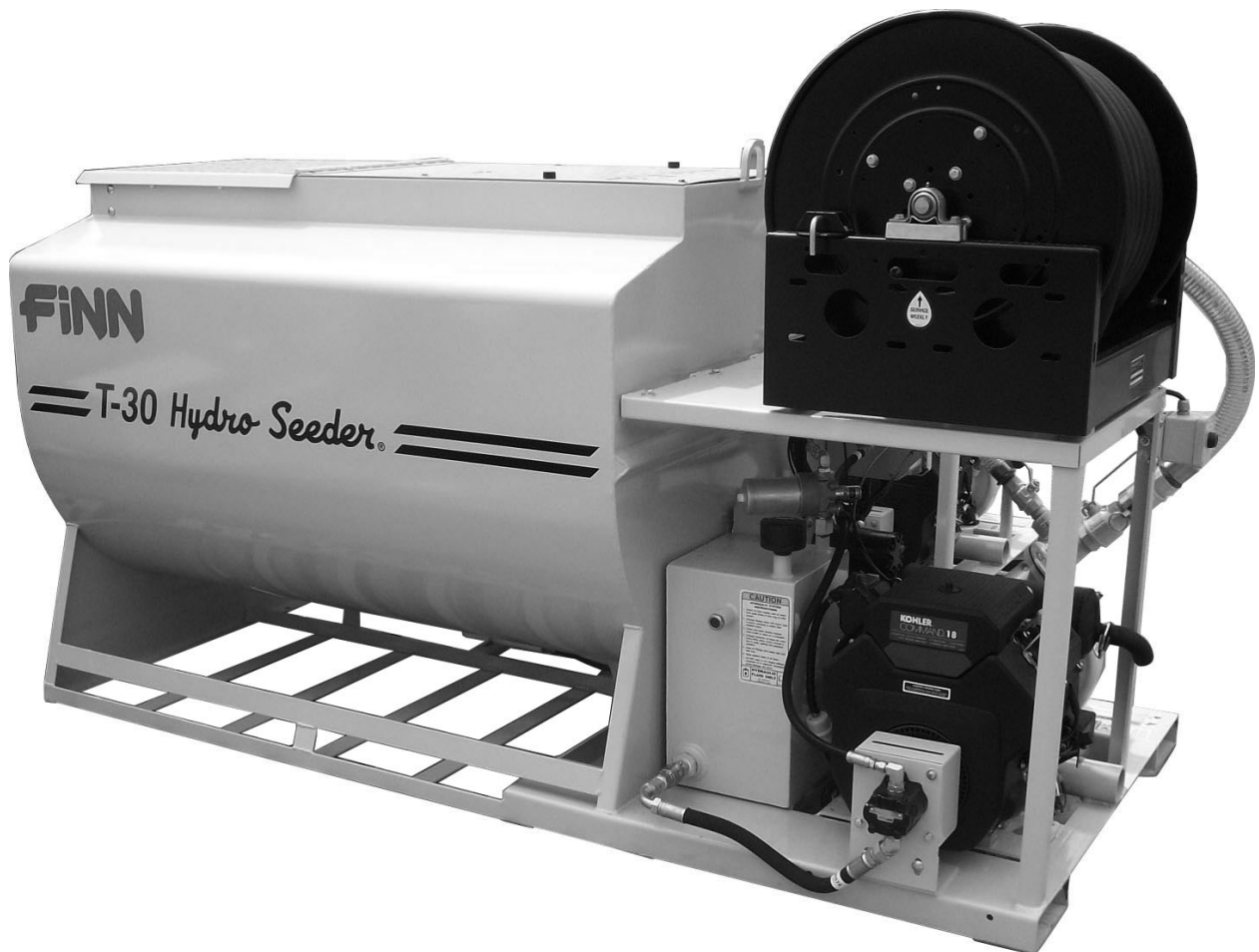




9281 LeSaint Drive • Fairfield, Ohio 45014
Phone (513) 874-2818 • Fax (513) 874-2914



T30 HydroSeeder®

Parts and Operator's Manual

Model **MM** Serial No. _____



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"
- **Fill out the Parts Tag. (Completely)**
 - **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# on the outside of the box you are shipping the defective part(s) to Finn in.**



Finn Corporation Commercial Limited Warranty

Effective August 23, 2010

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 of 12 months from date of purchase or 1200 hours of use, whichever comes first. Replacement parts provided under the terms of this warranty are warranted for the remainder of the warranty period applicable to the product 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 for the replacement part.
- 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 under this warranty.

WHAT YOU MUST DO TO OBTAIN WARRANTY SERVICE:

- As the purchaser covered under the above limited warranty you must **REGISTER** the equipment with Finn as such owner. Should registration not be on file with Finn Corporation, your **warranty will be void**. (See Operators manual for Registration Form)
- 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.
- 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.

Effective August 23, 2010

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SAFETY FIRST

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

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

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



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

- Pay Attention -



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



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



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

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

NOTE: Gives helpful information.

Finn Corporation

CALIFORNIA

Proposition 65 Warning

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

CALIFORNIA

Proposition 65 Warning

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

HYDROSEEDER® SAFETY SUMMARY SECTION

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

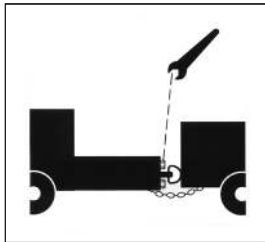
The FINN HydroSeeder® is designed to mix and apply water, seed, fertilizer, agricultural lime and hydraulic mulch to the prepared seedbed. The resultant slurry from mixing one or more of the above materials may react causing harmful or deadly gasses within the tank. Heat, evaporation or extended emptying 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):

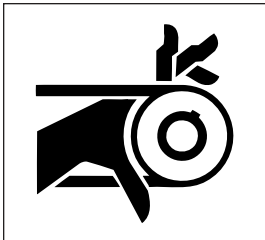
1. This machine is equipped with two lifting devices; forklift channels and a lift ring. Do NOT lift unit with any water or material in it. The lifting devices are designed to carry only the empty weight of the machine approximately 1050 lbs. (476 kg).

2. Check devices securing HydroSeeder® to the truck or trailer frame.

3. If the HydroSeeder® is mounted to a trailer, check hitch and hitch bolts, safety chains, lights, brakes and breakaway switch. Verify that the hitch ball is the correct size for the coupler.



4. Verify that all guards are in place.



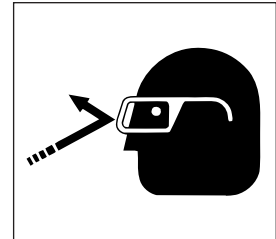
5. By carefully looking down through the loading hatch, inspect the slurry tank for foreign objects. Never enter the tank without following the procedures described in #3 of the Maintenance section in this sheet.



6. Make sure no one is working on or inside the machine. Signal "All Clear" before starting the engine.

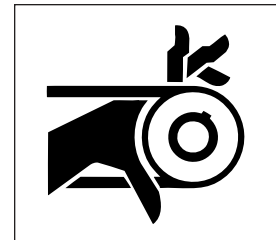
7. Inspect all hydraulic hoses for cracks, bulges or damage. If hoses are bad replace immediately.

8. 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 loose fitting clothing that may get caught in rotating machinery.

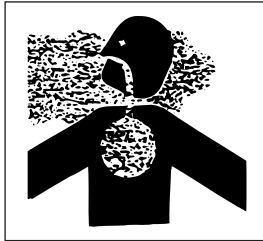


2. Do not operate the machine without all guards in place.



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 #3 under Maintenance before allowing any personnel to enter the tank.

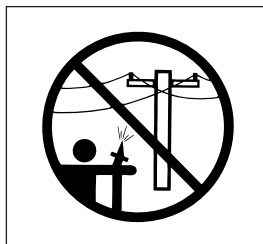
4. Make sure area to be sprayed is clear of all persons, animals, etc.
5. The T-30 HydroSeeder® is a non-platform machine. The discharge operator is positioned at the end of the discharge hose; not on the towing or carrying vehicle.



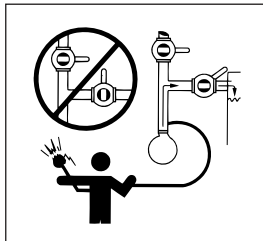
6. Never operate machine in an enclosed area without venting the engine exhaust of both the equipment and vehicle on which the equipment is mounted. Deadly carbon monoxide fumes can accumulate.
7. Never operate this or any other machinery when fatigued, tired, under the influence of alcohol, illegal drugs or medication. You must be in good physical condition and mentally alert to operate this machine.
8. Never modify the machine. Never remove any part of the machine (except for service and then reinstall before operating).

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.

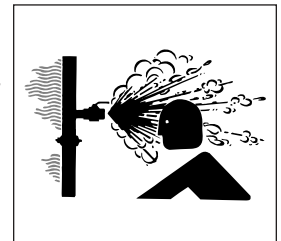


2. Never engage the clutch when both the recirculation and discharge valves are closed. Operation with both valves closed will result in extreme heat generation that could cause severe bodily injury and damage to the equipment.
3. Recirculation valve must be open and material flowing back into the tank when using the remote valve. A closed or plugged recirculation line will cause extreme heat in the pump or discharge lines which 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



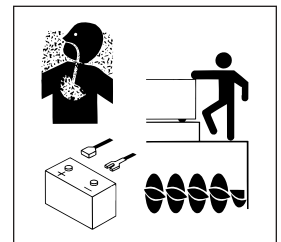
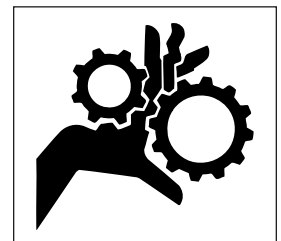
direct hose may be necessary if working on slopes. The proper technique for hose holding personnel is to firmly grasp the hose over the shoulder or under both arms. Never hold the hose so it goes between the legs. If the hose holding personnel finds that it is uncomfortable for him to handle the hose by himself additional hose holders should be positioned at the end of the hose.

5. Plan application so that the furthest area is covered first; working back toward the HydroSeeder®, so that the individuals are not walking back over slippery ground.
6. Before opening any valves or pipe clamps shut machine down and check if material in the pipe is hot. If hot, do NOT open valve or pipe clamps as the hot material may cause severe personal injury. Allow to cool and open with caution.
7. Except when loading materials keep loading hatch lid closed to protect operator and prevent splashing of wet material onto the tank top.
8. Wash off spillage of slippery mulch or slurry additive from the tank top and platform before operating equipment.



IV. MAINTENANCE:

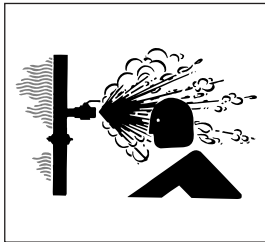
1. Before servicing the machine, turn off engine and allow all moving parts to stop. To prevent accidental starting disconnect battery cables. Tag the engine operating area to show that the machine is being serviced. Use lock-out/tagout procedure (OSHA 29 CFR 1910.147).
2. Certain hydroseeding amendments, 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. Including the following:

- a) Drain, flush and ventilate tank interior.
- b) Turn off engine and 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 stand-by individual outside of tank able to communicate with person inside and able to haul him out with 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 units perform general maintenance such as checking the safety chains, hitch and hitch bolts, tires, 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 re-inflating a repaired tire.
6. Battery maintenance: Lead-acid batteries contain sulfuric acid, which damage eyes of skin on contact. Always wear a face shield to avoid acid in the eyes. If acid contacts the eyes, flush immediately with clean

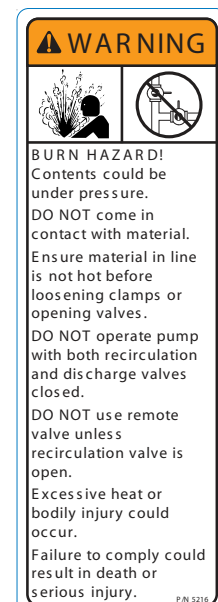
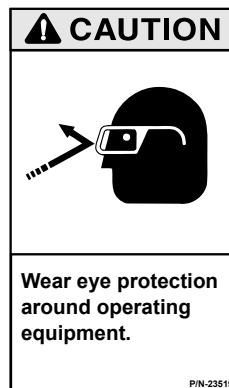
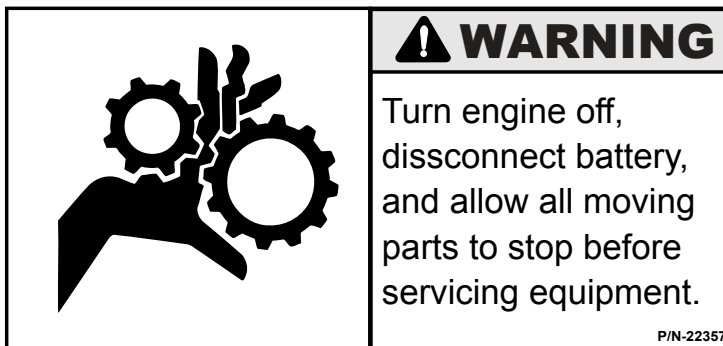
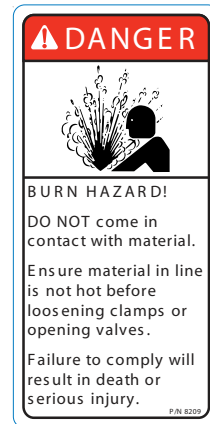
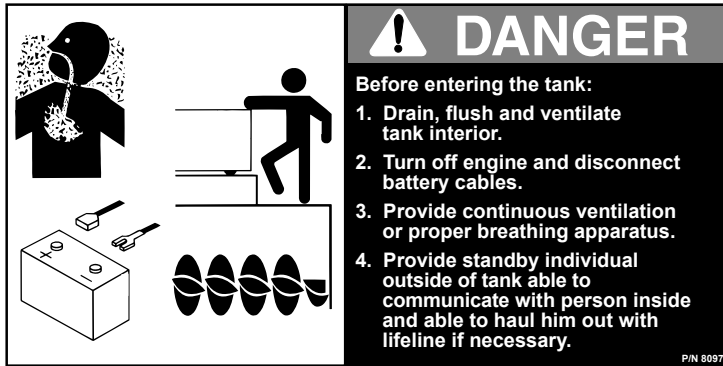
water and get medical attention. Wear rubber gloves and protective clothing to keep acid off skin. Lead acid batteries produce flammable and explosive gases. Keep arcs, sparks, flames and lighted tobacco away.

7. 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 container are explosive. Never cut or weld on fuel lines, tanks or containers. Move at least 10 feet (3 meters) away from fueling point before starting engine. Wipe off any spilled fuel and let dry before starting engine.

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

8. It is recommended that only authorized genuine FINN replacement parts be used on the machine.
9. 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.
10. Make certain that all decals on the machine are maintained in good legible condition. Replacement decals are available through Finn Corporation by specifying part number shown in the lower right hand corner of the decal. See page 5 for the current safety decals mounted on the unit. See pages 42-43 in the Parts Manual for the location and quantity of all decals on this unit.

CURRENT SET OF SAFETY DECALS



OPERATION AND MAINTENANCE

MANUAL FOR THE

FINN T30 HYDROSEEDER®

This manual gives you step by step instructions for the operation and maintenance of the Finn HydroSeeder®. For best results and to insure longer life of the equipment, please follow the instructions carefully. For your safety read the entire manual before operation of this unit.

DEFINITION OF HYDROSEEDING:

Hydroseeding is the process whereby seed, fertilizer and/or lime and 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, 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.

TOWING VEHICLE

The trailer mounted HydroSeeder®, is to be mounted onto a truck or trailer which can carry a payload of at least 3,900 lbs. (1700 kg.). This is the weight of the fully loaded HydroSeeder®. Any auxiliary loads due to material storage or optional equipment, as well as the weight of the carrier vehicle, must be added to obtain the proper carrier vehicle capacity.

HYDROSEEDER		TRUCK REQUIREMENTS
Type	Maximum Weight (Loaded)	
T-30 Skid	3,900 lbs. (1,700 kg)	Carrier vehicle must be able to support 3900 lbs. (1700 kg) in addition to its own weight

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.

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

- A. Bolt the HydroSeeder® directly to the truck bed. Installer must insure that the bed to truck and HydroSeeder® to bed connections are adequate for the full load weights that are shown on page 6.
- B. Mount the HydroSeeder® to the truck frame. The T30 HydroSeeder® is provided with an adapter frame which also allows the unit to be mounted directly to the truck's 34" wide frame using U-Bolts.

IMPORTANT: Mounting the HydroSeeder® to the truck must allow for tire clearance as well as frame twist. Place hard wood spacers along the length of truck rails or use Finn spring mounting kit (#011562) or equivalent.

IMPORTANT: When using a truck with a tilt bed be sure to chain the truck bed down to prevent the bed from being accidentally hoisted.



WARNING: This machine is equipped with two lifting devices: forklift channels and a lift ring. Do NOT lift unit with any water or material in it. The lifting devices are designed to carry only the empty weight of the machine, approximately 1050 pounds (476 kg).

ATTACHMENTS (OPTIONAL):

1. Discharge hoses: Discharge hoses are available in 50 ft. (15 m) and 100 ft. (30 m) lengths up to a total of 150 ft. (45 m). Hose of a greater length may adversely affect the discharge distance, and the discharge time of the HydroSeeder®. All connections are camlock quick operating fittings, including the connection to the end of the discharge piping. A nozzle is connected to the end of the hose next to the remote discharge valve. Once the hose is connected, the HydroSeeder® is ready to operate. Flow through the hose and the nozzle is controlled by the remote discharge valve. When using this valve, the recirculation valve on the HydroSeeder® MUST BE OPEN to allow flow at times when the remote valve is closed. See Figure 2 on page 9.



DANGER: The recirculation valve must be open when using a remote valve. If valve is not open, extreme heat will occur resulting in damage and/or bodily injury.

2. Hose Reel: The live hose reel mounts on top of the unit. The 150 foot (45 m.) capacity electric rewind reel will wind up and store empty hose. It is wired to the unit's battery.
3. Air Gap Fill Pipe: A bolt on the air gap fill pipe is available that mounts directly to the raised hatch liner and swings into position when the hatch lid is open.

PRE-START CHECK:

Safety check to insure operator safety:

1. A. Skid Unit - Check condition of all mounting hardware securing HydroSeeder® to truck bed and frame rails.
B. Trailer Unit - Inspect hitch, safety chains, lights, brakes and breakaway switch.
2. Insure that all guards are in place.

EQUIPMENT CHECK:



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

1. See that tool kit contains all the prescribed items (see tool kit list on page 41).
2. Inspect the “slurry-tank” for foreign objects. See numbers 2 and 3 in Maintenance Section (IV) of the Safety Summary Section page 3.
3. Check fuel level.
4. Check the hydraulic oil level (see hydraulic system for oil specifications).
5. Check engine oil level . . . for oil type refer to the engine manual.
6. Inspect air cleaner for dust and dirt, clean if necessary.
7. Secure the tank drain plug in the drain pipe located in the center of the bumper.
8. Check to be certain pump drain plug is in place.
9. Lubricate equipment - See Lube Chart on page 18.
 - 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, the 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 counter-clockwise 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.

IMPORTANT: When the thumb nut has moved down to within ½” (1.25 cm) of touching the cap, reservice the automatic lubricator.

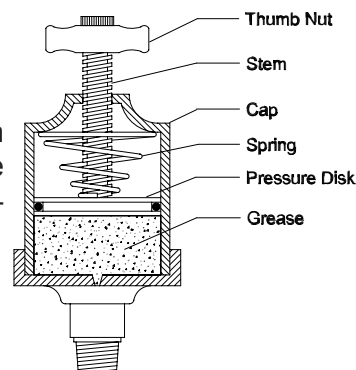


FIGURE 1

10. Check and clean the nozzles and hoses of any obstructions.
11. Check pump discharge, recirculation, and remote valve handles for free movement.

VALVE OPERATION:

The base HydroSeeder® is equipped with three (3) independently operated ball valves to control slurry flow (see Fig. 2). The first valve is the recirculation valve. An open recirculation valve allows flow back into the tank. The second valve is the pump discharge valve. An open pump discharge valve allows slurry to flow through the discharge hose. The third valve, located at the end of the discharge hose is the remote valve. An open remote valve allows discharge of the slurry onto the area being covered.



WARNING: Never engage (turn on) the slurry pump clutch when the recirculation valve and either the pump discharge or remote valve is closed. Pump is running with slurry flow closed-off which will result in extreme heat generation causing damage and/or bodily injury. The recirculation valve must always be open and material flowing back into the tank when using the remote valve. A closed remote valve in conjunction with a closed or plugged recirculation will cause extreme heat resulting in damage and/or bodily injury.

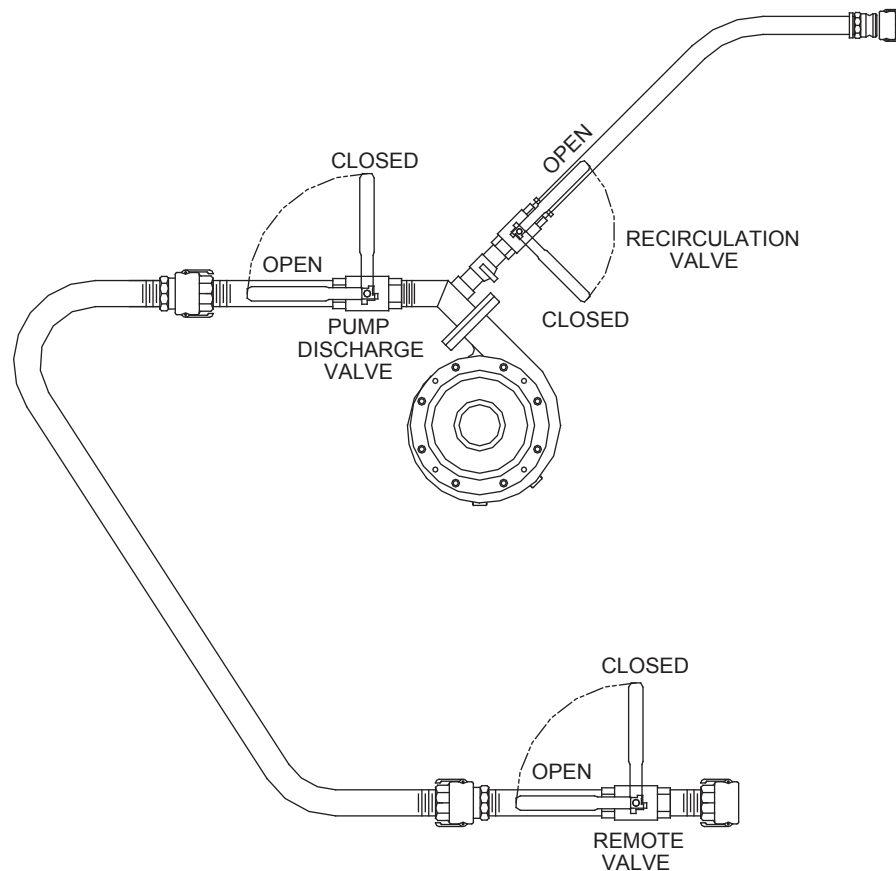


FIGURE 2

STARTING PROCEDURE:



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

Before starting, open the recirculation valve, close discharge valve, disengage (turn off) the clutch, and place the agitator control in the neutral position.

1. Set throttle about $\frac{1}{4}$ open.
2. Pull Choke control out.
3. Turn the key clockwise until the starter catches and engine fires.
4. Push the Choke control in for even running.

NOTE: This engine has a safety system which will shut the engine off if the engine temperature goes above or if the oil pressure decreases below an acceptable level.

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 “one step” (which is when the seed, fertilizer and mulch are applied proportionally per load) or “two step” (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 1000 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 6-10 pounds per 1000 square feet; fertilizer is applied at a rate of approximately 400 pound per acre; and fiber mulch is applied at 1500 to 2000 pounds per acre. (Note: There are 43,560 square feet in an acre). Local agronomists, agricultural extension agents, or soil and water conservation officials should be contacted for more specific information on application rates for a given area.

The following tables show loading versus coverage rates for the Finn T30. 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**

Unit	Amount of Material in Tank (pounds(kilograms))			Covrage Area
	<u>Seed</u>	<u>Fertilizer</u>	<u>Mulch</u>	<u>Sq. Ft. (Sq. m.)</u>
T30	28 lbs (13 kg)	32 lbs (15 kg)	120 lbs (54 kg)	3,485 (324)

Above Table is based on 1,500 pounds of mulch, 400 pounds of fertilizer and 345 pounds of seed (8 pounds/1,000 square feet) per acre.

Table A Example: For T30

120 pounds Mulch per Tank

$$\frac{120 \text{ pounds Mulch per Tank}}{1,500 \text{ Pounds Mulch per Acre}} = .08 \text{ Acre per Load} = 3485 \text{ sq. ft.}$$

400 Pounds Fertilizer per Acre x .08 Acre = 32 Pounds Fertilizer per Load

345 Pounds Seed per Acre x .08 Acre = 28 Pounds Seed per Load

TABLE B**SEED AND FERTILIZER ONLY**

Unit	Amount of Material in Tank (pounds(kilograms))			Coverage Area	
	<u>Seed</u>	<u>Fertilizer</u>	<u>Total</u>	<u>(sq. ft.(sq. m.))</u>	<u>Acreage (Hectare)</u>
T30	230 lbs (104 kg)	270 lbs (122 kg)	500 lbs (226 kg)	28,750 (8,763)	0.66 (.27)

Above Table is based on rates of 8 pounds seed and 9.2 pounds fertilizer per 1,000 square feet.

Table B Example: For T30

$$\frac{500 \text{ Pound Tank Capacity (Solids)}}{8 \text{ Pounds (Seed) + 9.2 Pounds (Fertilizer) per 1,000 Sq. Ft.}} = 28,750 \text{ Square Feet per Load}$$

$$\frac{8 \text{ Pounds Seed}}{1,000 \text{ Sq. Ft.}} \times 65,340 \text{ Square Feet} = 522 \text{ Pounds Seed per Tank}$$

TANK CAPACITY CHART:

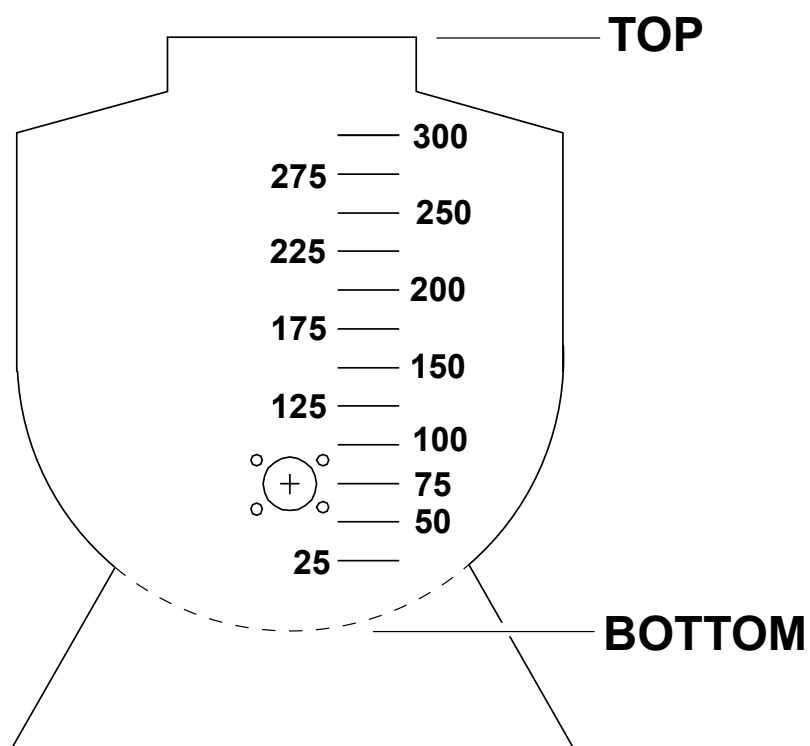


FIGURE 3

T-30					
Gallons (liters)		in. (cm) from top		in. (cm) from bottom	
300	(1136)	6.25	(15.9)	32.75	(83.2)
275	(1041)	8.75	(22.2)	30.25	(76.8)
250	(946)	11	(27.9)	28	(71.1)
225	(852)	13.5	(34.3)	25.5	(64.8)
200	(757)	16	(40.6)	23	(58.4)
175	(662)	18.25	(46.4)	20.75	(52.7)
150	(568)	20.5	(52.1)	18.5	(47.)
125	(473)	23	(58.4)	16	(40.6)
100	(379)	25.25	(64.1)	13.75	(34.9)
75	(284)	27.75	(70.5)	11.25	(28.6)
50	(189)	30.75	(78.1)	8.25	(21.)
25	(95)	34	(86.4)	5	(12.7)

LOADING:



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.

1. With clutch disengaged (off) and agitator control in the neutral position, start engine and allow it to warm up (See "Starting Procedure" on page 10).
2. Start filling the unit with water. When water reaches the top of the agitator shaft, move agitator control to full reverse position.

Fill the tank with 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 which could damage the pump and unit. Other sources of water:

1. Any pressure source, eg. fire hydrant. This unit is supplied with an air gap fill port but it is necessary to consult with local authorities before using water main in order to abide to all local ordinances.
2. Water tanker.
3. Piping System Cleanout Procedure (Purging Line):
 - 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. Increase engine speed to approximately $\frac{1}{2}$ to $\frac{3}{4}$.
 - E. Engage (turn on) the clutch.
 - F. When discharge stream is clear, open recirculation valve and close discharge valve. After recirculation stream is clear disengage (turn off) the clutch.
 - G. Replace coupler gasket in the remote valve coupler (or in boom on the platform option).
4. Continue filling tank with water.
5. Increase engine speed to full RPM.
6. Start loading dry material, loading the lightest material first. Agitator control should be in full reverse for mixing.



DANGER: Keep hands and arms away from the tank interior and agitator.

- A. Seed - Cut the seed bag and dump contents into the 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. Fiber mulch - Empty the entire bag in or cut bag and drop in the sections of fiber. The amount of mulch to be used should be loaded by the time the water level is at $\frac{3}{4}$ 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.

- C. Fertilizer - Cut the fertilizer bag and dump the contents into the slurry tank.
- D. All other additives - Consult with manufacturer for proper loading technique.
- 7. When all materials are loaded and in suspension, and the tank is full, move the agitator to neutral then full speed forward to insure all material is mixed. It may be necessary to change the agitator direction more than once to insure a thorough mixture.
- 8. After material is thoroughly mixed, slow agitator in forward direction to $\frac{1}{2}$ to $\frac{3}{4}$ speed or enough to create movement in all of the corners of the tank. Do not over agitate the slurry. Always discharge the material with the agitator control in forward position.
- 9. Close the hatch lid on the slurry tank.

NOTE: If foaming occurs, reduce agitator speed.

PRIOR TO APPLICATION:

1. Operator should familiarize self with area to be seeded and develop a plan to insure uniform application.

DISCHARGE NOZZLE SELECTION:

Nozzles are stored in the tool box. This HydroSeeder[®] is equipped with 3 nozzles - one long distance and two ribbon fan nozzles. The following chart tabulates the approximate distance, width, and discharge time of the nozzles when used with the platform option. When using the base unit these factors will vary according to the type and length of hose being used.

Nozzle	Distance (A)	Width (B)	Discharge Time
Long Distance	Up to 70 ft (21m)	-	12 min.
Narrow Ribbon	Up to 45 ft (14m)	10 ft (3m)	8 min.
Wide Ribbon	Up to 35 ft (10m)	20 ft (6m)	8 min.

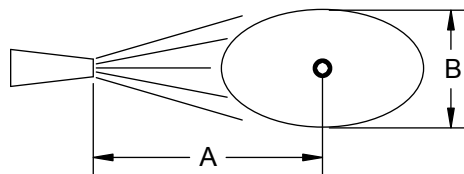


FIGURE 4

APPLICATION OF SLURRY:

I. GENERAL APPLICATION TECHNIQUES



DANGER: Do not spray toward power lines, transformers or other high voltage conductors.



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.

1. Determine which nozzle would best suit the application needs according to the nozzle selection chart on page 14.
2. Application of seed and fertilizer: Elevate discharge nozzle no less than 10° above the area to be sprayed, allowing the slurry to gently rain onto the seed bed.
3. Application of wood and paper fiber: Whenever possible aim the stream towards the ground to create a surface with small pock marks which 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. Do NOT partially close the valve to control the distance.
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, leave the valves open and disengage (turn off) the clutch. Re-engage the clutch to continue application.
7. It may be necessary to slow the agitator as the tank empties to reduce foaming.

II. 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 plugging.

DISCHARGE THROUGH HOSE 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 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 hose operator to lose control of hose or footing. The hose will require additional holders 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.

3. With the engine at $\frac{3}{4}$ 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 clutch, and stop the engine. If using fiber mulch, retain as much water as possible in the hose by elevating the ends or by coupling the ends together.
5. If another load is to be done, see reloading procedure below. 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. If not open, extreme heat which will cause damage and/or bodily injury will occur.

RELOADING PROCEDURE:

1. Start at step 2 in loading procedure on page 13.
2. After last load of the day refer to the cleaning and maintenance section of the manual on pages 16-17.

CLEANING AND MAINTENANCE:

DAILY:

1. Cleaning the HydroSeeder®
 - A. Fill the slurry tank to the center of the agitator shaft with clear water.
 - B. Move agitator lever to full speed to flush off inside of tank top and walls.
 - C. Remove discharge nozzle and coupler gasket from the remote valve coupler at the end of the discharge hose.
 - D. While aiming discharge toward an open area, open discharge and remote valve and engage (turn on) the clutch. Allow to discharge until clear water is coming out.
 - E. Open the recirculation valve and allow to run until the stream is clear.
 - F. Disengage (turn off) the clutch, idle the engine, move discharge valve handle to discharge position, move agitator handle to neutral and turn off the engine. (Remember to replace the coupler gasket).
 - G. Always remove the drain plug and allow the tank to drain.
 - H. In freezing weather leave main tank drain plug out and remove pump drain plug. Move all slurry valves to open position.
 - I. Wash the outside of the HydroSeeder® to remove any corrosive materials.
2. Lubricating the HydroSeeder® (see lube chart on page 18).

IMPORTANT: Lubrication should be performed IMMEDIATELY AFTER cleaning of equipment. Engine not running.

- A. Lubricate the agitator shaft bearings located on the outside front and rear of the slurry-tank.
- B. Service the automatic lubricator on the pump as needed (for service see page 8).
- C. Check the engine oil and replenish when necessary. Change oil and filter after first 5 hours then 100 hours thereafter. Consult the engine operator's manual for the correct grade of oil and the engine break-in procedure.

WEEKLY OR EVERY 40 HOURS OF OPERATING TIME:

- 1. Clean the air cleaner following the instructions in the engine operator's manual.
- 2. Lubricate all the points on the HydroSeeder® as outlined in the daily maintenance section and, in addition, lubricate the two grease fittings on the clutch/pump.
- 3. Check the level in the hydraulic oil reservoir - maintain level with dipstick on filler cap.
- 4. Inspect the slurry-tank for build up of residue in the suction area and clear if necessary.

SEASONAL AND WINTER STORAGE MAINTENANCE:

- 1. Drain the slurry tank of all water prior to storage and leave the drain plug disconnected.
- 2. Park unit in suitable location and chock wheels to prevent inadvertent movement.
- 3. If possible cover machine with tarp or park inside of an enclosure.
- 4. Store the HydroSeeder® with all slurry valve handles in the open position. To prevent damage from freezing, it is advisable to remove all slurry valves and store in a heated area.
- 5. Pour one quart of mineral oil or environmentally safe lubricant into the pump housing and spin pump by hand to prevent rust in the pump. Remove drain plug.
- 6. Chip and steel brush any interior rust spots in the slurry-tank and touch up with paint. See numbers 2 and 3 in Maintenance Section (IV) of the Safety Summary Section page 3.
- 7. Lubricate all fittings.
- 8. Lubricate equipment again just prior to starting operation after storage.
- 9. Change hydraulic oil and filter. (400 hours)
- 10. Disconnect battery cables. In cold weather, remove battery and store in safe warm place.
- 11. Add fuel stabilizer to fuel tank.

HYDRAULIC SYSTEM:

The hydraulic system on your Finn HydroSeeder® is designed to give trouble free service, when properly maintained. The most important areas of maintenance are the hydraulic oil and filtration. The reservoir holds 6 gallons of ISO Grade 46 Hydraulic Oil. The hydraulic oil should be replaced per the lubrication schedule or if the oil becomes milky or it gives off a burnt odor. The hydraulic oil filter must be replaced on schedule with a 25 absolute micron filter - Finn part #021618. The hydraulic system relief is factory set at 2,250 psi.

LUBRICATION AND FLUIDS CHART

Ref. No.	Location	Lubricant	Frequency	Number
1	Check Grease Level in Pressure Lubricator	SL	Daily	1
2	Grease Agitator Shaft Bearings	CL	Daily	2
3	Check Engine Oil Level	MO	Daily	1
4	Change Engine Oil and Filter	MO	See Engine Manual	1
5	Grease Pump Bearings	CL	Weekly	2
6	Check Hydraulic Fluid Level	HO	Weekly	1
	Change Hydraulic Fluid and Filter	HO	Seasonally	1
7	Check Fuel Tank	FU	Daily	1

LUBRICANT OR FLUID USED

SL	Seal Lube (Sodium Base)
CL	Chassis Lubricant
MO	Motor Oil See Engine Manual for Recommendations
HO	ISO Grade 46 Hydraulic Oil
FU	Gasoline

TIME KEY

DAILY (8 hours)



WEEKLY (40 Hours)



SEASONALLY (500 hours)



SEE ENGINE MANUAL



FLUID CAPACITIES

Gasoline - 6.6 Gallons (25 l)

Engine Oil - 2 Quarts (2 l)

Hydraulic Fluid - 6 Gallons (23 l)

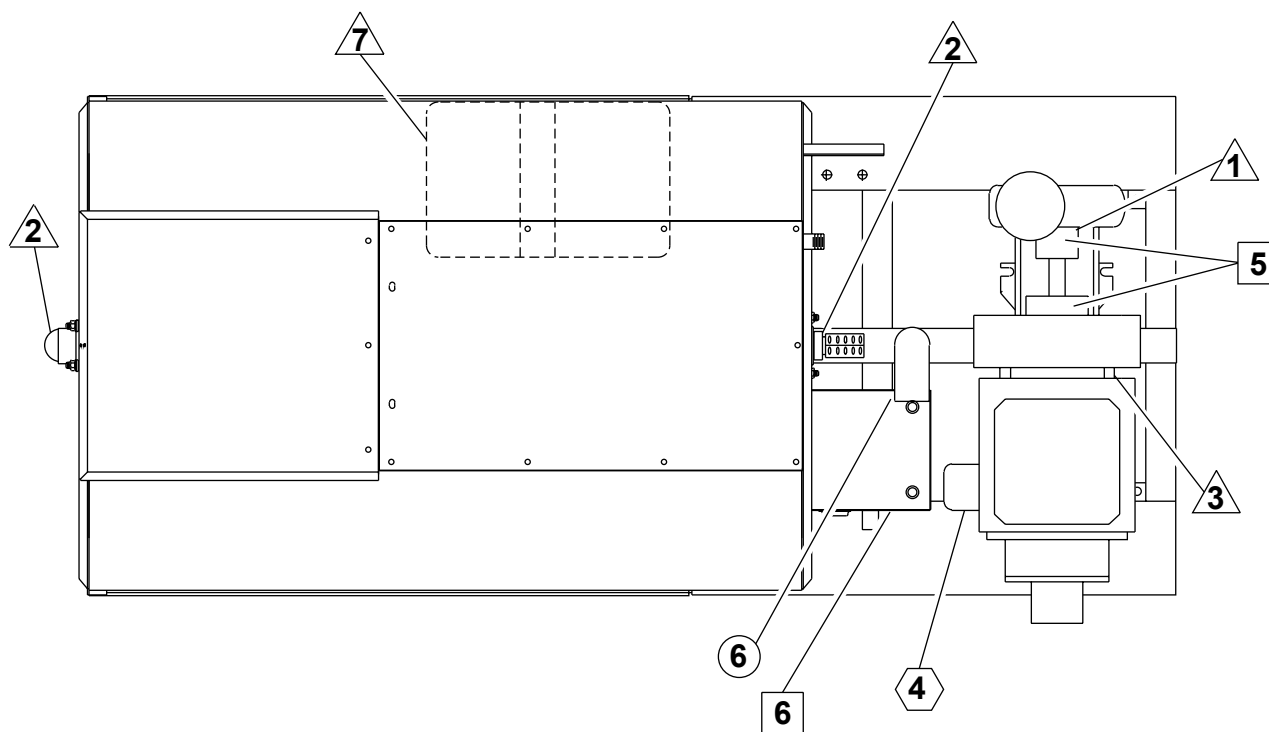


FIGURE 5

PUMP MAINTENANCE:



CAUTION: Pump maintenance to be done only while engine is not running, and battery cables are disconnected.

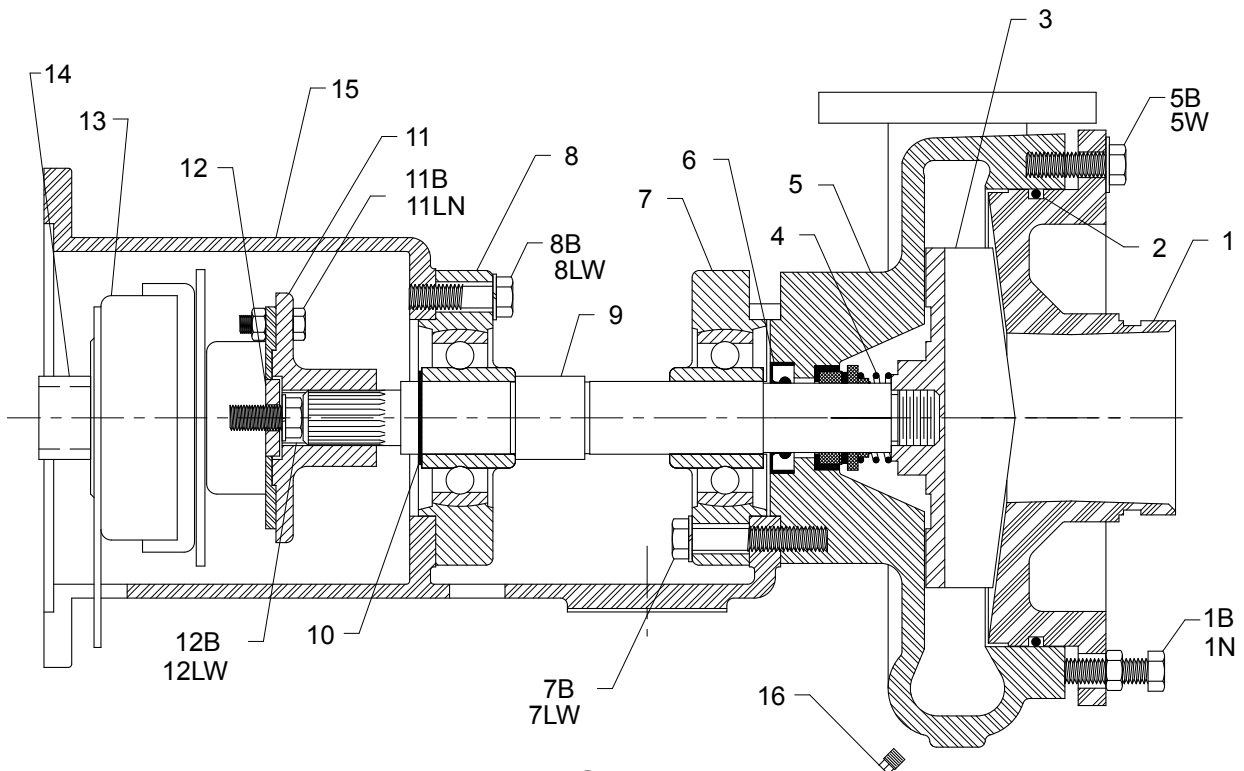


FIGURE 6

PUMP ASSEMBLY

Ref. No.	Description	No. Req'd	Ref. No.	Description	No. Req'd
1B	Suction Cover Bolt	4	8B	Bearing Bolt	4
1N	Suction Cover Nut	4	8LW	Bearing Washer	4
1	Suction Cover	1	9	Pump Shaft	1
2	O-Ring	1	10	Snap Ring	1
3	Impeller	1	11	Drive Hub	1
4	Mechanical Seal	1	11B	Drive Hub Bolt	2
5	Pump Casing	1	11N	Drive Hub Nut	2
5B	Suction Cover Bolt	8	12	Clutch Retainer	1
5W	Suction Cover Washer	8	12B	Locking Bolt	1
6	Radial Lip Seal	1	12W	Lock Washer	1
7	Casing Bearing	1	13	Clutch	1
7B	Bearing Bolt	4	14	Clutch Spacer	1
7LW	Bearing Washer	4	15	Pump Frame	1
8	Frame Bearing	1	16	Casing Drain Plug	1

NOTE: See parts manual for Finn part number

A. FACTORY-TOLERANCES

1. To check pump 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 pump impeller (3) and the suction cover (1). This measurement on a new pump is 0.030-0.045 inches (0.762 -1.15 mm).

B. IMPELLER CLEARANCE - TO BRING THE PUMP BACK TO PROPER TOLERANCE, PROCEED AS FOLLOWS:

1. Loosen adjusting cap screws (1B) and push suction cover (1) into casing (5) until suction cover hits impeller (3). Impeller should be in full contact with suction cover.
2. Tighten cap screws (5B) finger tight. Impeller should rub the suction cover and not turn easily through one revolution.
3. Tighten cap screws (1B) to 15 lb. ft.(165 kg/m).
4. Back off cap screws (5B) 3/4 turn.
5. Tighten cap screws (1B) 3/4 turn (15 lb.ft.(165 kg/m)) and tighten nuts (1N) to 15 lb.ft. (165 kg/m).
6. Tighten cap screws (5B) to 15 lb. ft. clearance gap should be about 0.040 inches (1.00 mm). Check to see if impeller turns freely through one revolution.

NOTE: Tightening of the cap screws should be in a criss-cross pattern. DO NOT TIGHTEN OVER 15 LB. FT. (165 kg/m). Overtightening will crack the flange of the suction cover.

C. CLEANING

1. To clean pump impeller (3), loosen the two victaulic pipe clamps and remove the suction pipe assembly. The eye of the impeller can then be seen through the suction cover plate (1) and is readily accessible for cleaning.
2. For further access to the impeller, remove the eight bolts (5B) holding the cover plate (1) in place. Remove suction cover plate, being careful not to damage the O-Ring gasket (2).
3. To remove the impeller take the impeller wrench, which is stored in the tool box, and position it so the hole is aligned with any of the eight tapped holes in the front of the pump casing (5). The 90° leg of the wrench should face in towards the impeller and be positioned between any two of the impeller fins. Bolt the wrench securely in place with one of the suction cover plate bolts (5B). Using a pipe wrench on the shaft (9) (See Figure 7 below), unscrew the impeller turning the shaft in a clockwise direction. Be careful not to unscrew the impeller too far before removing the pullerwrench.

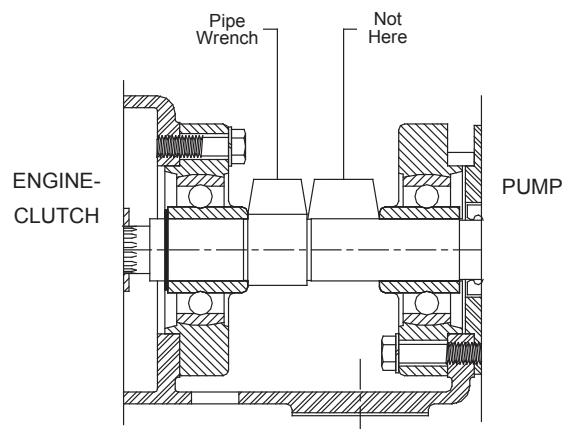


FIGURE 7

D. INSTALLING NEW SEAL ASSEMBLY (#4)

(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 the seal assembly (4), perform the above operations under cleaning and remove pump casing (5) by removing the four bolts (7B) holding the casing and the casing bearing (7) to the pump frame (15).
2. After cleaning all parts including pump shaft, begin the reassembly of the pump. Install grease retainer seal (6) with the cavity portion of the seal facing inward. Rebolt the casing and the casing bearing (7) onto the clutch housing using the four cap screws (7B). Using a light oil lubricant (3 in 1), 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 and check to be sure the steel ring is stuck (glued) to the end of the assembly. Slide the bellows assembly onto the shaft and push till the steel ring is against the ceramic seat.
3. Install the seal spring on the hub of the impeller. After coating the threads on the pump shaft with an anti-seize compound, install the impeller - seating it securely.
4. Utilizing the rubber O-Ring gasket (2) reinstall suction cover using the eight cover bolts (5B). At this time, check to see that the pump runs freely. If the impeller rubs the cover plate, either the impeller is not tight on the shaft or the cover plate needs readjustment - see "impeller clearance". Tighten these bolts uniformly using 15 ft. pounds (165 kg/m) on the torque wrench.
5. After reinstalling the suction pipe assembly, lubricate and tighten the victaulic clamps. Service the automatic lubricator.

TROUBLE SHOOTING YOUR HYDROSEEDER®:

Because of the tremendous work load usually placed upon the HydroSeeder®, minor malfunctions will occur from time to time. If not remedied immediately, they could lead to poor performance and damage to the equipment. This section describes possible problems and the action to correct them.

1. Foam in the tank and air entrainment.

The mixture of dry materials with water will sometimes cause excessive foaming while others will cause air entrainment. This is exhibited by erratic discharge and/or a drop in pressure and distance.

Some solutions are:

- A. As the slurry level drops in the tank, slow the agitator.
 - B. Add 2 or 3 ounces (4 to 6 cl) of an antifoaming agent to the 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. Reduce recirculation time as much as possible.
2. Plugging or clogging:



DANGER:

Turn off engine and disconnect battery cables before working on equipment. Serious injury or death can result from moving parts or high pressure spray.

Sometimes when a stoppage occurs, you will not be able to find anything in the line. When this happens, it means the system became airbound instead of plugged. To remedy this, see “Foaming”. Plugging can occur in any 1 of 4 places; the valve and recirculation nozzle, the discharge nozzle, the pump area and the sump area. Plugging is caused by either foreign objects or dewatered fiber.

- A. Obstruction in the discharge nozzle is determined by a change or stoppage of spray pattern.
 - a) Disengage (turn off) the clutch.
 - b) Remove the nozzle.
 - c) Clear the nozzle with the nozzle cleaning rod attached to the underside of the guard rail (platform option only).



DANGER: **Severe injury can result from opening clamps when piping is hot. Before loosening any clamps, determine if the pipe is hot. If so, let it cool before attempting repair.**

- B. If the recirculation system is not working:
 - a) Disengage (turn off) clutch and shut down engine.
 - b) Remove clamp attaching recirculation valve.
 - c) Slide rubber seal back and remove valve assembly.
 - d) Check valve assembly, recirculation nozzle in the discharge pipe, and the recirculation pipe going into the tank. Clear any obstructions.
 - e) Replace valve assembly and slide seal back into place. Lubricate outside of seal.
 - f) Replace clamp.
- 3. Obstruction in pump can be determined by a drop in pressure. If drop in pressure is accompanied by a frothy or whitish discharge stream, blockage is in suction line or sump area. To clear the pump:
 - A. Disengage (turn off) clutch and stop engine.
 - B. Loosen suction pipe clamps. If material is in the tank, stuff a rag into the suction piping.
 - C. Remove the clamp closest to the pump.

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

- E. Reach into the pump and remove the obstruction. If jammed, the pump suction cover may have to be removed.
- F. Reassemble, removing pipe “plug” in process.
- G. Remove the rag plugging the suction piping.
- 4. Obstruction in the sump area, which is located at the bottom of the tank on the inside where the suction pipe is attached:
 - A. The easiest way to clear the sump is to back flush through the discharge plumbing with the water supply hose.
 - B. Another method is to 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

TROUBLE SHOOTING YOUR HYDROSEEDER®:

Problem	Probable Causes	Suggested Solutions
LEAKS:		
Tank bearing leaks.	Lack of lubrication - seal worn.	Replace seal and follow lube Schedule.
	Bolts not tightened properly.	Tighten uniformly to 25 ft. lbs.
Pressure Clamps.	Rubber seal cracked, pinched or torn.	Replace, always grease seal before clamping shut.
Suction.	Rubber seal cracked, pinched or torn.	Replace, always grease seal before clamping shut.
Pump Shaft.	Pressure lubricator not serviced.	Replace pump seal, service pressure lubricator daily.
Pump Suction Cover.	Cover O-Ring bad.	Replace cover O-Ring, use grease when replacing.
Nozzle Camlock Fittings.	Worn or no gasket.	Replace gasket.
PUMP:		
Excessive wear.	Fertilizer with highly abrasive filler.	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 1/2 speed in reverse and disengage (turn off) 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.

TROUBLE SHOOTING YOUR HYDROSEEDER®:

Problem	Probable Causes	Suggested Solutions
MACHINE JUMPS DURING OPERATION:		
Agitator.	Agitator bent by heavy object falling on it.	Straighten agitator or shim, so it runs true.
Bent Paddles.	Loading fiber mulch into tank before tank is half full.	Straighten agitator paddle, realign agitator to run true.
FOAMING OF SOLUTION AND LACK OF DISTANCE:		
sary.	Pump loses prime - lacks distance - leaves excessive amount in tank (100 gal(378 liters) or more).	Sucking air in suction lines.
		Check all suction connections to see that rubber seals are in good shape. Grease seals before replacing clamps.
	Air entrainment.	See page 22.
	Low engine RPM. (Below 3600 RPM-No load)	Check throttle cable and linkage, See authorized engine dealer.
	Soft water.	Slow agitator.
	Too much agitation.	Slow the agitator.
	Pump worn.	Reset pump tolerance page 20.
	Suction partially plugged.	Clean out machine see page 17.
	Nozzle worn or plugged.	Clean nozzles, replace if necessary.
	Fertilizer.	Change type.
VALVE:		
Valve stuck.	Frozen.	Thaw out ice, lubricate. Leave in discharge position during storage.
Constant plugging during operation.	Foreign material in slurry.	Drain and clean out tank. Check storage for foreign materials.
Constant plugging during loading and	Loading HydroSeeder® before tank is half full	Reinstruct your operator. (See pages 13-14).

discharging.

of water.

TROUBLE SHOOTING YOUR HYDROSEEDER®:

Problem	Probable Causes	Suggested Solutions
Constant plugging during loading and discharging.	Incorrect loading procedure.	Review loading procedure, pages 13-14.
	Improper operation by operator.	Reinstruct your operator. (Review Operator's Manual).
	Not moving valve handle far enough.	Valve should be fully open.
	Machine not being flushed out prior to reloading.	See pages 13-14.
	Machine not being run at correct RPM during loading.	Reinstruct your operator. (See pages 13-14).
Extension hose plugs after use.	Letting water run out, allowing fiber mulch to dry out.	If hose has to be uncoupled, seal ends to keep water in hose and prevent fiber mulch from drying out.



CAUTION:

Do not turn the shaft backwards with a pipe wrench - this will unscrew the impeller from the shaft. Consequently, when clutch is engaged, the impeller will screw onto the shaft with such force, great enough to break the impeller.

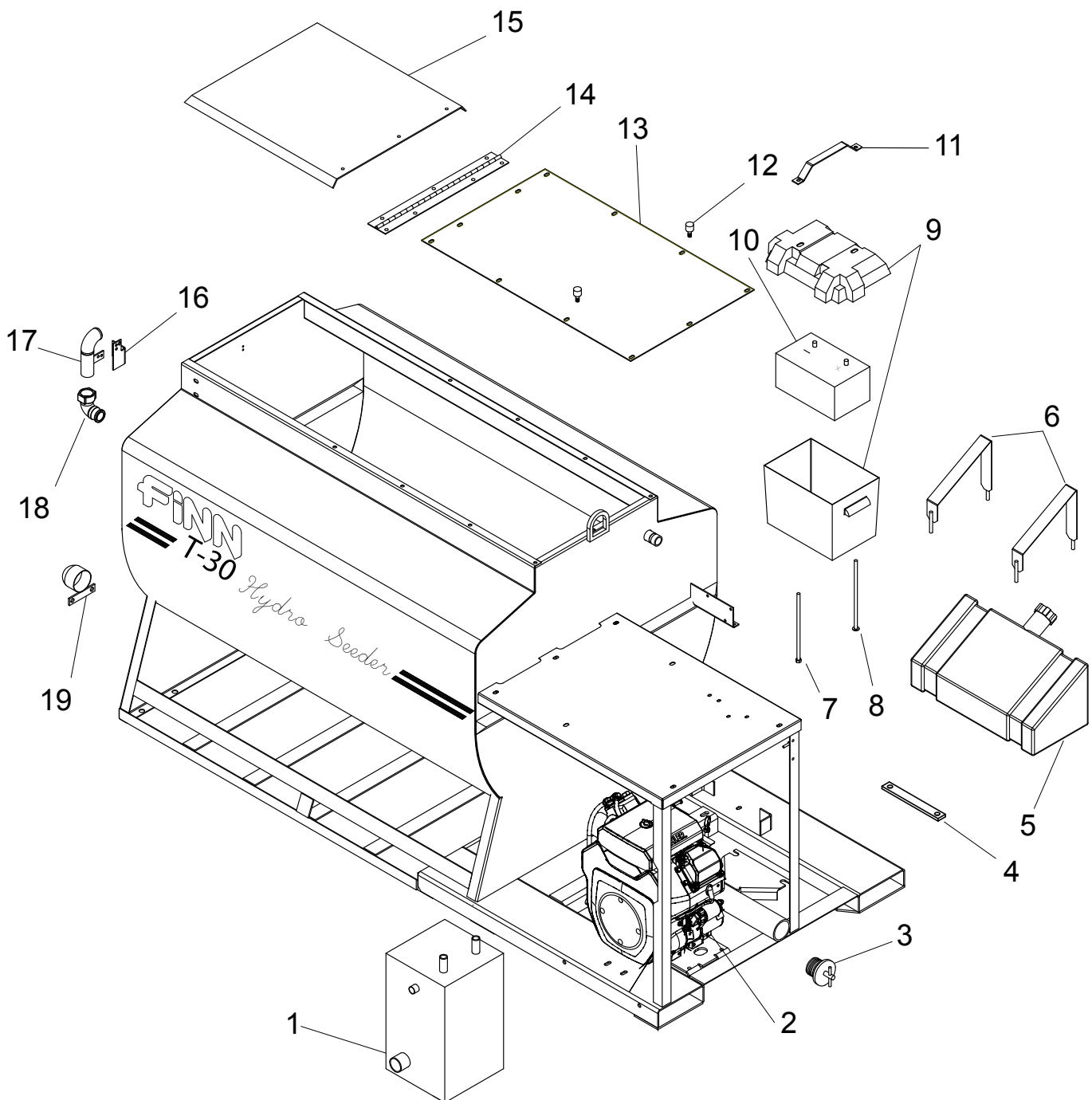
NOTES

T30

Hydroseeder[®]

Parts Manual

Model MM



**WHEN ORDERING PARTS, BE SURE TO STATE
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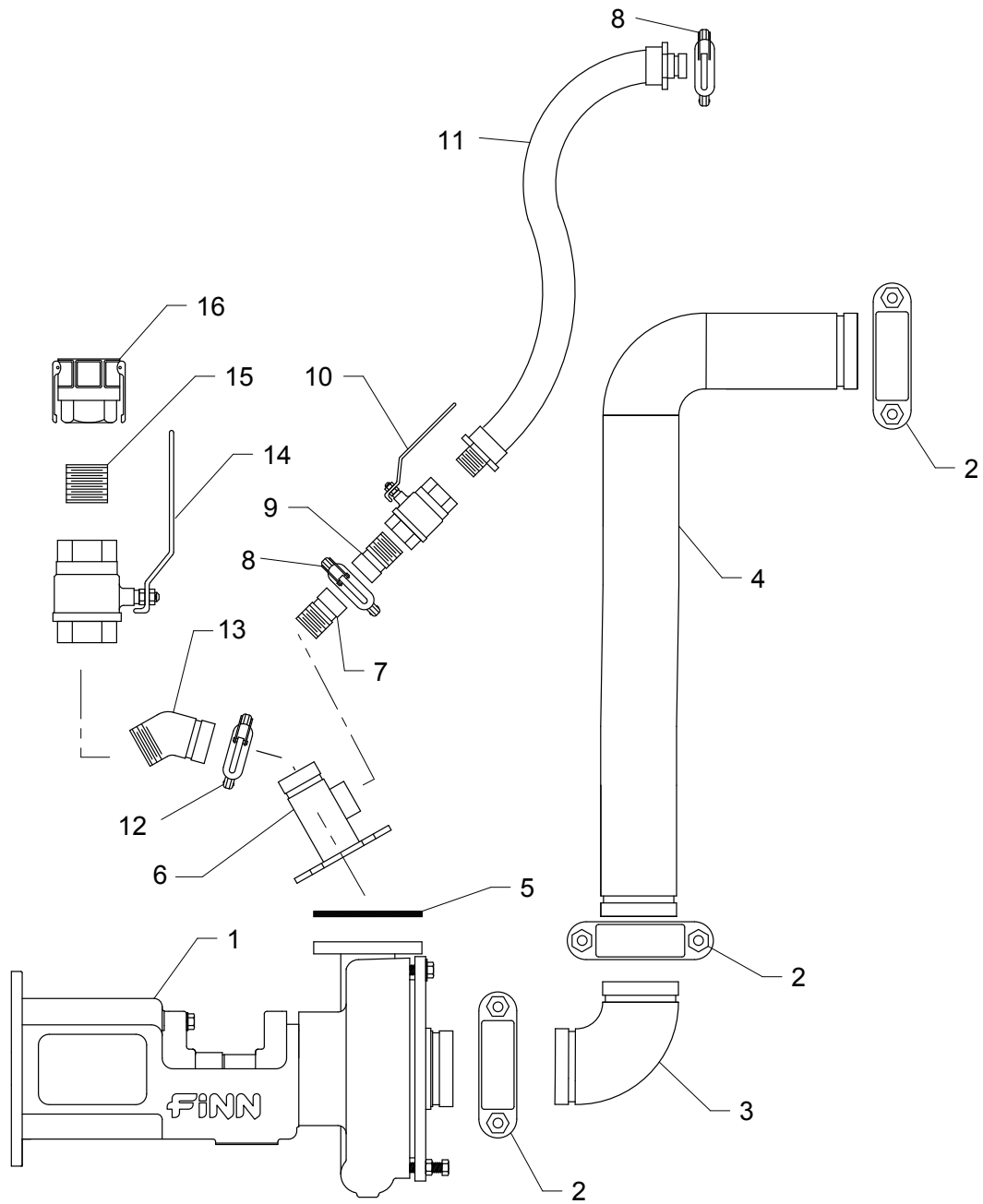
COMMON LOOSE PARTS

Ref. No.	Part Number	Description	No. Req'd
1	085145	Hydraulic Reservoir	1
2	085262	Kohler 18 HP Gasoline Engine <i>(See Page 40)</i>	1
3	004593	Drain Plug	1
4	035123	Fuel Tank	1
5	085265	Pump Isolator	1
6	F30-0009	Fuel Tank Strap	1
7	005495-22	Battery Bolt (w/ Nut)	1
8	085266	Battery Bolt (w/ Flat Washer)	1
9	080223	Battery Case	1
10	002256-12	Battery	1
11	080220	Battery Hold Down Strap	1
12	085152	Rubber Stud Mount	2
13	085127	Tank Top	1
14	085132-01	Hatch Lid Hinge	1
15	085126	Hatch Lid	1
	005433	Soft Latch	1
16*	F60-0013	Fill Port Bracket	1
17*	080636	Fill Port Weldment	1
18*	080638	90 Deg Polypropylene Elbow	1
19	005399	Toe Guard	1

NOTE:

* Denotes Optional Attachment

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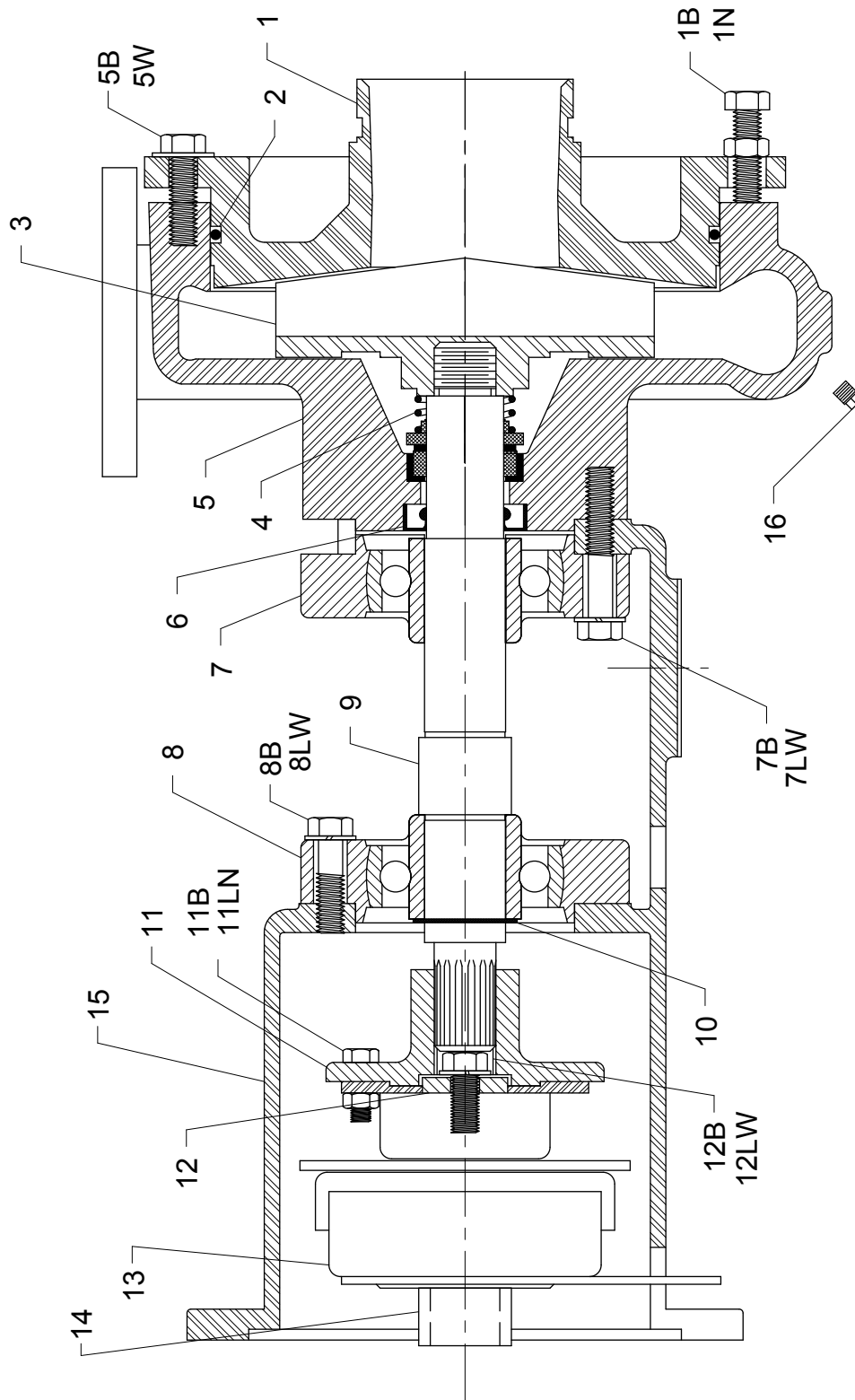


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SUCTION, DISCHARGE AND RECIRCULATION PIPING

Ref. No.	Part Number	Description	No. Req'd
1	085160	Clump Assembly (<i>See Pages 30-31 for parts breakdown</i>)	1
2	080366	Pipe Clamp	3
	002439	Clamp Gasket	1 per
3	002868	90° Grooved Elbow	1
4	085210	Suction Pipe Weldment	1
5	008469	Discharge Flange Gasket	1
6	080558-01	Discharge Flange Pipe	1
7	005083-07	Recirculation Nozzle	1
8	005156	Pipe Clamp	2
	005183	Clamp Gasket	1 per
9	005083-08	Recirculation Nozzle	1
10	021559	Ball Valve	1
11	080650	Recirculation Hose	1
12	006252	Pipe Clamp	1
	006253	Clamp Gasket	1 per
13	080679	45° Discharge Elbow	1
14	007710	Ball Valve	1
15	160309	Close Nipple	1
16	080377	Female Coupler	1
	006515	Coupler Gasket	1 per

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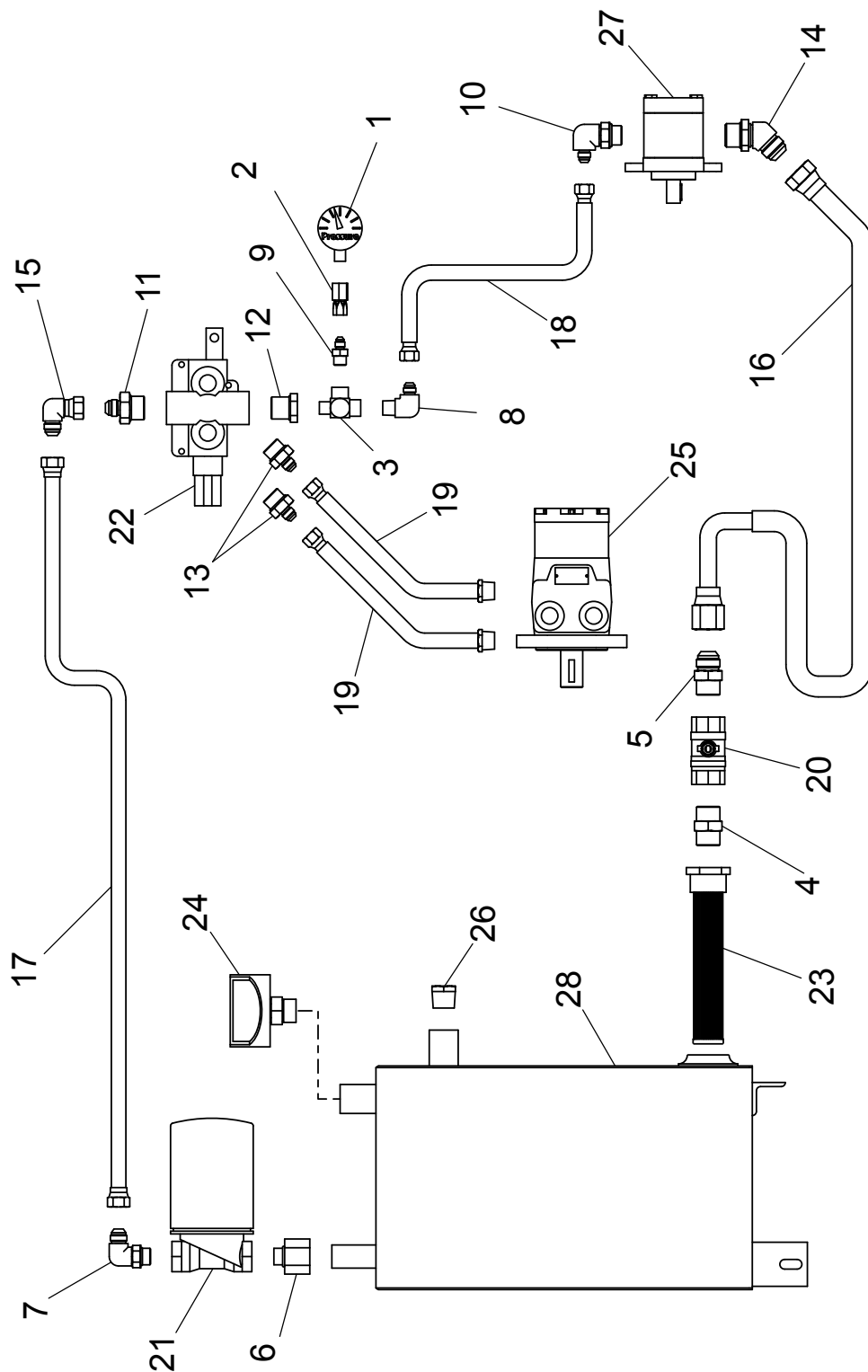


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CLUMP ASSEMBLY

Ref. No	Part Number	Description	No. Req'd
	085160	Clump Assembly	1
1	080489	Suction Cover	1
1B	0X0720	Suction Cover Bolt	4
1N	000Y07	Suction Cover Nut	4
2	080499	O-Ring	1
3	085159	Impeller	1
4	080485	Mechanical Seal	1
5	080487	Pump Casing	1
5B	0X0720	Suction Cover Bolt	8
5W	000W07	Suction Cover Washer	8
6	080493	Radial Lip Seal	1
7	080498	Casing Bearing	1
7B	0X0740	Bearing Bolt	4
7LW	00W07L	Bearing Lock Washer	4
8	080498	Frame Bearing	1
8B	0X0728	Bearing Bolt	4
8LW	00W07L	Bearing Lock Washer	4
9	080491	Pump Shaft	1
10	080497	Snap Ring	1
11	080490	Drive Hub	1
11B	0X0516	Drive Hub Bolt	2
11LN	00Y05L	Drive Hub Lock Nut	2
12	080590-07	Clutch Retainer	1
12B	080741	7/16-20 UNF x 1-1/4" Lg. Locking Bolt	1
12LW	00W07L	Retainer Lock Washer	1
13	035084	Electric Clutch	1
14	080590-08	Clutch Spacer	1
15	080486	Pump Frame	1
16	160232	Pump Drain Plug	1
NOT SHOWN			
	002383	Pressure Lubricator	1
	F60-0022-01	Clump Guard	1

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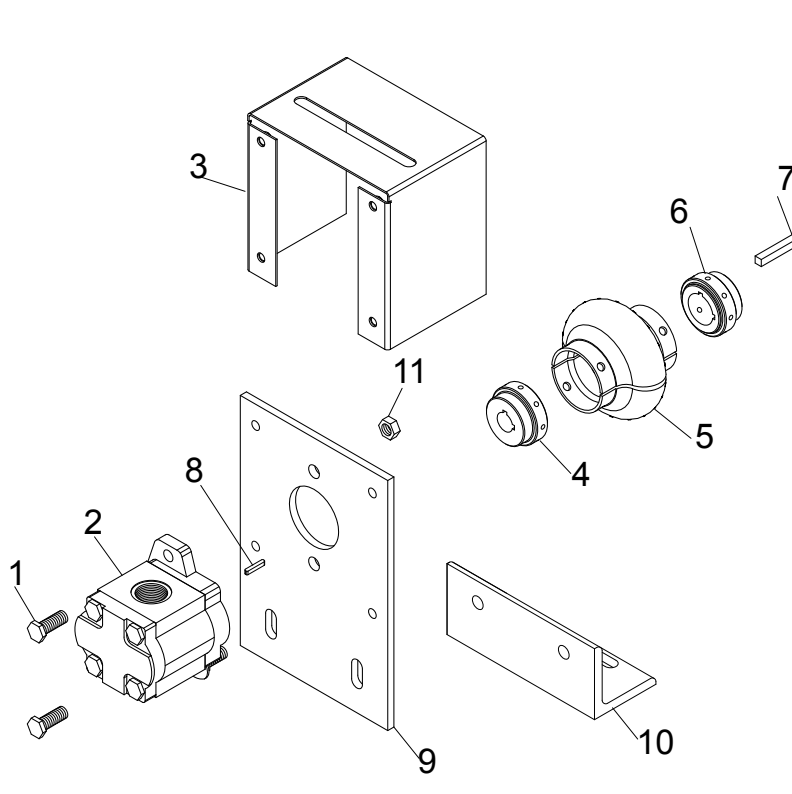


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HYDRAULIC SYSTEM

Ref. No.	Part Number	Description	No. Req'd
	085247	Hydraulic Hose and Fitting Kit <i>(Items 1- 18)</i>	1
1	012044	Pressure Gauge	1
2	012874	Straight Male Adapter	1
3	022301	Street Tee	1
4	023186	Straight Male Adapter	1
5	023616	Straight Male Adapter	1
6	023911	Straight Female Adapter	1
7	055230	Male 90° Adapter Elbow	1
8	055234	Male 90° Adapter Elbow	1
9	055272	Straight Male Adapter	1
10	055309	Male 90° Adapter Elbow	1
11	055359	Straight Male Adapter	1
12	080789	Reducer Bushing	1
13	085014	Straight Male Adapter	2
14	085157	45° Male Adapter	1
15	FW71870	90° Union Elbow	1
16	085153	Suction Hose	1
17	085154	Return Hose	2
18	085156	Pressure Hose	1
19	085227	Hydraulic Motor Hose	1
20	020658	Ball Valve	1
21	021617	Hydraulic Oil Return Filter	1
	021618	Filter Element	1
22	022850	4-Way Hydraulic Valve	1
	023120	Seal Kit for Hydraulic Valve	1
23	004618	Suction Strainer	1
24	005793	Filler/Breather Cap	1
25	080482	Hydraulic Motor	1
26	080534	Sight Gauge	1
27	080642	Hydraulic Pump	1
28	085145	Hydraulic Reservoir	1

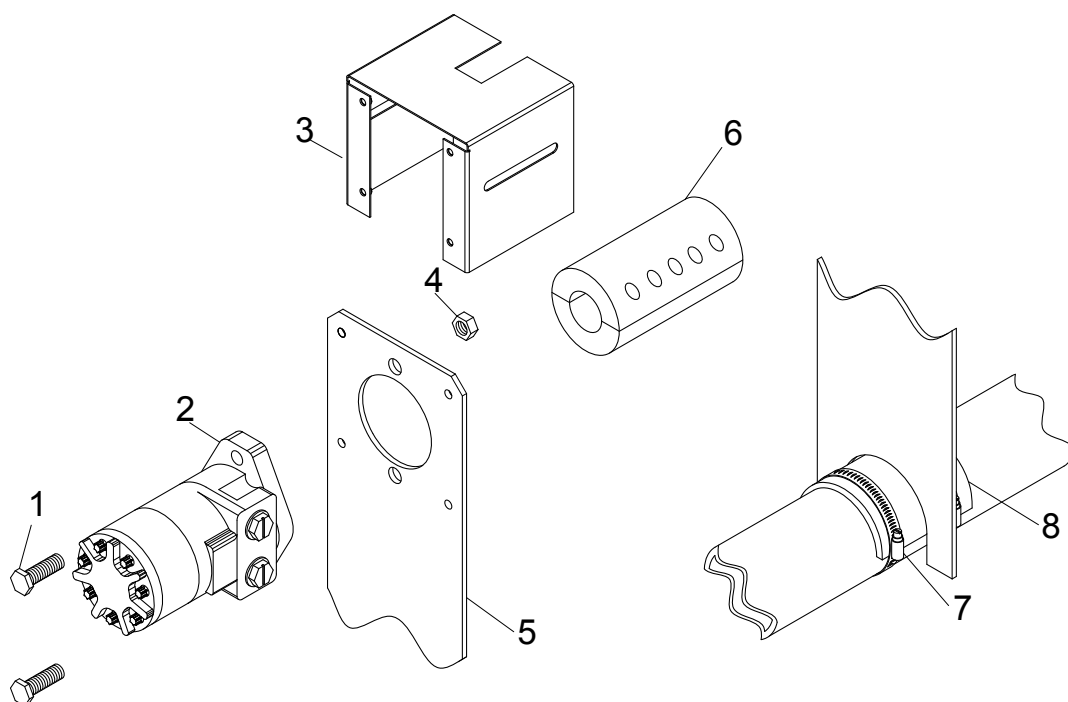
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HYDRAULIC PUMP DRIVE ASSEMBLY

Ref. No.	Part Number	Description	No. Req'd
1	0X0616	3/8-16 x 1" Lg. Hex Hd. Bolt	2
2	080642	Hydraulic Pump	1
3	F30-0001	Hydraulic Pump Coupling Guard	1
4	080807	Coupling Half 5/8" Bore	1
5	080809	Coupling Insert	1
6	080808	Coupling Half 1" Bore	1
7	190123-24	1/4" Sq. Key x 1-1/2" Lg.	1
8	080642-A	Pump Key	1
9	085133	Hydraulic Pump Mounting Plate	1
10	080590-02	Hydraulic Pump Mounting Angle	1
11	00Y06L	3/8" Lock Nut	2

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HYDRAULIC AGITATOR DRIVE ASSEMBLY

Ref. No.	Part Number	Description	No. Req'd
1	0X0824	1/2-13 x 1-1/2" Lg. Hex Hd. Cap Screw	2
2	080482	Hydraulic Motor	1
3	F60-0022-02	Agitator Coupling Guard	1
4	00Y08L	1/2-13 Locknut	2
5	085128-01	Torque Arrestor Plate	1
6	080523	2-Piece Rigid Coupling Assembly	1
7	080582	Worm Gear Clamp	2
8	085150	Rubber Torque Arrestor Pad	1

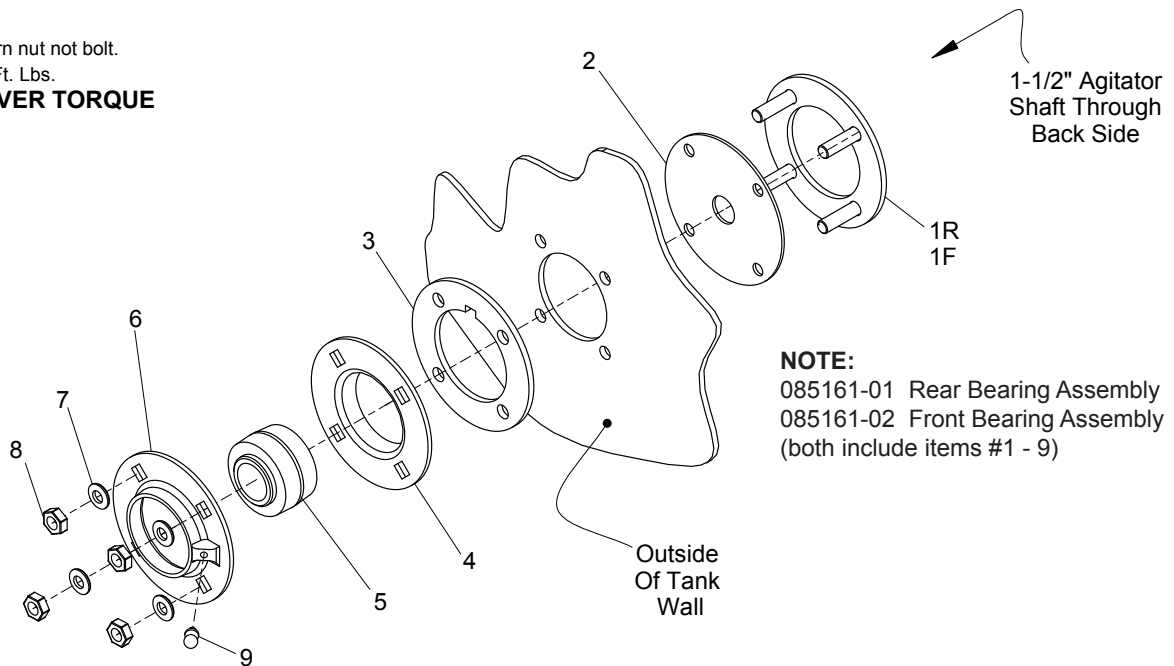
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BEARING ASSEMBLY

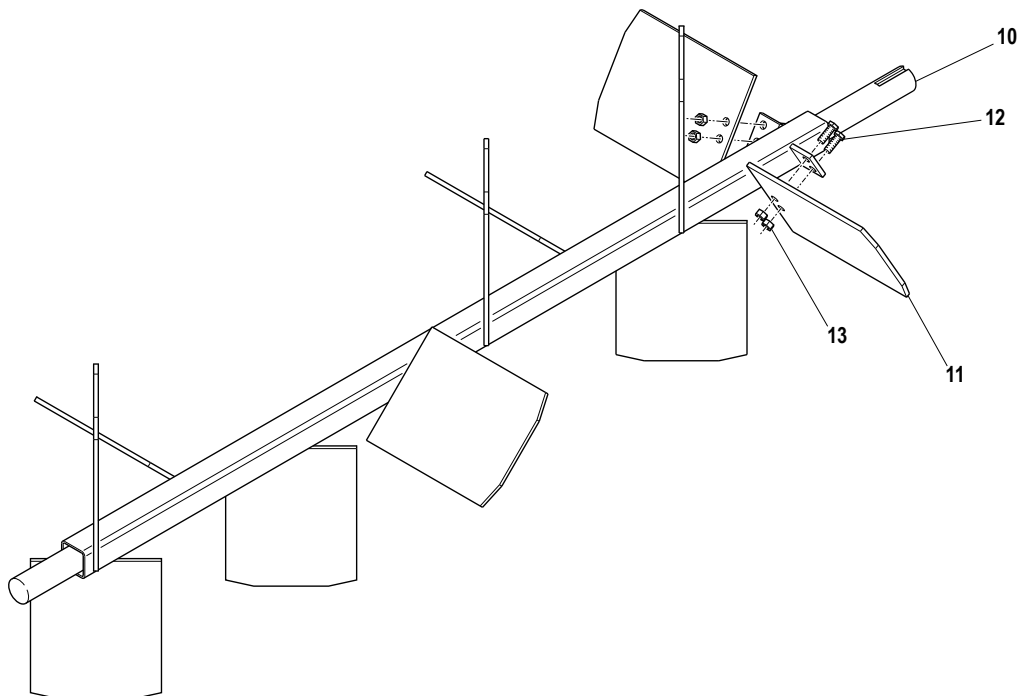
NOTE:

To tighten, Turn nut not bolt.
Torque to 25 Ft. Lbs.

DO NOT OVER TORQUE



AGITATOR ASSEMBLY



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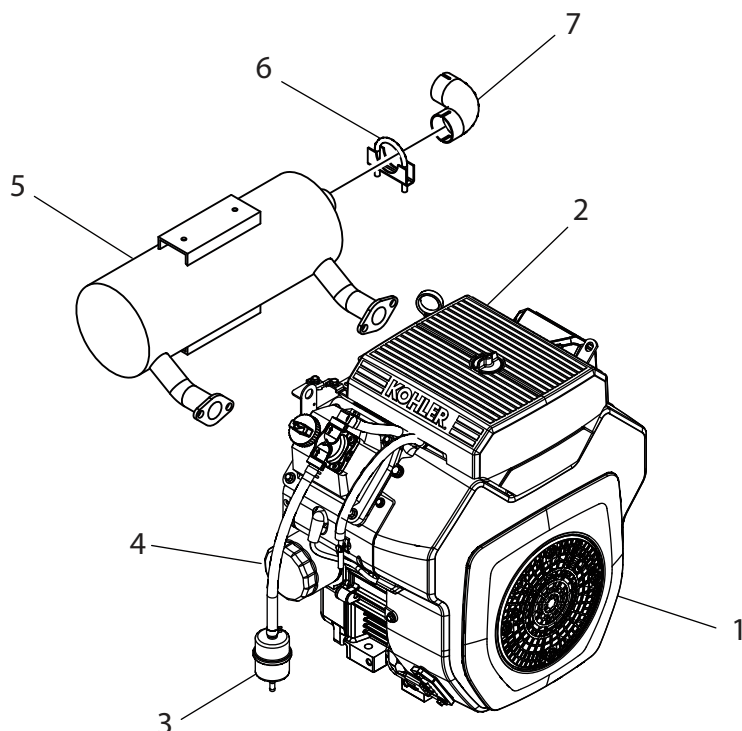
AGITATOR AND BEARING ASSEMBLY

Ref. No.	Part Number	Description	No. Req'd
	085161-01	Rear Bearing Assembly (Includes #1 thru #9)	1
	085161-02	Front Bearing Assembly (Includes #1 thru #9)	1
1R	085162-01	Rear Clamping Ring	1 per
1F	085162-02	Rear Clamping Ring	1 per
2	007416	Shaft Seal	1 per
3	006975	Rubber Flangette Seal	1 per
4	007212	Flangette w?Groove	1 per
5	003022	Bearing	1 per
6	007211	Flangette w/Lube Coupling	1 per
7	012605	Bevel Sealing Washer	4 per
8	0Y08SS	Agitator Nut	4 per
9	007705	Grease Fitting	2

AGITATOR ASSEMBLY

10	085131	T30 Agitator Weldment	1
11	085130-01	Bolt-On Paddle w/Holes	1
12	0X0616	Agitator Paddle Bolt	2 per
13	00Y06L	Agitator Paddle Nut	2 per

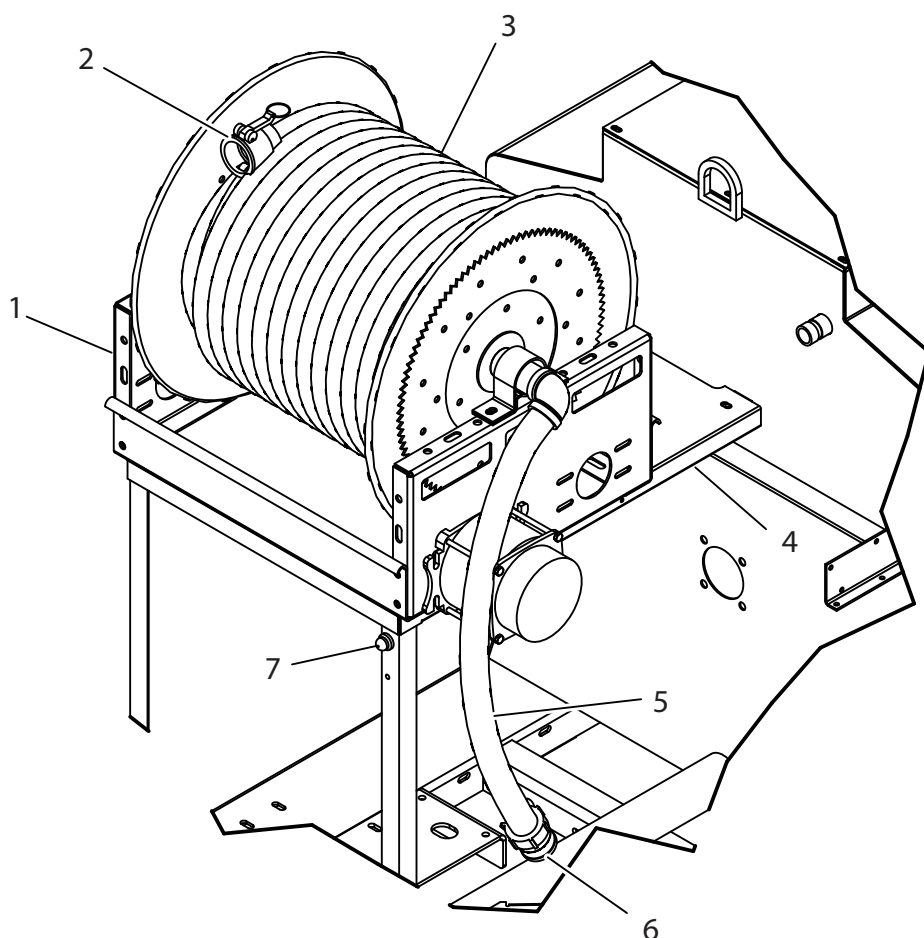
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ENGINE PARTS

Ref. No.	Part Number	Description	No. Req'd
1	085262	Kohler 18 HP Engine	1
2	KL4708303	Air Filter	1
3	080815	Fuel Filter	1
4	KL1205001	Oil Filter	1
5	KL2406817	Muffler	1
6	031421	Muffler Clamp	1
7	031420	Muffler Elbow	1
		NOT SHOWN	
	085142	Throttle Cable	1
	080567	Choke Cable	1

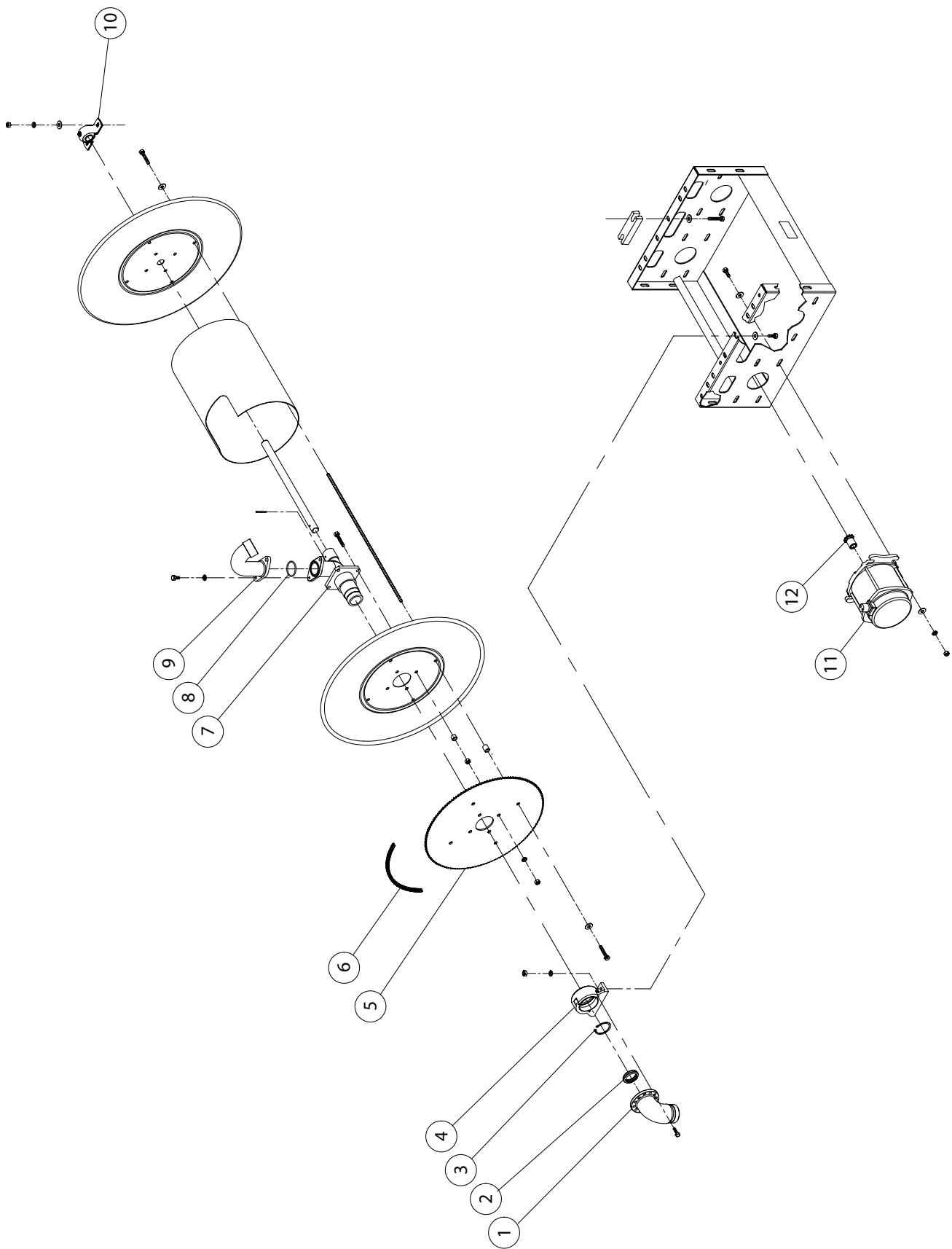
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HOSE REEL PARTS

Ref. No.	Part Number	Description	No. Req'd
1	085246	Live Hose Reel Assembly (See Pages 42-43)	1
2	080261	Female Coupler	1
3	003308-10	1-1/4" Hose x 100'	1
4	F30-0005	Hose Reel Mount Tray	1
5	085252	Lead-In Hose	1
6	080378	Male Coupler	1
7	020886	Push Button	1

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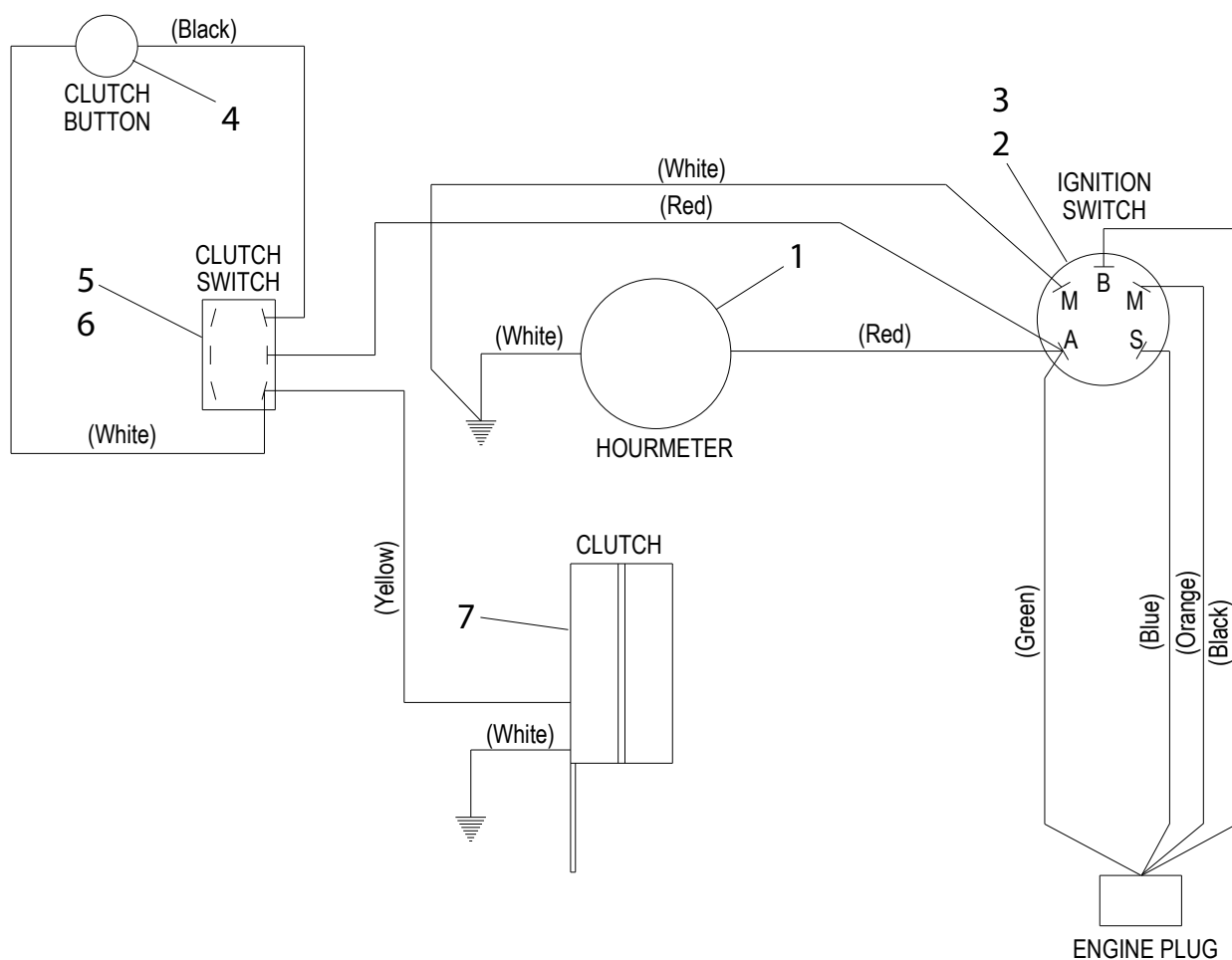


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HOSE REEL ASSEMBLY

Ref. No	Part Number	Description	No. Req'd
	085246	Electric Hose Reel Assembly	1
1	RC261700	Inlet Pipe	1
2	RC600947-1	Seal and Rign Assembly	1
3	RCS140-45	Snap Ring	1
4	RC602240	Bearing Housing Sub-Assembly	1
5	RC316248-3.25-35	Sprocket	1
6	RC366406P-64	Chain Assembly	1
7	RC262192	S.J. Spindle	1
8	RCS21-224	O-Ring	1
9	RC261694-2	Gooseneck	1
10	RC390798	RHP Ball Bearing	1
11	RC260583	Electric Motor	1
12	RC390817	Sprocket	1

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CONTROL PANEL WIRING

Ref. No.	Part Number	Description	No. Req'd
	085267	Control Panel Assembly	1
1	007274	Hour Meter	1
2	080654	Ignition Switch	1
3	080654-K	Ignition Key	1
4	020886	Clutch Button	1
5	080525	Clutch Toggle Switch	1
6	080526	Clutch Toggle Switch Dust Boot	1
7	035084	Electric Clutch	1
	080602-01	Panel Wiring Harness	1

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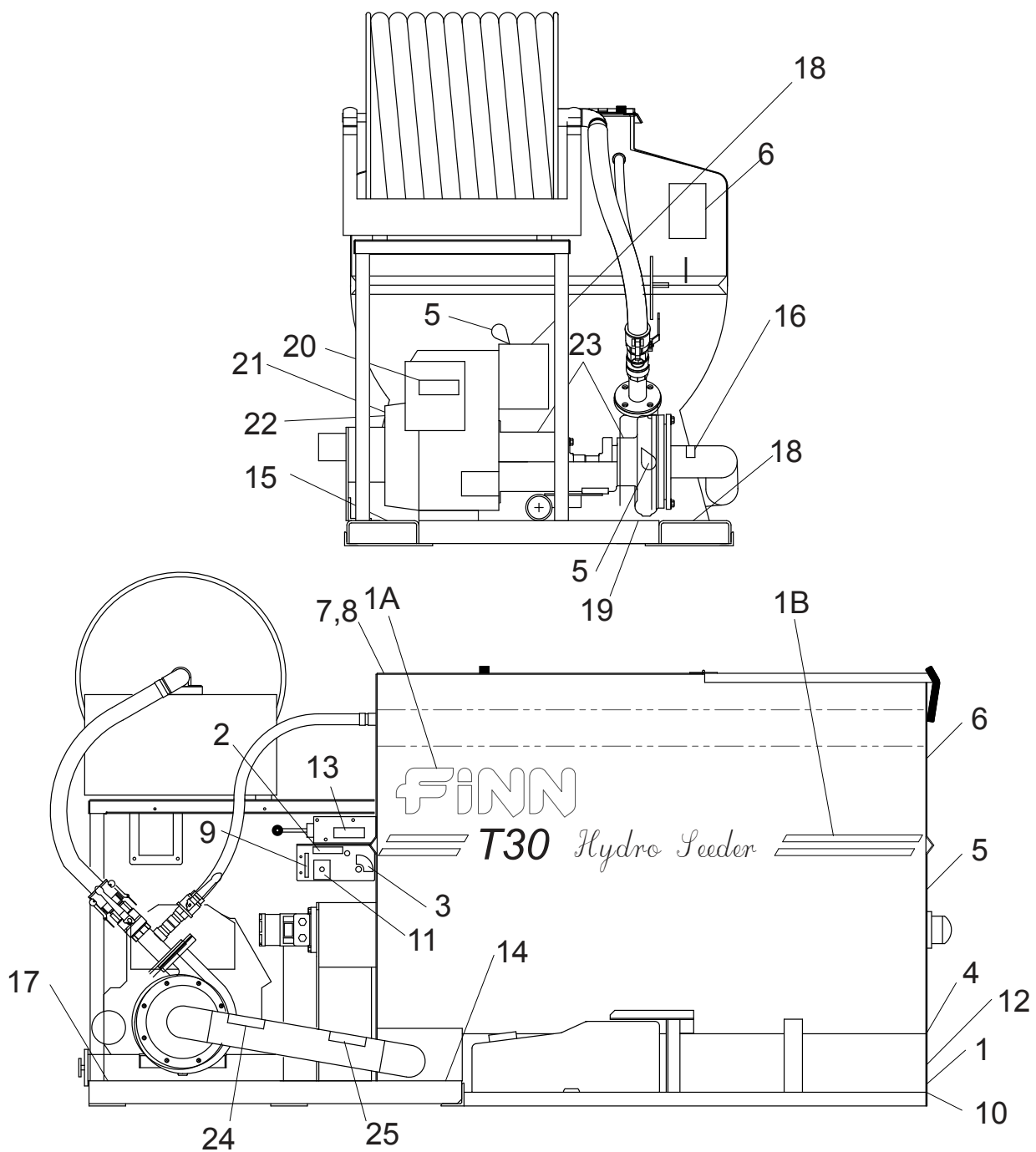
TOOL KIT

Part Number	Description	No. Req'd
000698	Automatic Pressure Lubricator Grease (1 Pound Tub)	1
005220	Impeller Wrench	1
080273	Long Distance Nozzle Assembly	1
080131	Long Distance Nozzle	1
080260	Nyglass Adapter	1
160749	Reducer Bushing	1
080394	Wide Ribbon Nozzle Assembly	1
006605	Wide Ribbon Nozzle	1
080260	Nyglass Adapter	1
160750	Reducer Bushing	1
080395	Narrow Ribbon Nozzle Assembly	1
004805	Narrow Ribbon Nozzle	1
080260	Nyglass Adapter	1
160750	Reducer Bushing	1
004593	Drain Plug	1
006515	Coupler Gasket	1
012681T	Finn Beige Touch-Up Paint	1
012681A	Finn Beige Aerosol Paint	1
080535	Remote Valve Assembly	1
012083	Full Port Ball Valve	1
080260	Male Nyglass Adapter	1
080261	Female Nyglass Coupler	1
160307	Close Nipple	1
	Engine Parts Manual	1
	HydroSeeder® Parts/Operator's Manual	1

SEAL REPAIR KITS

Part Number	Description	No. Req'd
023120	Seal Kit for Hydraulic Valve #022850	
080615	Seal Kit for Hydraulic Motor #080482	
080616	Seal Kit for Hydraulic Pump #080642	

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DECALS

Ref. No.	Part Number	Description	No. Req'd
1	011690	FINN Nameplate	1
1A	031235	Decal "FINN"	2
1B	085158	Decal "T30 HydroSeeder"	2
2	KL2511317	Decal "STOPPING INSTRUCTIONS"	1
3	KL2411303	Decal "IGNITION SWITCH"	1
4	011662	Decal "U.S. Patent Numbers"	1
5	007230	Decal "Service Daily"	3
6	023519	Decal "CAUTION! Wear Eye Protection..."	2
7	008097	Decal "DANGER! Do Not Enter Tank"	1
8	085078	Decal "Operating Instructions"	1
9	007535	Decal "Throttle"	1
10	012260	FINN Maintain Decal Plate	1
11	085137	Decal "Pump On/Off"	1
12	020976	Decal "Patent Infringement"	1
13	008286	Decal "Agitator Speed"	1
14	031331	Decal "Gasoline"	1
15	022357	Decal "WARNING! Turn Off Engine..."	1
16	012180	Decal "To Avoid Damage To Suction Cover"	1
17	011567	Decal "DANGER! Do Not Aim..."	1
18	012179	Decal "WARNING! Do Not Operate..."	2
19	006869	Decal "Pressure Lubricator"	1
20	012278	Decal "DANGER! Hot Exhaust"	1
21	012272	Decal "Hydraulic Fluid"	1
22	021665	Decal "Hydraulic Instructions"	1
23	007231	Decal "Service Weekly"	2
24	005216	Decal "DANGER! Open Recirculation"	1
25	008209	Decal "DANGER! Before Loosening Clamp"	1

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