text{ sq. ft.} = 1,742 \text{ lbs. (790 kg) of Seed per Tank}$$



T170		
Gallons (Liters)	in. (cm) From Top of Load Hatch	in. (cm) From Bottom
1,700 (6,435)	9.5 (24.1)	49.25 (125.1)
1,600 (6,055)	12 (30.5)	46.75 (118.7)
1,500 (5,678)	14.25 (36.2)	44.5 (113)
1,400 (5,300)	16.5 (42)	42.25 (107.3)
1,300 (4,921)	18.75 (47.6)	40 (101.6)
1,200 (4,542)	21.25 (54)	37.5 (95.25)
1,100 (4,164)	23.5 (59.7)	35.25 (89.5)
1,000 (3,785)	25.75 (65.4)	33 (83.8)
900 (3,406)	28 (71.1)	30.75 (78.1)
800 (3,028)	30 (76.2)	28.75 (73)
700 (2,650)	32.5 (82.5)	26.25 (66.7)
600 (2,271)	35.25 (89.5)	23.5 (59.7)
500 (1,892)	37.75 (95.9)	21 (53.3)
400 (1,514)	40.25 (102.2)	18.5 (47)
300 (1,135)	43.25 (110)	15.5 (39.4)
200 (757)	46.75 (118.7)	12 (30.5)
100 (378)	50.25 (127.6)	8.5 (21.6)

Figure 7 – Tank Capacity

LOADING (FOR WOOD FIBER MULCH, IF LIMING SEE LIMING WITH THE HYDROSEEDER® SECTION)

DANGER

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

CAUTION

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 death or serious injury. Failure to comply could also result in product or property damage.

1. With pump clutch disengaged (turned off) and agitator control in the **NEUTRAL** position, start engine and allow it to warm up. See STARTING PROCEDURE section.
2. After engine has warmed up, turn on the hydraulic system by flipping the hydraulic 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 unit with water. When water reaches the top of the agitator shaft, move agitator control to full **REVERSE** position.

Fill tank using one of the sources of water as follows:

- 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 contaminants that could damage the pump and unit.
 - B. Any pressure source, e.g. fire hydrant. This unit is supplied with a 6 in. (15.2cm) air gap fill port. Consult with local authorities before using water main in order to abide by all local ordinances.
 - C. Water tanker.
4. 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. Engage (turn on) pump clutch with a firm snap. Do NOT allow clutch to slip.
 - E. Increase engine speed to approximately 1/2 to 3/4.
 - F. When discharge stream is clear, flush out hose on reel (if applicable), open recirculation valve, and close discharge valve. After recirculation stream is clear, disengage (turn off) pump clutch.
 - G. Replace nozzle and gasket in discharge boom.
 5. Continue filling tank with water.
 6. Increase engine speed to full RPM. Governed speed of the engine on the FINN HydroSeeder® should be 2,500 RPM under load.

LOADING (FOR WOOD FIBER MULCH, IF LIMING SEE LIMING WITH THE HYDROSEEDER® SECTION) - CONTINUED

7. 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 open 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 at once, or cut bag open 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. Failure to comply could result in minor personal injury, or damage to product or personal property.*

- 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.
8. 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.
9. After material is thoroughly mixed, slow agitator in forward direction to 1/4 speed or just 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.
10. Close the hatch lid on the slurry tank.

NOTE: The slurry should not be recirculated for more than 15 minutes prior to discharge to reduce pump 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 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 unit with water from one of the water sources as listed below. When water reaches the top of agitator shaft, move agitator control to full REVERSE position.

Tank can be filled by using one of the sources of water as follows:

- 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 contaminants that could damage the pump and unit.
 - B. Any pressure source, e.g. fire hydrant. An optional air gap fill port is available for this unit but it is necessary to consult with local authorities before using a water main, in order to abide by all local ordinances.
 - C. Water tanker.
4. 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. Engage (turn on) pump clutch with a firm snap. Do NOT allow clutch to slip.
 - E. Increase engine speed to approximately 1/2 to 3/4.
 - F. When discharge stream is clear, open recirculation valve and close discharge valve. After recirculation stream is clear, disengage (turn off) pump clutch.
 - G. Replace coupler gasket in the remote valve coupler (or in boom on the platform option).
 5. Continue filling tank with water.
 6. Increase engine speed to full RPM. Governed speed of the engine on the FINN HydroSeeder® should be 2,500 RPM under load.

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

7. 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.

8. 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.
9. 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.
10. 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.

NOTE: When mixing multiple loads of BFM, FGM, SMM, and other viscous slurries, make sure to purge the lines with clear water before mixing the next load.

PRIOR TO APPLICATION

1. Operator(s) 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.

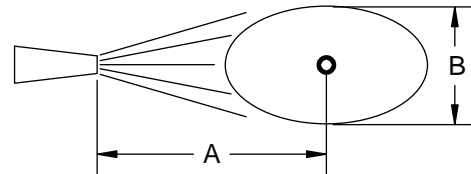


Figure 8 – Nozzle Spray Dimensions

Nozzle	Part Number	Distance (A)	Width (B)	Discharge Time
Lg. Long Distance	008465	Up to 200 ft. (61 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.

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.

APPLICATION OF SLURRY (CONTINUED)

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) 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) 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 engage (turn on) pump clutch. At this time, should the operator want to stop spraying for a short period, disengage (turn off) pump clutch. When ready to resume spraying, simply re-engage (turn on) the pump clutch.
2. When the tank is empty, or when discontinuing discharge for an extended period of time, disengage (turn off) 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.

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. Engage (turn on) the 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 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.

APPLICATION OF SLURRY (CONTINUED)

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 pump clutch and 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, signal the second operator to engage pump clutch and slowly increase the engine RPM until the desired discharge pressure is reached.
4. When finished spraying, disengage the 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.

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 pump clutch disengaged (turned off) and agitator control in the **NEUTRAL** position, 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. Engage (turn on) 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.
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) clutch.

10. Twenty lb (9.02 kg) of granular solids displaces approximately 1 gal (3.8 L) of water. When filling the tank with water, the volume of granular solids must be accounted for. For example, if using the maximum recommended capacity of 5,000 lb (2,268 kg), 250 gal (946 L) ($5,000/20 = 250$) would have to be subtracted from the total tank capacity, thus 1,750 gal (6,624 L) - 250 gal (946 L) = 1,500 gal (5,678 L). If 1,000 lb (454 kg) of solids were used, 50 gal (189 L) ($1,000/20$) would have to be subtracted, thus, 1,750 gal (6,624 L) - 50 gal (189 L) = 1,700 gal (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.
15. With the 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.

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 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) 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) 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 before installing the clamps.
 - f) Replace 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) 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 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.

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 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 manual.

Troubleshooting Chart		
Symptom	Probable Cause	Suggested Solutions
VALVE		
Valve stuck	Frozen	Thaw out ice and lubricate; leave discharge valve 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 manual.
	Restricted material flow by partially closed 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 manual.
Jumps out of engagement	Too loose or too tight.	Readjust clutch. See clutch manual.
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 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.

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 (**FORWARD** and **REVERSE**) to flush off inside of tank top and walls.
- C. Remove discharge nozzle and gasket from discharge boom.
- D. While pointing discharge toward an open area, move discharge valve foot pedal to **DISCHARGE OPEN** position and engage (turn on) pump clutch. Allow to discharge until clear water is coming out.
- E. Move recirculation valve handle to **RECIRCULATION OPEN** and allow to run until clear water is coming out.
- F. Disengage (turn off) pump clutch, idle the engine, move valve foot pedal to **DISCHARGE OPEN** position, move agitator handle to **NEUTRAL**, and turn off engine.
- G. Always remove drain plug and allow the tank to drain.
- H. In freezing weather, leave main tank drain plug out and remove pump drain plugs. Move all slurry valves to **OPEN** position.
- I. Wash the outside of the HydroSeeder®, including the radiator, to remove any corrosive materials.
NOTE: Do NOT use pressure washer to clean radiator fins.
- J. If using lime, daily maintenance should be performed after every load.
- K. Clean out extension hoses.
- L. Make sure all tank vents are clean and open. Do not plug or cap.

2. Lubricating the HydroSeeder® - See LUBRICATION AND FLUIDS CHART.

⚠ CAUTION *Lubrication should be performed IMMEDIATELY AFTER cleaning of the equipment, making sure the engine is not running. Failure to comply could result in minor or moderate personal injury. Failure to comply could also result in product or property damage.*

- 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. See EQUIPMENT CHECK section.
- C. Check the engine oil and replenish when necessary. Change oil and filter after first 100 hours, then 500 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 OPERATION

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 section of the CLEANING AND MAINTENANCE section and the LUBRICATION AND FLUIDS CHART section. 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 pump clutch adjustment to ensure that it "snaps" in and out of engagement. Adjust the pump clutch with the engine off.
5. Check the anti freeze in the radiator.
6. Inspect the slurry tank for build-up of residue in the suction area and clear if necessary.
7. Check and clean engine radiator fins. 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 and replace bolts if any show signs of wear.

SEASONAL AND WINTER STORAGE MAINTENANCE

1. Drain the slurry tank of all water, prior to storage, and leave the drain plug uninstalled.
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. 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.
5. Chip and steel brush any interior rust spots in the slurry-tank and touch up with paint. See Numbers 2 and 3 in IV. MAINTENANCE of the HYDROSEEDER® SAFETY SUMMARY SECTION.
6. Lubricate all fittings.
7. Check anti freeze in radiator.
8. 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 Mobil DTE-10 Excel 32 or equivalent 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 25 micron absolute filter (FINN part number 008703). The hydraulic system relief is factory-set at 2,800 psi (19,305 kPa).

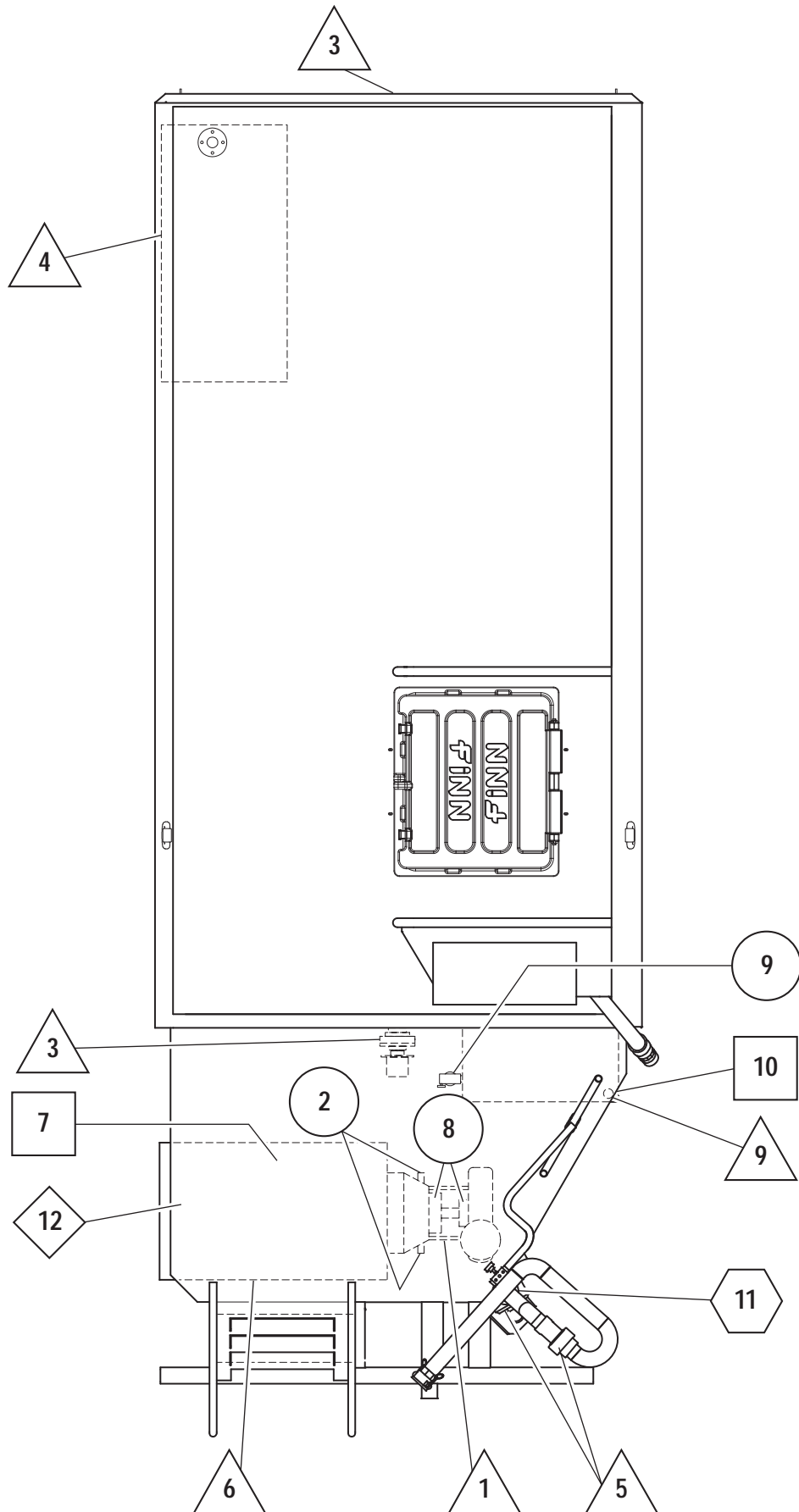


Figure 9 – Lubrication and Adjustment Points

LUBRICATION AND FLUIDS CHARTS






LUBRICATION 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	2
4	Check Fuel Level	DF	Daily	1
5	Grease Discharge Boom Swivels	CL	Daily	2
6	Check Engine Oil Level	MO	Daily	1
7	Change Engine Oil and Filter	MO	See Engine Manual	1
8	Grease Pump Bearings	BL	Weekly	2
9	Check Hydraulic Fluid Level	HO	Daily	1
10	Change Hydraulic Fluid and Filter	HO	Seasonally or 500 Hours	1
11	Grease Discharge and Recirculation Valves	SL	Each Load	1
12	Change Engine Coolant	AF	Seasonally	1

LUBRICANT OR FLUID USED

BL	Bearing Lube (Sodium-Based)
CL	Chassis Lubricant
MO	Motor Oil – See Engine Manual
HO	Mobil DTE-10 Excel 32 or Equivalent Hydraulic Oil
SL	Special Stick Lubricant
AF	50/50 Anti Freeze and Water Mixture
DF	Diesel Fuel

TIME KEY

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

FLUID CAPACITIES

Fuel - 38 gallons (144 L)
 Hydraulic Oil - 22 gallons (83 L)
 Engine Coolant - 3.27 gallons (12,38 L) 50/50 Mix Only
 Engine Oil - See Engine Manual

CLUMP MAINTENANCE



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

A. FACTORY TOLERANCES

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 the impeller and the suction cover. This measurement on a new clump is between .040 and .045 in. (1.00 and 1.15 mm).

B. IMPELLER CLEARANCE

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

1. Loosen the four bolts with nuts on pump suction cover and push into pump casing until pump suction cover hits pump impeller. Pump impeller should be in full contact with pump suction cover.
2. Tighten the eight housing bolts finger tight. Pump impeller should rub the pump suction cover and not turn easily through one revolution.
3. Tighten the four bolts with nuts finger tight until they touch the pump casing.
4. Back off the eight housing bolts 3/4 turn.



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

5. Tighten the four bolts with nuts 3/4 turn and tighten the four nuts to 15 lb-ft (20 N•m).
6. Tighten the eight housing bolts to 15 lb-ft (20 N•m). Clearance gap should be about 0.040 in. (1.00 mm). Check to see if pump impeller turns freely through one revolution.

C. CLEANING

1. To clean pump impeller, loosen the two Victaulic pipe clamps and remove the suction pipe assembly. The eye of the pump impeller can then be seen through the pump suction cover and is readily accessible for cleaning.
2. To further access pump impeller, remove the eight housing bolts holding pump suction cover in place. Remove pump suction cover, being careful not to damage the o-ring.
3. To remove the pump impeller, take the pump 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 pump casing. The 90 degree leg of the wrench should face in toward the pump impeller and be positioned between any two of the pump impeller fins. Bolt the wrench securely in place with one of the suction cover bolts. Using a pipe wrench on the clump shaft, unscrew pump impeller turning clump shaft in a clockwise direction. Be careful not to unscrew pump impeller too far before removing the puller wrench.

D. INSTALLING NEW SEAL ASSEMBLY

NOTICE

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, perform the steps in CLEANING of the CLUMP MAINTENANCE section, and remove pump casing by removing three bolts holding the pump casing to the clump housing.
2. After cleaning all parts, including pump shaft, begin reassembly of pump. Install seal grease retainer with the cavity portion of seal facing outward. Rebolt pump casing onto clump housing using three bolts previously removed. 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 the shaft. Lubricate the inside of the bellows assembly with a light oil lubricant and check to make sure the steel ring is stuck (glued) to the end of the assembly. Slide the bellows assembly onto pump shaft and push until the steel ring is against the ceramic seat.
3. Install the seal spring on the hub of pump impeller. After coating the threads on the clump shaft with an anti-seize compound, install the pump impeller, seating it securely.

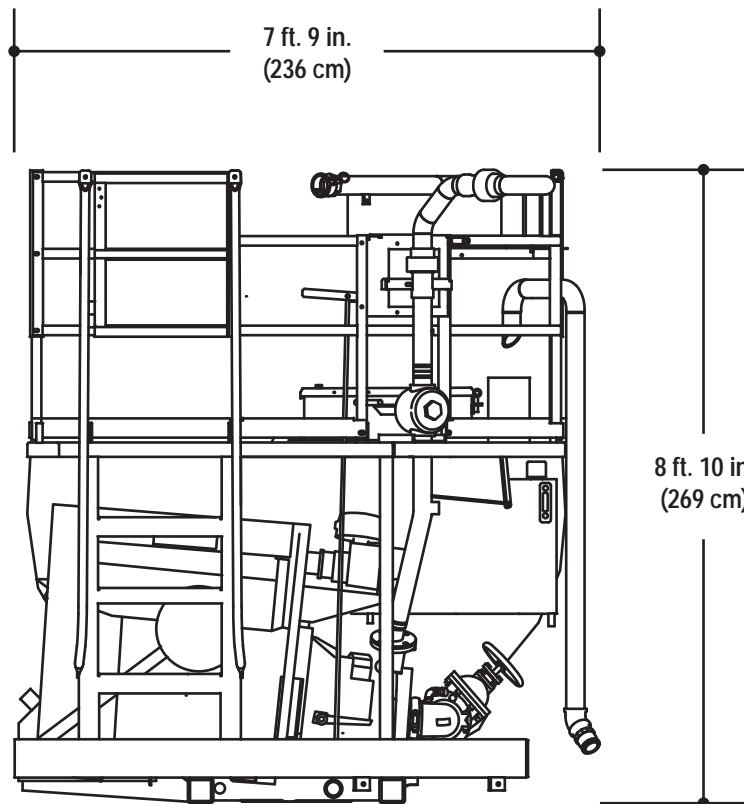
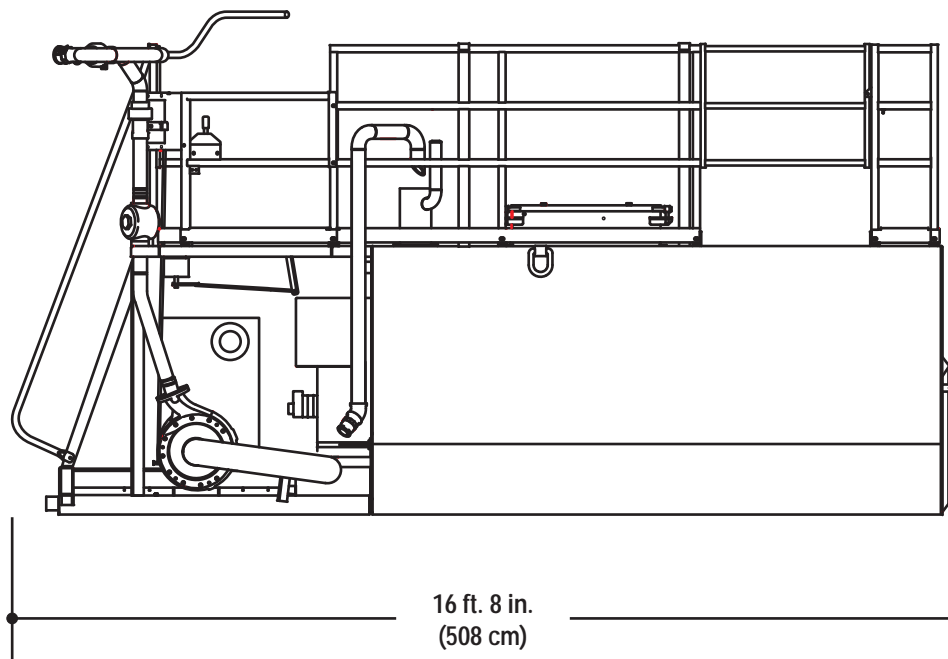
CAUTION

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

4. Reinstall pump suction cover using the eight housing bolts previously removed as well as the o-ring. At this time, check to see that the clump runs freely. If pump impeller rubs pump suction cover, you do not have impeller tight on clump shaft or the pump suction cover needs to be readjusted. See IMPELLER CLEARANCE of the CLUMP MAINTENANCE section. Tighten bolts uniformly using 15 lb-ft (20 N•m) on the torque wrench.

NOTE: Apply a coating of grease to the o-ring seal before reinstalling the suction cover.

5. After reinstalling suction pipe assembly, lubricate and tighten Victaulic clamps. Service automatic pressure lubricator. See EQUIPMENT CHECK section.



FINN T170 HYDROSEEDER® TECHNICAL SPECIFICATIONS

POWER	Cummins QSF 2.8 L Diesel, Tier 4F, 65 hp (48kW), with over-center clutch. Vibration isolated. Controls include: clutch, agitator direction and speed, discharge boom and recirculation control valves, engine throttle, safety horn and engine start/stop
ENGINE SAFETY SYSTEM	Low oil pressure, Electronic Engine Control and Monitoring
TANK SIZE.....	1,750 gallon (6,625 L) liquid capacity 1,500 gallon (5,678 L) working capacity
FUEL TANK CAPACITY	38 gallon (145 L)
PUMP.....	Centrifugal 4 in. x 2 in. (10.2 cm x 5 cm) 320 GPM @ 115 psi (1,210 LPM @ 792 kPa), 1 in. (2.54 cm) solid clearance
PUMP DRIVE.....	Direct drive with over center clutch, pump drive is independent of agitator operation
AGITATION	Mechanical paddle agitation and liquid recirculation
AGITATOR DRIVE	Reversible, variable speed hydraulic motor drive (0–130 RPM)
DISCHARGE DISTANCE.....	Up to 200 ft. (61 m) from discharge tower
MATERIAL CAPACITY.....	5,000 lbs. (2,268 kg) granular solids 750 lbs. (340 kg) fiber mulch
NOZZLES	(2) narrow fan, (2) wide fan, (2) long distance
EMPTY WEIGHT	6,770 lbs (3,071 kg)
WORKING WEIGHT*.....	24,300 lbs (11,022 kg)
GVWR.....	15,000 lbs (6,804 kg)

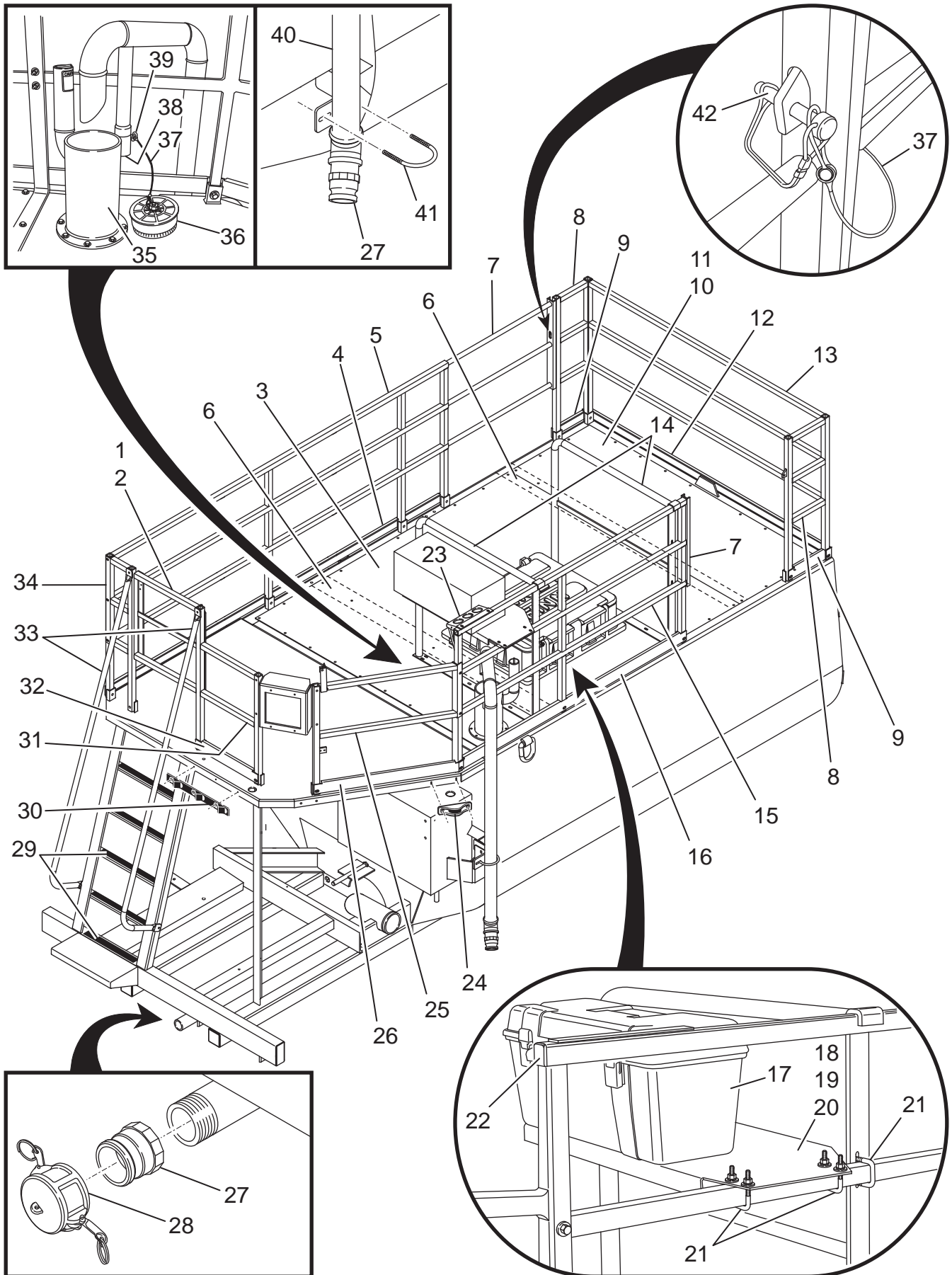
** Working weights are approximate and do not include options or stored materials.
Working weights are based on material at 750 lbs./cu. yd.*

NOTES

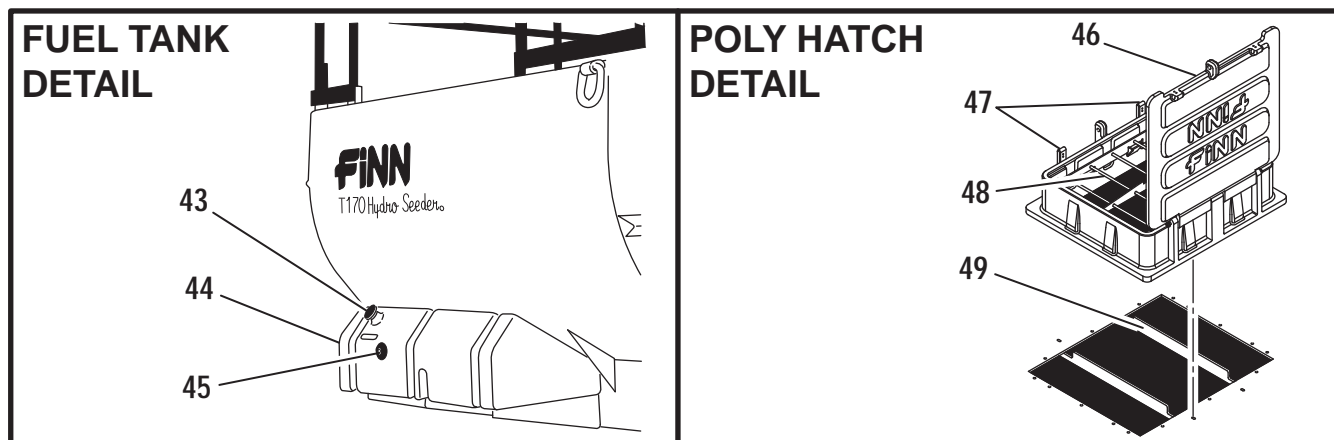
T170 HydroSeeder[®]

Parts Section

Model **ML**



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



STRUCTURE AND RAILING

Ref. No.	Part Number	Description	No. Req'd
1	013149	Swing Gate	1
2	013122	Gate Spring	1
3	F330-0108	Main Tank Top	1
4	F170-0015	Left Side Toe Rail	1
5	008639	Left Side Guard Rail	1
6	F330-0120	Front Tank Top Support	2
7	012703	Slide Gate	2
8	012737	Front Side Rail	2
9	F280-0005	Front Side Toe Rail	2
10	F330-0109	Small Tank Top	1
11	190047	Foam Gasket for Tank Top	A/R (ft.)
12	F330-0082	Front Toe Rail	1
13	012705	Front Guard Rail	1
14	012708	Hatch Guard Rail	2
15	012702	Right Rear Guard Rail	1
16	F330-0086	Right Rear Toe Rail	1
17	012669	Toolbox	1
18	F330-0078	Tool Box Mount	1
19	085152	Rubber Stud Mount	2
20	005619	U-Bolt For 1-1/4 in. Pipe	2
21	012514	Square U-Bolt For 1-1/2 in. Square Pipe	6
22	005613	Square Tubing Plug	25
23	F330-0075	Nozzle Holder	1
24	002290	Rear Marker Light - Red	2
25	012736	Rear Corner Guard Rail	1

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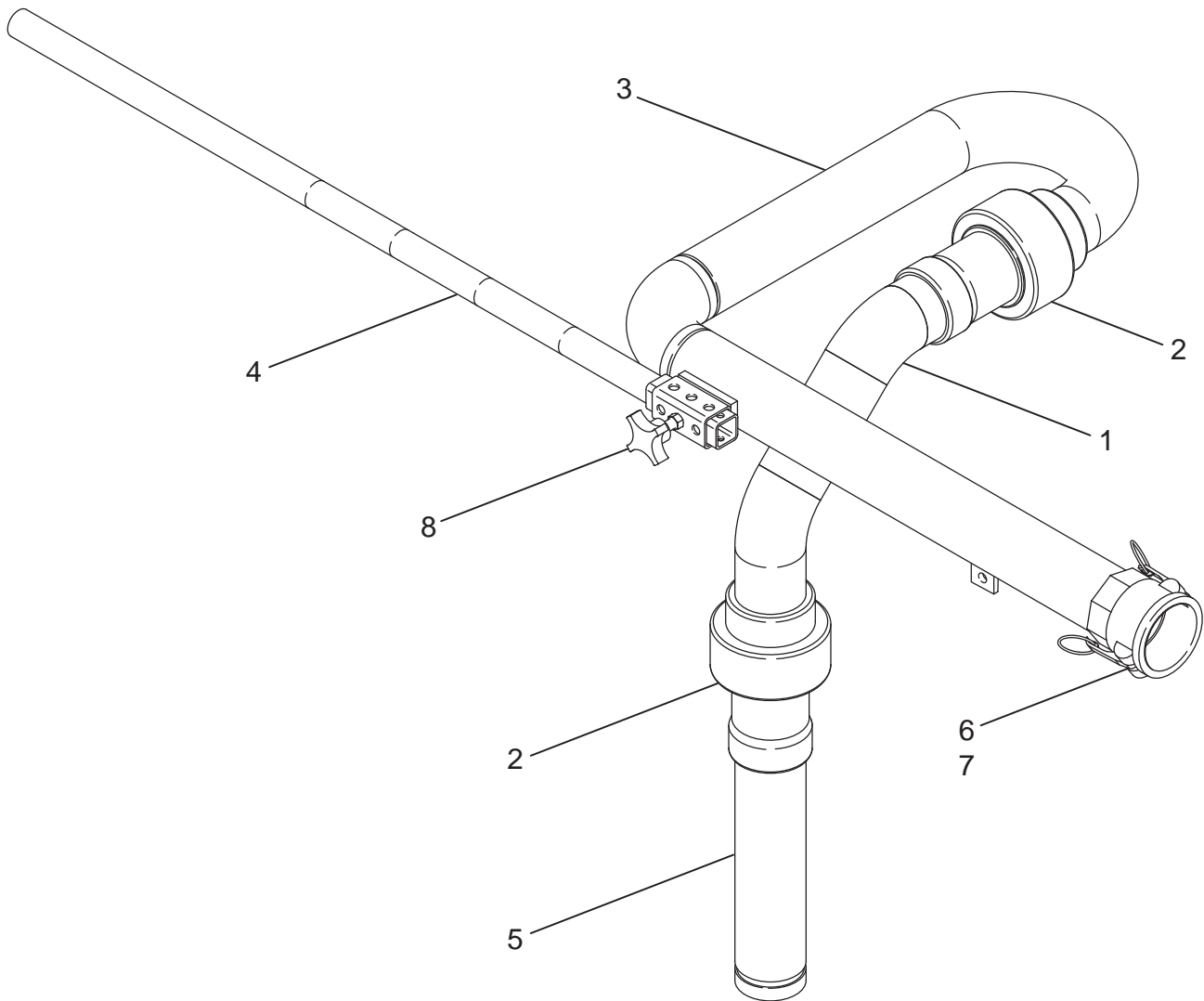
STRUCTURE AND RAILING

Ref. No.	Part Number	Description	No. Req'd
26	F330-0084	Rear Corner Toe Rail	1
27	002191	2-1/2 in. Male Brass Adapter	2
28	002190	Dust Cap with Gasket - Main Tank Drain	1
	006513	Dust Cap Gasket	1
29	190018	2 in. Wide Conformable Safety Walk	A/R (ft.)
30	005944	LED Identification Light	1
	005945	Wire Sleeve	1
31	012701	Long Rear Guard Rail	1
32	F330-0089	Long Rear Toe Rail	1
33	012771	Ladder Hand Rail	2
34	013151	Short Rear Guard Rail	1
35	012750	Fill Stack Extension	1
36	008470	Fill Port Plug	1
37	005700	Nylon Lanyard	3
38	012515	1-1/4 in. Pipe Plug	1
39	012296	Closed "S"-Hook	2
40	012829	Fill Port	1
41	085148	U-Bolt	1
42	FW71225	Snapper Pin	2
43	005726	Fuel Cap (Diesel)	1
44	012693	Poly Fuel Tank	1
	012693-V	Drain Valve	1
	012693-G	Grommet for Drain Valve	1
45	012694	Fuel Gauge	1
46	012833	Poly Hatch Assembly	1
	190047	Foam Gasket	A/R (ft.)
47	005433	Soft Latch	2
48	012834	Bag Cutter - Stainless Steel	1
49	F120-0006	Hatch Safety Rail	1

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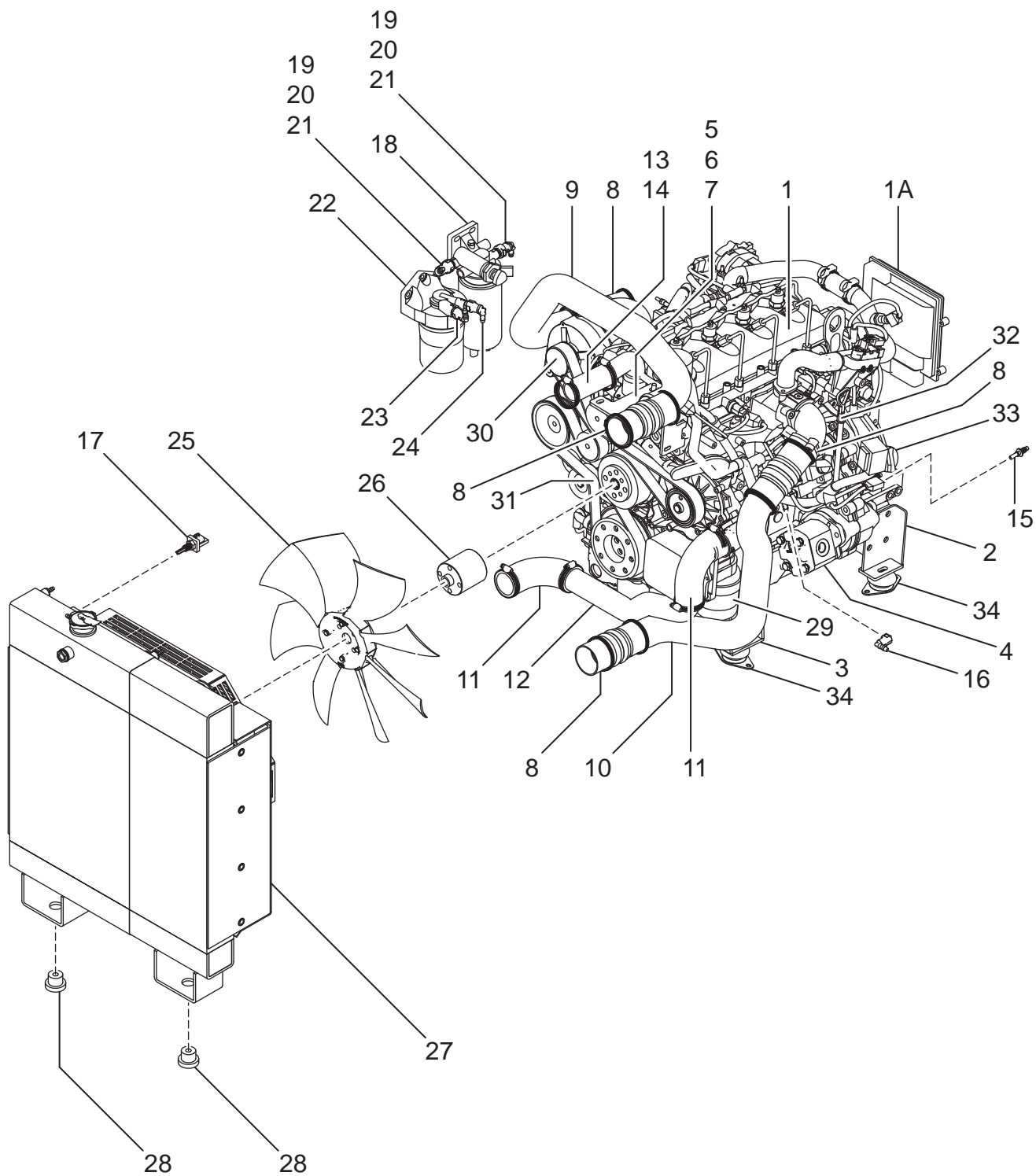


**WHEN ORDERING PARTS, BE SURE TO STATE
SERIAL NUMBER OF MACHINE**

DISCHARGE BOOM ASSEMBLY

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

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ENGINE

Ref. No.	Part Number	Description	No. Req'd
1	075880	QSF 2.8 Engine	1
1A	075880-ECM	Engine ECM (Supplied with Engine)	1
	008768	ECM Mounting Isolators	4
2	008735	Rear Left Engine Foot	1
3	008737	Front Left Engine Foot	1
4	008762	Hydraulic Pump	1
5	008758	Upper Radiator Support	1
6	023438	Radiator Isolator	1
7	008757	Upper Radiator Support Bracket	1
8	CUM50000600	Air Intake Hose	4
	007391	Air Intake Hose Clamp	8
9	008819	CAC Inlet Tube	1
10	008822	CAC Outlet Tube	1
11	008823	Coolant Elbow	2
	022450	Coolant Elbow Clamp	4
12	008820	Coolant Tube Inlet	1
13	00817	Coolant Hump Hose	1
	022450	Coolant Hump Hose Clamp	2
14	008821	Coolant Outlet Pipe	1
15	008835	Male Quick Conector	1
16	008828	Female Quick Connector	1
17	008824	Coolant Level Sensor	1
18	075884	Stage 1 Fuel Filter Assembly	1
	075884-04	Stage 1 Fuel Filter Spin-on Element	1
19	008813	Sealing Washer	2
20	008814	Male Quick Connector	2
21	008815	Female Quick Connector	2
22	075886	Stage 2 Fuel Filter Assembly	1
	075886-03	Stage 2 Fuel Filter Element	1
	075886-04	Stage 2 Fuel Filter Housing O-ring	1
23	008816	Female Quick Connector	1
24	008812	Female Quick Connector	1
25	008754	Radiator Fan	1
26	008755	Radiator Fan Spacer	1
	●	M10 x 110 Gr. 10.9 Hex Head Bolts	4
27	008763	Radiator	1
28	075205	Radiator Isolators	2

Continued to next page.

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SERIAL NUMBER OF MACHINE**

ENGINE

Ref. No.	Part Number	Description	No. Req'd
29	008809	Engine Oil Canister Element	1
30	008808	120 V Alternator	1
31	008830	QSF 2.8 Fan Belt	1
32	008854	Oil Dipstick and Guide Assembly	1
	008854-01	Oil Dipstick	1
	008854-02	Oil Dipstick Guide Tube	1
33	008855	Oil Fill Cap Assembly	2
34	085303-18	Engine Isolators	4

NOT SHOWN

	008736	Rear Right Engine Foot	1
	008738	Front Right Engine Foot	1
	008810	12 V/3kW Starter	1
	008831	QSF 2.8 Thermostat	1
	008832	QSF 2.8 Thermostat Seal	1

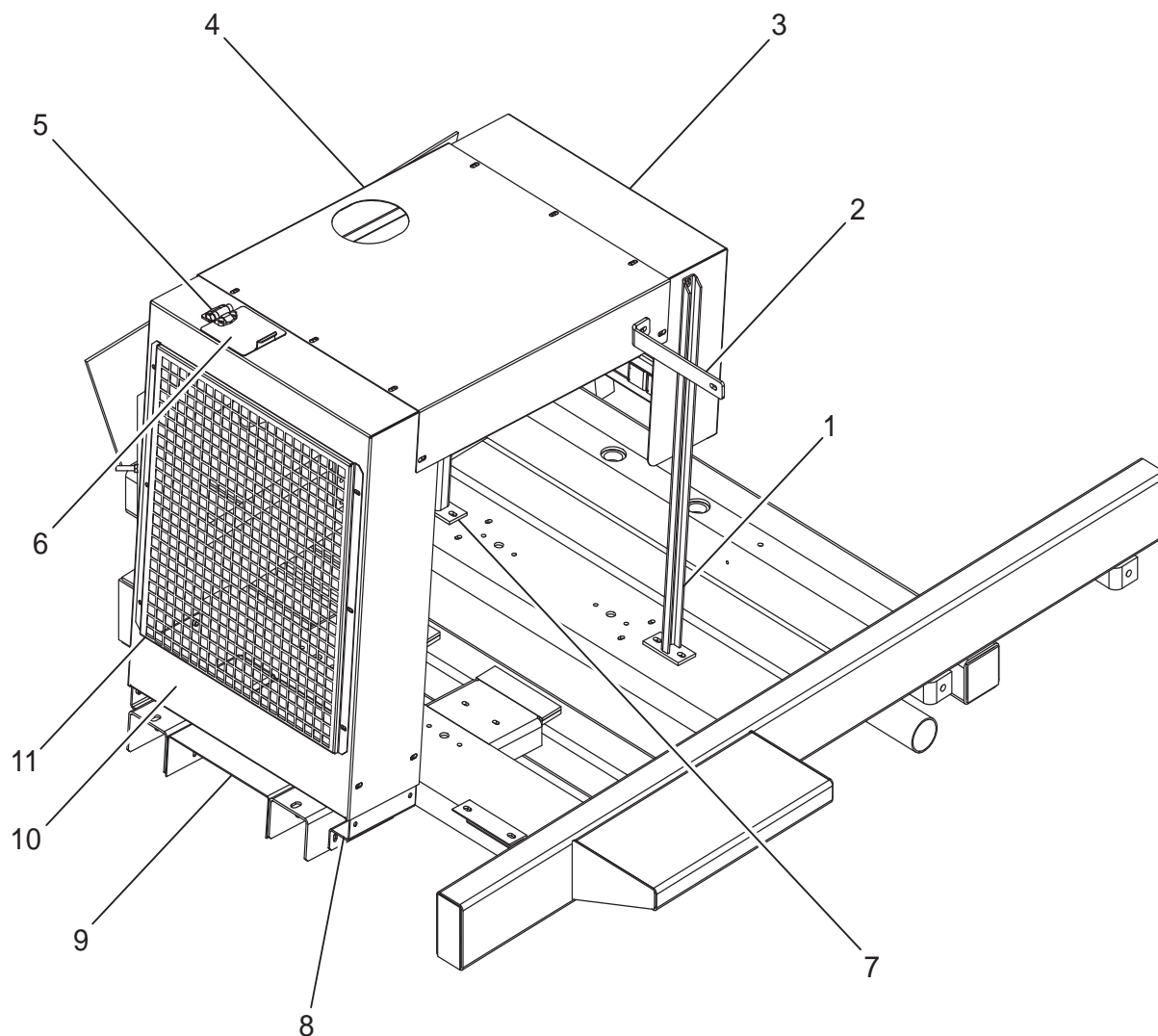
KITS AND MARKERS

- Standard Hardware Item - Available at your local hardware store.

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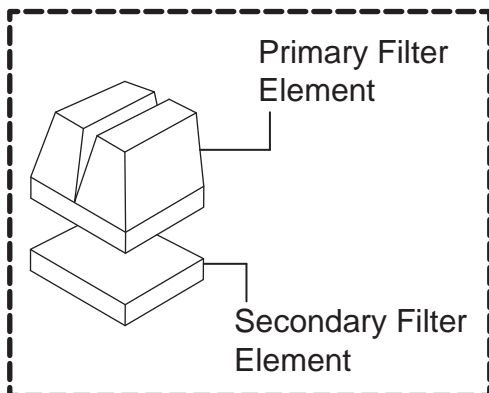
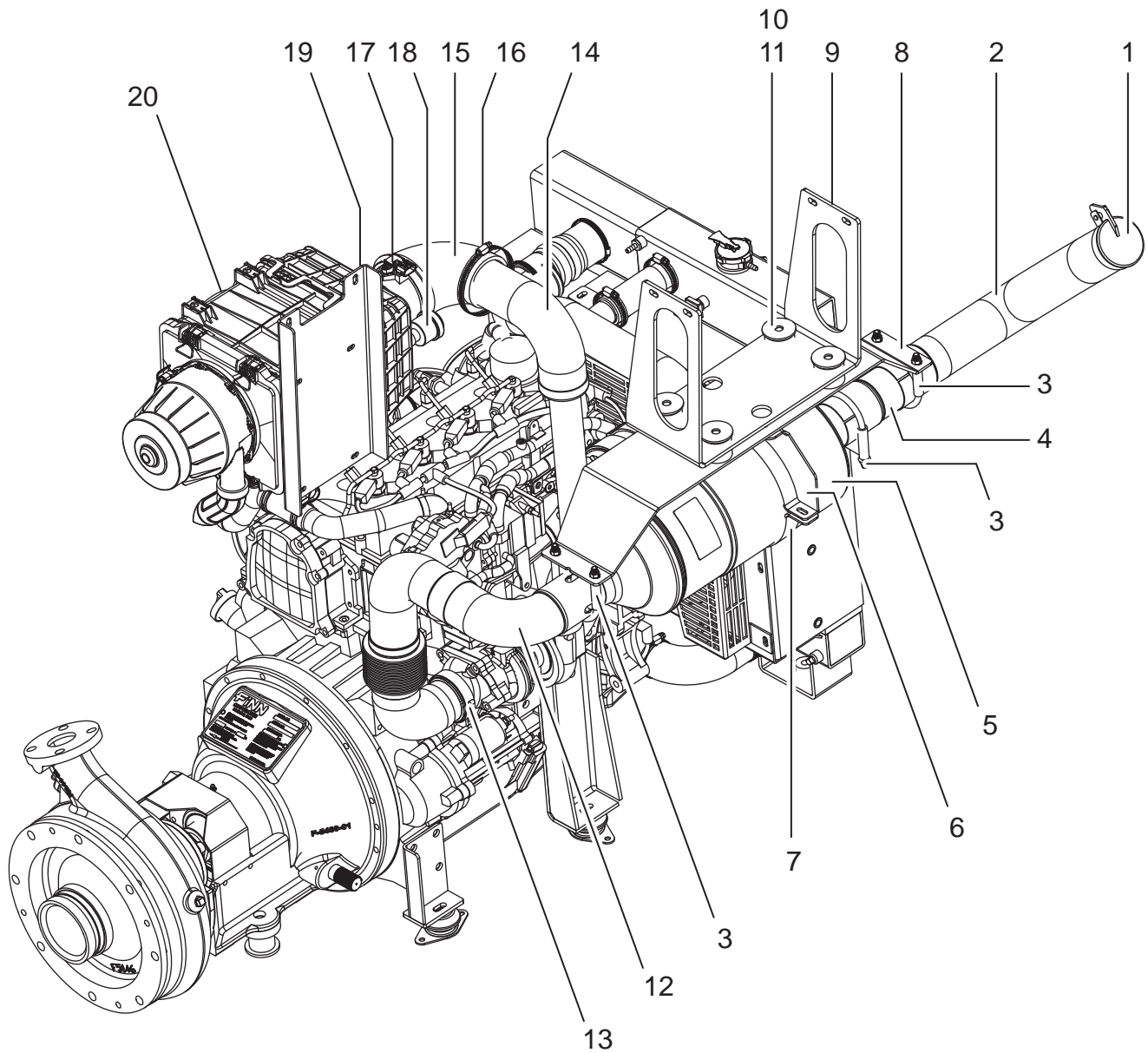


**WHEN ORDERING PARTS, BE SURE TO STATE
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ENGINE SHEET METAL

Ref. No.	Part Number	Description	No. Req'd
1	008664	Rear Sheetmetal Mount Leg (Long)	1
2	008784	Sheetmetal Support Bracket	1
3	008740	Rear Sheetmetal Cover	1
4	008742	Top Sheetmetal Cover	1
5	055669	Door Positioning Hinge	1
	F260-0006-03	Hinge Spacer	1
6	F260-0006-02	Radiator Cap Cover	1
7	008745	Rear Sheetmetal Mount Leg (Short)	1
8	F170-0026	Radiator Cover Mount Bracket	2
9	F170-0020	Radiator Pan	1
10	008743	Radiator Cover	1
11	075562-01	Radiator Screen	1

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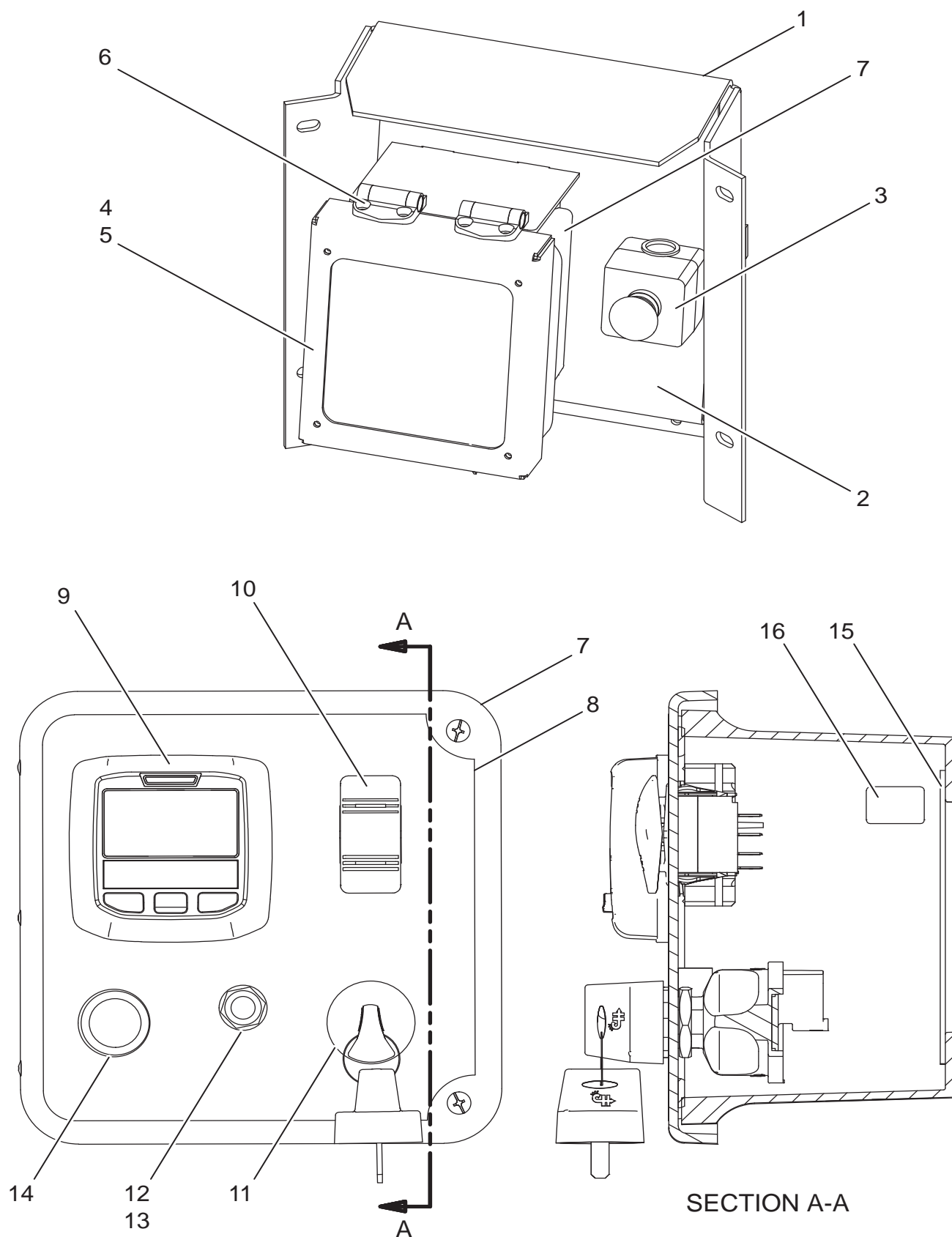


**WHEN ORDERING PARTS, BE SURE TO STATE
SERIAL NUMBER OF MACHINE**

AIR INTAKE AND EXHAUST SYSTEM

Ref. No.	Part Number	Description	No. Req'd
1	012991	Rain Cap Assembly	1
2	023471	Exhaust Elbow	1
3	055501	Muffler Clamp	3
4	008752	Exhaust Pipe Extension	1
5	008759	DOC Muffler	1
6	008796	Muffler Mounting Bracket	1
7	008829	Muffler Mounting Bracket Band	1
8	008798	DOC Mounting Plate	1
9	008797	DOC Hanger	1
10	008804	DOC Isolator	4
11	055505	DOC Snubbing Washer	4
12	008746	DOC Exhaust Pipe	1
13	008825	DOC V-band Clamp	1
14	008756	Air Intake Tube	1
15	325075	Reducer Elbow	1
16	055496	3 in. T-clamp	1
17	055496	4 in. T-clamp	1
18	008826	Restrict Indicator	1
19	008751	Air Cleaner Mount	1
20	008807	Air Cleaner Assembly	1
	008807-01	Filter Housing	1
	008807-02	Primary Air Cleaner Element	1 per
	008807-03	Secondary Air Cleaner Element	1 per
NOT SHOWN			
	008827	Air Intake Elbow	1
	007391	Worm Gear Clamp	2

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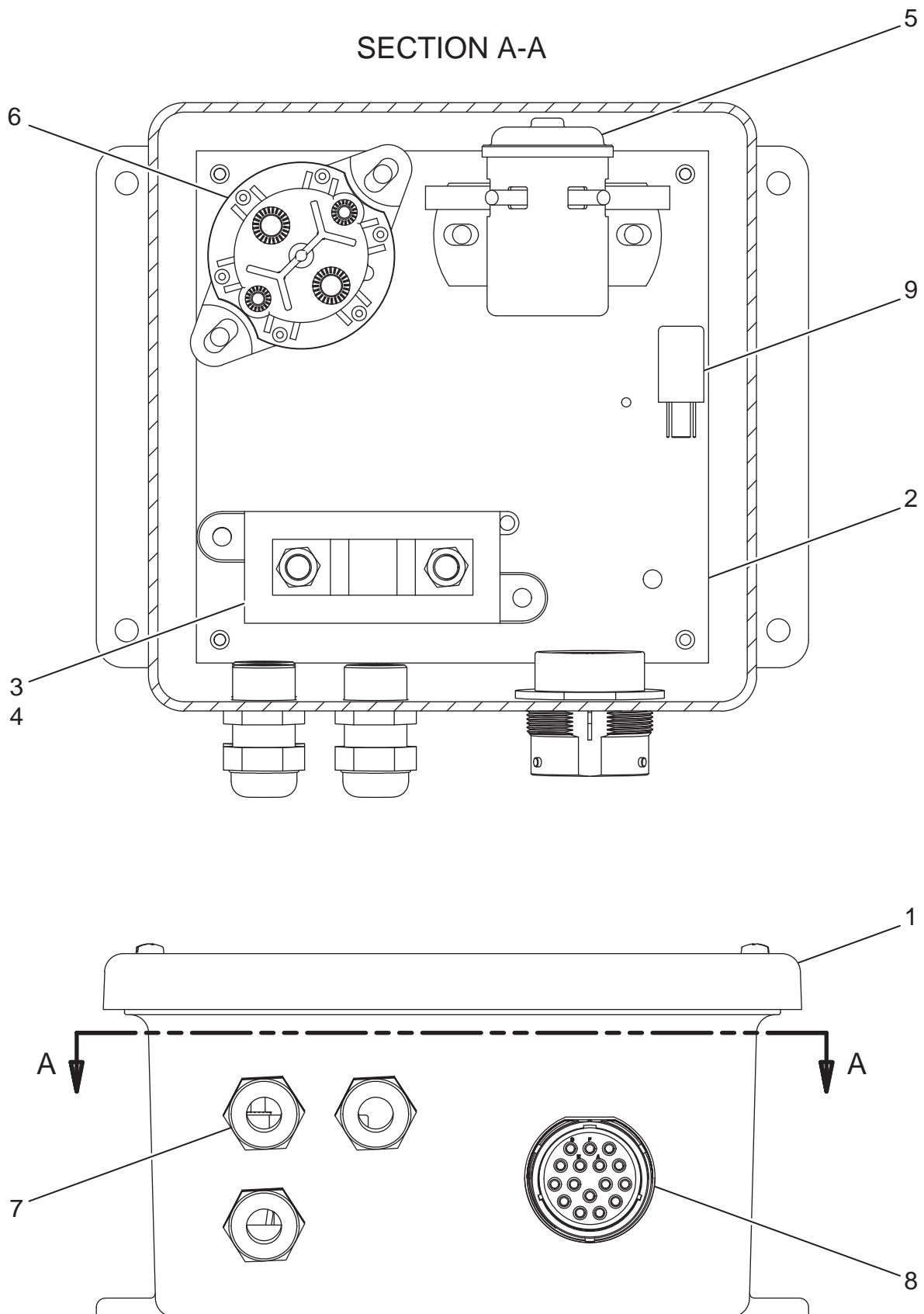
**WHEN ORDERING PARTS, BE SURE TO STATE
SERIAL NUMBER OF MACHINE**

CONTROL STATION AND CONTROL BOX

Ref. No.	Kit Ref.	Part Number	Description	No. Req'd
1		F170-0029	Guard Rail Control Box Mounting Bracket	1
2		008800	Control Box Mounting Plate	1
3		012970	Emergency Stop (E-stop) with Enclosure	1
4		008801	Control Box Cover	1
5		008802	Control Box Cover Plexiglass	1
6		055669	Door Positioning Hinge	2
7	▲	031510	Control Box	1
8	▲	005891	Control Box Decal	1
9	▲	008795	Engine Controller/Display	1
10	▲	031507	Rocker Switch	1
11	▲	031506	Key Switch	1
		031506-01	Keys	2
12	▲	008793	Toggle Switch	1
13	▲	080526	Toggle Switch Boot	1
14	▲	020886	Horn Button	1
15	▲	031571	Control Box Back Panel	1
16	▲	031578	Micro Relay (12V, SPDT, 35A NO, 25A NC, Sealed	1
NOT SHOWN				
	▲	008858	Control Box Harness	1
		008803	Engine Harness	1
KITS AND MARKERS				
	▲	008799	Control Box Assembly	

NOTE: All items marked with this symbol (▲) are included when ordering the Control Box Assembly.

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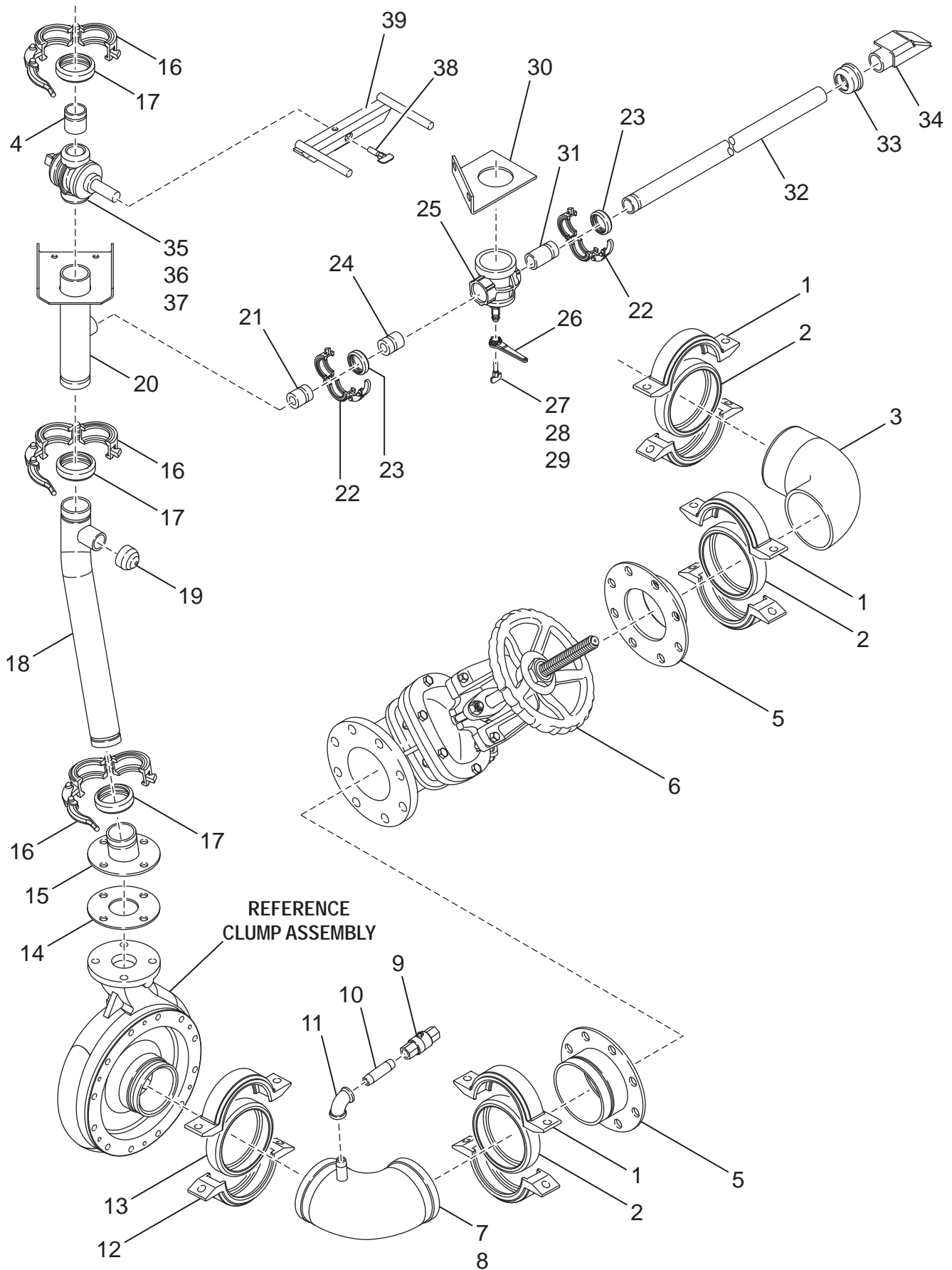
**WHEN ORDERING PARTS, BE SURE TO STATE
SERIAL NUMBER OF MACHINE**

ENGINE RELAY BOX

Ref. No.	Kit Ref.	Part Number	Description	No. Req'd
1	▲	075888-01	Relay Box Enclosure	1
2	▲	075892	Relay Box Back Panel	1
3	▲	008838	Fuse Box	1
4	▲	008839	Mega 250A Fuse	1
5	▲	008840	Ametek Switch	1
6	▲	075893	Starter Relay	1
7	▲	080303	Cord Grip	3
	▲	170088	1/2 in. NPT Conduit Locknut	1 per
8	▲	008857	Relay Box Harness	1
9	▲	031578	Micro Relay (12V, SPDT, 35A NO, 25A NC, Sealed	1
NOT SHOWN				
		021198	Flasher and Bracket	1
		008859-01	Positive Battery Cable	1
		008859-02	Negative Battery Cable	1
		008859-03	Ground Cable	1
KITS AND MARKERS				
	▲	008856	Relay Box Assembly	

NOTE: All items marked with this symbol (▲) are included when ordering the Relay Box Assembly.

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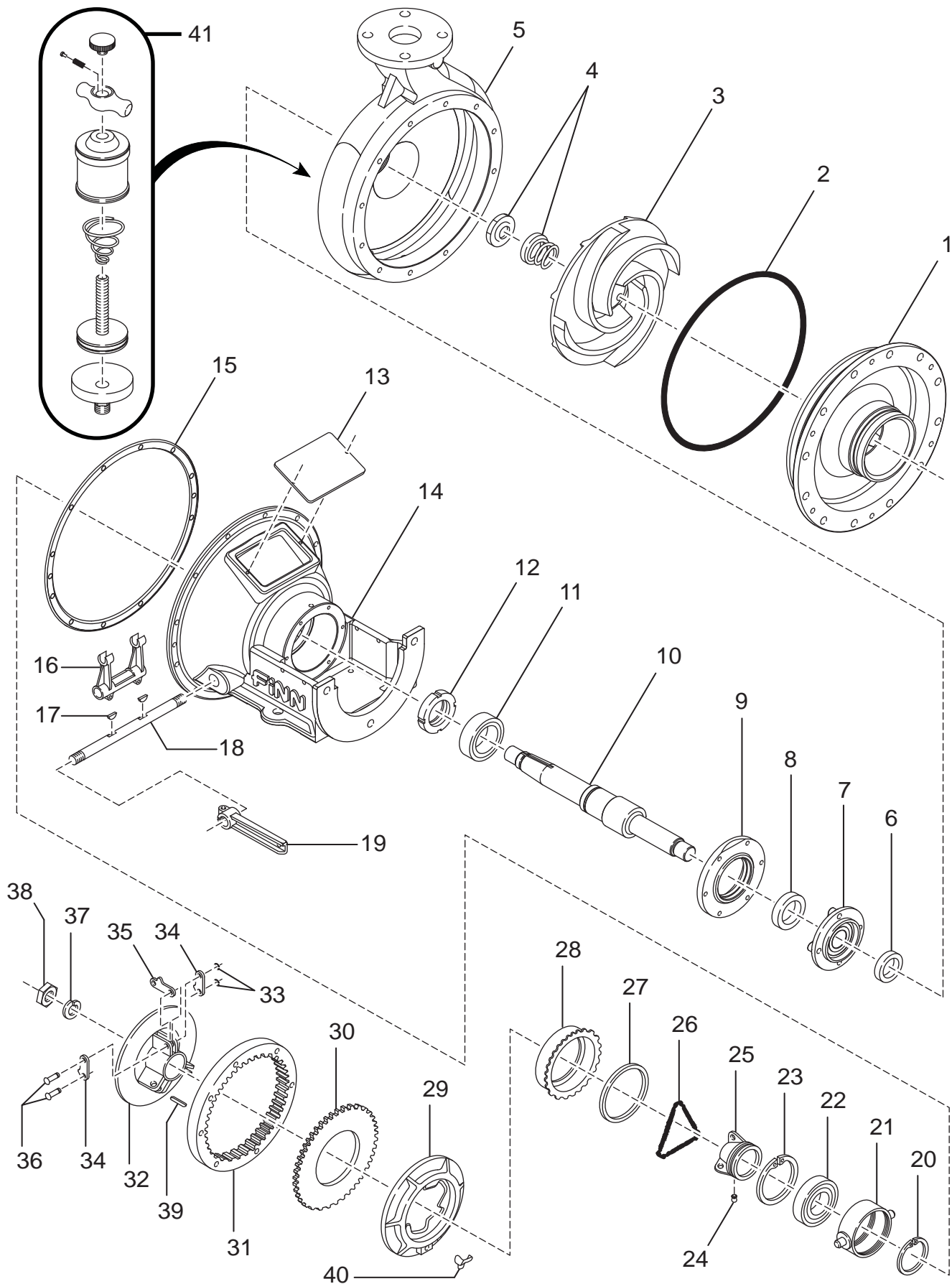


**WHEN ORDERING PARTS, BE SURE TO STATE
SERIAL NUMBER OF MACHINE**

CLUMP, PIPING AND DISCHARGE ASSEMBLY

Ref. No.	Part Number	Description	No. Req'd
1	011736	Victaulic Pipe Clamp	3
2	011919	Victaulic Pipe Clamp Seal	1 per
3	008259	90° Pipe Elbow	1
4	011882	Toe-Goe Pipe	1
5	012722	Suction Valve Flange Weldment	2
6	012058	Flanged Suction Gate Valve	1
7	012491	Suction Valve Bleeder Valve Assembly	1
8	012491-02	Suction Elbow Weldment	1 per
9	012457	Stainless Steel Ball Valve	1 per
10	160428	1/2" Dia. x 4" Lg. SCH 40 Nipple	1 per
11	160006	90° Elbow	1 per
12	008471	Reducing Pipe Clamp	1
13	008472	Reducing Pipe Clamp Seal	1
14	008469	Pump Discharge Gasket	1
15	008645	Pump Discharge Flange Weldment	1
16	002771	Victaulic Pipe Clamp	3
17	002820	Victaulic Pipe Clamp Seal	1 per
18	008647	Lower Discharge Pipe Weldment	1
19	160263	Pipe Cap	1
20	008646	Discharge Valve Stand Pipe	1
21	011727-11	Recirculation Nozzle	1
22	006721	Victaulic Pipe Clamp	2
23	006722	Victaulic Pipe Clamp Seal	1 per
24	011727-10	Recirculation Nozzle	1
25	011776	Round Port 2-Way Valve	1
26	012786	Recirculation Lever	1 per
27	011950	Gasket	1 per
28	011951	Spring	1 per
29	004962	Lube Screw	1
30	F330-0090	Recirculation Valve Stabilizer	1
31	011727-09	Recirculation Nozzle	1
32	012726-03	Recirculation Pipe	1
33	012462-05	Guardian Coupling	1
34	005703-02	Coupling Deflector	1
35	011777	Round Port 2-Way Valve	1
36	011953	Spring	1
37	008487	Gasket	1
38	004962	Lube Screw	1
39	012758	Valve Foot Pedal	1

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**WHEN ORDERING PARTS, BE SURE TO STATE
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CLUTCH/PUMP (CLUMP) ASSEMBLY

Ref. No.	Kit Ref.	Part Number	Description	No. Req'd
1	●	005146	Pump Suction Cover	1
2	●	005150	O-ring	1
3	●	005145	Pump Impeller	1
4	●	006443	Mechanical Shaft Seal	1
5	●	005144	Pump Casing	1
6	●	006444	Grease Retainer	1
7	●	005446	Flange Pilot Bearing	1
8	●	012733	Grease Retainer Seal	1
9	●	012734	Bearing Retainer Ring	1
10	●	012729	Clump Shaft	1
11	●	012731	Bearing	1
12	●	012732	SN-11 Nut	1
13	●	005570	Clump Name Plate	1
14	●	012695	Clump Housing	1
15		008811	Clump Mounting Ring Spacer	1
16	■●	100323	Clutch Yoke	1
17	■●	100042	Woodruff Key	2
18	■●	100040	Yoke Shaft	1
19	■●	031219	Modified Clutch Lever	1
20	■●	X	External Snap Ring	1
21	■●	X	Bearing Carrier	1
22	■●	X	Release Bearing	1
23	■●	X	Internal Snap Ring	1
24	■●	X	Lube Fitting	1
25	■●	X	Release Sleeve	1
26	■●	100026	Lever Spring	1
27	■●	X	Adjusting Ring Plate	1
28	■●	X	Adjusting Ring	1
29	■●	X	Pressure Plate	1
30	■●	100341	10 in. Clutch Disk	1
31	■●	100003	Driving Ring	1
32	■●	X	Clutch Body	1
33	■●	X	Retaining ring	6
34	■●	X	Connecting Link	6
35	■●	X	Release Lever	6
36	■●	X	Clevis Pin	6

Continued to next page.

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CLUTCH/PUMP (CLUMP) ASSEMBLY

Ref. No.	Kit Ref.	Part Number	Description	No. Req'd
37	■●	012783-02	Lock Washer	1
38	■●	012783-01	Drive Shaft Nut	1
39	■●	190123-24	Clutch Key	1
40	■●	100024	Adjusting Lock	1
41		002383	Automatic Pressure Lubricator	1

NOT SHOWN

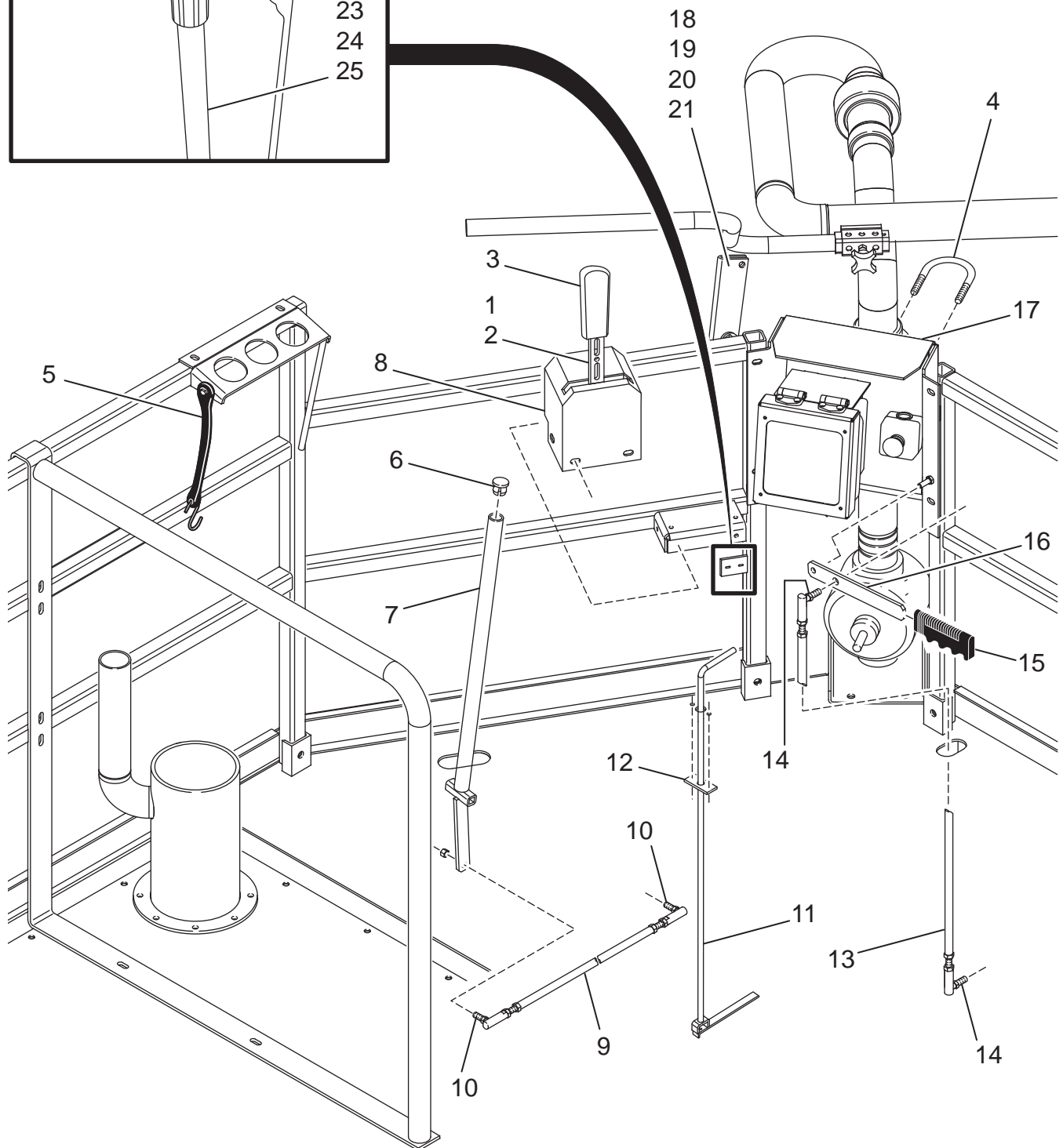
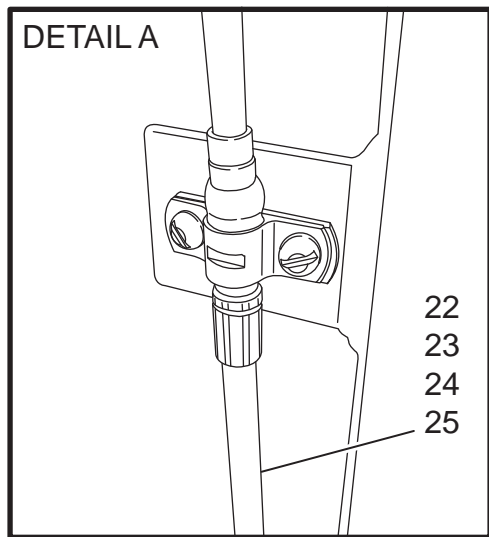
	■	X	Lock Bolt for Adjustment Lock	1
	■	X	Lock Washer for Adjustment Lock	1
	●	160389	3/8 in. Sch. 80 Nipple	1
	●	160234	3/8 in. Pipe Plug	2
	●	160162	3/8 in. Coupling	1

KITS AND MARKERS

	■	012783	Total Clutch Assembly Kit
	●	008644	Clump Assembly Kit
	X	Items are only available as part of assemblies listed.	

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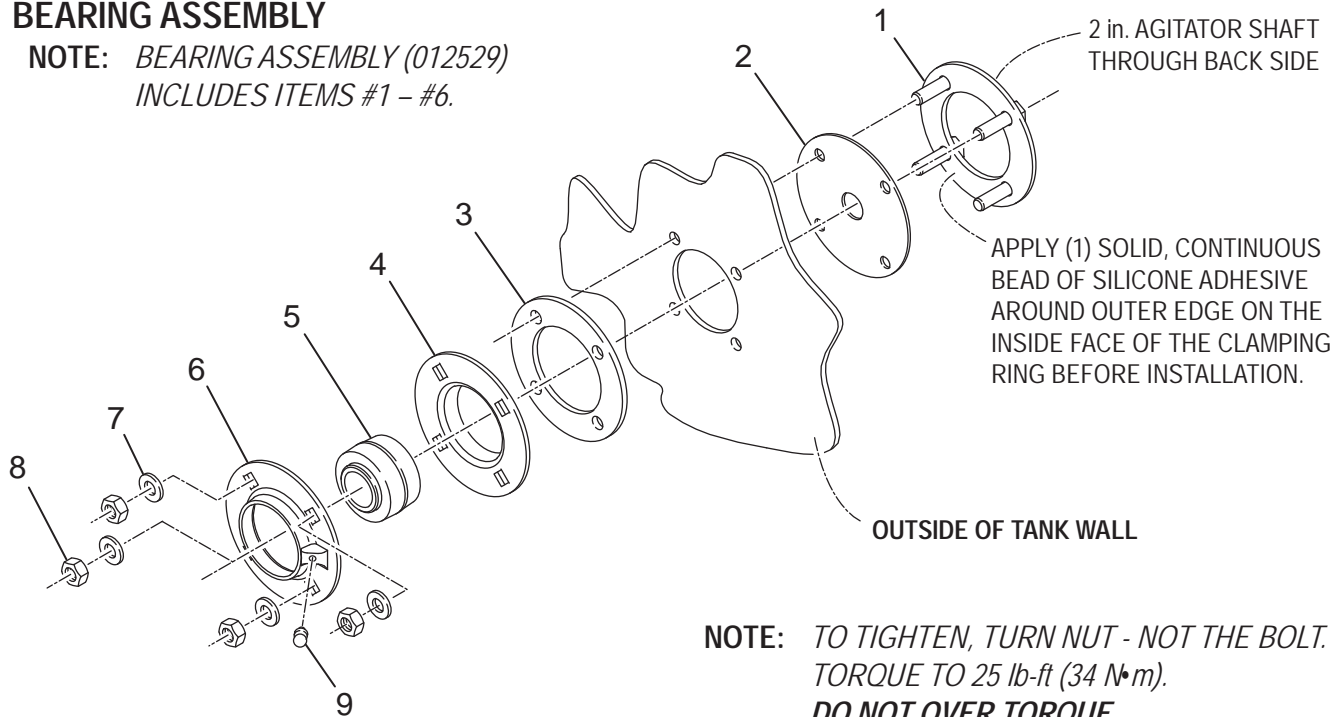
CONTROLS

Ref. No.	Part Number	Description	No. Req'd
1	008672	Agitator Control Handle	1
2	008673	Agitator Handle Pivot	1
3	022202	Black Handle Grip	1
4	085148	U-Bolt	1
5	005161	Rubber Strap with "S" Hooks	1
6	004996	Pipe Plug	1
7	012777	Recirculation Handle	1
8	F330-0102	Agitator Control Box	1
9	012780-05	Recirculation Valve Rod Weldment	1
10	006737	Ball Joint	2 Per
11	012493-01	Bleeder Valve Handle	1
12	012493-09	Bearing Pad	1
13	012780-08	Clutch Rod Weldment	1
14	006737	Ball Joint	2 Per
15	000427	Black Handle Grip	1
16	012760	Clutch Handle	1
17	F170-0029	Control Box Mount	1
18	005016	"S" Hook	1
19	005700	Nylon Lanyard	1
20	031245	Snapper Pin	1
21	F330-0081	Boom Hold Down	1
22	006596	Agitator Control Cable (74 in.)	1
23	004983	Clamp and Shim	1
24	007675	Ball Joint	1
25	020682	Clevis	1

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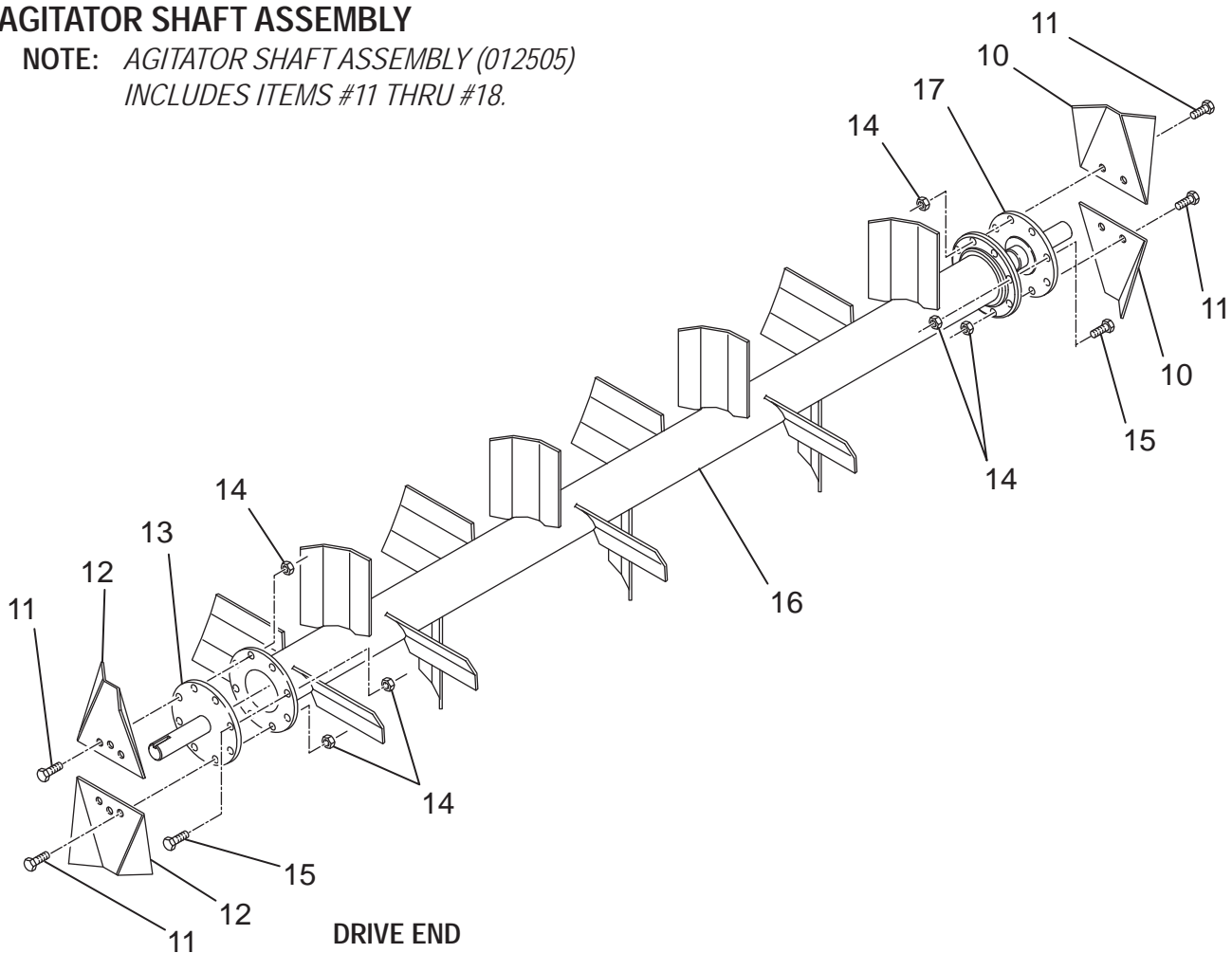
BEARING ASSEMBLY

NOTE: BEARING ASSEMBLY (012529)
INCLUDES ITEMS #1 - #6.



AGITATOR SHAFT ASSEMBLY

NOTE: AGITATOR SHAFT ASSEMBLY (012505)
INCLUDES ITEMS #11 THRU #18.



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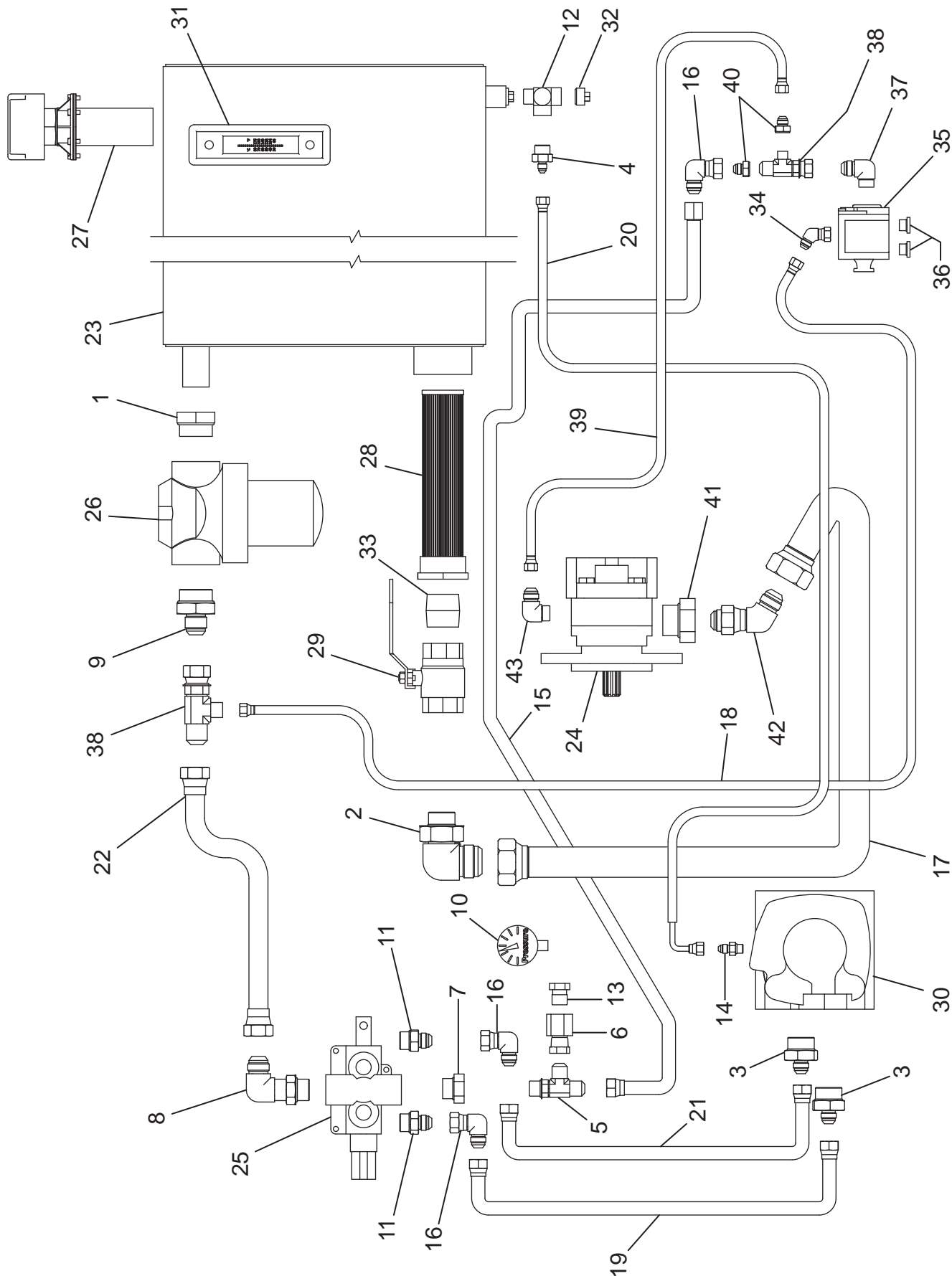
AGITATOR AND BEARING ASSEMBLIES

Ref. No.	Kit Ref.	Part Number	Description	No. Req'd
1	▲	012527	Agitator Clamping Ring	1 per
2	▲	012528	Agitator Shaft Seal	1 per
3	▲	012525	Agitator Bearing Clamping Ring	1 per
4	▲	012451	Flangette	1 per
5	▲	012450	Bearing	1 per
6	▲	012452	Flangette with Lube Coupling	1 per
		008154	Lube Coupling Adapter	1 per
7	●		Sealing Washer, 1/2 in.	4 per
8	●		Hex Nut, 1/2 - 13	4 per
9		007705	Grease Fitting	2
		022407	Grease Line Elbow	2
		012520	Bulk Head Fitting	2
		012521	Grease Line Hose	2
10	■	F170-0003-01	Bolt-On Paddle	2 per
11	■	●	Hex Head Cap Screw, 3/4 - 10 UNC x 2-1/2 in. Long (Bolt-On Paddles)	8 per
12	■	F330-0010-02	Bolt-On Paddle w/ Identification Hole	2 per
13	■	012495-01	Drive Stub Shaft	1 per
14	■	●	Locknut, 3/4 - 10 UNC	16 per
15	■	●	Hex Head Cap Screw, 3/4 - 10 UNC x 2-1/4 in. Long (Stub Shaft Flange Only)	8 per
16	■	012502	Main Agitator Section	1 per
17	■	012496-01	Idle Stub Shaft	1 per

KITS AND MARKERS

▲	012529	Bearing and Seal Assembly
■	012505	Agitator Assembly
●	Standard Hardware Item - Available at your local hardware store.	

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HYDRAULIC SYSTEM

Ref. No.	Kit Ref.	Part Number	Description	No. Req'd
1	▲	008545	FNPT - MSAE Adapter	1
2	▲	008845	MNPT - MJIC 90° Elbow Adapter	1
3	▲	008606	MSAE - MJIC Adapter	2
4	▲	008660	MNPT - MJIC Adapter	1
5	▲	008689	SAE Run Tee	1
6	▲	008690	FNPT - FJIC Adapter	1
7	▲	008691	SAE Reducer	1
8	▲	008692	MSAE - MJIC 90° Long Elbow Adapter	1
9	▲	008709	MSAE - MJIC Adapter	1
10	▲	012044	Pressure Gauge	1
11	▲	012086	MSAE - MJIC Adapter	2
12	▲	022592	Female Pipe Tee	1
13	▲	055229	NPT Reducer	1
14	▲	055308	MSAE - MJIC Adapter	1
15	▲	008841-03	1/2 in. Hydraulic Hose x 38 in.	1
16	▲	FW71870	JIC Swivel Elbow	3
17	▲	008841-01	1-1/4 in. Hydraulic Hose x 76 in.	1
18	▲	008841-07	3/4 in. Hydraulic Hose x 30 in.	1
19	▲	008841-04	1/2 in. Hydraulic Hose x 40 in.	1
20	▲	008841-06	1/4 in. Hydraulic Hose x 39 in.	1
21	▲	008841-05	1/2 in. Hydraulic Hose x 37 in.	1
22	▲	008841-08	3/4 in. Hydraulic Hose x 21 in.	1
23		008435	Hydraulic Reservoir	1
24		008762	Hydraulic Pump	1
25		008686	Hydraulic Valve	1
		023120	Seal Kit for 008686	1
		SF310B-01	Valve Handle	1
		0SF311	Handle Knob	1
		0SF312-01	1/8 x 1-3/8 Roll Pin	1
		023470-01	Handle Bracket	1
26		008702	Hydac Filter Assembly	1
		008703	Hydraulic Filter Element	1
27		008706	Hydraulic Filler/Breather	1
28		011648	Hydraulic Suction Strainer	1
29		012083	Ball Valve	1
30		012333	Hydraulic Motor	1
		012384	Seal Kit for 012333	1

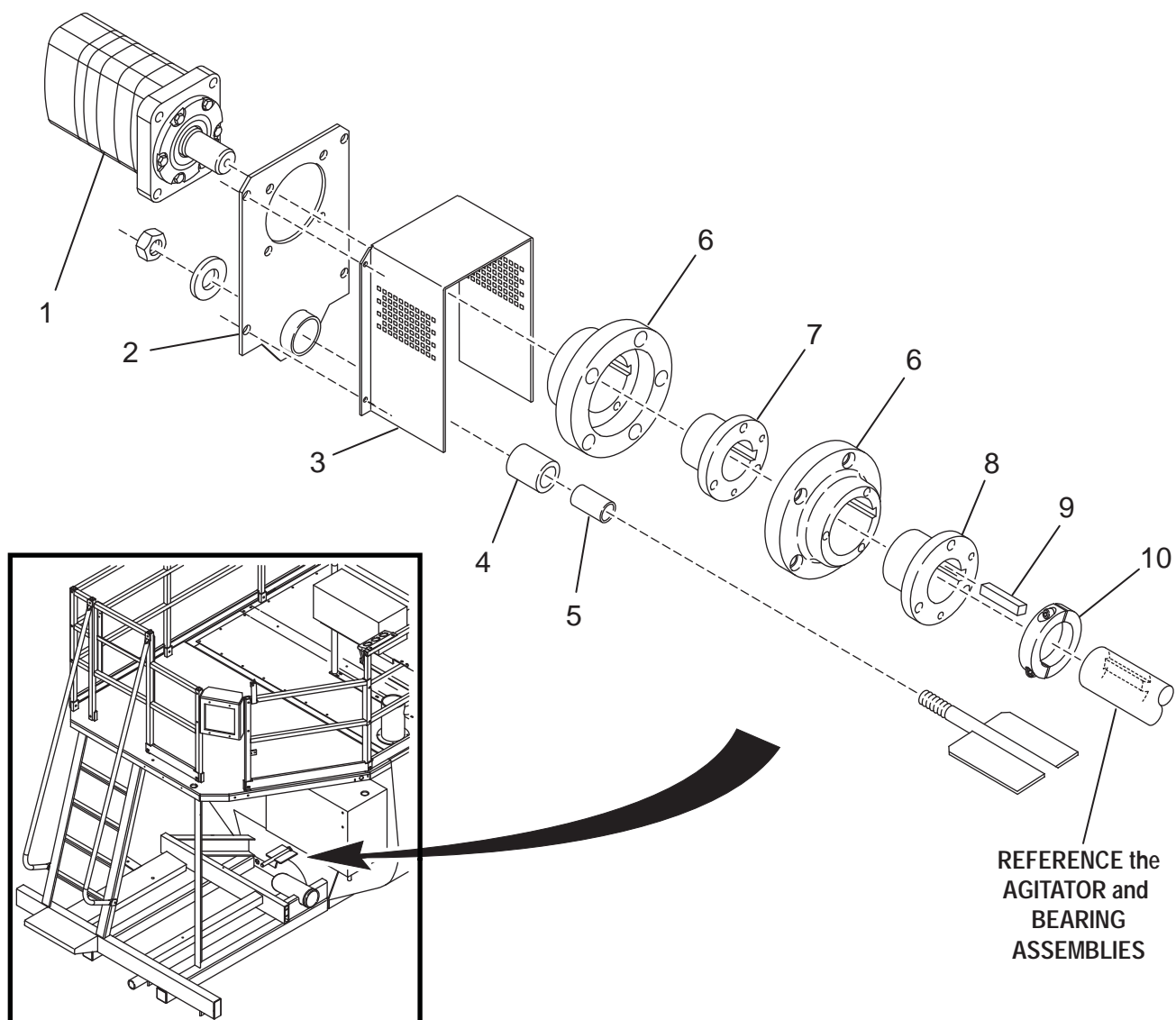
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**WHEN ORDERING PARTS, BE SURE TO STATE
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HYDRAULIC SYSTEM

Ref. No.	Kit Ref.	Part Number	Description	No. Req'd
31		080329	Hydraulic Level Sight Gauge	1
32		160236	Pipe Plug	1
33		160520	Close Nipple	1
34	▲	085157	MSAE - MJIC 45° Elbow Adapter	1
35		085276	Dump Valve	1
		085276-01	Dump Valve Coil	1
36	▲	008843	MSAE Plug	2
37	▲	012091	MSAE - MJIC 90° Elbow Adapter	1
38	▲	FW718783	Swivel Run Tee	2
39	▲	008841-02	1/2 in. Hydraulic Hose x 73 in.	1
40	▲	FW65226	JIC Reducer	2
41	▲	013000	SAE Reducer	1
42	▲	008846	MSAE - MJIC 45° Elbow Adapter	1
43	▲	023621	MSAE - MJIC 90° Elbow Adapter	1
KITS AND MARKERS				
	▲	008841	Hydraulic Hose and Fitting Kit	

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HYDRAULIC AGITATOR DRIVE

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

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DISCHARGE HOSE EXTENSIONS

BOOM TAKE OFF SYSTEM

Part Number	Description	No. Req'd
007930-02	Boom Discharge Extension Hose Assembly	As Ordered
008315-05	1-1/2 in. x 50 ft. Extension Hose with Nipples	4
002191	2-1/2 in. Male Brass Adapter	1
160768	2-1/2 x 1-1/2 in. Reducer Bushing	2
010544	2-1/2 in. Female Coupler	1
006513	2-1/2 in. Quick-Coupler Gasket	1

PUMP TAKE OFF SYSTEM

Part Number	Description	No. Req'd
007930-01	Pump Remote Discharge Hose Assembly	As Ordered
008315-05	1-1/2 in. x 50 ft. Extension Hose with Nipples	4
001207	1-1/2 in. Male Brass Adapter	1
002158	1-1/2 in. Female Brass Coupler	1
006515	1-1/2 in. Coupler Gasket	1
007740	Remote Valve Assembly	1
007710	Full Port Ball Valve	1
003243	Aluminum Nipple Pipe	1
160309	Std. Close Nipple	1
160763	Tank Bushing	1
006102	Female Coupler	1
001207	Male Brass Adapter	1
006621	Wide Fan Nozzle Assembly	1
006604	Wide Fan Nozzle	1
006096	Male Adapter	1
160761	Reducer Bushing	1
006622	Narrow Ribbon Nozzle Assembly	1
006605	Narrow Fan Nozzle	1
006096	Male Adapter	1
160761	Reducer Bushing	1
007711	Pump Take Off Valve Assembly	1
007710	Full Port Ball Valve	1
002158	Female Brass Coupler	1
160309	Close Nipple	1

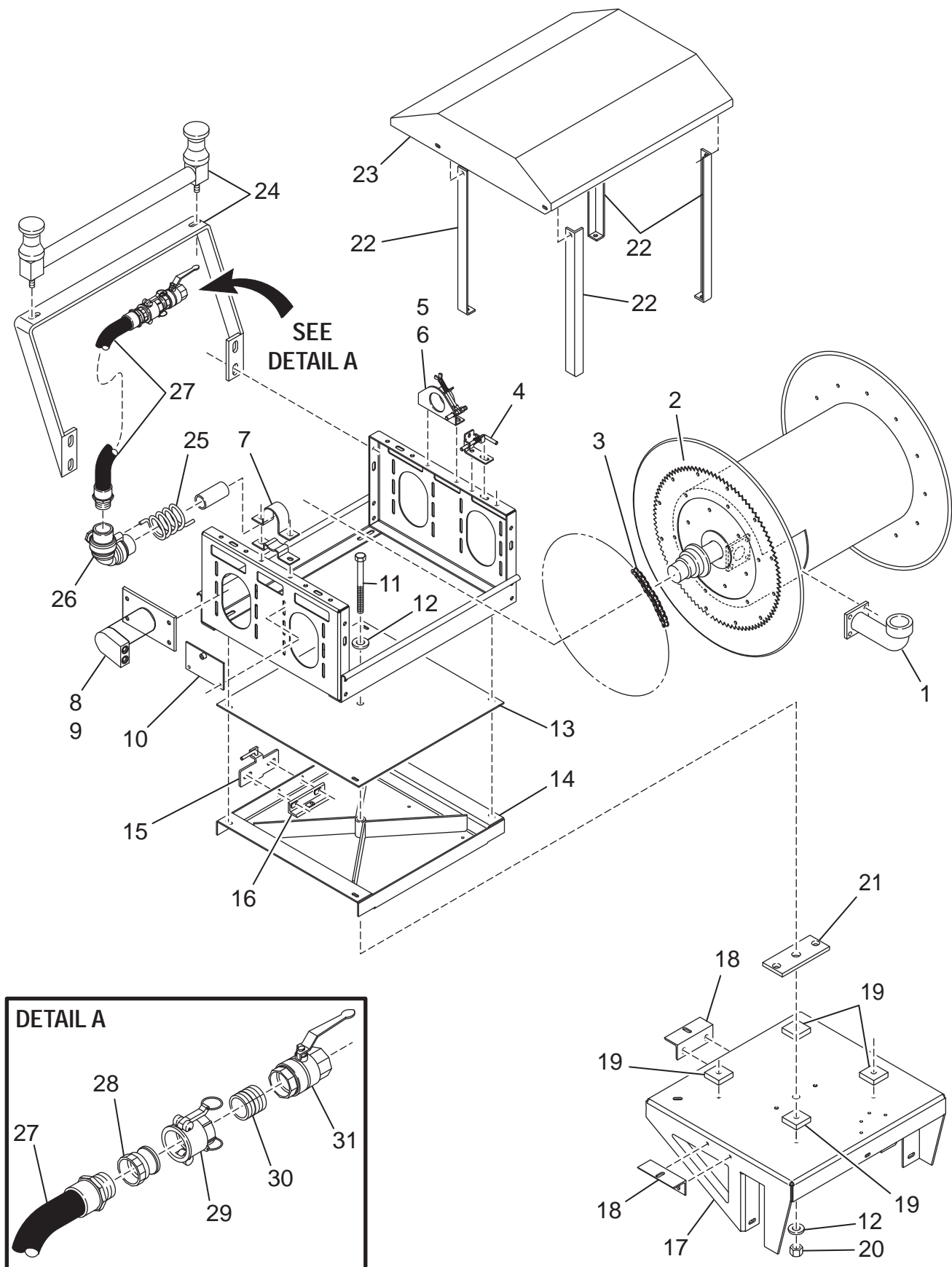
**WHEN ORDERING PARTS, BE SURE TO STATE
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DISCHARGE HOSE EXTENSIONS

HOSE REEL SYSTEM

Part Number	Description	No. Req'd
061359	1-1/4 in. Hose Reel Discharge Hose	As Ordered
004832-20	1-1/4 in. x 200 ft. Rubber Hose with Nipples	1
002158	1-1/2 in. Female Coupler	1
006515	1-1/2 in. Coupler Gasket	1
160756	1-1/2 x 1-1/4 in. Reducer Bushing	1
061360	1-1/2 in. Hose Reel Discharge Hose	As Ordered
008315-20	1-1/2 in. x 200 ft. Rubber Hose with Nipples	1
002158	1-1/2 in. Female Coupler	1
006515	1-1/2 in. Coupler Gasket	1

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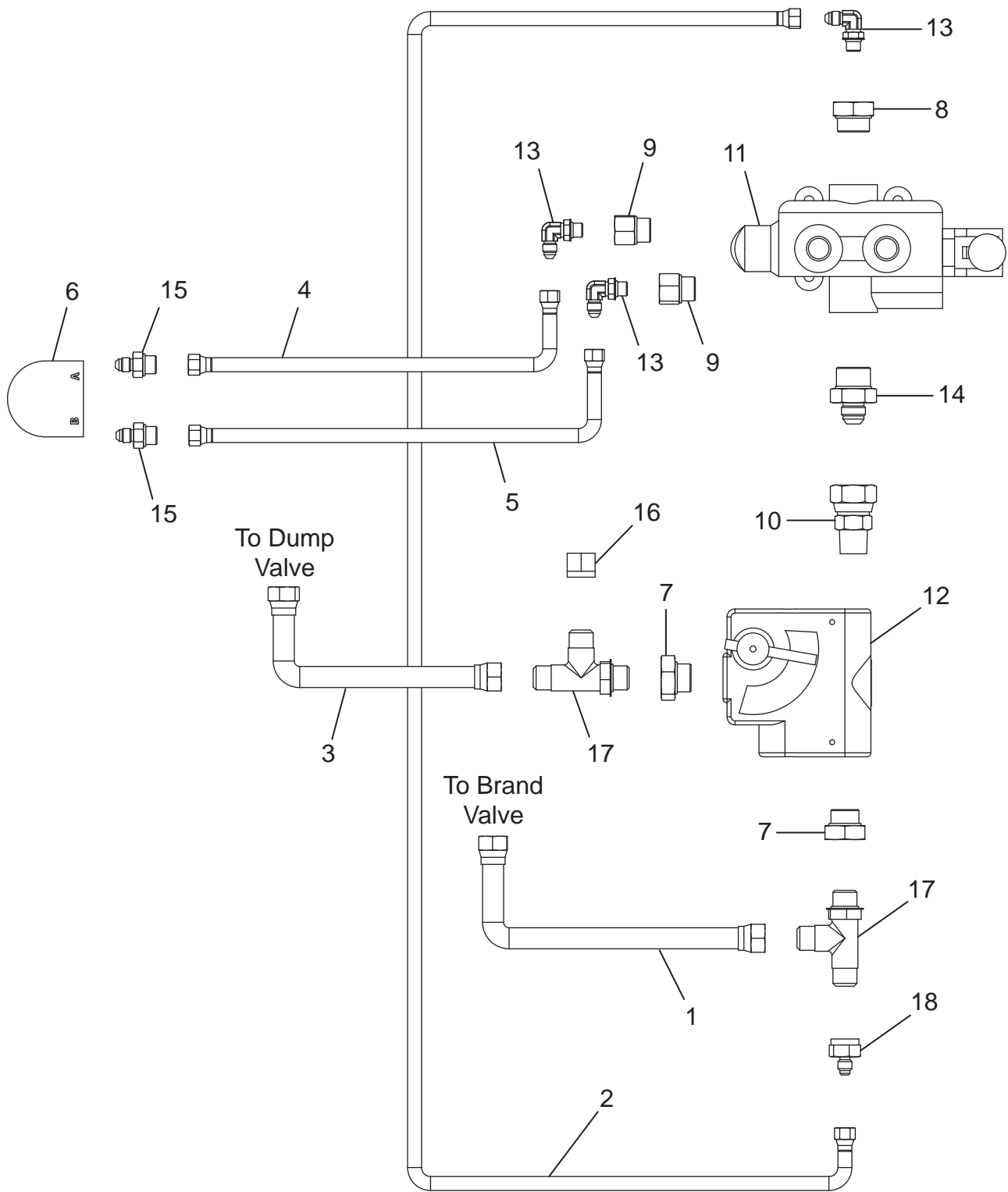


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HOSE REEL ASSEMBLY

Ref. No.	Kit Ref.	Part Number	Description	No. Req'd
1	▲	080302	Flanged Riser	1
	▲	080302G	Hose Reel Riser Gasket	1
2	▲	008144	Hose Reel Gear	1
3	▲	008200	Hose Reel Chain (69 in.)	1
4	▲	008433	Pinlock with Brackets Assembly	1
5	▲	008313	Idle Side Bearing	1
6	▲	008111B	Brake Assembly	1
7	▲	008314	Drive Side Bearing	1
8	▲	008199	Chain Sprocket - 11 Tooth	1
9		008635	Hydraulic Motor	1
		008635-SK	Hydraulic Motor Seal Kit	
10		012757	Spring Retainer Plate	1
11		XF12112H	3/4 - 10 X 7 in. Long Grade 8 Hex Head Cap Bolt	1
12		W12FSS	3/4 in. Flat Washer - SS	2
13		F330-0104	Hose Reel Mount Cover	1
14		F330-0117	Upper Hose Reel Support Bracket	1
15		052928	Pinlock	1
16		012860	Hose Reel Pinlock Support Weldment	1
17		F330-0116	Lower Hose Reel Support Bracket	1
18		012781	Hose Reel Lock Angle	2
19		012798	Hose Reel Bearing Block	4
20		YL12SS	3/4 - 10 Locknut - SS	1
21		012861	Hose Reel Washer	1
22		F330-0094	Hose Reel Canopy Support	4
23		F330-0077	Hose Reel Canopy	1
24		011894	Hose Roller and Spool Guide	1
25		003299	Torsion Spring	1
26		003207	1-1/2 in. Diameter x 90° Swivel Joint	1
		080183	Swivel Joint Seal Kit	
27		011435	1-1/2 in. Diameter x 3 ft. Long Lead-In Hose	1
28		001207	1-1/2 in. Male Brass Adapter	1
29		002158	1-1/2 in. Female Brass Coupler	1
30		160309	Standard Close Nipple	1
31		007710	Ball Valve	1
KITS AND MARKERS				
	▲	008212	Hose Reel and Swivel Assembly	

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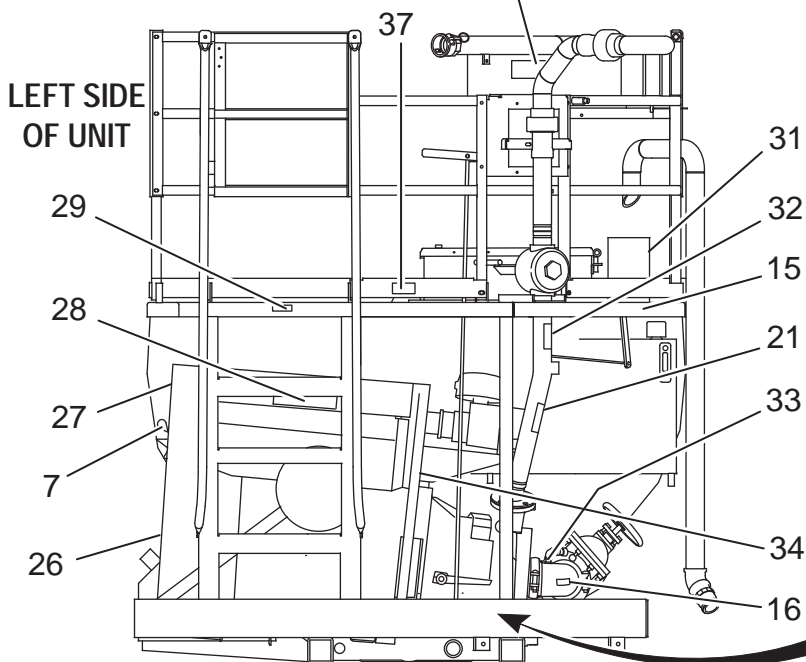
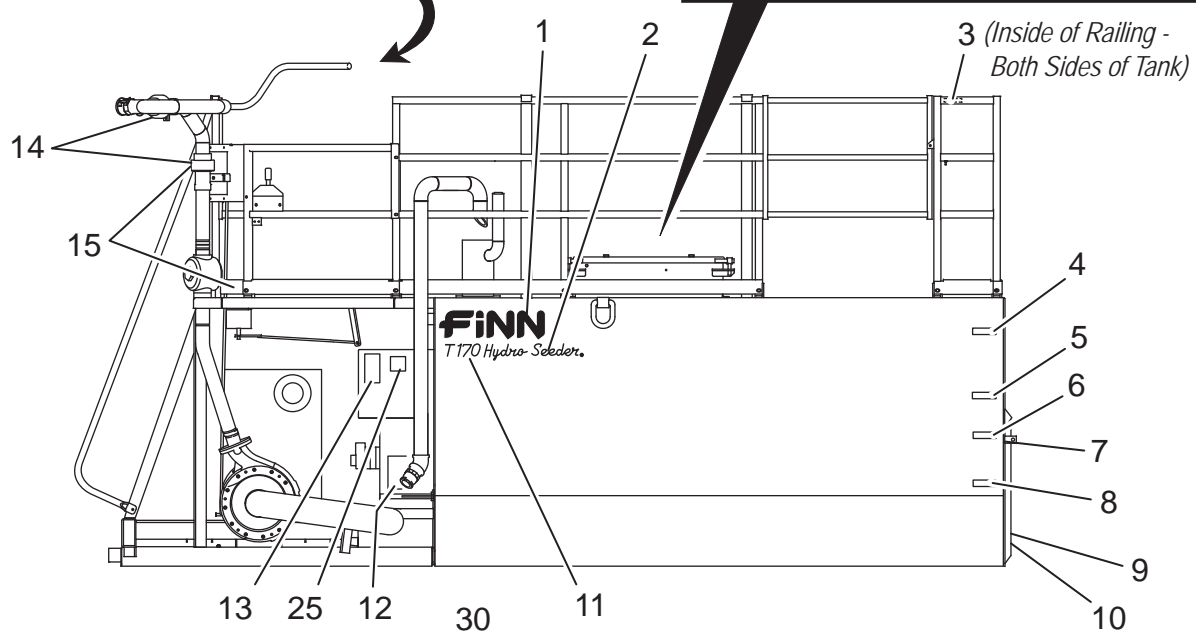
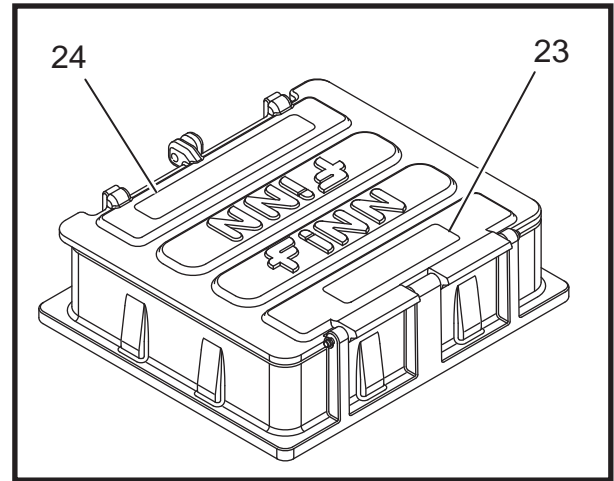
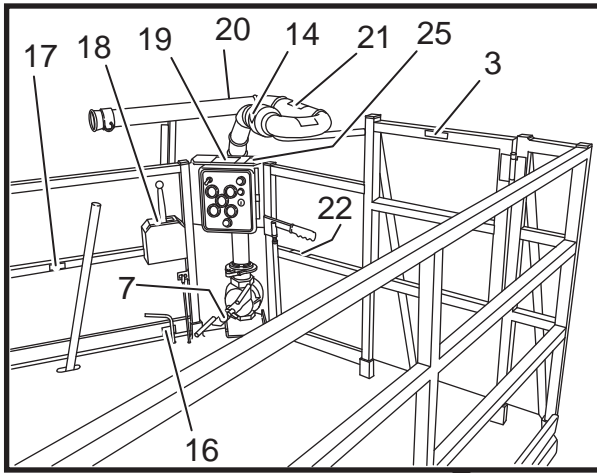
HOSE REEL HYDRAULIC SYSTEM

Ref. No.	Kit Ref.	Part Number	Description	No. Req'd
1	▲	008693-01	1/2 in. Hydraulic Hose x 170 in.	1
2	▲	008693-02	1/4 in. Hydraulic Hose x 23 in.	1
3	▲	008693-03	1/2 in. Hydraulic Hose x 134 in.	1
4	▲	008693-04	1/4 in. Hydraulic Hose x 70 in.	1
5	▲	008639-05	1/4 in. Hydraulic Hose x 68 in.	1
6		008635	Hydraulic Motor	1
		008635-SK	Seal Kit	
7	▲	008696	SAE Reducer	2
8	▲	012871	SAE Reducer	1
9	▲	012872	SAE Reducer	2
10	▲	012783	MSAE - FJIC Adapter	1
11		012857	Control Valve	1
		SF310B	Hydraulic Valve Handle	1
		0SF311	Handle Knob	1
		0SE312-01	Roll Pin - 1/8 in. x 1-3/8 in.	1
		023670-01	Handle Bracket	1
		008293-RC	Brand Valve Relief Cartridge	1
12		023890	Flow Divider	1
		023890-SK	Seal Kit	
		023890-K	Indicator Knob	
		023890-L	Indicator Lever	
13	▲	055274	MSAE - MJIC 90° Elbow Adapter	3
14	▲	055359	MSAE - MJIC Adapter	1
15	▲	FW65217	MSAE - MJIC Adapter	2
16	▲	FW71495	JIC Cap Nut	1
17	▲	FW71869	SAE Run Tee	2
18	▲	FW71908	JIC Reducer	1

KITS AND MARKERS

▲	008693	Hydraulic Hose and Fitting Kit
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DECALS

Ref. No.	Kit Ref.	Part Number	Description	No. Req'd
1		023174	"FINN" Decal	2
2		011595	"HydroSeeder®" Decal	2
3	▲	-----	"WARNING! Fall Hazard" Decal	3
4	▲	-----	"1,500 Gallon" Decal	1
5	▲	-----	"1,000 Gallon" Decal	1
6	▲	-----	"800 Gallon" Decal	1
7	▲	-----	"Service Daily" (Up Arrow) Decal	5
8	▲	-----	"500 Gallon" Decal	1
9		031569	FINN Nameplate	1
10	▲	-----	"U.S. Patent No." Decal	1
11		012661-03	"T170" Decal	2
12	▲	-----	"WARNING! Do Not Operate w/o Guards..." Decal	2
13	▲	-----	"CAUTION. Hydraulic System Instructions" Decal	1
14	▲	-----	"Service Weekly" (Down Arrow) Decal	4
15	▲	-----	"Service Daily" (Down Arrow) Decal	1
16	▲	-----	"BLEEDER VALVE - Open/Close" Decal	2
17	▲	-----	"RECIRCULATION VALVE - Close/Open" Decal	1
18	▲	-----	"AGITATOR OPERATION" Decal	1
19	▲	-----	"VALVE - Open/Closed" (Foot Pedal) Decal	1
20	▲	-----	"DANGER! Electrocution Hazard..." Decal	1
21	▲	-----	"WARNING! Burn Hazard!" Decal	2
22	▲	-----	"CLUTCH - Engage/Disengage" Decal	1
23	▲	-----	"DANGER! Confined Space Hazard! ..." Decal	1
24	▲	-----	"HydroSeeder® Operating Instructions..." Decal	1
25	▲	-----	"Hearing Protection" Decal	2
26	▲	-----	"DIESEL FUEL" Decal	1
27	▲	-----	"WARNING! Burn Hazard! ..." Decal	1
28	▲	-----	"WARNING! Sever Hazard! ..." Decal	1
29	▲	-----	"CAUTION! Fall Hazard!" Decal	1
30	▲	-----	"WARNING! Do Not Ride..." Decal	1
31	▲	-----	"CAUTION. Keep This Tank Vent Clean..." Decal	1
32	▲	-----	"CAUTION. This Connection Is For Remote..." Decal	1
33	▲	-----	"CAUTION. To Avoid Damage To Suction Cover..." Decal	1
34	▲	-----	"CAUTION. New Clutch Information"	1
35	▲	-----	"Service Weekly" (Up Arrow) Decal	2
36	▲	-----	"CAUTION. Seal Lubricator Must Be Kept In Operation..." Decal	1
37		012260	"IMPORTANT" Metal Plate	1

KITS AND MARKERS

▲	012820	T170 Decal Sheet Kit
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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.

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RECOMMENDED SPARE PARTS AND REPAIR KITS

RECOMMENDED SPARE PARTS

Part Number	Description	No. Req'd
000698	Automatic Pressure Lubricator Grease (1 lb Can)	2
011919	Suction Pipe Seal - 5 in.	3
008472	Suction Pipe Seal - 5 in. x 4 in. Reducer	1
002820	Discharge Pipe Seal - 2-1/2 in.	3
006722	Recirculation Pipe Seal - 1-1/4 in.	2
006513	Nozzle Coupler Gasket (Boom Discharge) - 2-1/2 in.	2
007469	Lube Sticks For Recirculation and Discharge Valves (Box of 24)	4
031245	Snapper Pin – Boom Hold Down	1
FW71225	Snapper Pin - Slide Gates	2
008703	Hydraulic Filter Element	1
006514	2 in. Nozzle Coupler Gasket (Hose Discharge)	1
008809	Engine Oil Filter Element	1
075886-03	Stage 2 Fuel Filter Canister Element	1
075884-03	Stage 1 Fuel Filter and WIF Spin-on Filter Element	1
008807-02	Primary Air Cleaner Element	1
008807-03	Secondary Air Cleaner Element	1
008830	Fan Belt	1
008831	Thermostat	1
008832	Thermostat Housing Seal	1
008824	Sensor Coolant Level	1
008826	Restrict Indicator for Air Cleaner	1
008810	12V / 3kW Starter Motor	1
008808	120V Alternator	1
031506-01	Keys	2

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

REPAIR KITS

Part Number	Description	No. Req'd
012397	Swivel Repair Kit	
REF.	Pump Seal Components:	
005150	O-Ring	1
006443	Mechanical Seal Assembly	1
006444	Grease Retainer	1
012733	Grease Seal	2
012384	Agitator Hydraulic Motor Seal Kit	
023120	Hose Reel Valve Seal Kit	
080183	Hose Reel Swivel Repair Kit	
008635-SK	Hose Reel Hydraulic Motor Seal Kit	

NOTE: Repair Kits are available to recondition parts, which periodically need service.

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TOOL KIT

Part Number	Description	No. Req'd
011703	Long Distance Nozzle Assembly	1
002191	Male Adapter	1
001042	Long Distance Nozzle	1
160309	Close Nipple	1
160768	Reducer Bushing	1
011706	Wide Fan - Small Nozzle Assembly	1
002191	Male Adapter	1
006604	Wide Fan - Small Nozzle (50500)	1
160766	Reducer Bushing	1
011707	Narrow Fan - Small Nozzle Assembly	1
002191	Male Adapter	1
006605	Narrow Fan - Small Nozzle (25500)	1
160766	Reducer Bushing	1
011890	Wide Fan - Large Nozzle Assembly	1
002191	Male Adapter	1
011861	Wide Fan - Large Nozzle (501500)	1
160769	Reducer Bushing	1
011891	Narrow Fan - Large Nozzle Assembly	1
002191	Male Adapter	1
011860	Narrow Fan - Large Nozzle (251500)	1
160769	Reducer Bushing	1
008465	Long Distance Nozzle	1
006513	Coupler Gasket	1
002190	Dust Cap	1
005220	Impeller Wrench	1
021375	Grease Gun (<i>Hose Not Included</i>)	1
021741	Whip Hose with Male Ends	1
000698	Automatic Pressure Lubricator Grease (1 lb Can)	1
020365	Multi-Purpose Grease Cartridge	1
007469	Lube Sticks For Discharge and Recirculation Valves (Box of 24)	1
012681A	Touch-Up Paint (FINN Beige - Aerosol)	1
012305	Adhesive Label (Remove Aerosol Can)	1
	Engine Operator's Manual	1
	HydroSeeder® Operator Instructions and Parts Manual	1
410018-24	Complete T170 Tool Kit	

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