FINN CORPORATION®

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

TITAN280/TITAN330/TITAN400

HydroSeeder®

Parts and Operator's Manual

Mode. **MO** Serial No. _____

NOTES

ACTIVATE YOUR FINN EQUIPMENT WARRANTY

IMPORTANT INFORMATION ON ACTIVATING YOUR FINN EQUIPMENT WARRANTY!!!

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

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

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

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

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

☞ 1. NOTIFY FINN CORPORATION OF THE FAILURE OF MATERIAL OR WORKMANSHIP

1-800-543-7166 Extension (246)

WARRANTY@FINNCORP.COM

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

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

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

Warranty period:
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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Continued . . .

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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 a hazardous situation which, if not avoided, will result in death or serious injury.

⚠WARNING

Indicates a hazardous situation which, if not avoided, could result in death or serious injury.

⚠CAUTION

Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

NOTICE

Indicates practices that are not related to personal injury.

NOTE:

Gives helpful information.

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.

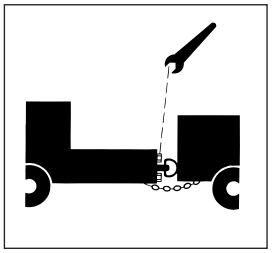
HYDROSEEDER® SAFETY SUMMARY SECTION

It is important that all operators of this machine are familiar with all 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.

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.

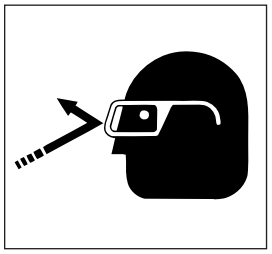
I. PRE-START EQUIPMENT CHECK (equipment check is to be made with the engine off):

1. If you have a chassis-mounted unit, check devices securing HydroSeeder® to the truck or trailer frame.

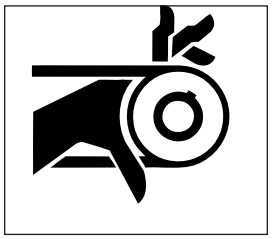


2. If HydroSeeder® is a trailer unit, check hitch and hitch bolts, lights, brakes, and all safety components.
3. Make sure loading hatch bag cutter is in place and secure.
4. Check that all guard railing is in place and secure.
5. Verify that all guards are in place.
6. With the ignition switch ON, verify 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 IV. MAINTENANCE on page 4.
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.

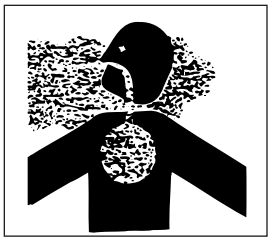


2. Do not operate the machine without all guards in place.
3. Do not load unit while in transit. Load only when parked and unit is as level as possible. Take care not to drop pens, lighters, etc. or pieces of paper or plastic bags into the tank as these objects might plug the slurry system. Should any object be dropped into the tank, do NOT reach into the tank to retrieve the foreign object. See step 3 under IV. MAINTENANCE on page 4 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).

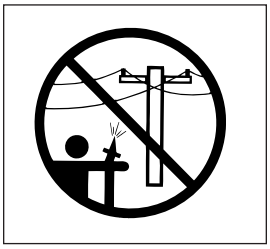
7. Never operate machine in an enclosed area without venting the engine exhaust of both the equipment and vehicle on which the equipment is mounted. Deadly carbon monoxide fumes can accumulate.



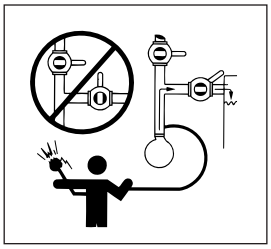
8. Never operate this or any other machinery when fatigued, tired, under the influence of alcohol, illegal drugs, or medication. You must be in good physical condition and mentally alert to operate this machine.
9. Never modify the machine. Never remove any part of the machine (except for service and then reinstall before operating).
10. Use proper means (steps, ladder) for mounting and dismounting of the machine. Never mount or dismount a moving machine.

III. SLURRY APPLICATION:

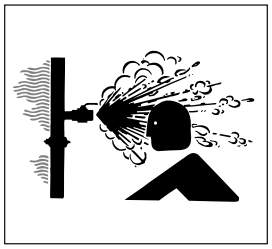
1. Do not aim discharge spray toward power lines, transformers, or other high voltage electrical conductors. Also, do not aim discharge spray toward people, animals, or anything other than the intended application area.



2. Never engage (turn on) 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.



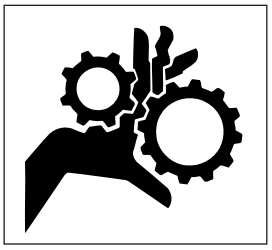
3. Recirculation valve must be open and material flowing back into the tank when using the remote valve. A closed or plugged recirculation line will cause extreme heat in the pump or discharge lines that will result in severe bodily injury and damage to the equipment.
4. During application through a 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 holders 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 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.



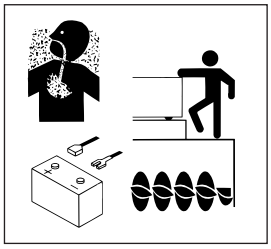
7. Except when loading materials, keep loading hatch lid closed to protect operator and prevent splashing of wet material onto the tank top.
8. Wash off spillage of slippery mulch or slurry additive from the tank top and platform before operating equipment.

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 lockout/tagout procedure (Occupational Safety and Health 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:

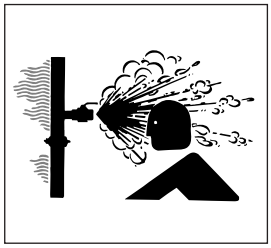
   a) Drain, flush, and ventilate tank interior.

   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 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 re-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.

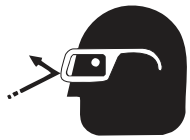
10. Do not use either cold start fluid, if engine is equipped with glow plug type preheater, or other intake manifold type preheater. It could cause an explosion or fire and severe injury or death.

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 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 80 and 81 in the PARTS 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.

P/N 12686-01

⚠ DANGER

ELECTROCUTION HAZARD!

DO NOT aim stream toward electrical lines.

Avoid spraying toward bystanders.

Failure to comply will result in death or serious injury.

P/N 11567

⚠ 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.

P/N 31463

⚠ WARNING

Do not operate without guards in place.

Failure to comply could result in death or serious injury.

P/N 12179

⚠ 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.**

P/N 31462

⚠ 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.

P/N 5216

⚠ WARNING

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

P/N 12821

⚠ WARNING

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

012278

⚠ CAUTION

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

P/N 12688

OPERATION AND MAINTENANCE MANUAL FOR FINN TITAN280/TITAN330/TITAN400 HydroSeeders®

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

DEFINITION OF HYDROSEEDING

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

THE FINN HYDROSEEDER® AND HOW IT WORKS

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

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.

⚠ DANGER

Pick-up hooks on HydroSeeders® are for lifting empty machines ONLY. Use appropriate spreader bar for the tank width. Ensure all capacities of lifting devices are rated for 15,000 lb (6,800 kg) or greater. Failure to comply will result in death or serious injury.

DIMENSIONS, CAPACITIES, AND TRUCK REQUIREMENTS

- ***CF** Back of cab to end of frame
- **C** Distance from HydroSeeder® front to center of gravity
- ***CA** Back of cab to center of rear axle or trunnion on tandem
- ***F** Front axle weight – Empty
- ***FL** Front axle weight – Loaded
- **G** Distance from center of bogie to HydroSeeder. center of gravity
- **HW** HydroSeeder® weight
- ***RE** Rear axle weight – Empty
- ***RL** Rear axle weight – Loaded
- ***WB** Truck wheel base

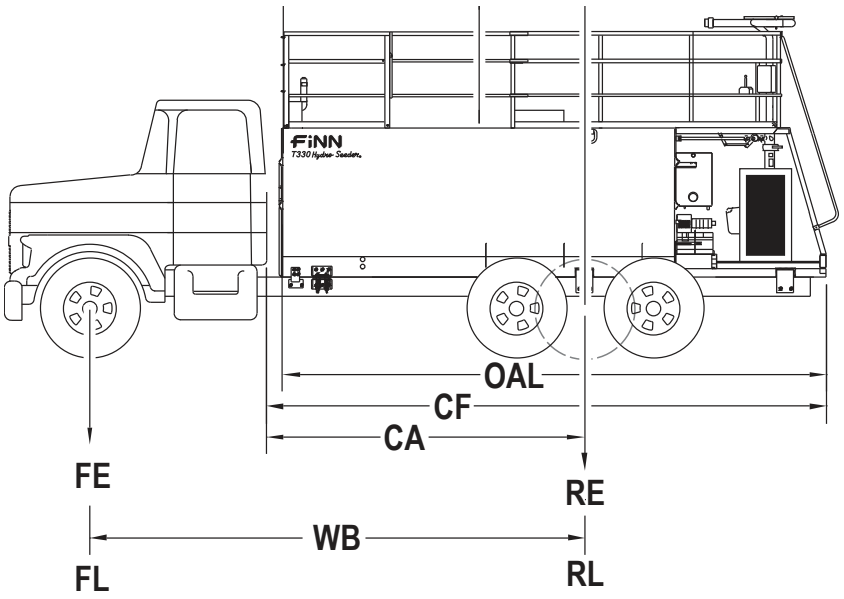
	TITAN280		TITAN330		TITAN400	
	English	(Metric)	English	(Metric)	English	(Metric)
Truck GVW **	49,600 lb	(22,320 kg)	61,000 lb	(27,669 kg)	64,000 lb	(29,029 kg)
CA **	120 in.	(304+ cm)	157 in.	(398+ cm)	170 in.	(431+ cm)
C *(loaded)*	82 in.	(208 cm)	100 in.	(254 cm)	112 in.	(284 cm)
C *(empty)*	122 in.	(309+ cm)	134 in.	(340+ cm)	150 in.	(381+ cm)
OAL	209 in.	(530+ cm)	250 in.	(635+ cm)	287 in.	(730+ cm)
HW *(empty)*	11,690 lb	(5,300 kg)	12,340 lb	(5,600 kg)	13,180 lb	(5,978 kg)
HW *(water only)*	34,790 lb	(15,780 kg)	40,480 lb	(18,361 kg)	42,480 lb	(19,268 kg)
HW *(full load)* ***	38,350 lb	(17,390 kg)	44,750 lb	(20,300 kg)	46,750 lb	(21,200 kg)

* These dimensions needed from the truck supplier as well as front axle capacity and rear axle capacity.

** Truck GVW depends on the truck weight. CA dimensions are approximate only, and depend on the front and rear axle capacities, as well as the front and rear empty axle weights.

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

TRUCK MOUNTING CALCULATIONS



$$\frac{(WB \times FL) - (WB \times FE)}{HW} = G$$

$$\frac{WB \times (RE + HW - RL.)}{HW} = G$$

G + C must be equal to or less than CA

$$\frac{(WB \times FE) + (G \times HW)}{WB} = FL$$

$$\frac{(WB \times RE) + HW \times (WB - G)}{WB} = RL$$

Figure 1 – Truck Mounting Calculations and Dimensions

GENERAL MOUNTING GUIDELINES

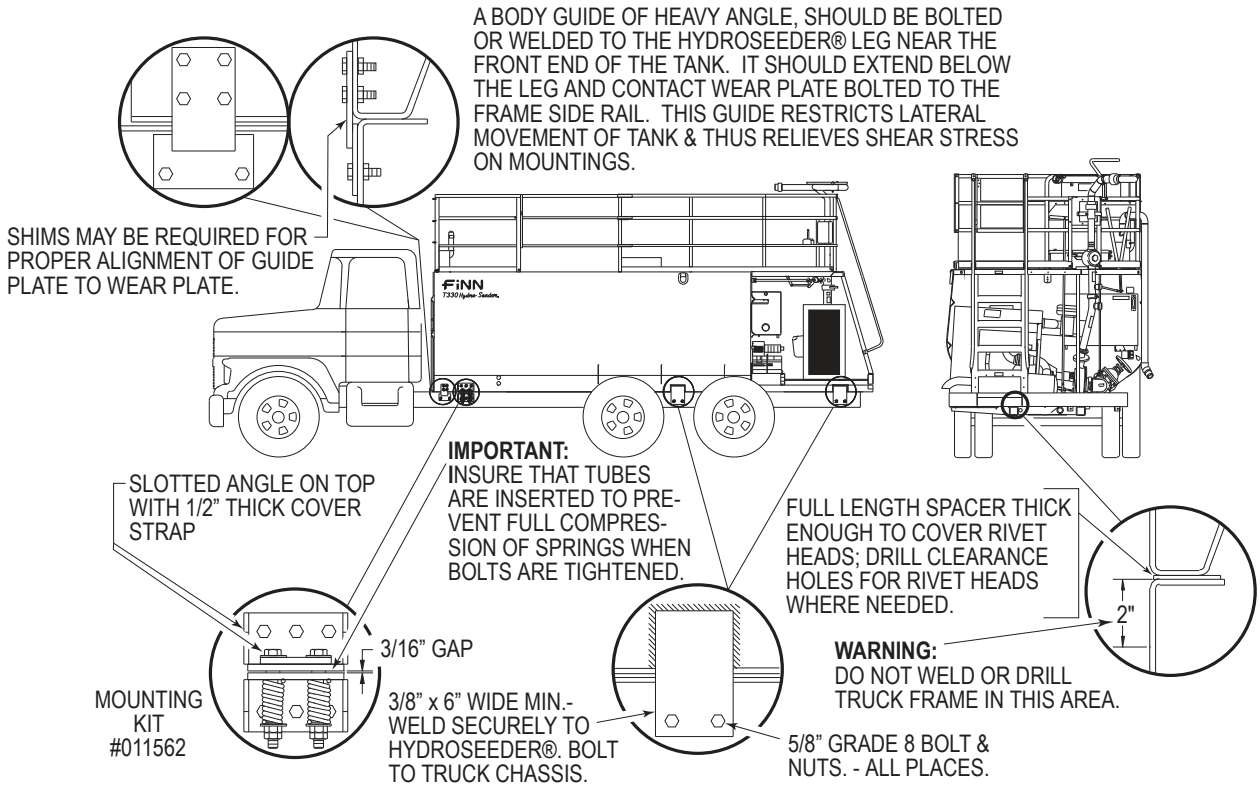


Figure 2 – General Truck Mounting Guidelines

⚠CAUTION

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

NOTICE

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 (number 011562) or equivalent. Also, two spring kits are required for the TITAN400.

ATTACHMENTS

1. 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 curbside, 45 degree, and rear hose discharge. The entire hose reel is protected by a UV-protective canopy.
2. Hardened Pump Parts: Pump casing, impeller, and suction cover are treated with special material designed to resist wear.
3. 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.
4. Radio Remote: The Remtron Remote is a Radio Frequency (RF) control system, designed to provide the machine operator with the ability to remotely operate equipment. The remote control system consists of two major modules: The transmitter (see Fig. 3) and the receiver. (see Fig.4) The transmitter is designed with rocker switches for PUMP ON/OFF and THROTTLE UP, THROTTLE DOWN (Decrease), and a red STOP button that kills the engine. With control of the engine throttle, the operator can precisely adjust the pump flow to whatever output the situation requires (i.e., for close-up work around buildings). The ability to remotely shut off the pump allows the operator to close the recirculation valve for increased performance during hose work. Carrying the remote valve at the end of the hose becomes unnecessary.

Figure 3 – Transmitter

Figure 4 – Receiver

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

5. 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.
6. The second boom option enables spraying from both sides of the tank for larger spray areas without moving the vehicle. The dual discharge boom system can be operated simultaneously.

PRE-START CHECK

Safety check 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 ON, verify that the amber safety light, under the operator's platform, is flashing.

EQUIPMENT CHECK

⚠WARNING

Equipment check is made with the engine off and all rotating parts stopped. Failure to comply could result in death or serious injury.

1. See that tool kit contains all the prescribed items. See TOOL KIT on page 74.
2. Inspect slurry tank for foreign objects. See steps 2 and 3 in IV. MAINTENANCE of the HYDROSEEDER® SAFETY SUMMARY SECTION on page 4.
3. Check fuel level.
4. Check the hydraulic oil level. See HYDRAULIC SYSTEM on page 29 for oil specifications.
5. Check engine oil level. For oil type refer to engine manual.
6. Check fluid level in radiator.
7. Inspect air cleaner for dust and dirt, clean if necessary.
8. Secure drain plug on the outside-bottom of slurry tank.
9. Check to be certain pump drain plug is in place.
10. Lubricate equipment. See LUBRICATION AND FLUIDS CHART on pages 30 and 31.
11. Engage and disengage clutch to determine if it snaps in and out.
12. Check and clean nozzle of obstructions.
13. Check pump discharge and recirculation valve handles for free movement.
14. Make sure all tank vents are clean and open. Do not plug or cap.

TWO-VALVE OPERATION

This HydroSeeder® is equipped with two independently operated ball valves to control slurry flow. One is located in the recirculation line below the platform and the other is located in the discharge line above the platform. The valve handles should be positioned as shown in Figures 6 and 7 for the particular application required.

⚠WARNING

Never engage slurry pump clutch when both valve handles are positioned as shown in Figure 5. Both valves are closed and will result in extreme heat generation that will cause damage or bodily injury if slurry pump is running.

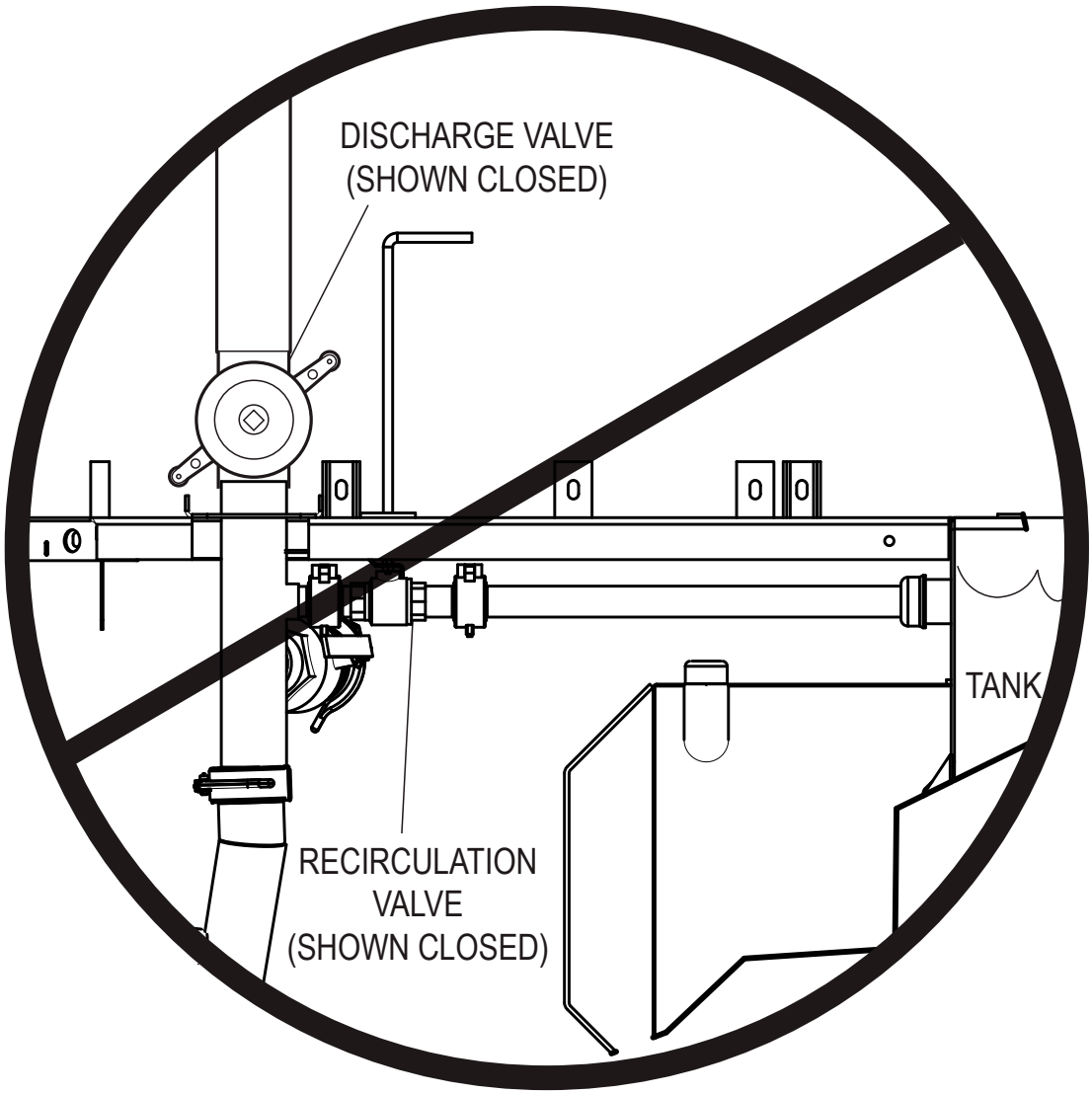


Figure 5 – DO NOT Engage Clutch

1. DISCHARGE THROUGH BOOM:

Flow is through boom with no flow through closed recirculation valve (Figure 6). Flow through boom is controlled by engaging and disengaging slurry pump clutch.

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.

2. EXTENSION HOSE THROUGH BOOM:

Flow is through boom with no flow through closed recirculation valve (Figure 6). Extension hose is connected to boom and flow is controlled by engaging and disengaging pump clutch or by adjusting engine RPM.

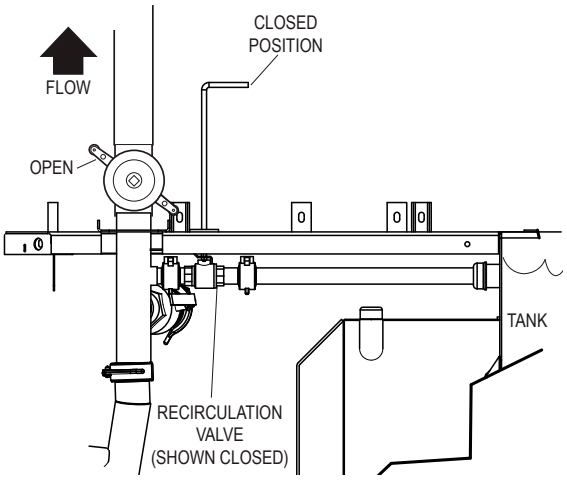


Figure 6 – Discharge Through Boom

DANGER

Do not use remote valve in this application. Failure to comply will result in death or serious injury.

3. EXTENSION HOSE OR HOSE REEL THROUGH REMOTE PORT:

Flow is through recirculation with no flow through closed discharge valve (Figure 7). Flow through hose is controlled by engaging and disengaging slurry pump clutch or by remote valve at end of hose. An open recirculation valve allows flow back into tank when the remote valve is closed.

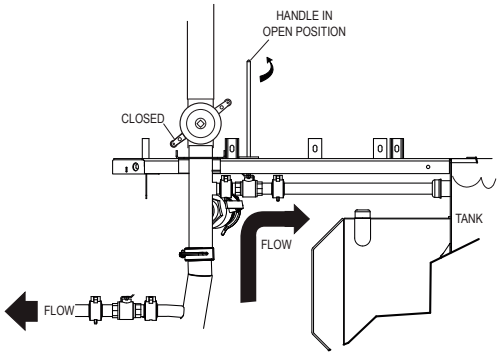


Figure 7 – Discharge Through Extension Hose or Hose Reel

DANGER

Ensure that the Recirculation valve must is open and material is flowing back into tank when using a remote valve, because a closed or plugged recirculation line will cause extreme heat. Failure to comply will result in death or serious injury.

STARTING PROCEDURE

⚠CAUTION

See HYDROSEEDER® SAFETY SUMMARY SECTION on pages 2 through 5 before operating the machine. Failure to comply could result in mild to moderate personal injury. Failure to comply could also result in product or property damage.

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

1. Turn the key clockwise until the starter engages and the engine starts.
2. Allow engine to warm up for 3 to 5 minutes.

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

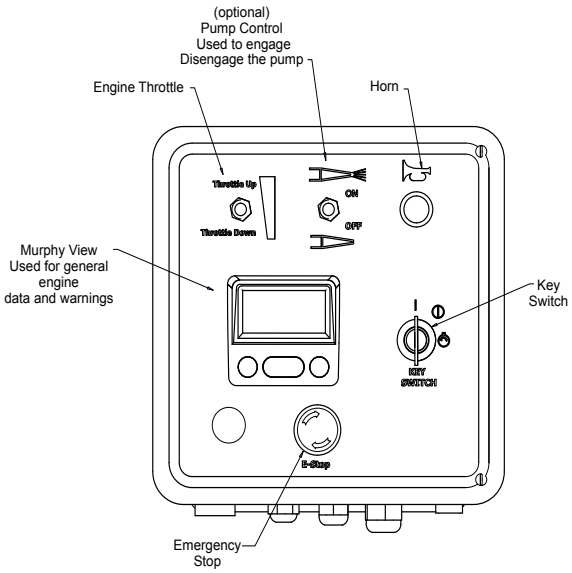


Figure 8

POWERVIEW

The PowerView is a multifunctional tool that enables the operator to view many different engine parameters and service codes. A graphical back-lit LCD screen can display either a single parameter, or a quadrant display showing four parameters simultaneously. Diagnostic capabilities include fault codes with text translation for the most common fault conditions. The following relative engine parameters can be displayed in either English or Metric units, as well as in Spanish, French, or German:

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

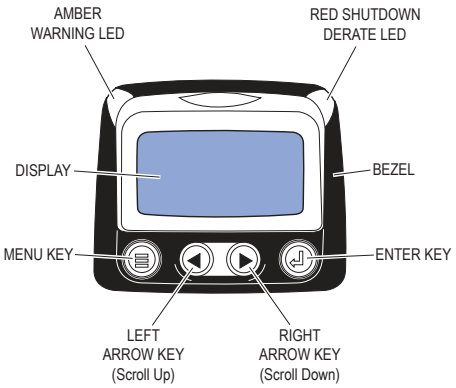
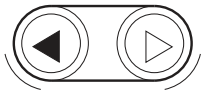


Figure 9 – Faceplate Features

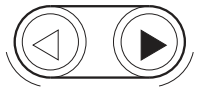
Faceplate

The keypad on the PowerView is a capacitive touch-sensing system. There are no mechanical switches to stick or wear out. It can be operated in extreme temperatures, while wearing gloves, and is impervious to ice, snow, mud, grease, etc. When the key is touched, feedback is provided by flashing on the screen. The keys on the keypad perform the following functions (refer to Figure 9 page 12):

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



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



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

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

POWERVIEW OPERATION

PowerView Menus (First Time Start-Up)

1. Once the engine has been started and the keyswitch is turned to RUN, the rpm Engine Parameter is displayed. See Figure 10.
2. To toggle through the various engine parameters, touch either the Left or Right Arrow Key.
3. To switch to the 4-UP DISPLAY, touch the Menu Key to display the first seven items of the Main Menu. See Figure 11.
4. Since the first menu item listed is GO TO 4-UP DISPLAY, touch the Enter Key to select the four parameter display.

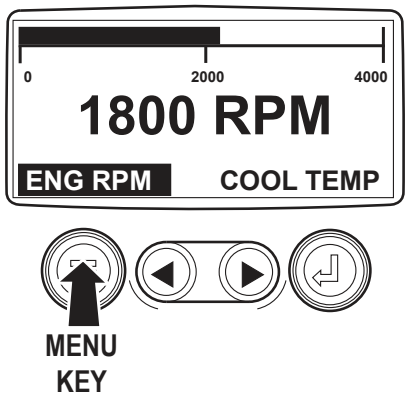


Figure 10 – 1-Up Display

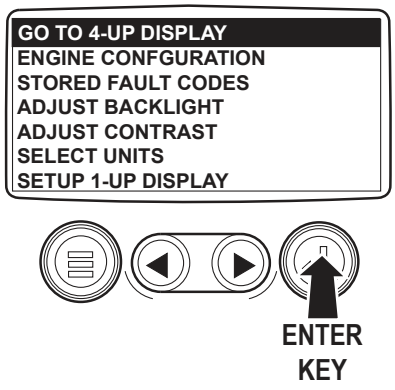


Figure 11 – Main Menu

To

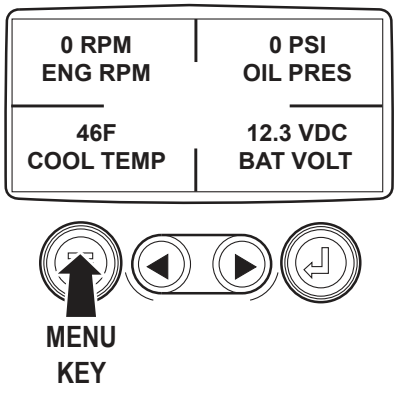


Figure 12 – 4-Up Display

Stored Fault Codes

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

1. Touch the Menu Key to display the Main Menu.
2. Using the Right Arrow Key and toggle down the list until Stored Fault Codes is highlighted. See Figure 13.
3. Touch the Enter Key to view any stored fault codes. The display will respond by presenting a Requesting Fault Codes message, while the system retrieves the codes. See Figure 14.
4. Once the stored fault codes have been retrieved, the initial code will be displayed along with a text description. See Figure 15.
5. If the word MORE appears at the bottom of the display, this indicates that there are additional fault codes being stored. Use the Right Arrow Key to advance to the next code.
6. As long as the arrow in the display appears to the right of the word MORE as you advance through the fault codes, this means there are more codes available for viewing. When the arrow in the display shifts to the left of the word MORE, this is an indication that you have accessed the final fault code being stored. At this point you can touch the Left Arrow Key to review the fault codes, or touch the Menu Key to return to the Main Menu.

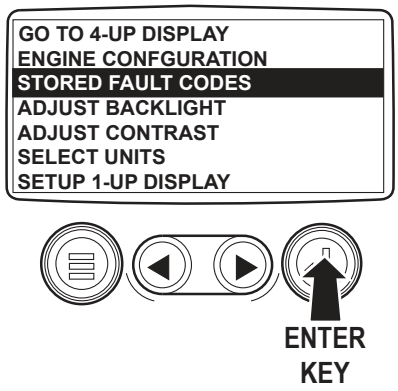


Figure 13 – Main Menu

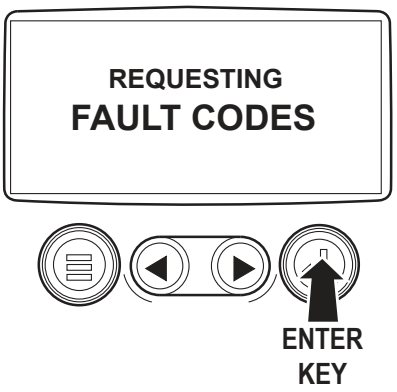


Figure 14 – Access Stored Fault Codes

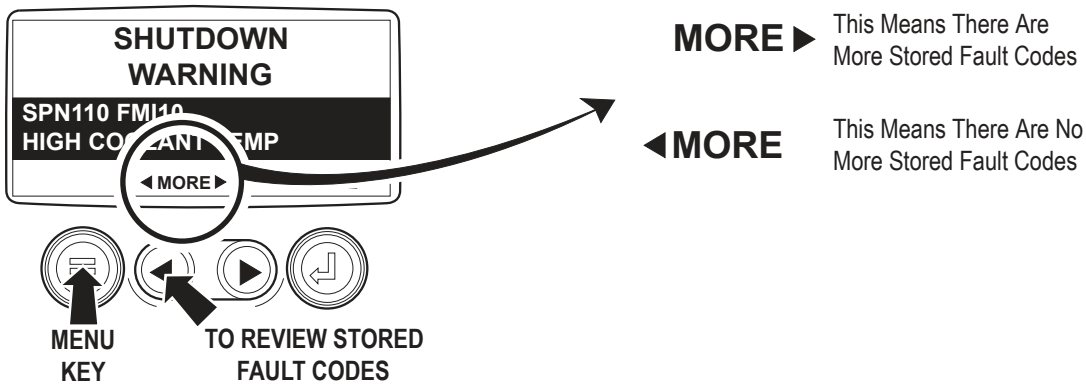


Figure 15 – Stored Fault Codes

AREA COVERAGE - MATERIAL CAPACITY

To determine the coverage per load for any HydroSeeder®, three questions must be answered prior to the application. First, is the job to be done a one-step process (which is when the seed, fertilizer, and mulch are applied proportionally per load) or a two-step process (which is when the seed and fertilizer are applied alone and then covered by mulch as a second operation)? Second, at what rates (usually in lbs per 1,000 sq. ft or lbs 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 lbs (3 to 4 kg) to per 1,000 sq. ft; fertilizer is applied at a rate of approximately 400 lbs per acre; and fiber mulch is applied at 1,500 to 2,000 lb (680 to 907 kg) per acre. (Note: There are 43,560 sq. ft 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

Unit	Amount of Material in Tank in lbs (kilograms)			Coverage Area in sq. ft (sq. m)
	Seed	Fertilizer	Mulch	
TITAN280	287 (130)	333 (151)	1,250 (567)	36,300 (3,372)
TITAN330	345 (156)	400 (181)	1,500 (680)	43,560 (4,046)
TITAN400	414 (187)	480 (218)	1,800 (816)	52,272 (4,856)

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

Table A Example: For TITAN330

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

400 lb (181 kg) Fertilizer per Acre x 1 Acre = 400 lb (181 kg) Fertilizer per Load
345 lb (156 kg) Seed per Acre x 1 Acre = 345 lb (156 kg) Seed per Load

TABLE B – Seed and Fertilizer Only

Unit	Amount of Material in Tank in lbs (kilograms)			Coverage Area in sq. ft (sq. m)	
	Seed	Fertilizer	Total	sq. ft (sq. m)	Acreage (Hectare)
TITAN280	3,136 (1,422)	3,600 (1,633)	6,736 (3,055)	392,040 (36,420)	9 (3.64)
TITAN330	3,485 (1,580)	4,000 (1,814)	7,485 (3,395)	435,600 (40,467)	10 (4.04)
TITAN400	4,140 (1,878)	4,800 (2,177)	8,940 (4,055)	522,720 (48,562)	12 (4.86)

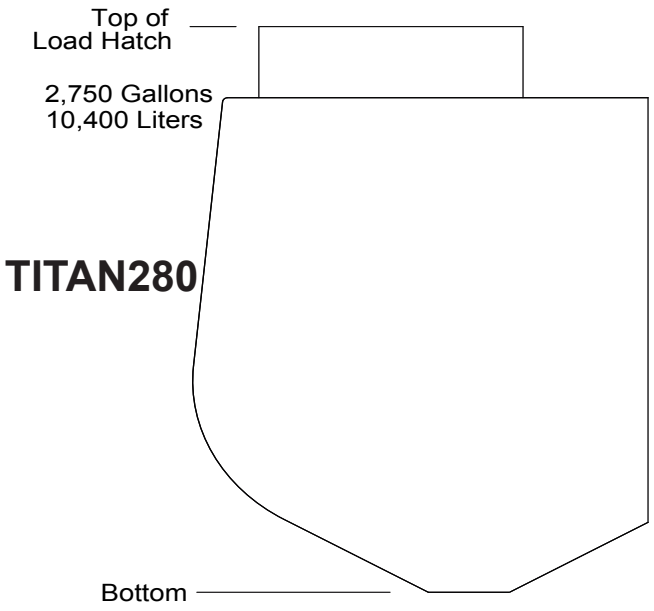
Table is based on rates of 8 lb (3.6 kg) seed and 9.2 lb (4.2 kg) fertilizer per 1,000 sq ft

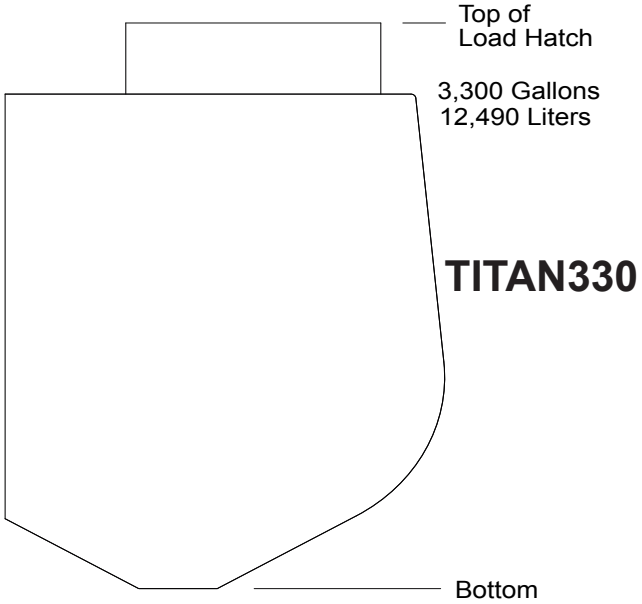
Table B Example: For TITAN330

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

$$\frac{\text{8 lb (3.6 kg) Seed}}{\text{1,000 sq. ft}} \text{ x 435,600 sq. ft = 3,485 lb (1,580 kg) Seed per Tank}$$

TITAN280		
Gallons (Liters)	in. (cm) from top of load hatch	in. (cm) from bottom
2,750 (10,410)	9 (22.9)	58.5 (148.6)
2,700 (10,220)	12.75 (32.4)	54.75 (139.1)
2,600 (9,840)	14.75 (37.5)	52.75 (134)
2,500 (9,465)	16.5 (41.9)	51 (129.5)
2,400 (9,085)	18.75 (47.6)	48.75 (123.8)
2,300 (8,705)	20.5 (52.1)	47 (119.4)
2,200 (8,325)	22.25 (56.5)	45.25 (114.9)
2,100 (7,950)	24.25 (61.6)	43.25 (109.9)
2,000 (7,570)	26 (66.0)	41.5 (105.4)
1,900 (7,190)	27.75 (70.5)	39.75 (101)
1,800 (6,815)	29.75 (75.6)	37.75 (95.9)
1,700 (6,435)	31.75 (80.6)	35.75 (90.8)
1,600 (6,055)	33.5 (85.1)	34 (86.4)
1,500 (5,675)	35.25 (89.5)	32.25 (81.9)
1,400 (5,300)	37 (94.0)	30.5 (77.5)
1,300 (4,925)	39 (99.1)	28.5 (72.4)
1,200 (4,545)	40.75 (103.5)	26.75 (67.9)
1,100 (4,165)	42.75 (108.6)	24.75 (62.9)
1,000 (3,785)	44.25 (112.4)	23.25 (59.1)
900 (3,405)	46 (116.8)	21.5 (54.6)
800 (3,025)	48 (121.9)	19.5 (49.5)
700 (2,650)	50 (127.0)	17.5 (44.4)
600 (2,270)	51.75 (131.4)	15.75 (40)
500 (1,890)	53.5 (135.9)	14 (35.6)
400 (1,515)	55.5 (141.0)	12 (30.5)
300 (1,135)	57.75 (146.7)	9.75 (24.8)
200 (755)	60 (152.4)	7.5 (19.1)
100 (375)	62.5 (158.8)	5 (12.7)





TITAN330		
Gallons (Liters)	in. (cm) from top of load hatch	in. (cm) from bottom
3,300 (12,490)	9 (22.9)	58.5 (148.6)
3,200 (12,115)	13.25 (33.7)	54.25 (137.8)
3,100 (11,735)	14.75 (37.5)	52.75 (134)
3,000 (11,360)	16.5 (41.9)	51 (129.5)
2,900 (10,975)	18 (45.7)	49.5 (125.7)
2,800 (10,600)	19.75 (50.2)	47.75 (121.3)
2,700 (10,220)	21.25 (54.0)	46.25 (117.5)
2,600 (9,840)	22.75 (57.8)	44.75 (113.7)
2,500 (9,465)	24.5 (62.2)	43 (109.2)
2,400 (9,085)	26 (66.0)	41.5 (105.4)
2,300 (8,705)	27.5 (69.9)	40 (101.6)
2,200 (8,325)	29 (73.7)	38.5 (97.8)
2,100 (7,950)	30.75 (78.1)	36.75 (93.3)
2,000 (7,570)	32.25 (81.9)	35.25 (89.5)
1,900 (7,190)	33.75 (85.7)	33.75 (85.8)
1,800 (6,815)	35.25 (89.5)	32.25 (81.9)
1,700 (6,435)	36.75 (93.3)	30.75 (78.1)
1,600 (6,055)	38.25 (97.2)	29.25 (74.3)
1,500 (5,675)	39.75 (101.0)	27.75 (70.5)
1,400 (5,300)	41.25 (104.8)	26.25 (66.7)
1,300 (4,925)	42.75 (108.6)	24.75 (62.9)
1,200 (4,545)	44.25 (112.4)	23.25 (59.1)
1,100 (4,165)	45.75 (116.2)	21.75 (55.2)
1,000 (3,785)	47.75 (121.3)	19.75 (50.2)
900 (3,405)	49 (124.5)	18.5 (47)
800 (3,025)	50.25 (127.6)	17.25 (43.8)
700 (2,650)	52 (132.1)	15.5 (39.4)
600 (2,270)	53.5 (135.9)	14 (35.6)
500 (1,890)	55.25 (140.3)	12.25 (31.1)
400 (1,515)	57 (144.8)	10.5 (26.7)
300 (1,135)	58.75 (149.2)	8.75 (22.2)
200 (755)	60.5 (153.7)	7 (17.8)
100 (375)	63 (160.0)	4.5 (11.4)

Figure 16 – Tank Capacity Chart (Sheet 1 of 2)

TITAN400		
Gallons (Liters)	in. (cm) from top of load hatch	in. (cm) from bottom
3,975 (15,045)	9 (22.9)	58.5 (148.6)
3,900 (14,762)	10 (25.4)	57.5 (146.1)
3,800 (14,383)	11.5 (29.2)	56 (142.2)
3,700 (14,005)	12.5 (31.8)	55 (139.7)
3,600 (13,626)	14 (35.6)	53.5 (135.9)
3,500 (13,248)	15.25 (38.7)	52.25 (132.7)
3,400 (12,869)	16.5 (41.9)	51 (129.5)
3,300 (12,490)	18 (45.7)	49.5 (125.7)
3,200 (12,115)	19.5 (49.5)	48 (121.9)
3,100 (11,735)	20.75 (52.7)	46.75 (118.7)
3,000 (11,360)	22 (55.9)	45.5 (115.6)
2,900 (10,975)	23.25 (59.1)	44.25 (112.4)
2,800 (10,600)	24.5 (62.2)	43 (109.2)
2,700 (10,220)	25.75 (65.4)	41.75 (106.0)
2,600 (9,840)	27 (68.6)	40.5 (102.9)
2,500 (9,465)	28 (71.1)	39.5 (100.3)
2,400 (9,085)	29.5 (74.9)	38 (96.5)
2,300 (8,705)	30.75 (78.1)	36.75 (93.3)
2,200 (8,325)	32 (81.3)	35.5 (90.2)
2,100 (7,950)	33.25 (84.5)	34.25 (87.0)
2,000 (7,570)	34.75 (88.3)	32.75 (83.2)
1,900 (7,190)	36 (91.4)	31.5 (80.0)
1,800 (6,815)	37.25 (94.6)	30.25 (76.8)
1,700 (6,435)	38.5 (97.8)	29 (73.7)
1,600 (6,055)	39.75 101.0)	27.75 (70.5)
1,500 (5,675)	41 (104.1)	26.5 (67.3)
1,400 (5,300)	42 (106.7)	25.5 (64.8)
1,300 (4,925)	43.25 (109.9)	24.25 (61.6)
1,200 (4,545)	44.5 (113.0)	23 (58.4)
1,100 (4,165)	46 (116.8)	21.5 (54.6)
1,000 (3,785)	47.25 (120.0)	20.25 (51.4)
900 (3,405)	48.75 (123.8)	18.75 (47.6)
800 (3,025)	49.75 (126.4)	17.75 (45.1)
700 (2,650)	51 (129.5)	16.5 (41.9)
600 (2,270)	52.5 (133.4)	15 (38.1)
500 (1,890)	54 (137.2)	13.5 (34.3)
400 (1,515)	55.5 (141.0)	12 (30.5)
300 (1,135)	57 (144.8)	10.5 (26.7)
200 (755)	58.5 (148.6)	9 (22.9)
100 (375)	60.25 (153.0)	7.25 (18.4)

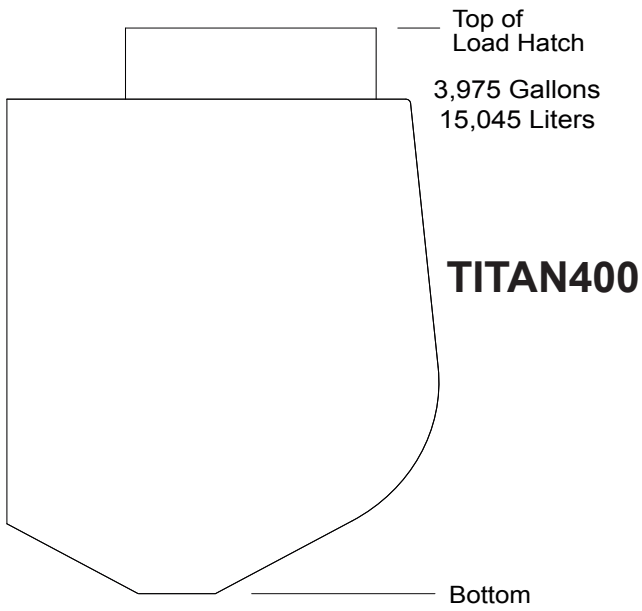


Figure 16 – Tank Capacity Chart (Sheet 2 of 2)

NOTES

LOADING (FOR WOOD FIBER MULCH, IF LIMING SEE PAGE 27)

⚠CAUTION

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

1. With clutch disengaged (turned off) and agitator control in the NEUTRAL position, start engine and allow it to warm up. See STARTING PROCEDURE on page 12.
2. Start filling unit with water. When water reaches the top of the lower agitator shaft, move agitator control to full MIX 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 that could damage the pump and unit. Other sources of water that can be used are as follows:

   A. Any pressure source, eg. fire hydrant. This unit is supplied with a 6 in. (15.2 cm) air gap fill port. Consult with local authorities before using water main in order to abide by all local ordinances.
   B. Water tanker.
3. Piping System Cleanout Procedure (Purging Line):
   A. Remove discharge nozzle and gasket from discharge boom.
   B. Aim discharge boom assembly into an open area away from any persons, obstructions, or high voltage power lines.
   C. Open discharge valve and close recirculation valve.
   D. Increase throttle position to approximately 1/2 to 3/4 full.
   E. Engage (turn on) clutch with a firm snap. Do NOT allow clutch to slip.
   F. When discharge stream is clear, flush hose on reel (if applicable), open recirculation valve, and close discharge valve. After recirculation stream is clear, disengage (turn off) clutch.
   G. Replace nozzle and gasket in discharge boom.
4. Continue filling tank with water.
5. Increase engine speed to full RPM. Governed speed of the engine on the FINN HydroSeeder® should be 2,550 to 2,600 RPM under load.
6. Start loading dry material, loading the lightest material first. Agitator control should be in full MIX position for mixing.
   A. Seed – Cut 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 in, 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

Avoid jamming the agitator shaft for an extended period of time. Failure to comply could result in minor to moderate personal injury. Failure to comply could also result in product or property damage.

C. Fertilizer – Stand over hatch opening and drop the bag onto the bag cutter. Grasp both ends of the bag and dump material.

D. All other additives – Consult with manufacturer for proper loading technique.

7. When all materials are loaded and in suspension, and the tank is full, move the agitator to NEUTRAL then full speed FORWARD to ensure all material is mixed. It may be necessary to change the agitator direction more than once to ensure a thorough mixture.
8. After material is thoroughly mixed, slow agitator in forward direction to 1/2 to 3/4 speed or enough to create movement in all of the corners of the tank. Do not over-agitate the slurry. Always discharge the material with the agitator control in FORWARD position.
9. Close the hatch lid on the slurry tank.

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

NOTE: If foaming occurs, reduce agitator speed.

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

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

ACCEPTABLE WATER SOURCES

A. Water from any stream or pond using a fill pump. When filling from a pond or stream, be sure to use a suction strainer to filter out any contaminants, which could damage the pump and unit. Other sources of water are as follows:

B. Any pressure source, eg. fire hydrant. This unit is supplied with a 6 in. (15.2 cm) air gap fill port, but it is necessary to consult local authorities before using water main in order to abide by local ordinances.

C. Water tanker.

3. Piping System Cleanout Procedure:

A. Remove discharge nozzle and coupler gasket from the remote valve coupler at the end of the discharge hose (or from boom on the platform option).

B. Aim discharge hose (or boom on the platform option) into an open area away from any persons, obstructions, or high voltage power lines.

C. Open discharge and remote valves and close recirculation valve.

D. Open throttle to approximately 1/2 to 3/4 full.

E. Engage (turn on) clutch with a firm snap. Do NOT allow clutch to slip.

F. When discharge stream is clear, open recirculation valve and close discharge valve. After recirculation stream is clear, disengage (turn off) clutch.

G. Replace coupler gasket in the remote valve coupler (or in boom on the platform option).

4. Continue filling tank with water.

5. Increase throttle to 3/4 of full throttle.

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

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

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

   NOTE: BFM, FGM, and other viscous slurries will entrain air if proper mixing procedures are not followed. Ensure that the agitator blades are completely submerged prior to the addition of this material. This will prevent air from entering the slurry. Follow manufacturers suggested rates of materials as indicated on the packaging. Generally, this recommendation is 50 lb (23 kg) of material to 125 gal (473 L) of water.

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

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

7. When all materials are loaded and in suspension and the tank is full, move the agitator to NEUTRAL then full speed FORWARD to ensure all material is mixed. It may be necessary to change the agitator direction more than once to ensure a thorough mixture.

8. Agitate per the manufacturer's recommendations. Generally, the agitation time is 10 minutes to allow the proper viscosity to be generated. Follow manufacturer's recommendations.

9. Once material is thoroughly mixed, place the agitator in FORWARD direction to 1/4 speed, or just enough to create movement in all corners of the tank. DO NOT OVER-AGITATE the slurry. Always discharge the material with the agitator control in FORWARD and at a slow speed.

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

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

   NOTE: If foaming occurs, reduce agitator speed.

PRIOR TO APPLICATION

1. Operator should familiarize self with 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 b. 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 6 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.

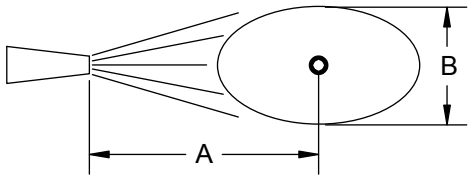


Figure 17 – Nozzle Spray Dimensions

Nozzle	Part Number	Distance (A)	Width (B)
Lg. Long Distance	011775	Up to 320 ft (98 m)	
Sm. Long Distance	012993	Up to 150 ft (46 m)	
Sm. Narrow Fan	012995	Up to 75 ft (23 m)	15 ft (4.6 m)
Sm. Wide Fan	012994	Up to 45 ft (14 m)	25 ft (7.6 m)
Lg. Narrow Fan	012997	Up to 90 ft (28 m)	23 ft (7 m)
Lg. Wide Fan	012996	Up to 50 ft (15 m)	35 ft (10.5 m)

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 death or serious injury.

⚠ CAUTION

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

1. Determine which nozzle would best suit the application needs according to the DISCHARGE NOZZLE SELECTION table on page 23.
2. Application of seed, fertilizer, and lime: Elevate discharge nozzle no less than 10 degrees above the area to be sprayed, allowing the slurry to gently rain onto the seed bed.
3. Application of wood and paper fiber: Whenever possible, aim the stream toward 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 valve to control the distance. Failure to comply could result in minor to moderate personal injury. Failure to comply could also result in 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) clutch. If shut-down 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) clutch to continue application.
7. To reduce foaming, it may be necessary to slow the agitator as the tank empties.

II. DISCHARGE THROUGH THE BOOM

1. Move the discharge valve handle to the OPEN position, the recirculation valve handle to the CLOSED position, and engage (turn on) clutch. At this time, should the operator want to stop spraying for a short period, disengage (turn off) clutch; then re-engage (turn on) to continue spraying.
2. When the tank is empty, or when discontinuing discharge for an extended period of time, disengage (turn on) 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 boom discharge valve, and close remote valve at the end of the hose.
2. Engage 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 to moderate personal injury. Failure to comply could also result in product or property damage.

3. With the engine running at approximately 2,000 RPM, open the remote valve at the end of the hose to discharge the load.
4. When finished spraying, close the remote valve, disengage the clutch, and stop the engine. If using fiber mulch, retain as much water as possible in the hose by elevating the hose ends or by coupling the hose ends together.
5. If another load is to be done, see RELOADING PROCEDURE on page 26. If finished for the day, follow the clean-up procedures under DAILY on page 32.

⚠DANGER

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

B. EXTENSION HOSE SYSTEM - WITHOUT REMOTE VALVE:

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

⚠CAUTION

Since the extension hose will be seeing the full output of the pump with the recirculation valve 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 clutch only after the hose operator is firmly positioned and has firm control of hose. Failure to comply could result in minor to moderate personal injury. Failure to comply could also result in product or property damage.

3. When hose operator is ready, signal the second operator to engage clutch and slowly increase the engine RPM until the desired discharge pressure is reached.
4. When finished spraying, disengage the 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 on page 26. If finished for the day, follow the clean-up procedure described in DAILY CLEANING AND MAINTENANCE on page 32.

C. HOSE WORK WITH RADIO REMOTE TRANSMITTER:

1. Begin with the engine around 1/4 throttle (1,400 RPM).
2. Close recirculation valve. If using an extension hose connected to the discharge boom, open the discharge valve. If using the hose reel, close the discharge valve and open the pump take-off valve to the hose reel.
3. Make sure all switches are in the OFF position and all dials are in the ZERO (0) position.
4. Switch Remote On/Off switch on the control panel to the ON position.
5. When the operator is in position, engage (turn on) pump using the remote transmitter and increase throttle to the desired output.

NOTICE

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

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

⚠CAUTION

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

RELOADING PROCEDURE

1. Start at step 2 in LOADING on pages 21 and 22.
2. After last load of the day, refer to CLEANING AND MAINTENANCE on pages 32 and 33.
3. If the unit is equipped with an Air Flush System, refer to Air Flush System Parts and Operator's Manual.

LIMING WITH THE HYDROSEEDER®

In 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.

PROCEDURE

1. With clutch disengaged (turned off) and agitator control in the NEUTRAL position, start engine and allow it to warm up. See STARTING PROCEDURE on page 12.
2. 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.
3. Open both the recirculation and discharge valves.
4. Remove discharge nozzle and gasket from discharge boom.
5. Aim discharge boom assembly into an open area away from any persons, obstructions, or high voltage power lines.
6. Move the throttle to approximately 1/2 engine speed.
7. Engage (turn on) 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 AT THIS POINT.

10. Twenty lb (9 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 TITAN280 maximum recommended capacity of 8,000 lb (3,629 kg), 400 gal (1,514 L) (8,000/20 = 400) would have to subtracted from the total tank capacity, thus, 2,750 gal (10,410 L) – 400 gal (1,514 L) = 2,350 gal (8,896 L). For the TITAN330 maximum recommended capacity of 10,000 lb (4,536 kg), 500 gal (1,893 L) (10,000/20 = 500) would have to be subtracted, thus, 3,300 gal (12,492 L) – 500 gal (1,893 L) = 2,800 gal (10,599 L).
11. Fill the tank to the required capacity for the rate of granular solids to be applied.
12. Load the material (see LOADING pages 21 and 22, 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 clutch still engaged (turned on), open discharge valve.

⚠CAUTION

To decrease pump wear and increase discharge distance, it may now 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. Failure to comply could result in minor to moderate personal injury. Failure to comply could also result in product or property damage.

16. Apply the slurry. See APPLICATION OF SLURRY on page 24.
17. If another load is to be applied, start again at Step 1. If finished, refer to CLEANING AND MAINTENANCE on pages 32 and 33.

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 mixtures will cause air entrainment. These situations will reveal themselves with the occurences 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.
   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.

2. Plugging or clogging:

⚠ DANGER

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

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 FOAMING OF SOLUTION AND LACK OF DISTANCE on pages 30 and 31. 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.
   1. Disengage (turn off) clutch.
   2. Make certain that pump has stopped rotating.
   3. Slowly and carefully remove nozzle.
   4. Using the nozzle cleaning rod attached to the underside of the guard rail, clear the nozzle.

⚠ 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. Failure to comply will result in death or serious injury.

B. If the recirculation system is not working:
    1. Disengage (turn off) clutch and shut down engine.
    2. Remove two clamps on each side of the recirculation valve.
    3. Slide rubber seals back and remove valve assembly.
    4. Check valve assembly, recirculation nozzle in the discharge pipe, and the recirculation pipe going into tank. Clear any obstructions.
    5. Replace valve assembly and slide the seals back into place. Lubricate the outside of the seals.
    6. Replace the clamps.
3. Obstruction in the pump, (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) 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.

    D. Reach into the pump and remove the obstruction. If jammed, the pump suction cover may need to be removed.
    E. Reassemble, removing pipe plug in the process.
    F. Open suction line valve.
4. Obstruction in sump area (located at the bottom of the tank on the inside where the suction pipe is attached).
    A. Easiest: To clear the sump area: Backflush through the discharge plumbing with the water supply hose.
    B. Another method: 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.

NOTICE

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.

TROUBLESHOOTING YOUR HYDROSEEDER®		
Problem	**Probable Causes**	**Suggested Solutions**
LEAKS:		
Tank Bearing	Lack of lubrication – seal worn Bolts not tightened	Replace seal and follow lube schedule. Tighten uniformly to 25 lb-ft (34 N•m).
Pressure Pipe Clamps	Rubber seal cracked, pinched,	Replace; always grease seal before or torn.clamping shut.
Suction Pipe Clamps	Rubber seal cracked, pinched, or torn	Replace; always grease seal before clamping shut.
Discharge Swivels	Not greased often enough	Rebuild swivels w/repair kit (part-number 012397, qty. 2 required).
Pump Shaft	Pressure lubricator not serviced	Replace pump seal. Service automatic pressure lubricator daily. See page 10.
Pump Suction Cover	O-ring bad	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 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 condition. Grease seals before replacing.
	Air entrainment	See TROUBLESHOOTING step 1 on page 20.
	Low engine RPM (Below 2,750 RPM – No load)	See authorized engine dealer.
	Soft water	Slow the agitator.
	Too much agitation	Slow the agitator.
	Pump worn	Reset pump tolerance. See page 30.
	Suction partially plugged	Clean out machine. See pages pages 28 and 29.
	Nozzle worn or plugged	Clean nozzles; replace if necessary
	Fertilizer	Change type.
	Clutch slippage	Readjust clutch. See clutch manual.

VALVE:		
Valve stuck	Frozen	Thaw out ice and 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 discharging	Loading HydroSeeder® before tank is half full of water	Reinstruct your operator. See pages 19 and 20.
	Incorrect loading procedure	See pages 19 and 20.
	Improper operation by operator	Reinstruct your operator. Review OPERATOR'S MANUAL.
	Clutch slipping	Readjust clutch. See manual.
	Not moving valve handle far enough	Valve should be fully open.
	Machine not being flushed out prior to reloading	See page 19.
	Machine not being run at correct RPM during loading	Reinstruct your operator. See page 19.
Extension hose plugs after use	Letting water run out, leaving wood fiber mulch to dry out	If hose has to be uncoupled, seal hose 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 1/2 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

1. Check and adjust clutch. See clutch manual.

DAILY:

1. Cleaning the HydroSeeder®
    A. Fill slurry tank to center of agitator shaft with clean water.
    B. Move agitator lever to full speed to flush off inside of tank top and walls.
    C. Remove discharge nozzle and gasket from discharge boom.
    D. While pointing discharge toward an open area, move discharge valve handle to DISCHARGE position and engage (turn on) clutch. Allow to discharge until clear water is coming out.
    E. Move recirculation valve handle to RECIRCULATION and allow to run momentarily.
    F. Disengage (turn off) clutch, idle the engine, move valve handle to DISCHARGE position, move agitator handle to NEUTRAL, and turn off 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 plug. Move all slurry valves to OPEN position.
    I. Wash the outside of the HydroSeeder®, including the radiator, to remove any corrosive materials.
    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 on pages 38 and 39.

NOTICE

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

WEEKLY OR EVERY 40 HOURS OF OPERATING TIME:

1. Clean the air cleaner following the instructions in the Engine Operator's Manual.
2. Lubricate all the points on the HydroSeeder® as outlined in DAILY. Additionally, lubricate the four grease fittings on the clutch/pump.
3. Check the level in the hydraulic oil reservoir; maintain level at sight gauge.
4. Check the clutch adjustment to ensure that it "snaps" in and out of engagement. Adjust the clutch with the engine off.

5. Check antifreeze in radiator. Add antifreeze as required.
6. Inspect the slurry tank for buildup of residue in the suction area and clear if necessary.
7. Check and clean engine radiator. Flush with clear, low-pressure waterspray and blow dry with compressed air. Do NOT use high-pressure water spray.
8. Check pivoting hose reel swivel bolt. Ensure proper torque. Replace bolts if any show signs of wear.
9. Check oil level in agitator gear boxes. Refer to Maintenance Chart.

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 qt (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 on page 4.
6. Lubricate all fittings.
7. Check antifreeze in radiator. Add antifreeze as required.
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. The most important areas of maintenance are the hydraulic oil and filtration. The reservoir holds 60 gal (227 L) of Mobil DTE-13M or equivalent 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 micron absolute filter (FINN part number 011869). The hydraulic system relief is factory set at 3,200 psi (22,063 kPa).

CLUMP MAINTENANCE SECTION

⚠CAUTION

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

NOTE: Refer to Figure 18 on page 36 for all in-text callouts on pages 34 and 35.

A. FACTORY TOLERANCES

1. To check clump tolerances, loosen the two clamps on the pump suction piping and remove the inlet elbow. Through the pump suction hole, insert a feeler gauge between impeller (3) and suction cover (1). This measurement on a new clump is between 0.30 to 0.40 in. (.750 to 1.00 mm).

B. IMPELLER CLEARANCE

NOTICE

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

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

1. Loosen twelve bolts (16) and push pump housing (1) into seal housing (6) until it hits the impeller (3). Impeller should be in full contact with pump housing.
2. Tighten bolts (17) finger tight. Impeller (3) should rub the wear plate (2) and not turn easily through one revolution.
3. Tighten bolts (16) hand tight until they touch pump casing (1).
4. Back off bolts (17) 2 turns.
5. Tighten bolts (16) 3/4 turn and tighten nuts (14) to 15 lb-ft (20 N•m).
6. Tighten bolts (17) to 15 lb-ft (20 N•m). Clearance gap should be about 0.040 in. (1.00 mm). Check to see if impeller (3) turns freely through one revolution.

C. CLEANING

1. To clean impeller (3), loosen the two victaulic pipe clamps and remove the suction pipe assembly. The eye of the impeller (3) can then be seen through the pump housing (1) and is readily accessible for cleaning.

2. To remove impeller (3), loosen and remove the two victaulic clamps and remove the discharge pipe. Remove twelve bolts (17) that hold pump casing (1) in place. Exercise caution while removing the pump casing (1) because it is heavy (approximately 150 lb [68 kg]) and the O-ring (5) can easily be damaged.
3. Lock the shaft (19) in place with a pipe wrench. Using a block of wood as a transfer, hammer at the edge of the impeller vane to turn the Impeller (3) counterclockwise. Once the impeller is free, it can be turned by hand. Be careful not to drop it as it fully disengages from the shaft threads.

⚠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.

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

1. To replace clump shaft seal assembly (4), perform the operations under CLEANING on page 34.
2. After cleaning all parts, including clump shaft (19), begin reassembly of clump. Using a light oil lubricant (such as 3-in-1 oil), install the ceramic seat, making sure that the notch on the ceramic seal is lined up with the pin at the bottom of the clump mounting plate (12). Lubricate inside of the bellows assembly with a light oil lubricant and check to make sure the steel ring is stuck (glued) to end of assembly. Slide bellows assembly onto the shaft and push until steel ring is against ceramic seat.
3. Install the seal spring on the hub of impeller. After coating the threads on the clump shaft (19) with an antiseize compound, install impeller (3), seating it securely.
4. Utilizing O-ring (5), reinstall pump casing (1) using twelve bolts (17). At this time, check to see that the clump runs freely. If impeller (3) rubs cover plate, you do not have impeller tight on clump shaft (19) or pump casing (1) needs to be readjusted. See IMPELLER CLEARANCE on page 34. Tighten bolts uniformly using 15 lb-ft (20 N•m) on the torque wrench.
5. After reinstalling the suction pipe assembly, lubricate and tighten the victaulic clamps. Service the automatic lubricator.

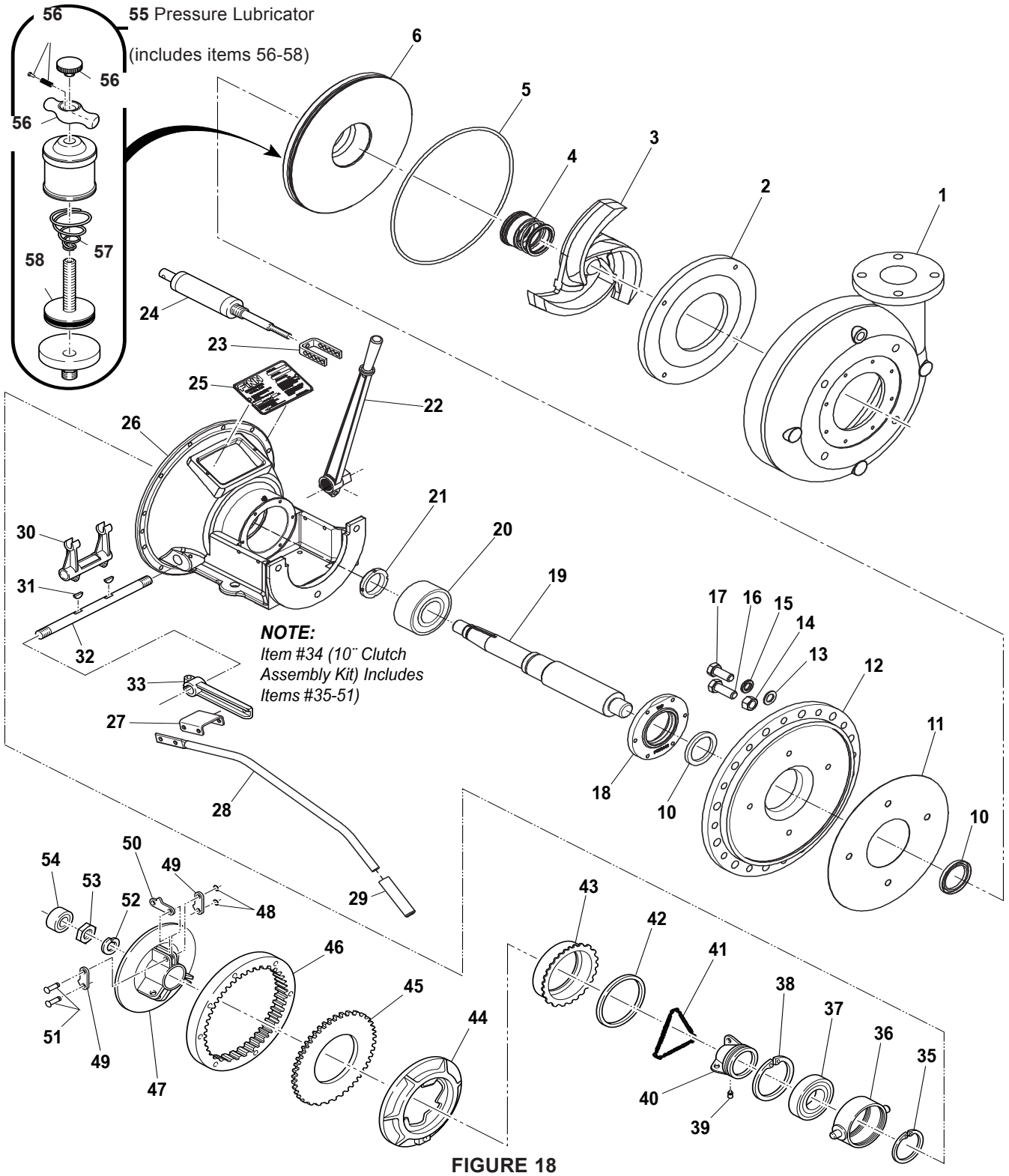


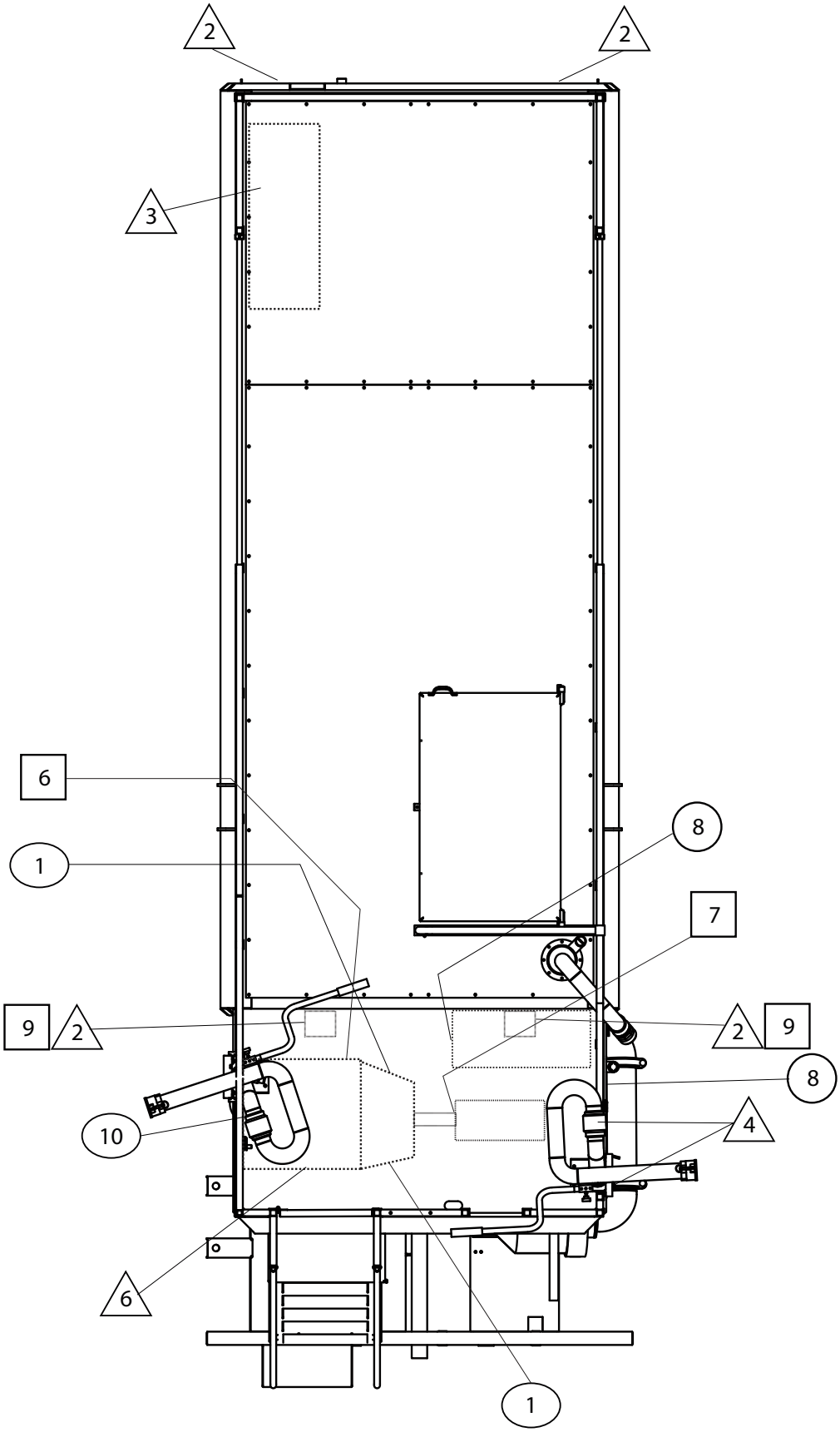
FIGURE 18

CLUMP ASSEMBLY

Ref. No.	Part Number	Description	No. Required
1	012976	Pump Casing	1
2	012879-1B	Wear Plate	1
3	012976-02	Impeller	1
4	013131	Clump Shaft Seal	1

5	013132	AS568B O-Ring #455	1
6	013126	Seal Housing Machining	1
10	012733	Seal	2
11	013163	Clump gasket	1
12	013128	Clump Mounting Plate Machining	1
13	0WF12SAE	3/4 SAE Flat Washer	12
14	10OY12	3/4-10 UNC Hex Nut	12
15	00WL12	3/4 Lock Washer	12
16	0X1232	3/4-12 UNC HHCS x 2" Lg.	12
17	0X1228	3/4-12 UNC HHCS x 1-3/4" Lg.	12
18	012734	Bearing Retainer Ring	1
19	013133	Clump Shaft	1
20	012731	Bearing	1
21	012732	Nut	1
22	013047	NACD #308365AM	1
23	F400-0046	Clevis, Air Cylinder	1
24	012765	1-1/2" Bore Cylinder, 4" Stroke	1
25	005570	Clump Name Plate	1
26	012695	Make From F5430-01 Casting	1
27	F400-0060	Cluch Handle Spacer	1
28	013154	Clutch Handle Modification	1
29	000427	Handle Grip Black	1
30	100323	Clutch Yoke	1
31	100042	Woodruff Key	2
32	100040	Yoke Shaft	1
33	005574-02	Modified Clutch lever	1
34	012783	10 in. Clutch Assembly	1
35	100321	External Snap Ring	1
36	100030	Bearing Carrier	1
37	100031	Release Bearing	1
38	100332	Internal Snap Ring	1
39	100224	Lube Fitting	1
40	100029	Release	1
41	100026	Lever Spring	1
42	100032	Adjusting Ring Plate	1
43	100013	Adjusting Ring	1
44	100028	Pressure Plate	1
45	100341	10 in. Clutch Disc	1
46	100003	Driving Ring	1
47	100011	Clutch Body	1
	022314	Driving Ring Lever Kit	1
48	100008	Retaining Ring	6
49	100019	Connecting Link	6
50	100018	Release Lever	6
51	100009	Clevis Pin	6
52	100308	Lockwasher	1
53	100307	Driveshaft Nut	1
54	022314	Pilot Bearing	1
55	002383	Pressure Lubricator	1
56	008190	Screw, Nut, Follower, and Spring	1
57	007954	Spring	1
58	008189	Plunger	1

LUBRICATION LOCATIONS



LUBRICATION AND FLUIDS CHART

Ref. No.	Location	Lubricant	Frequency	Number
1	Check Clutch Lever Bearings	CL	Weekly	2
2	Grease Agitator Shaft Bearings	CL	Daily	6
3	Check Fuel Level	DF	Daily	1
4	Grease Discharge Swivels	CL	Daily	2
5	Check Engine Oil Level	MO	Daily	1
6	Check Engine Oil and Filter	MO	See Engine Manual	1
7	Grease Pump Bearings	BL	See Pump Manual	2
8	Check Hydraulic Fluid Level	HO	Weekly	1
	Change Hydraulic Fluid and Filter	HO	Seasonally or 500 Hours	1
9	Check Agitator Gearbox Level	MO	See Gearbox Manual	2
10	Change Engine Coolant	AF	Seasonally	1

LUBRICANT OR FLUID USED

CL	Chassis Lubricant
MO	See Component Manual
HO	Mobil DTE-13M or Equivalent Hydraulic Oil
AF	50/50 Antifreeze and Water Mixture
DF	Diesel Fuel

TIME KEY

DAILY (8 hours) 

WEEKLY (40 hours) 

SEASONALLY (500 hours) 

SEE COMPONENT MANUAL 

FLUID CAPACITIES

Fuel – 38 gal (144 L)
Hydraulic Oil – 60 gal (227 L)
Engine Coolant – 5 gal (19 L) 50/50 Mix Only
Engine Oil – See Engine Manual

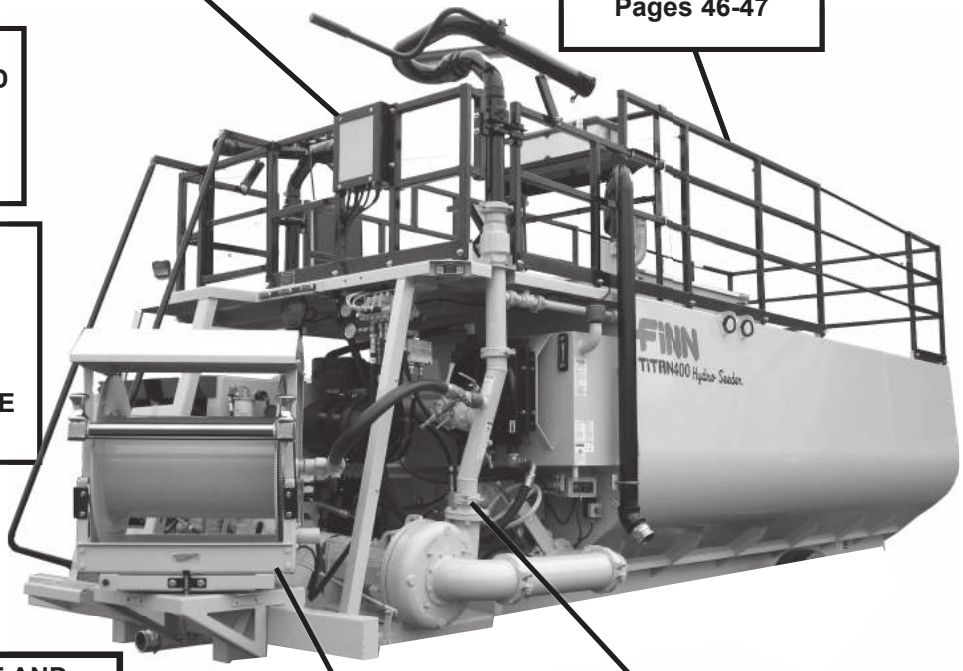
NOTES

NOTES

TITAN280/TITAN330
TITAN400
HydroSeeder®
Parts Manual

Mode. MO

PICTORIAL REFERENCE



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CONTROL BOX WIRING
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STRUCTURE AND RAILING TITAN280 TITAN330 TITAN400
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HATCH VIEW
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AGITATOR AND SEAL ASSY.
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HYDRAULIC AGITATOR DRIVE
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PUMP ASSEMBLY
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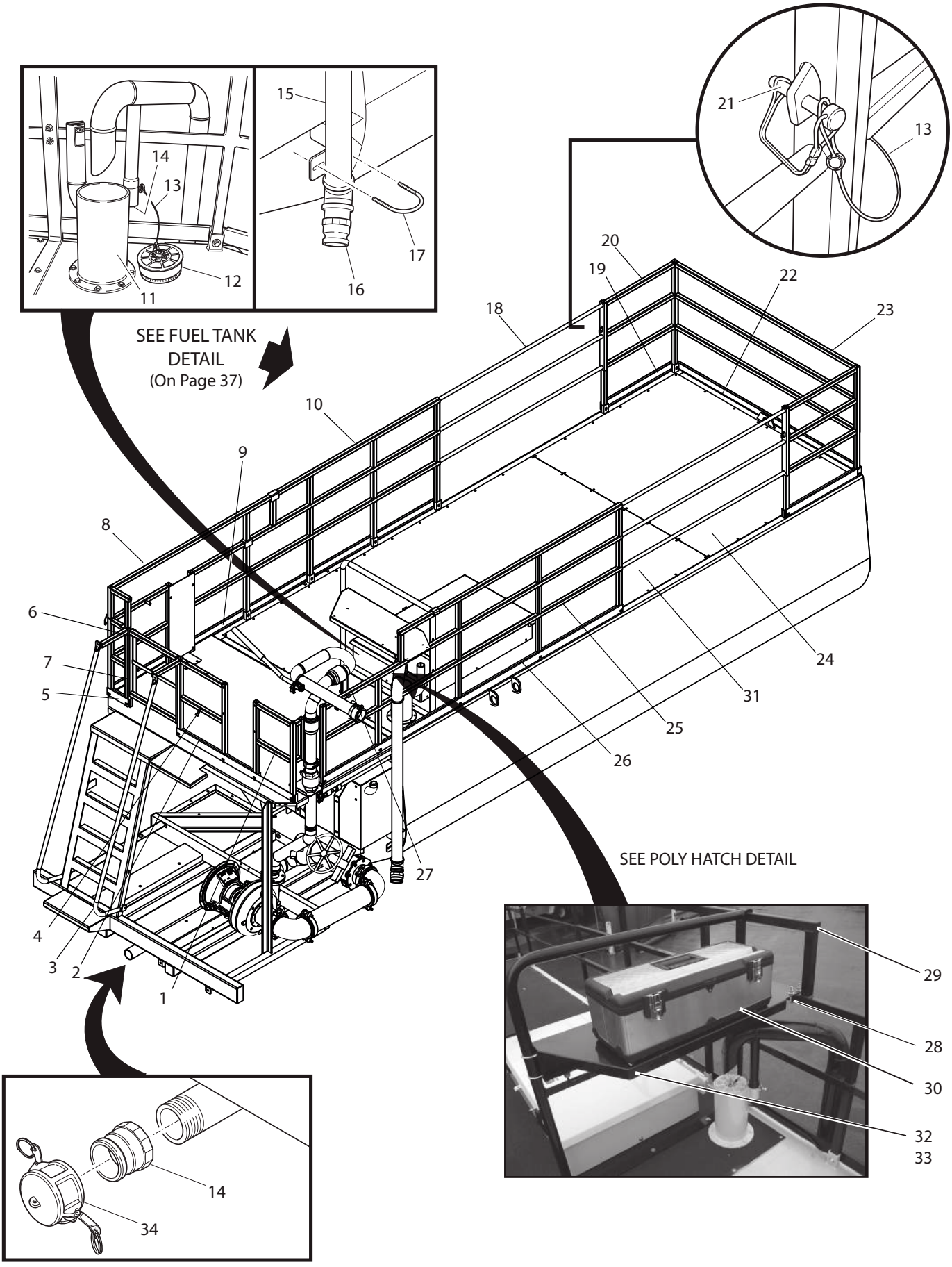
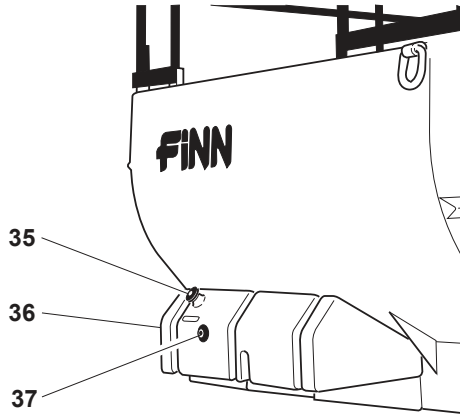


WHEN ORDERING PARTS, BE SURE TO STATE SERIAL NUMBER OF MACHINE

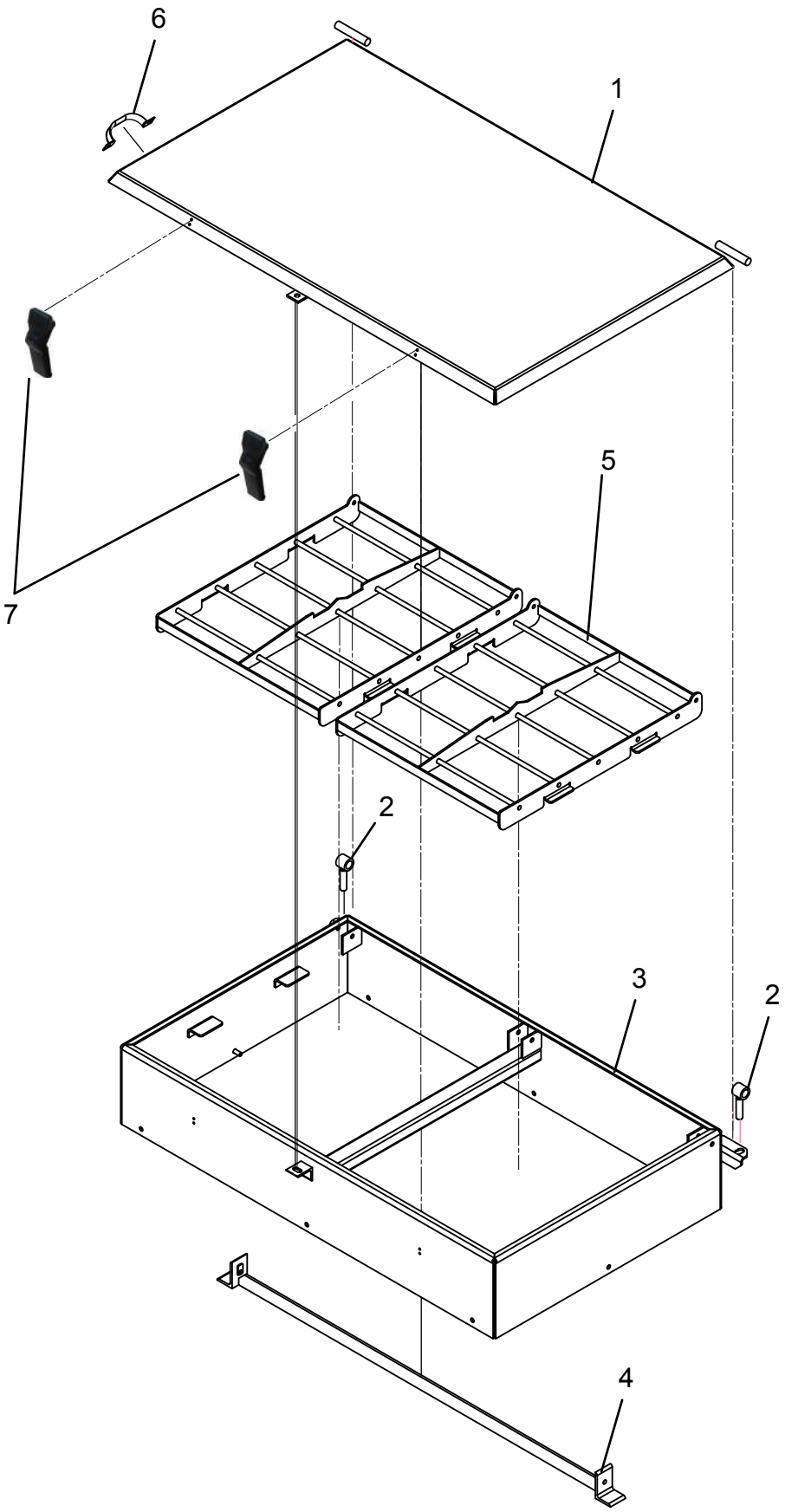


STRUCTURE AND RAILING TITAN330/TITAN400

Ref. No.	Part Number	Description	No. Required
1	012919	Rear Right Corner Rail	1
2	F400-0015	Long Rear Toe Rail	1
3	012771	Hand Rail	2
4	012918	Rear Guard Rail	1
5	F400-0012	Left Corner Rear Toe Rail	1
6	013149	Swing Gate Weldment	1
	013122	Gate Spring	1
7	013150	Rear Corner Guard Rail	1
8	013168	Left Rear Rail Extension	1
9	F400-0013	Left Rear Toe Rail	1
10	012912	Left Rear Guard Rail	1
	005613	Square Tubing Plug	40
11	012750	Fill Stack Extension	1
12	008470	Fill Port Plug	1
13	005700	Nylon Lanyard	3
14	012515	1-1/4 in. Pipe Plug	1
15	012895	3 in. Fill Port	1
16	011741	3 in. Male Brass Adapter	2
17	055336	U-Bolt	1
18	012916	Slide Gate	2
19	F400-0016	Front Side Toe Rail (TITAN400)	2
	F280-0005	Front Side Toe Rail (TITAN280,TITAN330)	2
20	012914	Front Side Guard Rail (TITAN400)	2
	012737	Front Side Guard Rail (TITAN280,TITAN330)	2
21	FW71225	Slide Gate Snapper Pin	2
22	F330-0082	Front Toe Rail	1
23	012705	Front Gaurd Rail	1
24	F330-0124	Tank Top Extension (TITAN400)	1
	F400-0004	Tank Top Extension (TITAN280,TITAN330)	1
25	012913	Right Rear Guard Rail	1
26	F400-0014	Right Rear Toe Rail	1
27	F400-0030	Boom Holdown	2
28	012514	Square U-Bolt for 1-1/2 in. Square Pipe	6
29	005613	Square Tubing Plug	10
30	012977	Tool Box	1
31	F400-0002	Main Tank Top	1
	F400-0009-03	Narrow Tank Top Support	3 (280) / 2 (330) / 6 (400)
	F400-0009-04	Wide Tank Top Support	0 (280) / 2 (330) / 2 (400)
32	F330-0078	Tool Box Mount	1
33	005619	U Bolt For 1-1/4 in. Round Pipe	2
34	041371	Dust Cap w/Gasket-Main Tank Drain	1
35	005726	Fuel Tank Cap	1
36	012693	Poly Fuel Tank	1
37	012694	Fuel Gauge	1

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

HATCH VIEW



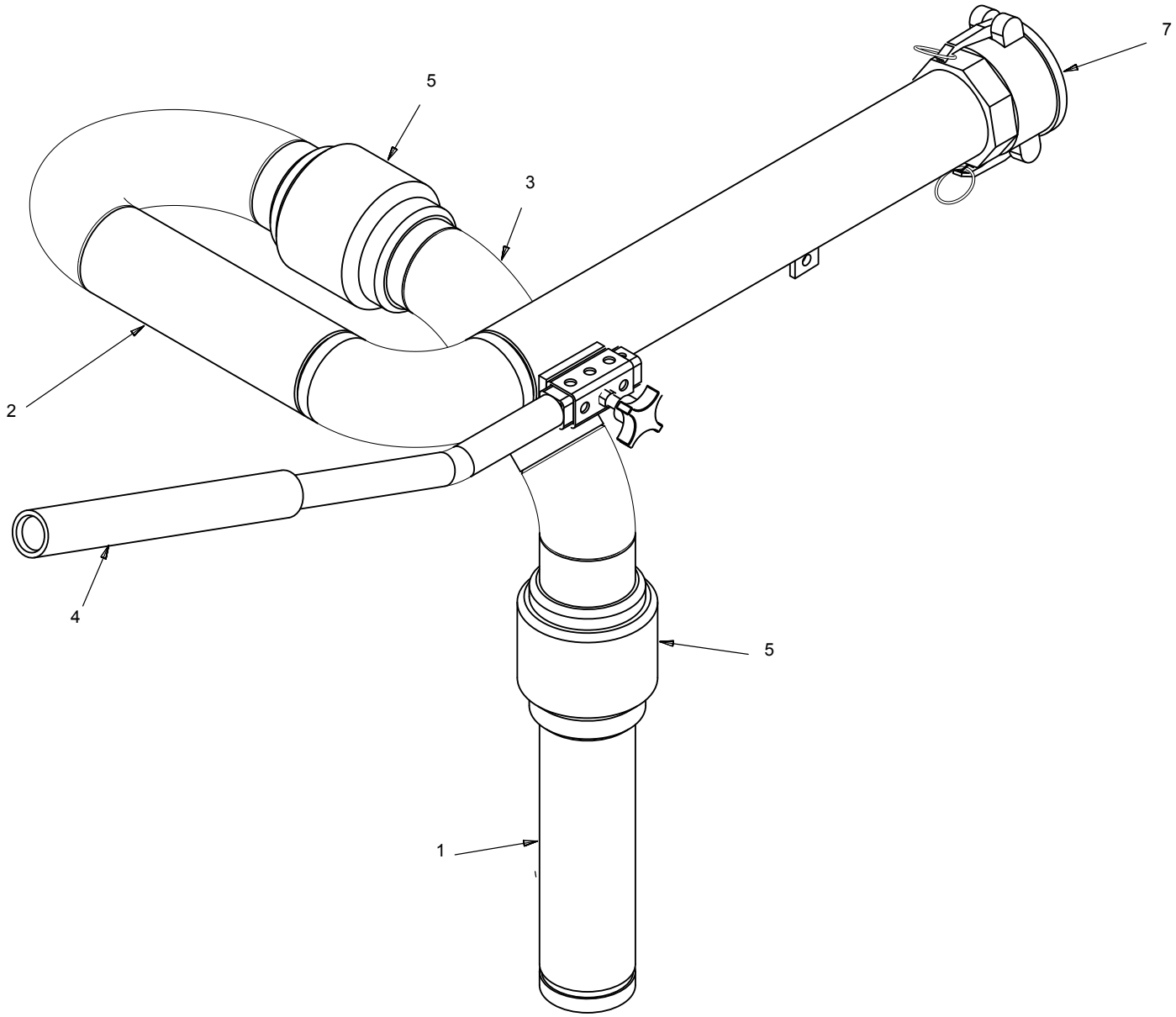
WHEN ORDERING PARTS, BE SURE TO STATE SERIAL NUMBER OF MACHINE

HATCH VIEW

Ref. No.	Part Number	Description	No. Required
1	012909	Hatch Lid Weldment	1
2	070627	Lid Hinge Weldment	2
3	012903	Hatch Liner Weldment	1
4	012938	Safety Cross Strap Weldment	1
5	012834	Bag Cutter Stainless	2
6	002909	Handle	1
7	005433	Latch	2

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

DISCHARGE BOOM ASSEMBLY



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

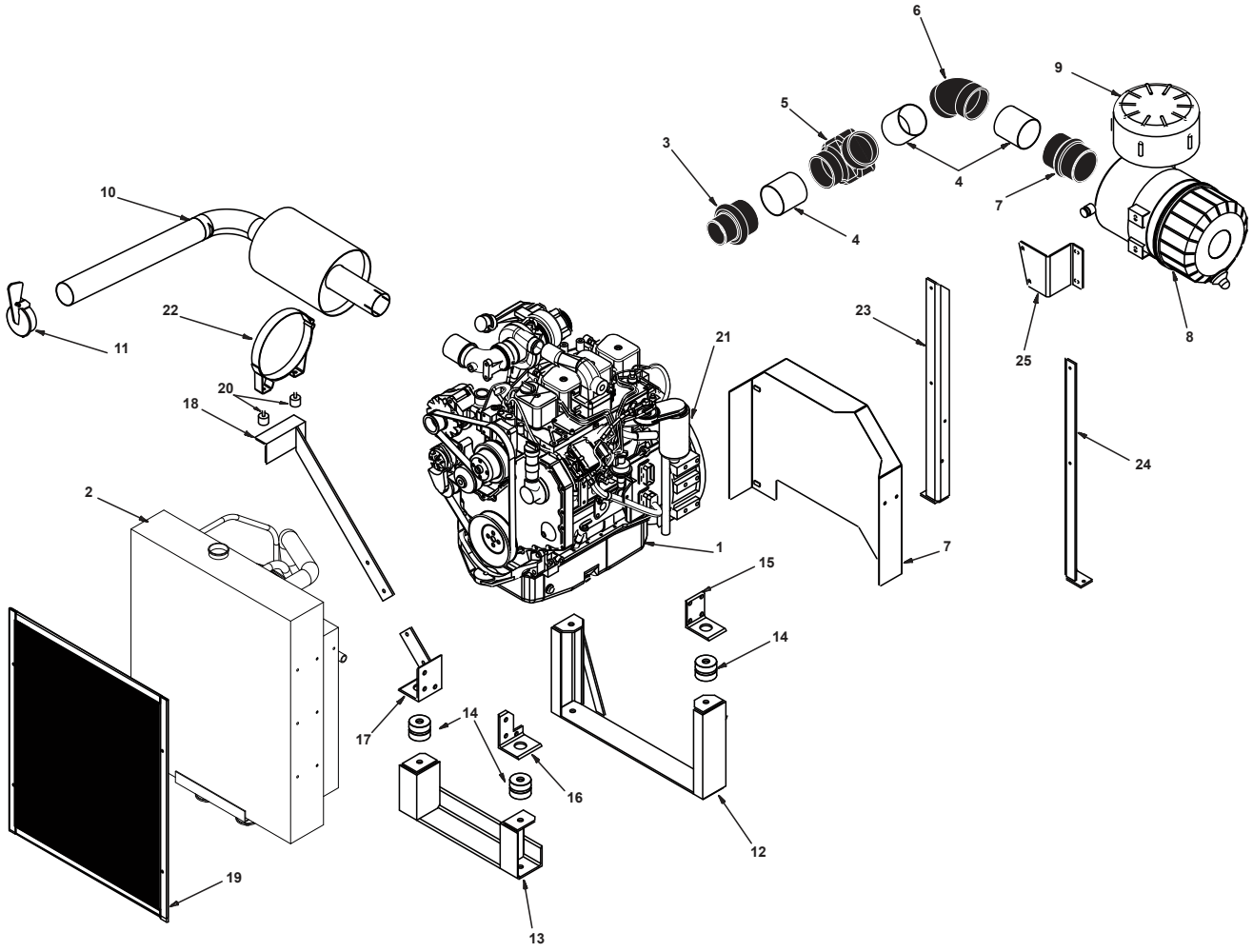
DISCHARGE BOOM ASSEMBLY

TITAN280/TITAN330/TITAN400

Ref. No.	Part Number	Description	No. Required
	012898	3 in. Discharge Boom Assembly	1
1	12900-01	Boom Stand Pipe	1
2	012896	Upper Boom Discharge Weldment	1
3	012897	Lower Boom Discharge Weldment	1
4	013159	Titan Boom Handle	1
5	012888	3 in. Straight Swivel	2
	013043	3 in. Swivel Repair Kit	1
6	011914	Black Knob/Set Screw	1
7	012886	3 in. Coupler	1

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

ENGINE AND RADIATOR



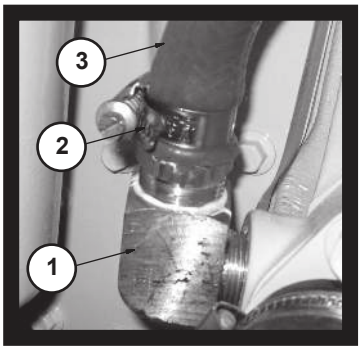
WHEN ORDERING PARTS, BE SURE TO STATE SERIAL NUMBER OF MACHINE

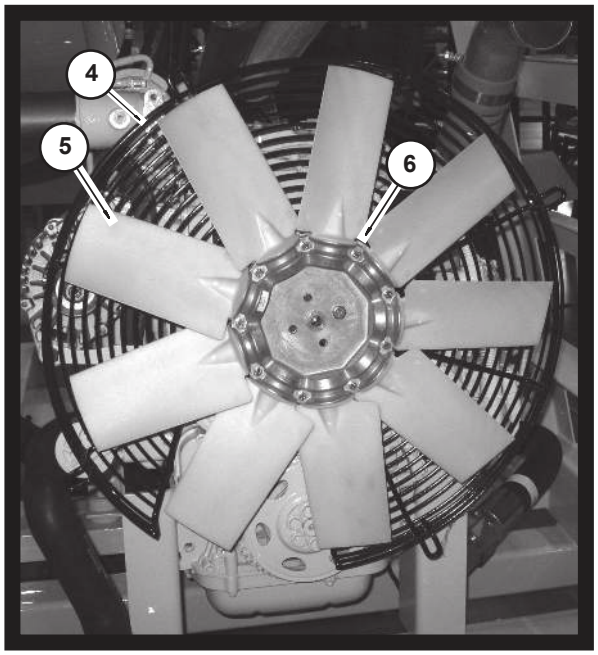
ENGINE AND RADIATOR

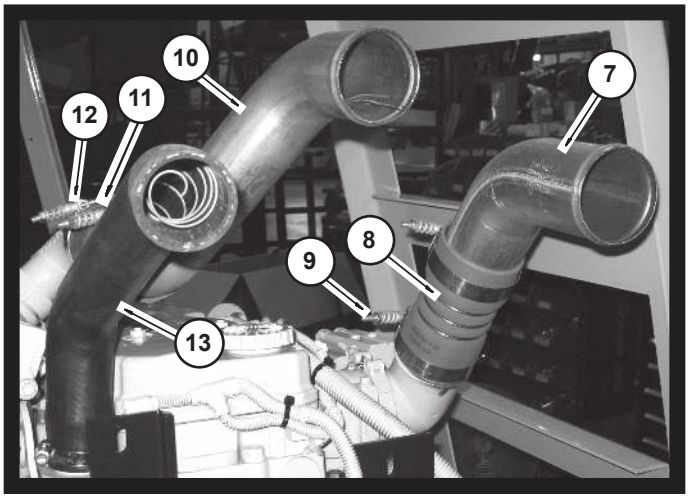
Ref. No.	Part Number	Description	No. Required
1	013107	Cummins Tier III Engine	1
2	013036	Radiator / Charge Air Cooler	1
3	055498	Hump Reducer	1
4	052022-05	Air Intake Tube	3
5	075247	Cobra Elbow	1
6	052012	45º Elbow	1
7	055367	Hump Adapter	1
8	013135	Breather Assembly	1
	013135-M	Main Filter	1
	013135-S	Safety Filter	1
9	022657	Filter Cap	1
10	013157	Muffler Weldment	1
11	045014	3-1/2 in. Rain Cap	1
12	013067	Rear Engine Riser Weldment	1
13	013068	Front Engine Riser Weldment	1
14	013065	Engine Isolator	4
15	013069-03	Rear Engine Foot	2
16	013069-01	Front Engine Foot - L.H.S.	1
17	013077-01	Lower Muffler Mount	1
18	013077-02	Upper Muffler Mount	1
19	F400-0037	Radiator Screen	1
20	075206	Rubber Stud Mount	2
21	CU-FF5612-01	Main Fuel Filter	1
22	012980	Cummmins Muffler Clamp	1
23	F400-0064-01	Rear Engine Panel Mount - RHS	1
24	F400-0064-02	Rear Engine Panel Mount - LHS	1
25	F400-0059	Air Cleaner Mount	1
		NOT SHOWN	
	*CU-FF5612	Remote Fuel Filter	1
	*CU-LF3970	Oil Filter	1

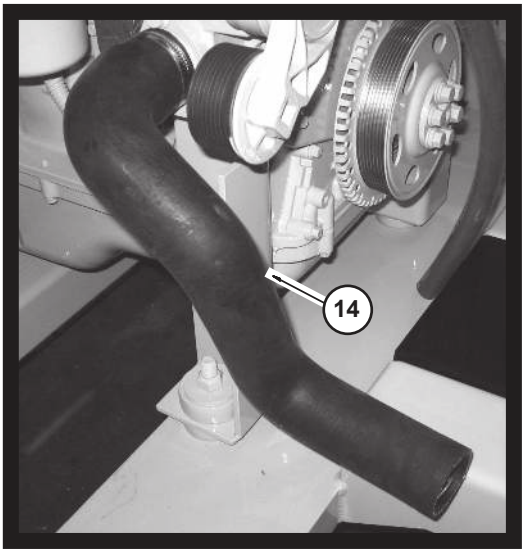
WHEN ORDERING PARTS, BE SURE TO STATE SERIAL NUMBER OF MACHINE

RADIATOR PARTS









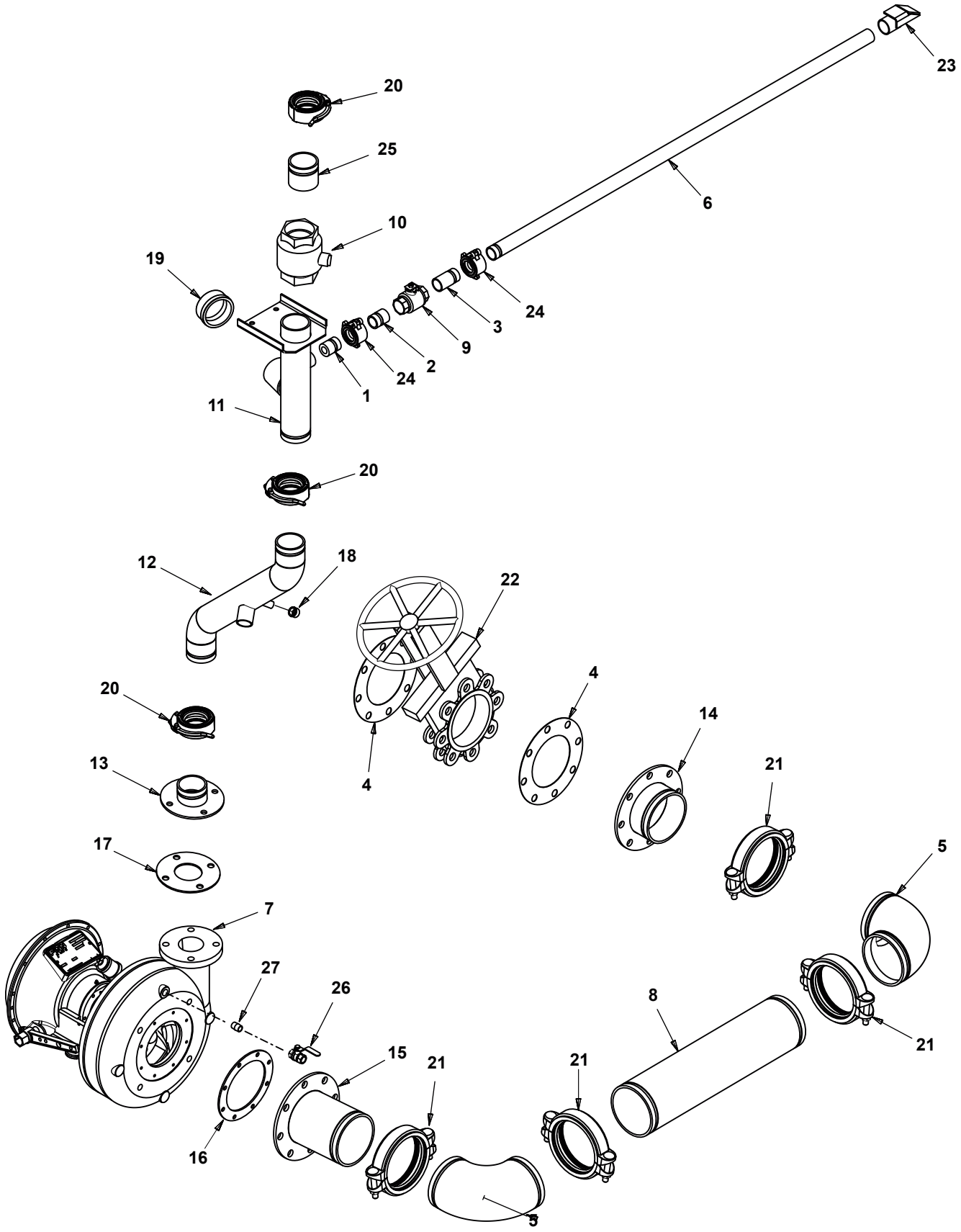
WHEN ORDERING PARTS, BE SURE TO STATE SERIAL NUMBER OF MACHINE

RADIATOR PARTS

Ref. No.	Part Number	Description	No. Required
1	CUM11000378	90º Elbow Fitting	1
2	CUM80000207	Hose Clamp	4
3	CUM50000491	3/4 in. Heater Hose	1
	CUM50000499	3/8 in. Heater Hose (Not Shown)	1
4	CUM110000827	Fan Guard	1
5	CUM10000737	Blower Fan	1
6	CUM3910128	Spacer	1
7	CUM50000887	Large Charge Air Cooler Tube	1
8	CUM50000437	Charge Air Cooler Hose 3 in. ID	1
9	CUM80000435	2-1/2 in. Charge Air Cooler Clamp	2
10	CUM50000886	Small CHarge Air Cooler Tube	1
11	CUM50000600	Charge Air Cooler Hos. 2-1/2 in. ID	1
12	CUM80000220	3 in. Charge Air Cooler Clamp	2
13	CUM50000606	Upper Radiator Hose	1
14	CUM50000605	Lower Radiator Hose	1

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

CLUMP, PIPING, AND DISCHARGE ASSEMBLY



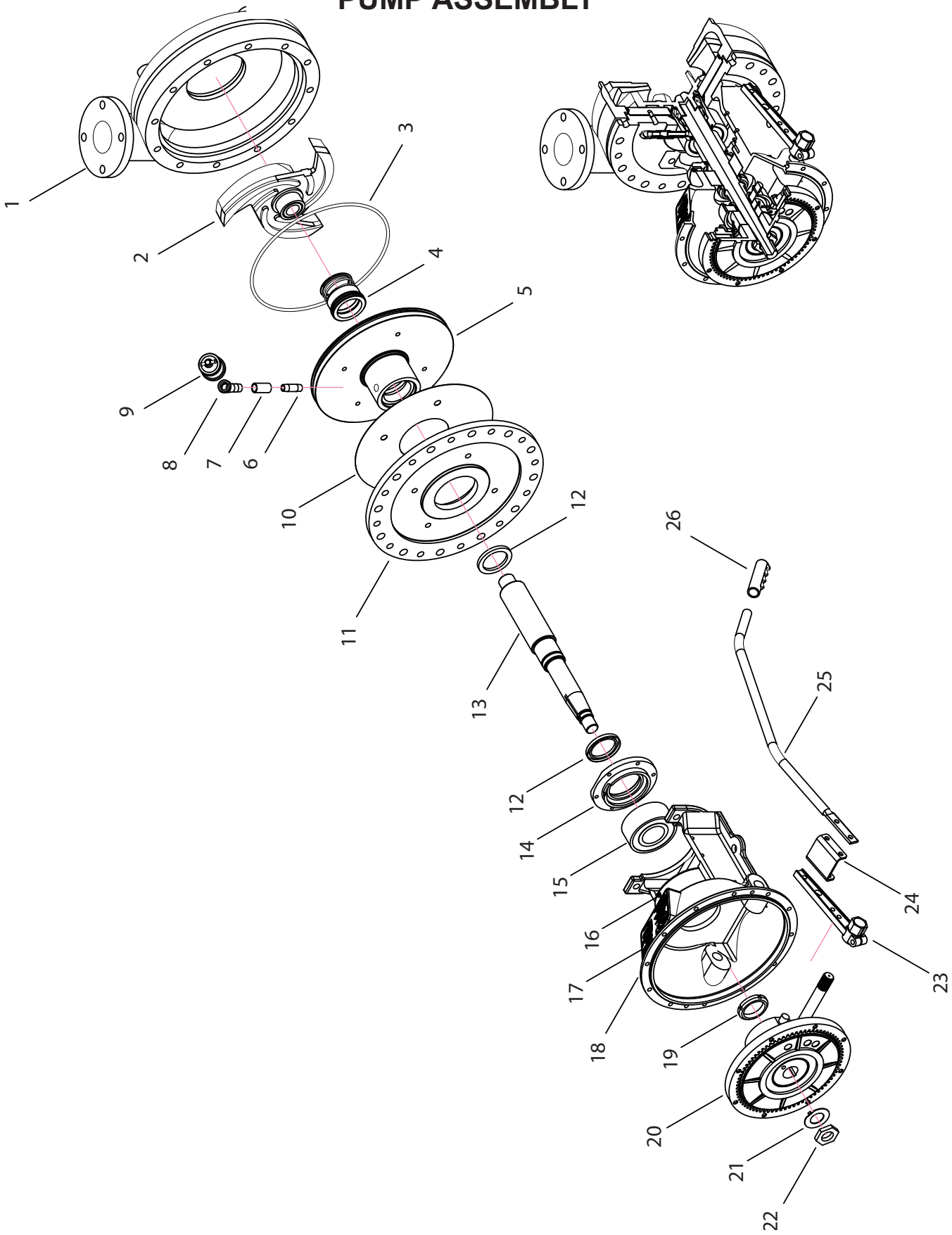
WHEN ORDERING PARTS, BE SURE TO STATE SERIAL NUMBER OF MACHINE

CLUMP, PIPING, AND DISCHARGE ASSEMBLY

Ref. No.	Part Number	Description	No. Required
1	011727-09	Recirculation Nozzle	1
2	011727-10	Recirculation Connector	1
3	011727-11	Recirculation Connector	1
4	012316	Flange Gasket	2
5	012385	6 in. Victaulic Elbow	2
6	012726-03	Recirculation Pipe	1
7	013145	Titan Clump Assembly	1
8	012900-05	Suction Pipe	1
9	012083	1-1/4 in. Stainless Steel Ball Valve	1
	012971	Valve Handle	1
10	012902	3 in. Stainless Steel Ball Valve	1
11	012922	RH Discharge Valve Stand Pipe	1
12	013152	Titan Discharge Pipe	1
13	012932	Pump Flange Weldment	1
14	013148-01	Suction Valve Outlet	1
15	013148-02	Pump Suction Inlet	1
16	012961-01	Suction Pump Gasket	1
17	012961-02	Pump Discharge Gasket	1
18	160259	1/2 in. Pipe Cap	1
19	160266	3 in. Pipe Cap	1
20	002438	3 in. Victaulic Clamp	3
	002439	Clamp Seal	1 Per
21	041368	6 in. Victaulic Clamp	4
	041368G	Clamp Seal	1 Per
22	041369	6 in. Knife Gate Valve	1
23	05703-02	1-1/4 in. Coupling Deflector Weldment	1
24	006721	1-1/4 in. Pipe Clamp	2
	006722	Clamp Seal	1 Per
25	080555-06	Suction Valve Pipe (GOE/TOE)	1
26	070122	1/2 in. Ball Valve	1
27	160301	1/2 in. Standard Close Nipple	1

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

PUMP ASSEMBLY



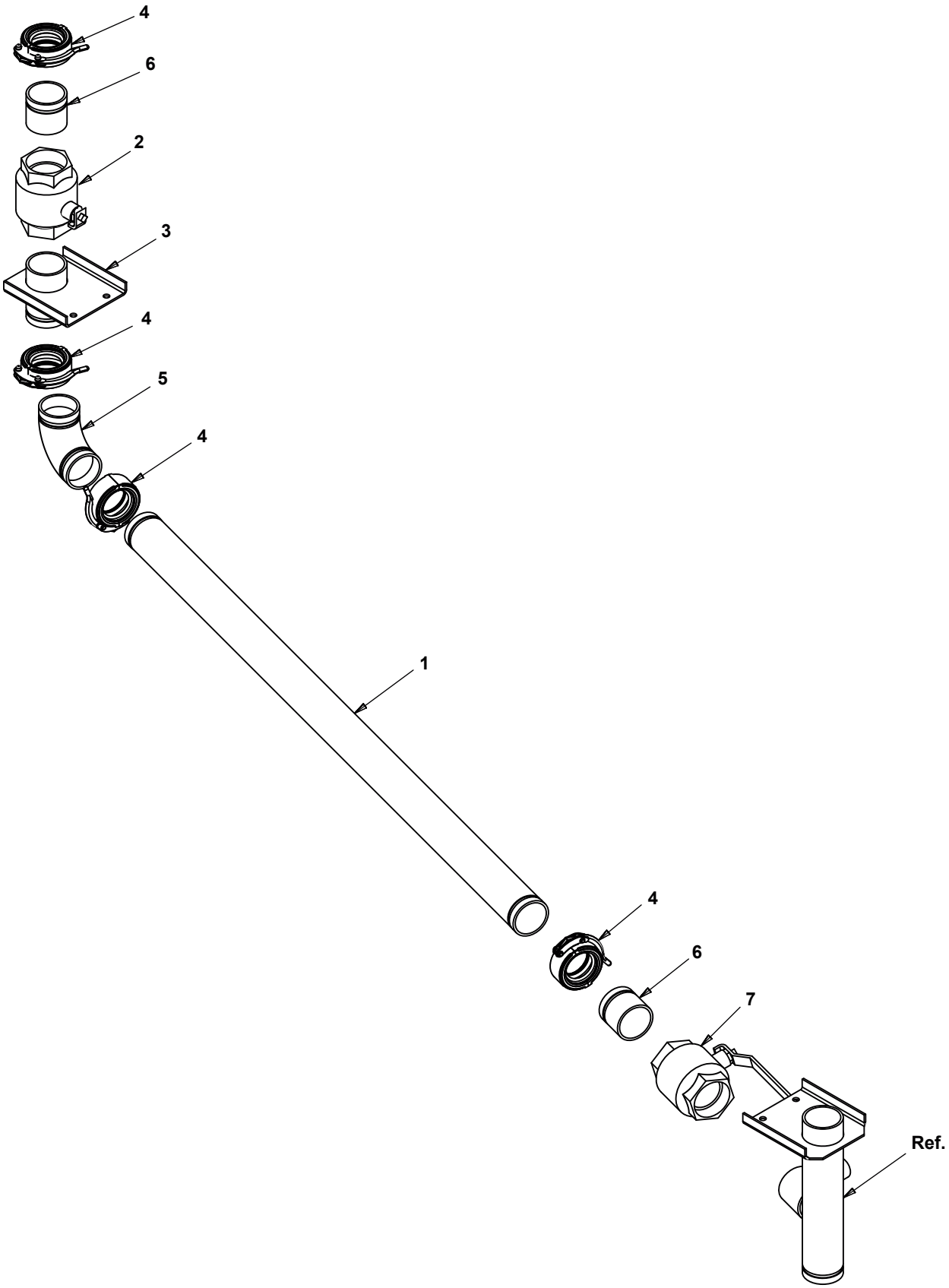
WHEN ORDERING PARTS, BE SURE TO STATE SERIAL NUMBER OF MACHINE

PUMP ASSEMBLY

Ref. No.	Part Number	Description	No. Required
	013135	Titan Clump Assembly	
1	013134	Titan Clump Casing	1
2	012976-02	Impeller	1
	012976-02A	Impeller Seal	1
3	013132	Titan Clump Casing Seal	1
4	013131	Titan Clump Shaft Seal	1
5	013126	Seal Housing	1
6	160389	3/8 in. Nipple x 2 in. Lg.	1
7	160162	3/8' Xtra-Heavy Coupling	1
8	160082	3/8 in. 45 Deg. Street Elbow	1
9	002383	Pressure Lubricator	1
10	013163-01	Titan Clump Gasket	1
11	013128	Titan Clump Mounting Plate	1
12	012733	Seal	2
13	013133	Titan Clump Shaft	1
14	012734	Bearing Retainer Ring	1
15	012731	Shaft Bearing	1
16	007705	Grease Fitting	1
17	005570	Clump Nameplate	1
18	012695	Clump Housing	1
19	012732	Shaft Nut	1
20	012783	10 in. Clutch Assembly	1
21	100308	Lock Washer	1
22	100307	Drive Shaft Nut	1
23	031219	Modified Clutch Lever	1
24	F400-0060	Clutch Handle Spacer	1
25	013154	Titan Clutch Handle	1
26	000427	Black Grip Handle	1

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

2ND DISCHARGE BOOM ASSEMBLY



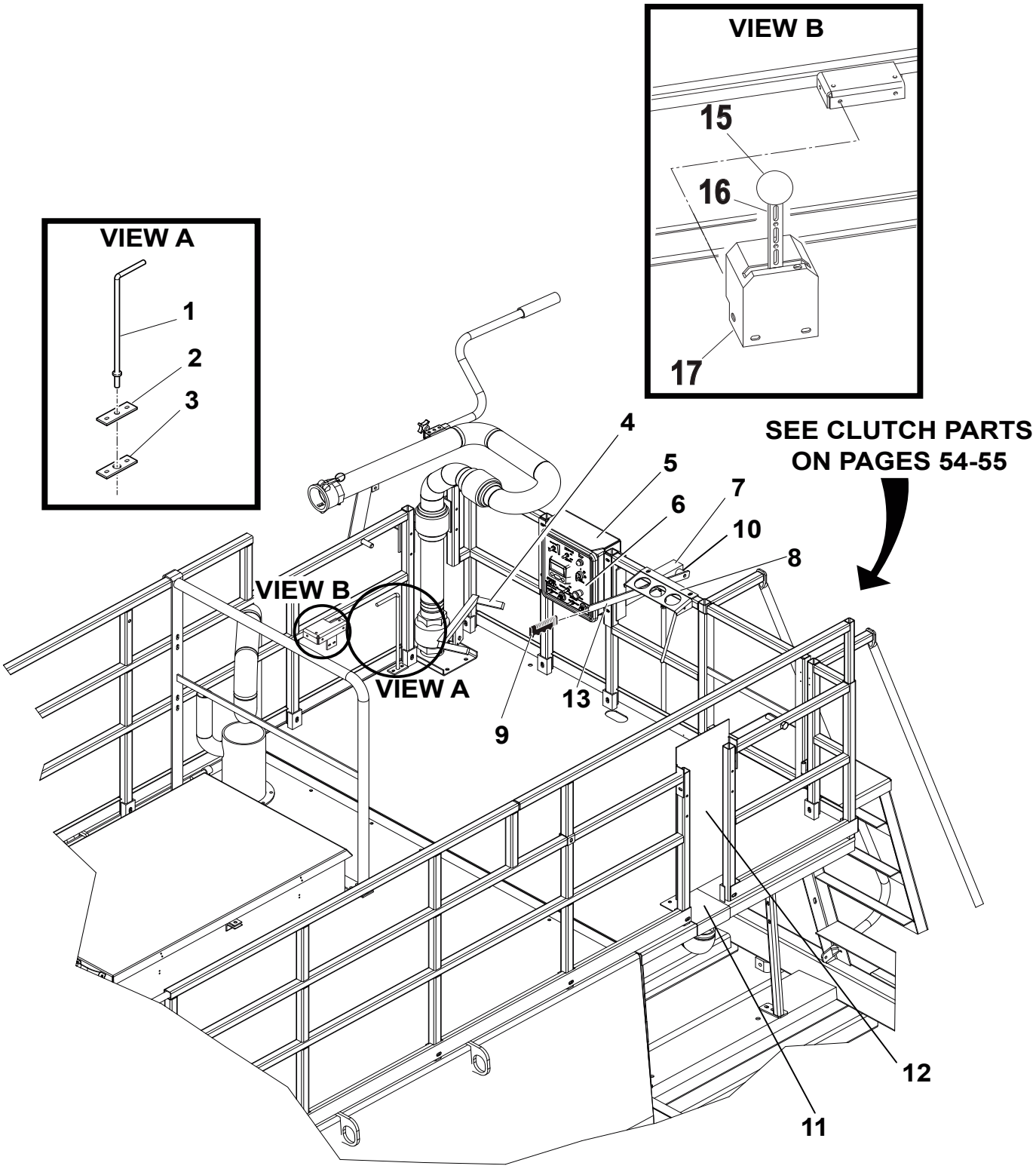
WHEN ORDERING PARTS, BE SURE TO STATE SERIAL NUMBER OF MACHINE

2ND DISCHARGE BOOM ASSEMBLY-OPTIONAL

Ref. No.	Part Number	Description	No. Required
1	012900-04	Long Boom Connector Pipe	1
2	012902	3 in. Stainless Steel Ball Valve	1
3	012921	LH Discharge Valve Stand Pipe	1
4	002438	3 in. Victaulic Clamp	4
	002439	Clamp Seal	1 Per
5	002868	3 in. Victaulic Elbow	1
6	080555-06	Suction Valve Pipe (GOE, TOE)	2
7	080739	Discharge Valve	1

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

CONTROLS



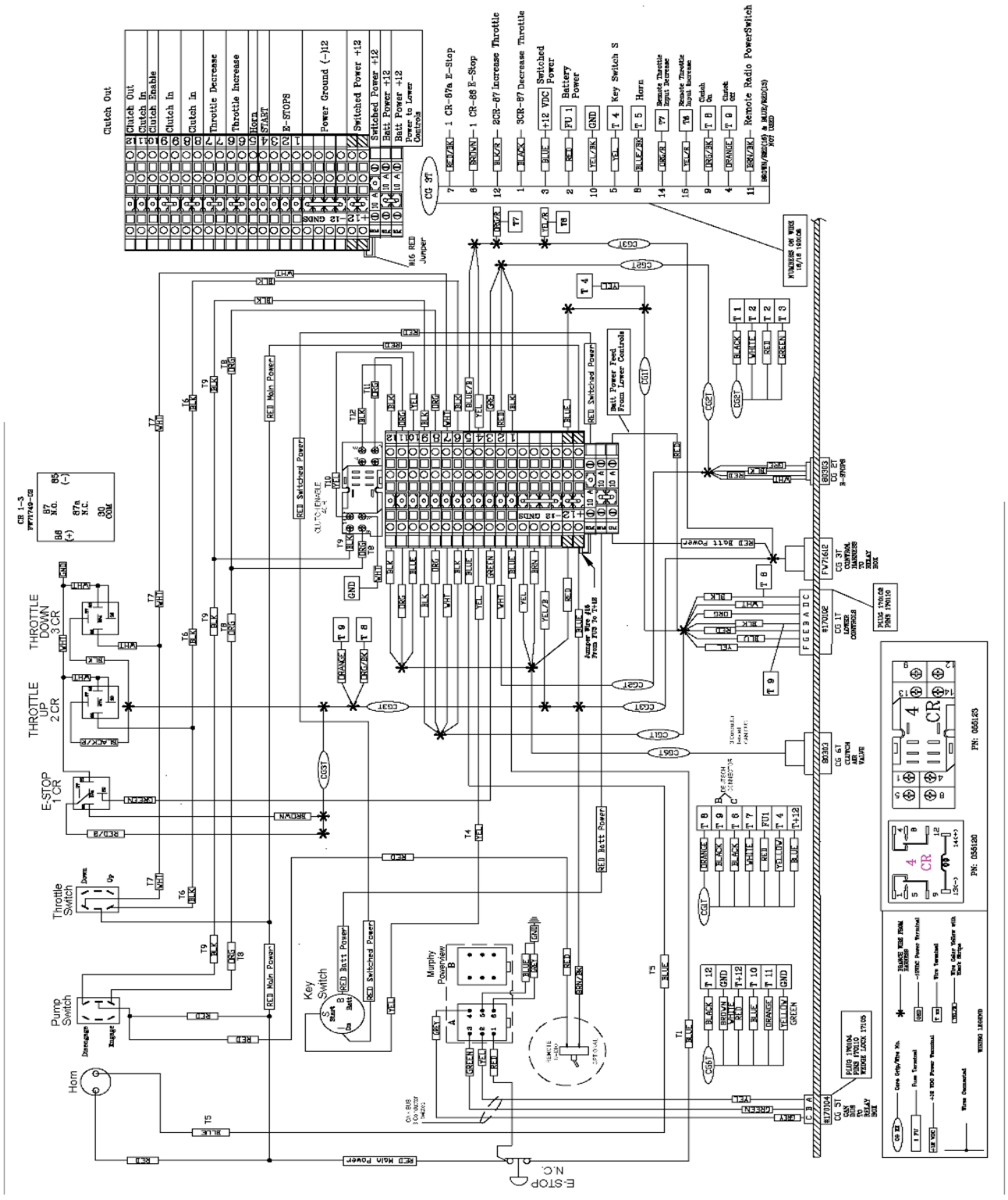
WHEN ORDERING PARTS, BE SURE TO STATE SERIAL NUMBER OF MACHINE

CONTROLS

Ref. No.	Part Number	Description	No. Required
1	013022	Handle Extension	1
2	013022-02	Top Seal	1
3	013022-03	Bottom Seal	1
4	013086	Foot Pedal Weldment	1
4A	013082	Foot Pedal Bushing	1
5	F400-0035	Control Box Mount	1
6	013193	TITAN400 Control Box	1
7	013026	Clutch Lever Mounting Weldment	1
	006737	Ball Joint (Not Shown)	2
8	F330-0075	Nozzle Holder	1
9	000427	Handle Grip	1
10	013026-04	Handle Spacer	1
11	F400-0034	Platform Cover Plate	1
12	F400-0022	Boom Closure Plate	1
13	013026-01	Handle	1
14	012780-14	Titan Clutch Rod	1
15	011785	Agitator Control Assembly	1
	006596	Agitator Control Cable	1
16	011954	Black Knob - 1-3/16 in. Dia.	1
17	F330-0102	Agitator Control Box	1

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

CONTROL BOX WIRING (INTERNAL)



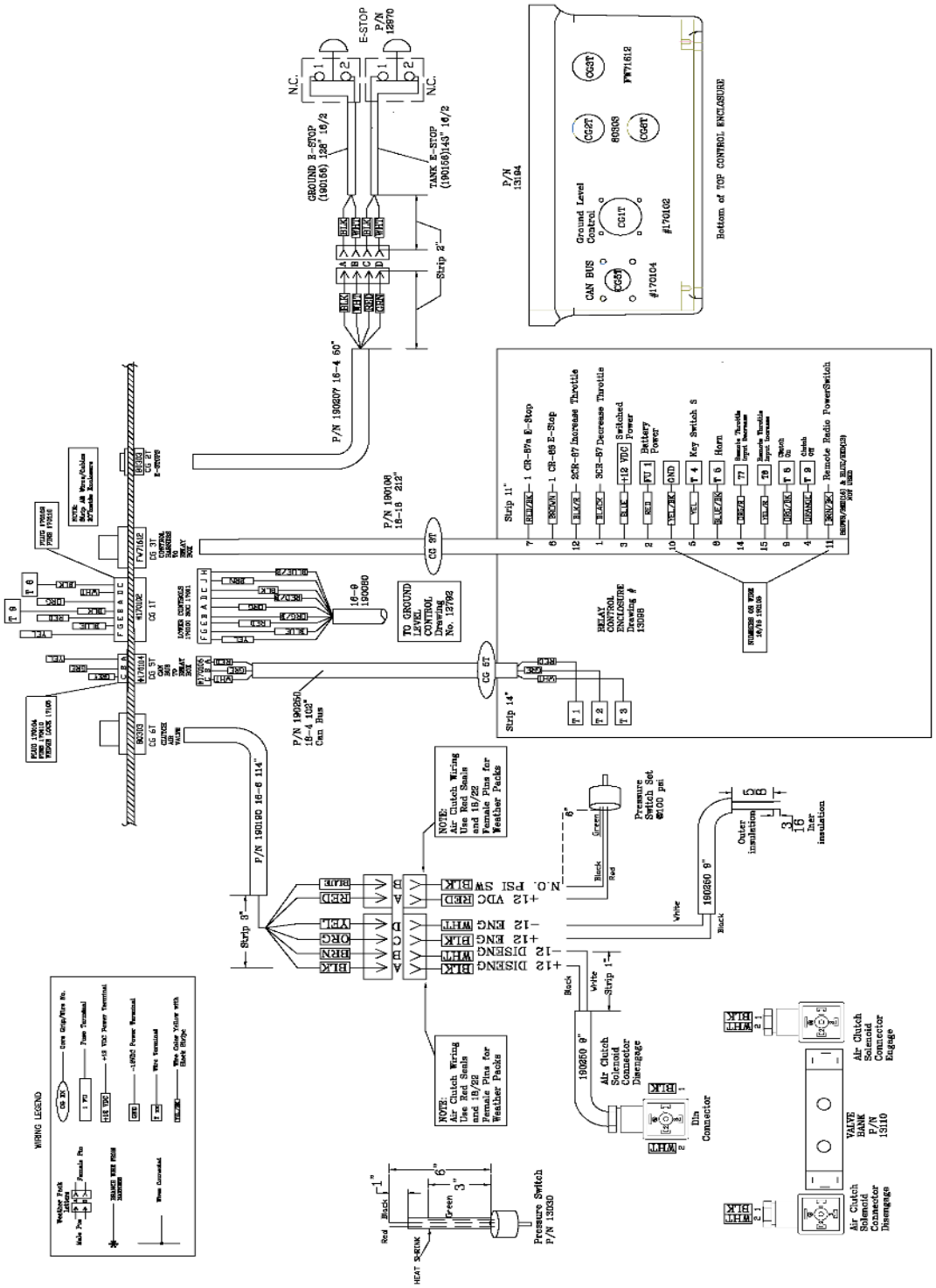
WHEN ORDERING PARTS, BE SURE TO STATE SERIAL NUMBER OF MACHINE

CONTROL BOX WIRING (INTERNAL)

Part Number	Description	No. Required
012739	Murphy Powerview	1
013218	Jumper Bar	10
013217	3-Pole Terminal Block	18
013074	Terminal Block End Cover	1
013075	Terminal Block w/ Fuse	4
013076	Fuse Block Jumper	1
020886	Horn Button	1
023892	Powerview Cable Assembly	1
052076	Ignition Switch	1
023076	Key for Switch	1
055120	IDEC Relay	1
055123	IDEC Socket	1
055449	10-Amp Fuse	4
080526	Switch Boot	4
366164	E-Stop Switch	1
FW71555	Toggle Switch	2
FW71749-02	30 Amp Relay	3

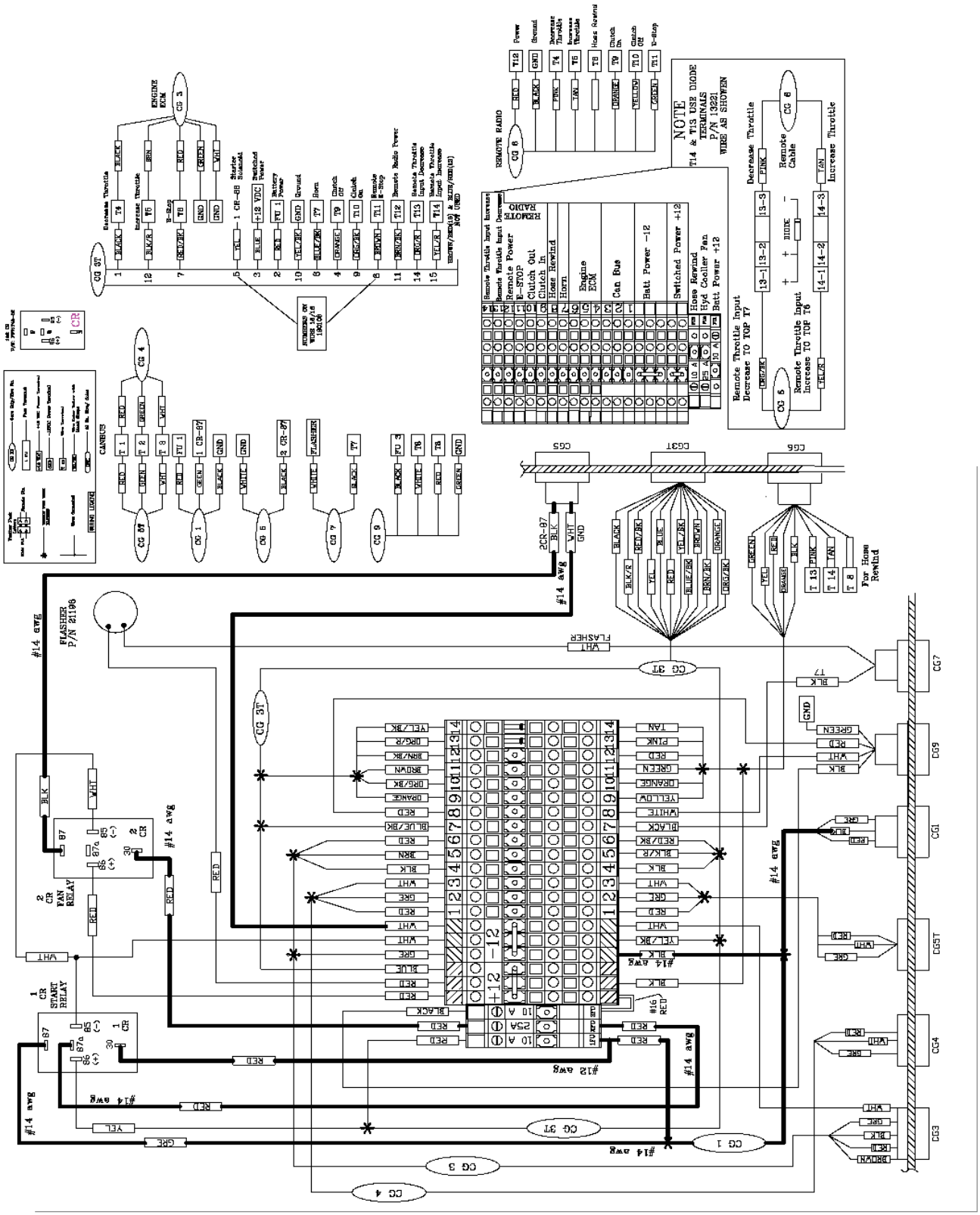
WHEN ORDERING PARTS, BE SURE TO STATE SERIAL NUMBER OF MACHINE

CONTROL BOX WIRING (EXTERNAL)



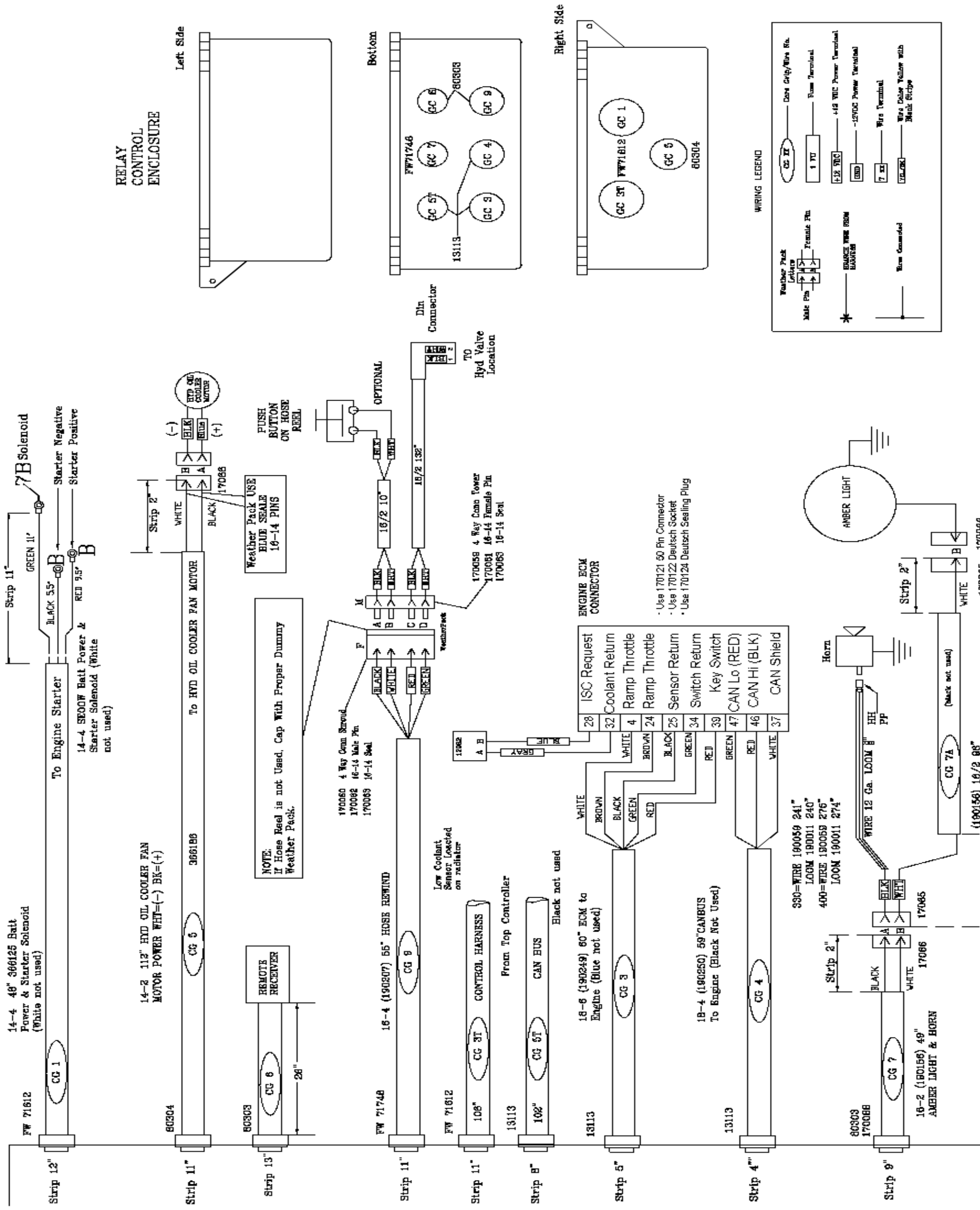
WHEN ORDERING PARTS, BE SURE TO STATE SERIAL NUMBER OF MACHINE

RELAY BOX WIRING



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

RELAY BOX WIRING

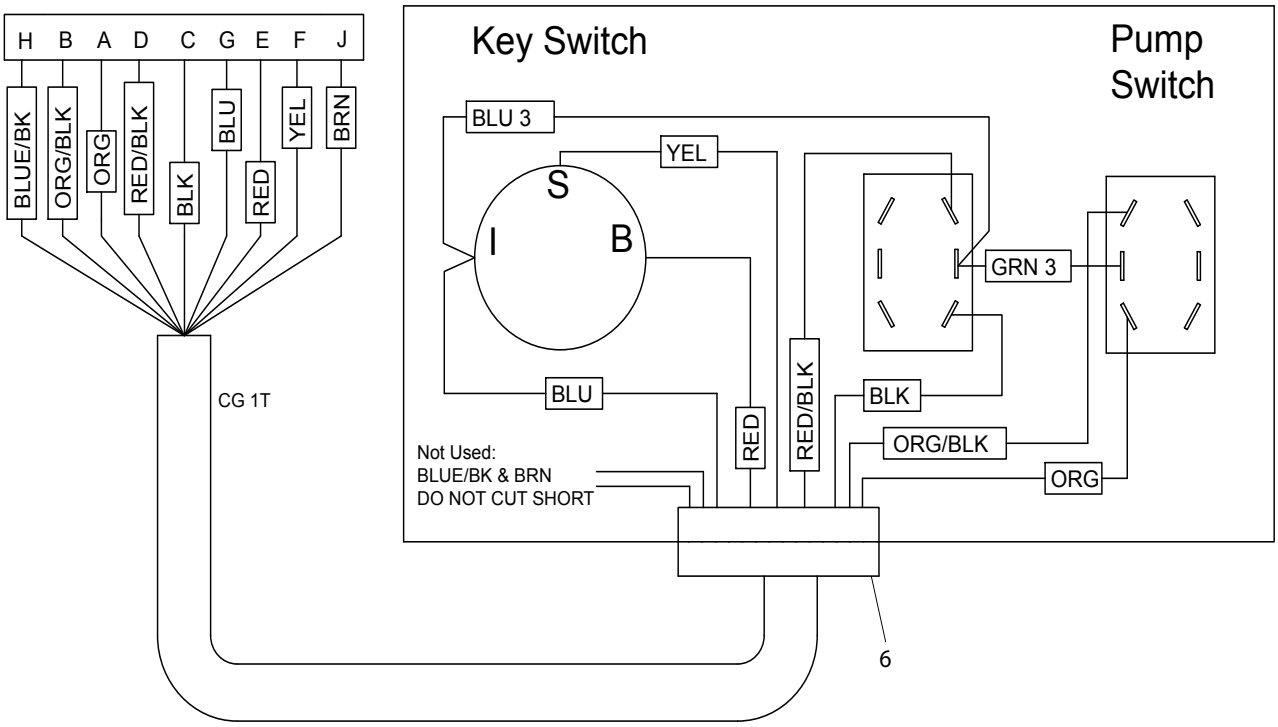


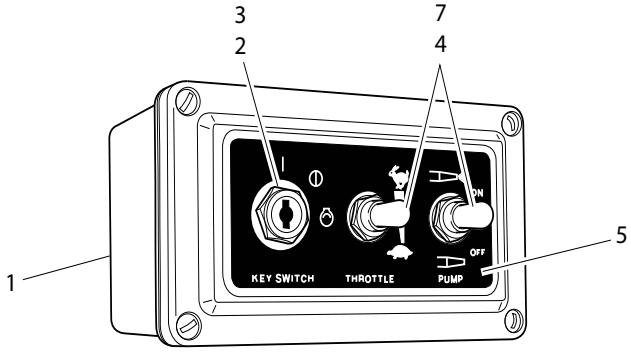
WHEN ORDERING PARTS, BE SURE TO STATE SERIAL NUMBER OF MACHINE

RELAY BOX WIRING

Part Number	Description	No. Required
010531	Toggle Switch	1
012825	Flasher Mounting Bracket	1
013070	DIN Rail End Bracket	1
013218	Jumper Bar	4
013217	3-Pole Terminal Block	15
013074	Terminal Block End Cover	1
013075	Terminal Block w/ Fuse	3
013099	Relay Box	1
013100	Relay Box Sub-Panel	1
013103	25-Amp Fuse	1
021198	Flasher	1
055449	10-Amp Fuse	1
080526	Switch Boot	1
FW71749-02	30-Amp Relay	2

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

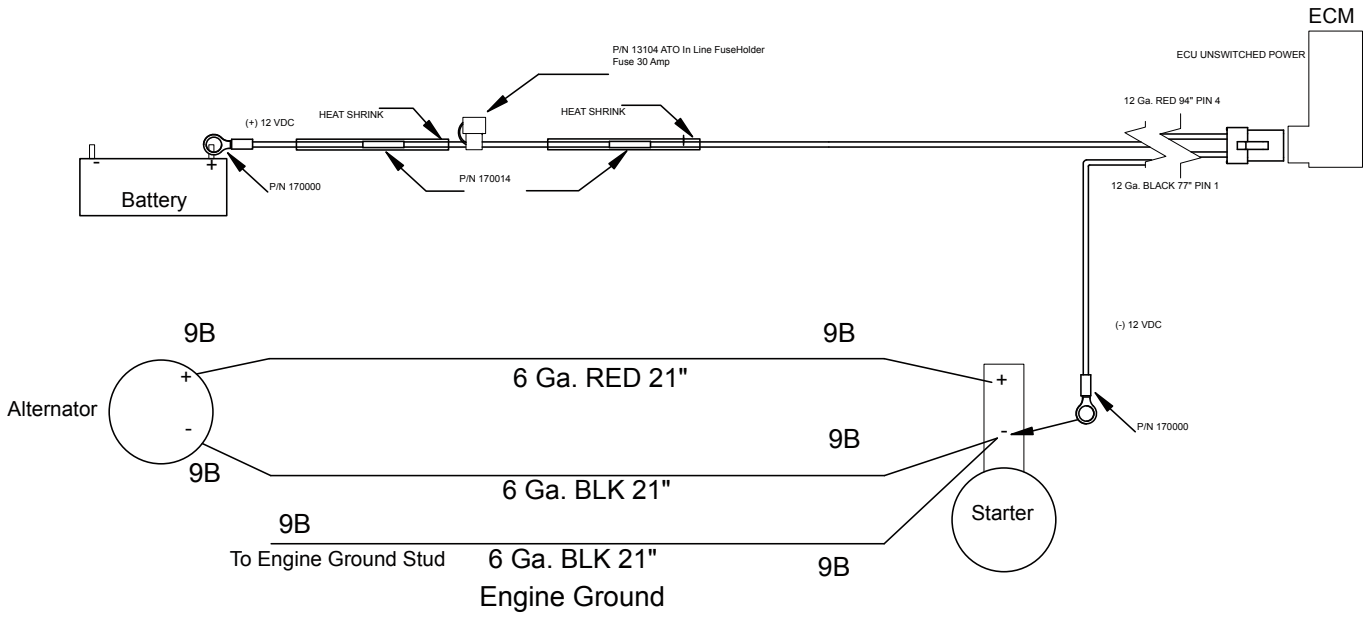




GROUND LEVEL CONTROLS

Ref. No.	Part Number	Description	No. Required
1	012792	Ground Level Control Box	1
2	052076	Ignition Switch	1
3	023076	Key For Ignition Switch	1
4	FW71555	Toggle Switch	2
5	012759-02	Ground Level Control Box Decal	1
6	080304	Water Tight Fitting	1
7	080526	Switch Boot	2
		NOT ILLUSTRATED	
	012775	Ground Level Controls Wiring	1

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



ENGINE WIRING HARNESS

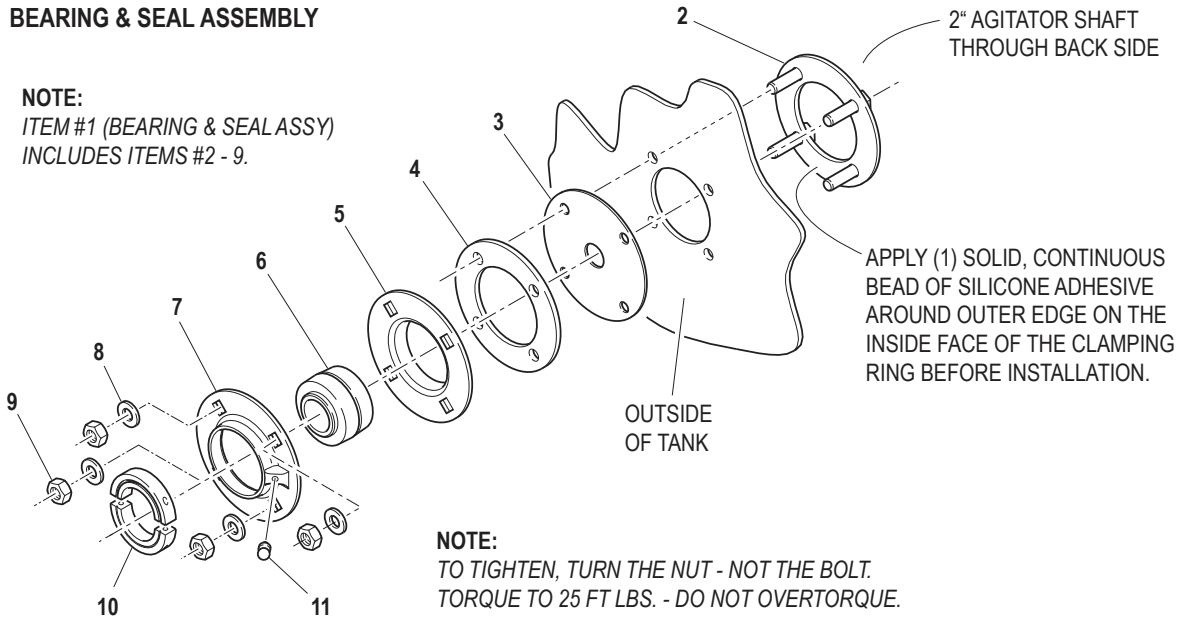
Part Number	Description	No. Required
013104	In-Line Fuse Holder	1
052119	30-Amp Fuse	1

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

AGITATOR AND SEAL ASSEMBLY

BEARING & SEAL ASSEMBLY

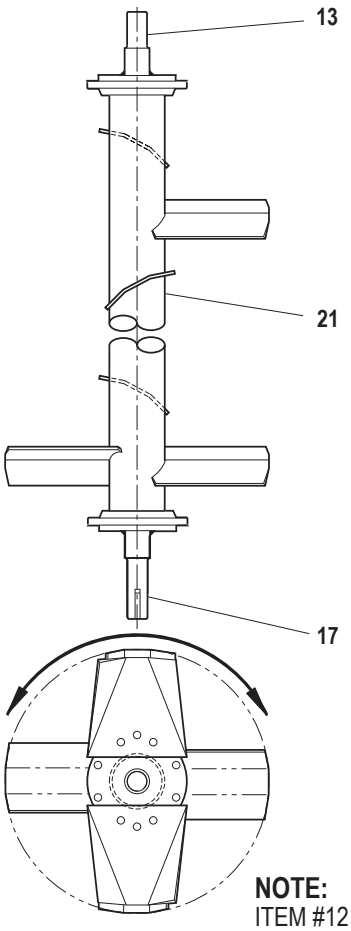
NOTE:
ITEM #1 (BEARING & SEAL ASSY)
INCLUDES ITEMS #2 - 9.



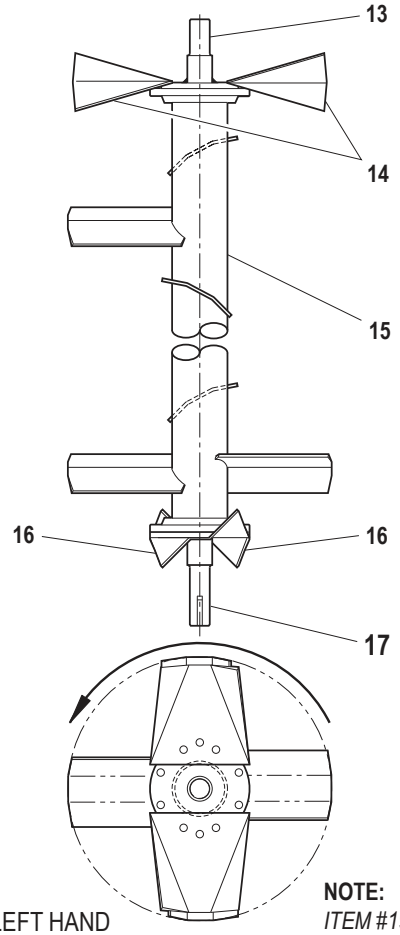
NOTE:
TO TIGHTEN, TURN THE NUT - NOT THE BOLT.
TORQUE TO 25 FT LBS. - DO NOT OVERTORQUE.

DRIVE END AGITATOR ASSEMBLIES

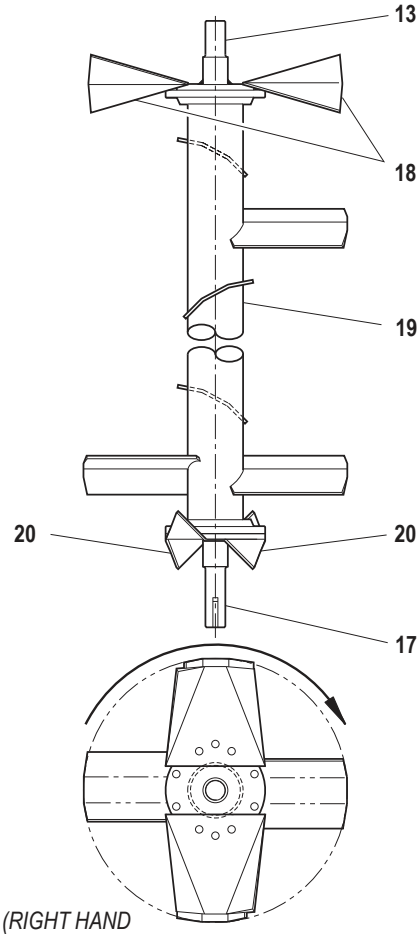
UPPER LEFT-HAND AGITATOR
(Optional)



LOWER LEFT-HAND AGITATOR



RIGHT-HAND AGITATOR



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

NOTE:
ITEM #19 (RIGHT HAND
AGITATOR ASSEMBLY)
INCLUDES ITEMS #20 - 23.

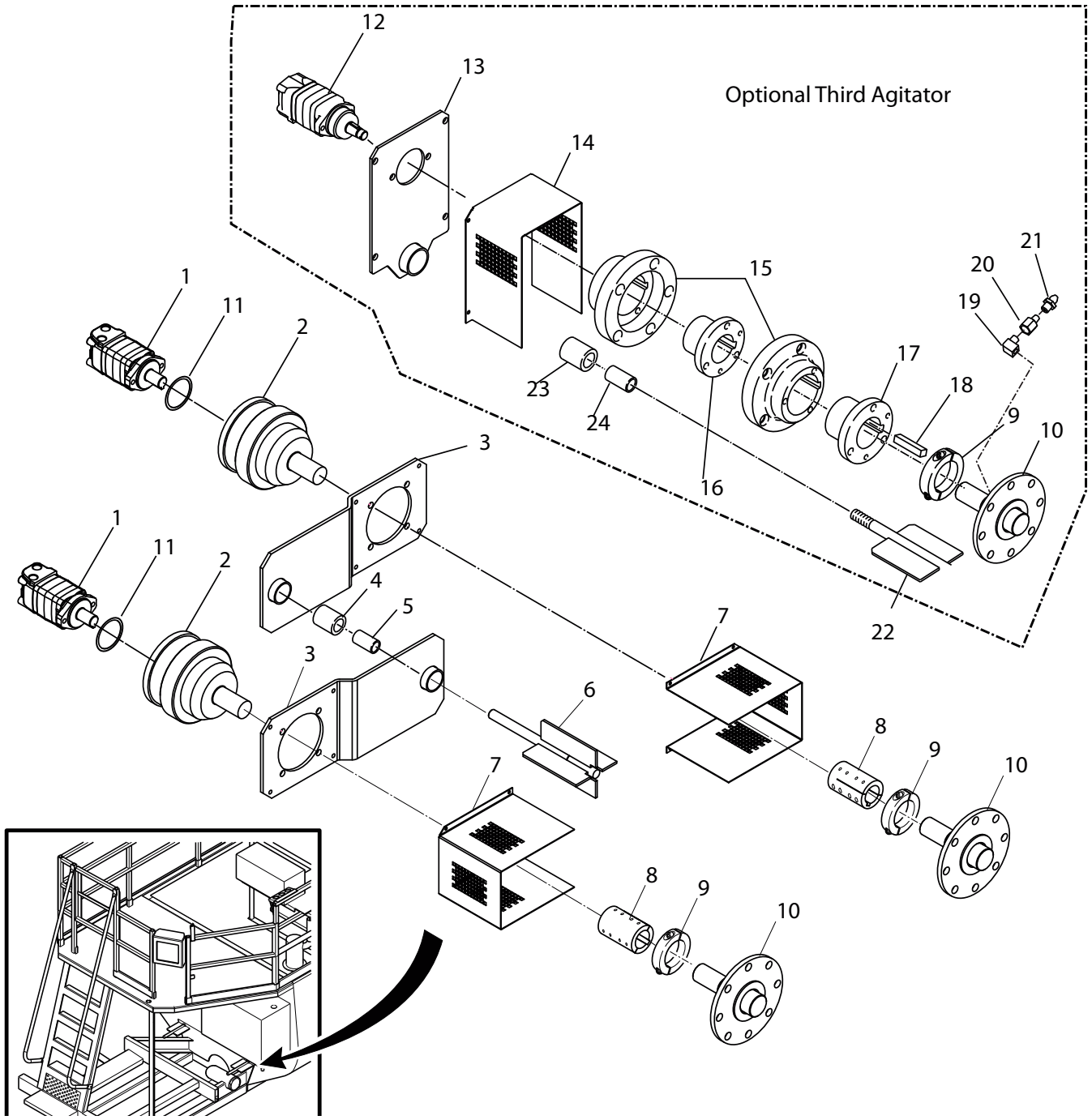
WHEN ORDERING PARTS, BE SURE TO STATE SERIAL NUMBER OF MACHINE

AGITATOR AND SEAL ASSEMBLY

Ref. No.	Part Number	Description	No. Required
1	012529	Bearing and Seal Assembly	2 per
2	012527	Inner Clamping Ring w/Studs	1 per
3	012528	Agitator Shaft Seal	1 per
4	012525	Outer Clamping Ring	1 per
5	012451	Flangette	1 per
6	012450	2 in. Dia. Ball Bearing	1 per
7	012452	Flangette w/Lube Coupling	1 per
	008154	Lube Coupling Adapter	1 per
8	012605	Agitator Seal Washer	4 per
9	000Y08	Agitator Hex Nut	4 per
10	012625	2 in. Split Lock Collar	2 per
11	007705	Grease Fitting	2 per
	022407	Grease Line Elbow	2 per
	012520	Bulk Head Fitting	2 per
	012521	Grease Line Hose - Lower Agitator	2 per
	012956-16	Grease Line Hose - Upper Agitator (Optional)	2 per
13	012496-01	Idle Stub Shaft	1 per
14	F330-0010-01	Bolt-On Paddle	2 per
15	012501-02	Left-Hand Agitator Section (TITAN280)	1 per
	012500-02	Left-Hand Agitator Section (TITAN330)	1 per
	SE0064-03-02	Left-Hand Agitator Assembly (TITAN400)	1
16	F330-0010-02	Bolt-On Paddle	2 per
17	012495-01	Drive Stub Shaft	1 per
18	F330-0010-01	Bolt-On Paddle	2 per
19	012501-01	Right-Hand Agitator Section (TITAN280)	1 per
	012500-01	Right-Hand Agitator Section (TITAN330)	1 per
	SE0064-03-01	Right-Hand Agitator Assembly (TITAN400)	1
20	F330-0010-02	Bolt-On Paddle w/Identification Hole	2 per
21	013037	Third Agitator (TITAN280) (Optional)	1 Per
	SE0181-03	Third Agitator (TITAN 330) (Optional)	1 per
	SE0224-01	Third Agitator (TITAN400) (Optional)	1 per

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

HYDRAULIC AGITATOR DRIVE



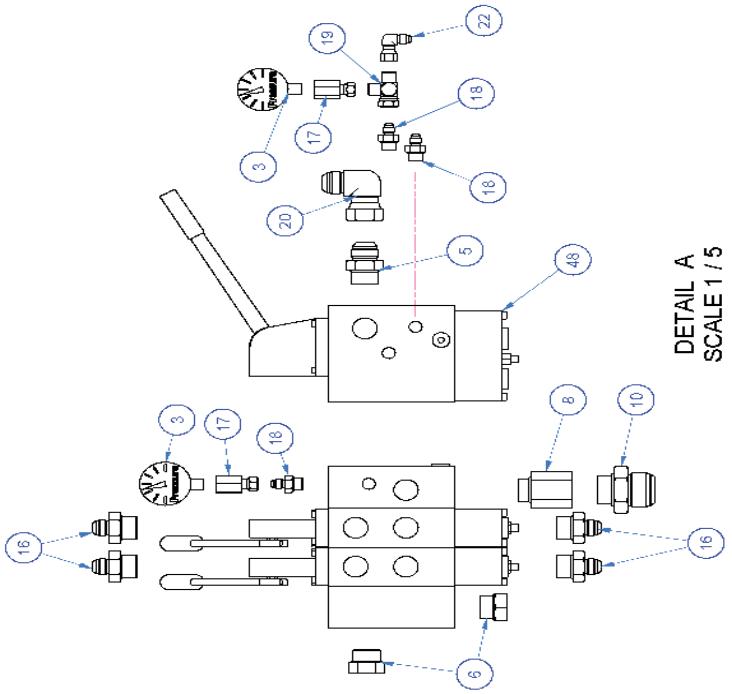
WHEN ORDERING PARTS, BE SURE TO STATE SERIAL NUMBER OF MACHINE

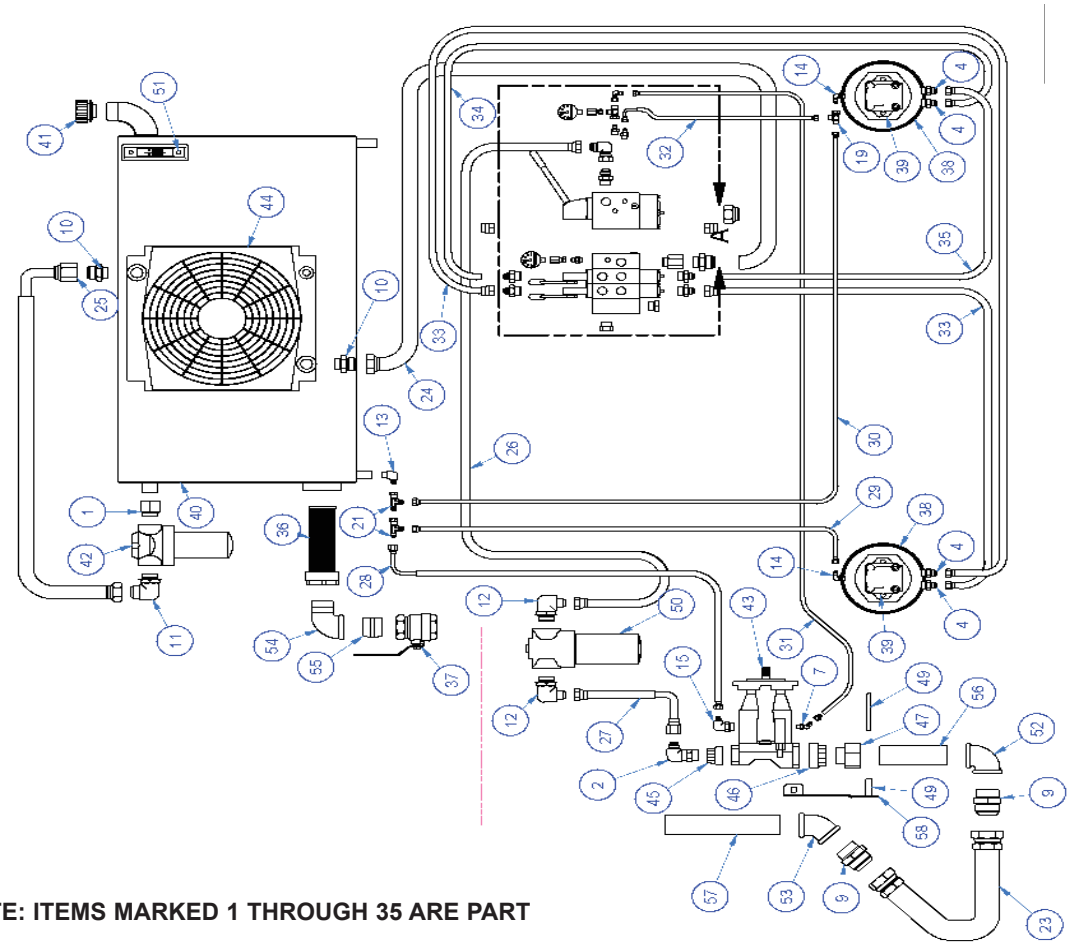
HYDRAULIC AGITATOR DRIVE

Ref. No.	Part Number	Description	No. Required
1	012892	Hydraulic Motor	2
	023295-006	Seal Kit for 012892	1
2	012881	Auburn Gearbox	2
	012881-S	Oil Shaft Seal	1
3	F400-0008	Torque Arrestor Plate	2
4	012522-02	Rubber Bushing	2
5	012522-04	Torque Arm Insert	2
6	012930	Torque Arm Weldment	Ref
7	F400-0019	Coupling Guard	2
8	053023	2 in. x 2 in. ID Steel 2 Piece Coupling	2
9	012625	Splitcollar	3
10	012496-01	Idle Stub Shaft	3
11	013060	O-ring	2
12	055698	Hydraulic Motor	1
13	SE0181-08	Hydraulic Motor Mnt.	1
14	F330-0029	Agitator Coupling Guard	1
15	011780	Coupling	1
16	010059	Bushing w/ 1 in. Bore	1
17	055103	Bushing w/ 2 in. Bore	1
18	190127-40	Key	1
19	022407	1/8M NPT X 18F NPT-90	6
20	008154	Adapter Male to Female	6
21	007705	Grease Fitting 1/8 in.	6
22	012377	Torque Arm Weldment	Ref
23	012522-02	Rubber Bushing	1
24	012522-04	Torque Arm Insert	1

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

HYDRAULIC SYSTEM





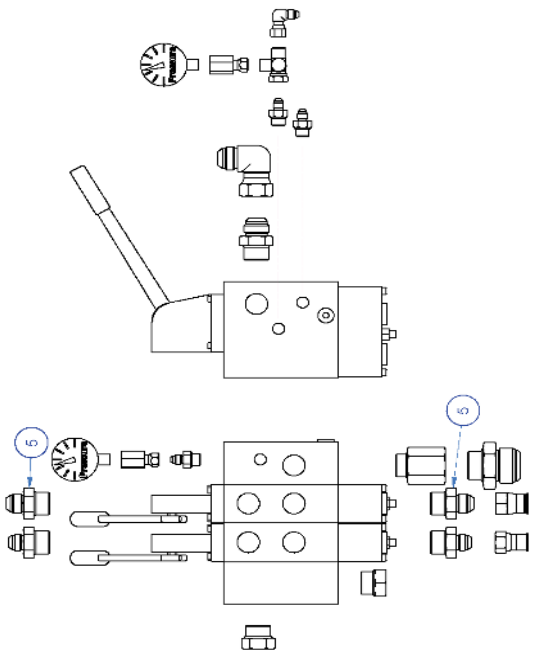
NOTE: ITEMS MARKED 1 THROUGH 35 ARE PART OF HYDRAULIC HOSE AND FITTING KIT NUMBER 13199

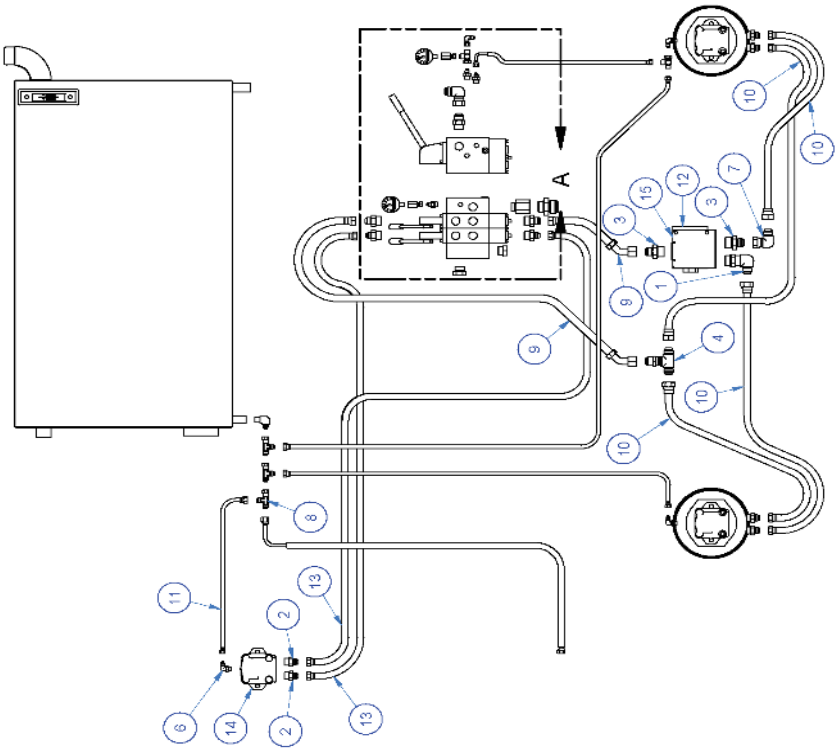
WHEN ORDERING PARTS, BE SURE TO STATE SERIAL NUMBER OF MACHINE

HYDRAULIC SYSTEM

Ref. No.	Part Number	Description	No. Required
1	008708	Lenz #20-APC	1
2	011932	Lenz #A3405-12-16	1
3	012044	Pressure Gauge #CF-5000-25	2
4	012086	Lenz #A3105-8-10 (Midstate #6400-08-10)	4
5	012087	Lenz #A3105-12-12	1
6	012362	Lenz #12 STP Plug	2
7	012516	Lenz #A3355-4 45° Elbow	1
8	013000	Lenz #12-16ARC (Midstate #6410-12-16)	1
9	013114	Lenz #3105-32-32 (Air-Way #2404-32-32)	2
10	013164	Lenz #A3105-20-20 (Midstate #6400-20-20)	3
11	052401	Lenz #A3405-20-20 (Midstate #6801-20-20)	1
12	053078	Lenz #A3405-12-20 (Midstate #6801-12-20)	2
13	055234	Lenz #3405-6-6	1
14	055274	Lenz #A3405-4-4	2
15	055309	Lenz #A3405-6-10 (Midstate #6801-6-10)	1
16	055359	Lenz# A3105-8-12	4
17	055757	Lenz #3255SW-4-4 (Midstate #6506-4-4)	2
18	FW65217	Lenz #A3105-4-6 (Midstate #6400-04-06)	3
19	FW65219	Lenz #3755SW-4	2
20	FW71492	Lenz #3505SW-12	1
21	FW71784	Lenz #3755SW-6 (Midstate #6602-6-6-6)	2
22	FW71909	Lenz #3505SW-4	1
23	013136-01	2" Suction Hose x 42-1/2" OAL w /#32 FJIC BE	1
24	013136-02	1-1/4" 100R4 Hyd. Hose x 34" OAL w/ #20 FJIC BE	1
25	013136-03	1-1/4" 100R4 Hyd. Hose x 55" OAL w/ #20 FJIC x #20 FJIC90	1
26	013136-04	3/4" 100R17 Hyd. Hose x 32" OAL w #12 FJIC BE	1
27	013136-06	3/4" 100R17 Hyd. Hose x 111" OAL w/ #12 FJIC x #12 FJIC90	1
28	013136-08	3/8" 100R17 Hyd. Hose x 92" OAL w/ #6 FJIC x #6 FJIC90	1
29	013136-10	1/4" 100R17 Hyd. Hose x 37" OAL w/ #4 FJIC x #4 FJIC90	1
30	013136-11	1/4" 100R17 Hyd. Hose x 41" OAL w/ #4 FJIC x #4 FJIC90	1
31	013199-01	1/4" 100R17 Hyd. Hose x 110" OAL w/ #4 FJIC BE	1
32	013199-02	1/4" 100R17 Hyd. Hose x 37" OAL w/ #4 FJIC x #4 FJIC90	1
33	013199-03	1/2" 100R17 Hyd. Hose x 26" OAL w/ #8 FJIC x #12 FJIC	2
34	013199-04	1/2" 100R17 Hyd. Hose x 26" OAL w/ #8 FJIC x #12 FJIC	1
35	013199-05	1/2" 100R17 Hyd. Hose x 26" OAL w/ #8 FJIC x #12 FJIC	1
36	011927	Suction Strainer	1
37	012287	2" Ball Valve	1
38	012881	Auburn Gearbox	2
39	012892	Hydraulic Motor	2
40	012894	Hydraulic Reservoir	1
41	013028	Breather Cap	1
42	013048	Hydac Low Pressure Filter Assembly	1
43	013117	Rexroth Hydraulic Pump	1
44	013119	AKG DC16S-12-TC115 Heat Exchanger	1
45	013190	Discharge Flange Pad	1
46	013139	Suction Flange Pad	1
47	013141	Lenz #24-32PRC Adapter	1
	013049	Low Pressure Filter Element	1
48	013190		1
49	020052	Clamp, Muffler - 2 1/2"	1
50	053077	Hydac Filter Ass'y #02071996	1
51	080329	Hydraulic Level Gauge	1
52	160016	2" 90° Std. Elbow	1
53	160042	2" Standard 45° Elbow	1
	008705		1
54	160068	2" 90° Street Elbow	1
55	160311	2" Stdandard Close Nipple	1
56	160586	2" Std. Close Nipple x 7" Lg.	1
57	160068	2" Std. Close Nipple x 12" Lg.	1
58	F400-0057	Hydraulic Pump Support	1

HYDRAULIC SYSTEM, THIRD AGITATOR





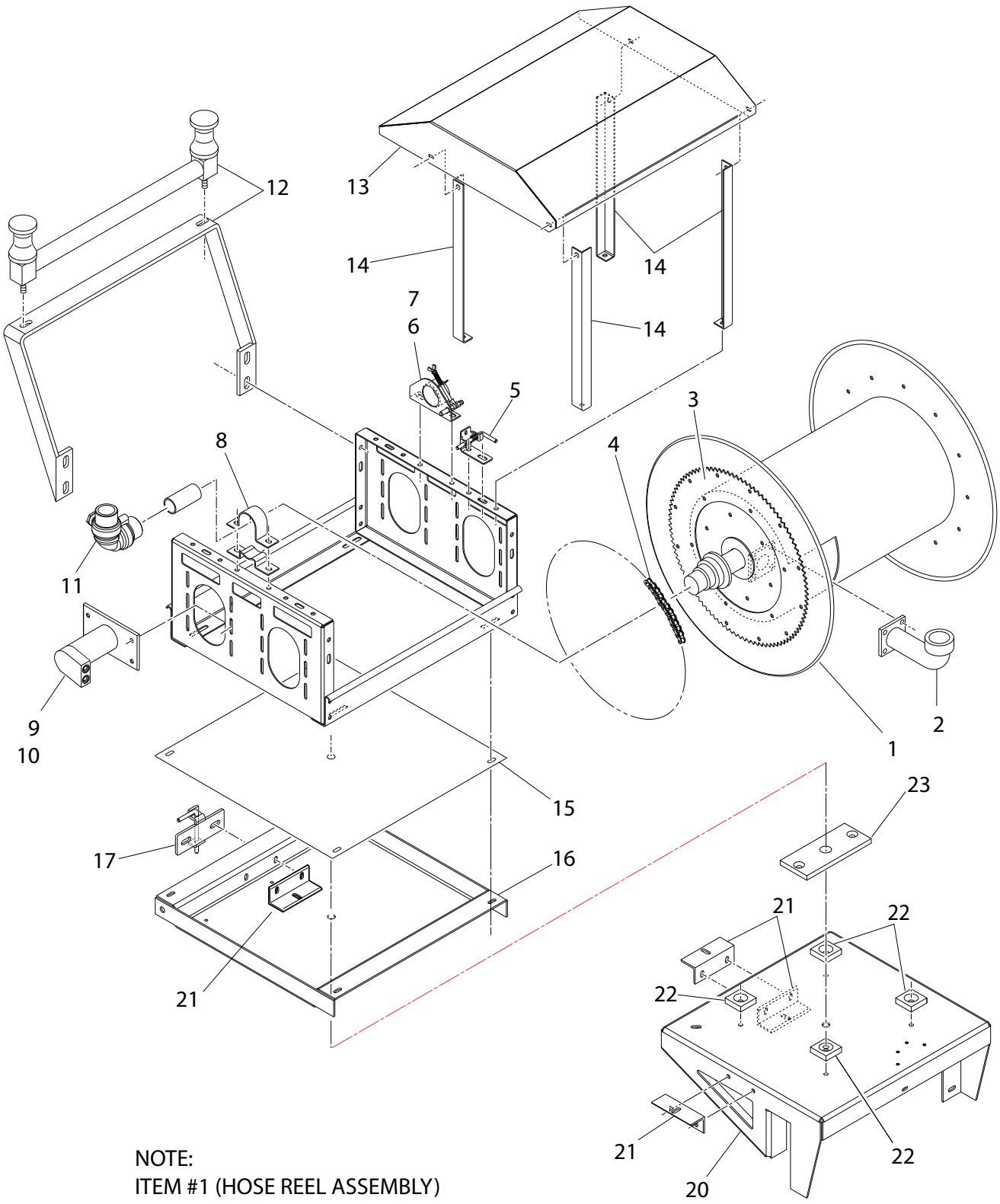
WHEN ORDERING PARTS, BE SURE TO STATE SERIAL NUMBER OF MACHINE

HYDRAULIC SYSTEM, THIRD AGITATOR

Ref. No.	Part Number	Description	No. Required
1	012086	MSAE-MJIC Adapter	2
2	055232	MSAE-MJIC Adapter	2
3	055274	MSAE-MJIC 90º Elbow	1
4	FW71784	JIC Run Tee	1
5	013162-01	1/4 in. Hyd. Hose x 55 in.	1
6	013162-02	1/2 in. Hyd. Hose x 69 in.	2
7	012945	Parker Hydraulic Valve	1
8	055698	Hydraulic Motor	1

NOTE: Items numbers 1 through 6 are part of hydraulic kit 013162

HOSE REEL ASSEMBLY



NOTE:
ITEM #1 (HOSE REEL ASSEMBLY)
INCLUDES ITEMS #2 - 10.

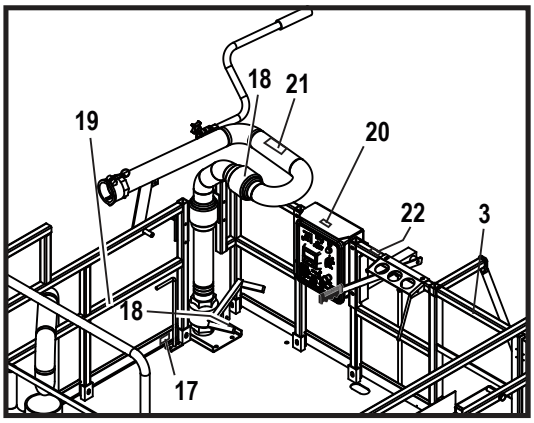
WHEN ORDERING PARTS, BE SURE TO STATE SERIAL NUMBER OF MACHINE

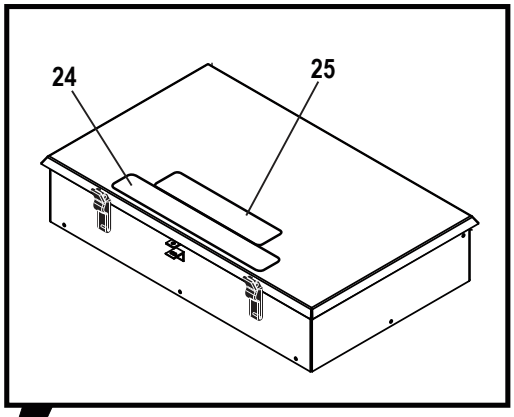
HOSE REEL ASSEMBLY

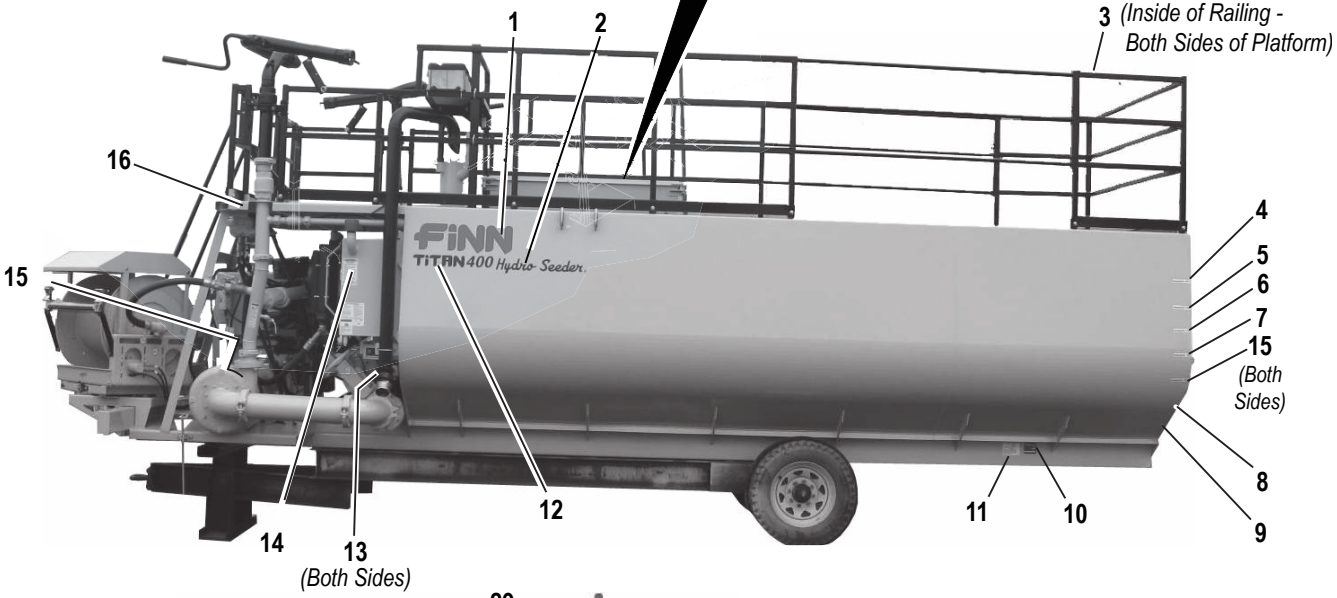
Ref. No.	Part Number	Description	No. Required
1	008212	Hose Reel and Swivel Assembly	1
2	080302	Flanged Riser	1
3	008144	Hose Reel Gear	1
4	008200	Hose Reel Chain - 69 in. Lg.	1
5	008433	Pinlock w/Brackets Assembly	1
6	008313	Idle Side Bearing	1
7	008111B	Brake Assembly	1
8	008314	Drive Side Bearing	1
9	008635	Hydraulic Motor	1
	008635-SK	Seal Kit for 008635	1
9A	008634	Motor Mount	1
10	008199	Chain Sprocket - 11 Tooth	1
11	003207	1-1/2 in. Dia. X 90 Degree Swivel Joint	1
12	011894	Hose Roller and Spool Guide	1
13	F330-0077	Hose Reel Canopy	1
14	F330-0094	Hose Reel Canopy Support	4
15	F330-0104	Hose Reel Mount Cover	1
16	F330-0017	Upper Hose Reel Bracket	1
17	052928	Pinlock w/Brackets Assembly	1
18	F330-0018	Lower Hose Reel Bracket	1
19	012781	Hose Reel Lock Angle	3
20	012798	Hose Reel Bearing Block	4
21	012860	Hose Reel Pinlock Support Weldment	1

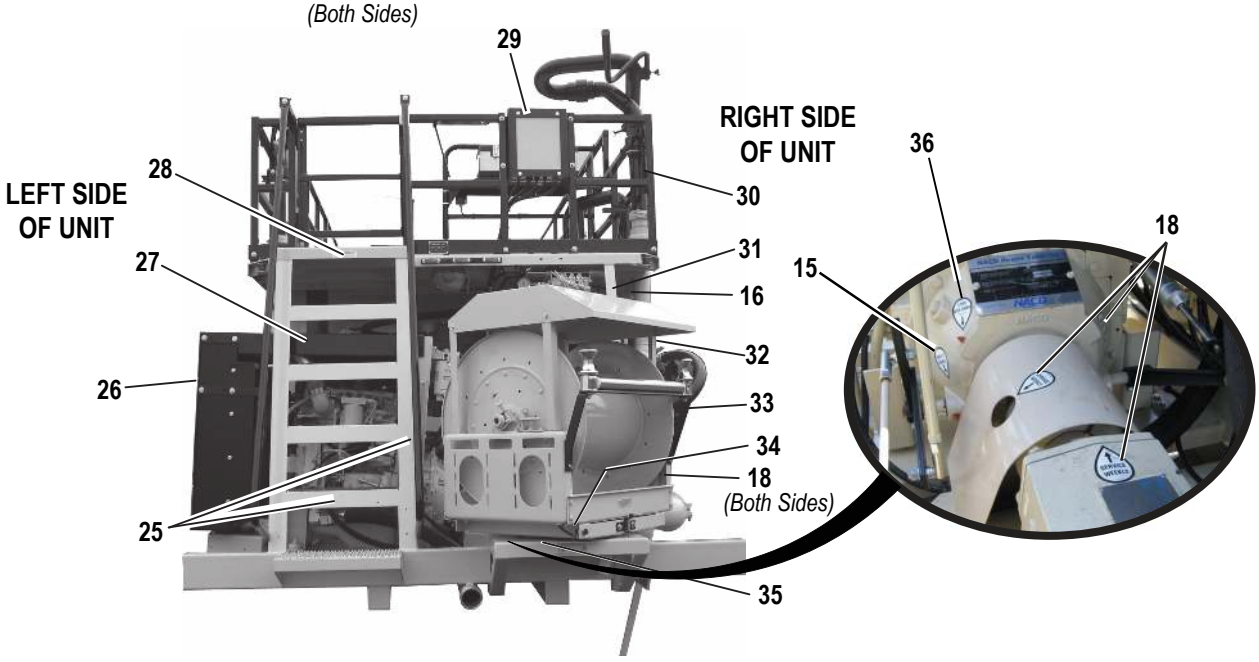
WHEN ORDERING PARTS, BE SURE TO STATE SERIAL NUMBER OF MACHINE

DECALS









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

DECALS

Ref. No.	Part Number	Description	No. Required
	012820	TITAN280/TITAN330/TITAN400 Decal Sheet	1
1	023174**	"FINN" Decal	2
2	011595**	"HydroSeeder®" Decal	2
3	012821	"Fall Hazard" Decal	3
4	011793	"3,000 Gallon" Decal *(TITAN330 Only)*	1
5	011792	"2,500 Gallon" Decal	1
6	011791	"2,000 Gallon" Decal	1
7	011790	"1,500 Gallon" Decal	1
8	005188	"1,000 Gallon" Decal	1
9	005186	"500 Gallon" Decal	1
10	011690**	FINN Nameplate	1
11	011662**	"U.S. Patent No." Decal	1
12	012661-08**	"TITAN400" Decal	2
	012661-01**	"TITAN330" Decal	2
	012661-02**	"TITAN280" Decal	2
13	012179	"WARNING! Do Not Operate . . ." Decal	2
14	012687	"CAUTION. Hydraulic System Instructions" Decal	1
15	007231-01	"Service Weekly" Decal	3
16	007230-01	"Service Daily" Decal	1
17	012819	"BLEEDER VALVE - Open/Close" Decal	2
18	007231	"Service Weekly" Decal	7
19	012817	"RECIRCULATION VALVE - Close/Open" Decal	1
20	005735	"VALVE - Open/Closed" Decal	1
21	011567	"DANGER! Electrocution Hazard . . ." Decal	1
22	012818	"CLUTCH - Engage/Disengage" Decal	1
23	012886-02	"DANGER! Confined Space Hazard . . ." Decal	1
24	012041-01	"HydroSeeder® Operating Instructions . . ." Decal	1
25	012278	"DANGER! HOT EXHAUST!" Decal	2
26	031462	"WARNING! Burn Hazard . . ." Decal	1
27	031463	"WARNING Sever Hazard . . ." Decal	1
28	012688	"CAUTION. Fall Hazard!" Decal	1
29	020970	"CAUTION. Do Not Ride . . ." Decal	1
30	012597	"IMPORTANT - This is a Tank Vent . . ." Decal	2
31	011569	"CAUTION. Hose Reel Remote . . ." Decal	1
32	012272	"HYDRAULIC FLUID ONLY" Decal	1
33	005216	"DANGER! Do Not Use Remote . . ." Decal	1
34	012180	"Tighten Suction Cover . . ." Decal	1
35	006869	"Pressure Lubricator" Decal	1
36	007351	"Hand Gun Only" Decal	1
		NOT ILLUSTRATED	
	023391*	"DIESEL FUEL ONLY" Decal	1

NOTES:

* *This Decal is located on the fuel tank on the left side of the unit.*

** *These Decals are not included on the 012820 Decal Sheet.*

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TOOL KIT

Part Number	Description	No. Required
410121-05	Titan Tool Kit	1
011775	Nozzle 2 1/2 in. Long Distance	1
021741	12 in. Whip Hose W/1/8 in. Male Ends	1
021375	Grease Gun (Hose Not Included)	1
012305	Adhesive Label (Removal Aerosol Can)	1
020365	Multi Puprose Grease	1
012681A	FINN Beige Aerosol Paint	1
006532	Coupler Gasket 3 in.	1
041371	3 in. Evertite Dust Cap-Brass	1
012992	Titan Nozzle Adapter Assembly	1
002427	Adapter 3 in. Male Brass	1
160776	Reducer Bushing 3 in. x 2-1/2 in. Galvanized	1
160313	Close Nipple 2-1/2 in. STD	1
013035	Coupler Female 2-1/2 in.	1
012993	Titan Long Distance Nozzle Assembly	1
001042	Brass Nozzle 1-1/2 in. Long Distance	1
160309	Close Nipple 1-1/2 in. STD Galvanized	1
002427	Male Brass Adapter 3 in.	1
160774	Reducer Bushing 3 in. x 1-1/2 in. Galvanized	1
012994	Titan Wide Fan Nozzle Assembly	1
06604	Veejet Brass Nozzle	1
002427	Male Brass Adapter 3 in.	1
160772	Reducer Bushing 3 in. x 1 in. Galvanized	1
012995	Titan Narrow Fan Nozzle Assembly	1
006605	Veejet Brass Nozzle	1
002427	Male Brass Adapter 3 in.	1
160772	Reducer Bushing 3 in. x 1 in. Galvanized	1
012996	Titan Wide Fan Nozzle Assembly	1
011861	Veejet Brass Nozzle	1
002427	Male Brass Adapter 3 in.	1
160775	Reducer Bushing 3 in. x 2 in. Galvanized	1
012997	Titan Narrow Fan Nozzle Assembly	1
011860	Veejet Brass Nozzle	1
002427	Male Brass Adapter 3 in.	1
160775	Reducer Bushing 3 in. x 2 in. Galvanized	1
000698	Grease, 1 lb Tub	1
007469	Lube Sticks, Box of 24	1

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TITAN SPARE PARTS LIST

Part Number	Description	No. Required
013028	Hydraulic Reservoir Cap	1
008705	High Pressure Hydraulic Filter Element	1
013049	Low Pressure Hydraulic Filter Element	1
CU-LF3970	Oil Filter	1
CU-FF5612	Fuel Filter	1
023910	Safety Air Filter	1
023076	Ignition Key	2
002439	3 in. Victaulic Pipe Gasket	2
006722	1-1/4 in. Victaulic Pipe Gasket	2
041368G	6 in. Victaulic Pipe Gasket	2
041371	Dust Cap 3 in. Main Tank Drain	2
005726	Fuel Cap	1
006532	3 in. Nozzle Coupler Gasket	6
012529	2 in. Bearing Assemby	2
013043	Swivel Kit	1
012783	Clutch Assy 11 1/2 in.	1

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