



3/8 Special Skid User Manual



Rev 1- 03/21/2018

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ventureseq.com

Dear Customer,

Please make a note of;

Machine Date of purchase.....

Machine serial number.....

Please familiarize yourself with, and understand the operation of this equipment by reading the information contained in this manual.

Contents	Page
Section 1 - General Safety information.....	4
Danger	4
Section 2 - Machine Description.....	5
Operation / Function	5
Machine illustrations.....	6
Pumping Section	6
Pump Assembly	8
Vibrator Tray Assembly	9
Drive Line Assembly	10
Controls and switches.....	11
Section 3 –Transportation and pre-operation checks.....	13
Overview.....	13
Drive system.....	13
Engine exhaust and ventilation	13
Engine oil level	14
Hydraulic fluid.....	14
Fuel level.....	15
Battery	16
Cooling fan	16
Cooling fan	16
Pumping unit.....	17
Section 4 – Machine operation	19
Startup.....	19
Shut Down.....	19
Operation	20
General notes for operation	20
Section 5 – Simple maintenance and cleaning.....	22
Seal Greasing	22
Grease seal replacement and UJ removal.....	23
Engine Maintenance.....	24
Hydraulic system Maintenance	25
Section 6 - Winterization.....	25
Battery	25
Section 7 – Notes on wear of rotor / stator pump unit.....	26
Stator adjustment	26
Wear issues.....	26
LIMITED WARRANTY POLICY	27

Section 1 - General Safety information

Danger

Follow these instructions very carefully in order to avoid injury to yourself or others.

The 3/8 Special concrete pump creates large amounts of torque and pressure during operation from both the pumping unit and from the hydraulic power source. Take appropriate safety precautions to avoid injury to self, the operator and to persons nearby.

Wear safety clothing and eye protection when operating, maintaining or working nearby this equipment.

Gas / Hydraulic powered machine. Always ensure that the machine is not running and that all parts are stationary before ANY maintenance / repair work is carried out on the machine.

During and after operation the machine is HOT. Ensure that the unit has fully cooled before attempting any maintenance, fluid changes, fuel refilling, or other procedures.

Ensure that all guards are correctly fitted before starting or attempting to operate the machine.

Ensure that all fasteners are present and correctly fitted before attempting to start or operate the machine.

Ensure that all components of the machine are present, properly attached and free of damage before attempting to start or operate the machine.

Authorized persons ONLY can use this machine.

Section 2 - Machine Description

Operation / Function

The 3/8 Special concrete pump uses a gas driven engine to power a hydraulic system, which turns a hydraulic drive motor to turn a driveshaft within the concrete pumping hopper. The driveshaft turns a rotor stator pump, attached to the front of the hopper, which moves the material through a hose to the location of utilization.

The machine is driven by an electric start, 37 HP gas engine with an 8-gallon fuel tank, driving a hydraulic pump.

The closed hydraulic system contains a cyclonic reservoir, solenoid operated control valves, return filter and cooler unit. The total volume of the oil hydraulic system can be refilled / replaced from a 5-gallon container.

The hydraulic solenoid valves via the electronic Pump Control Panel provide control of the hydraulic motor in a maintained forward, non-maintained reverse and rotational speed.

The hydraulic motor transmits its rotary action through a universal joint coupling to the drive shaft that is equipped with directional flighting, helping to convey and mix the material as it travels towards the rotor stator pumping unit.

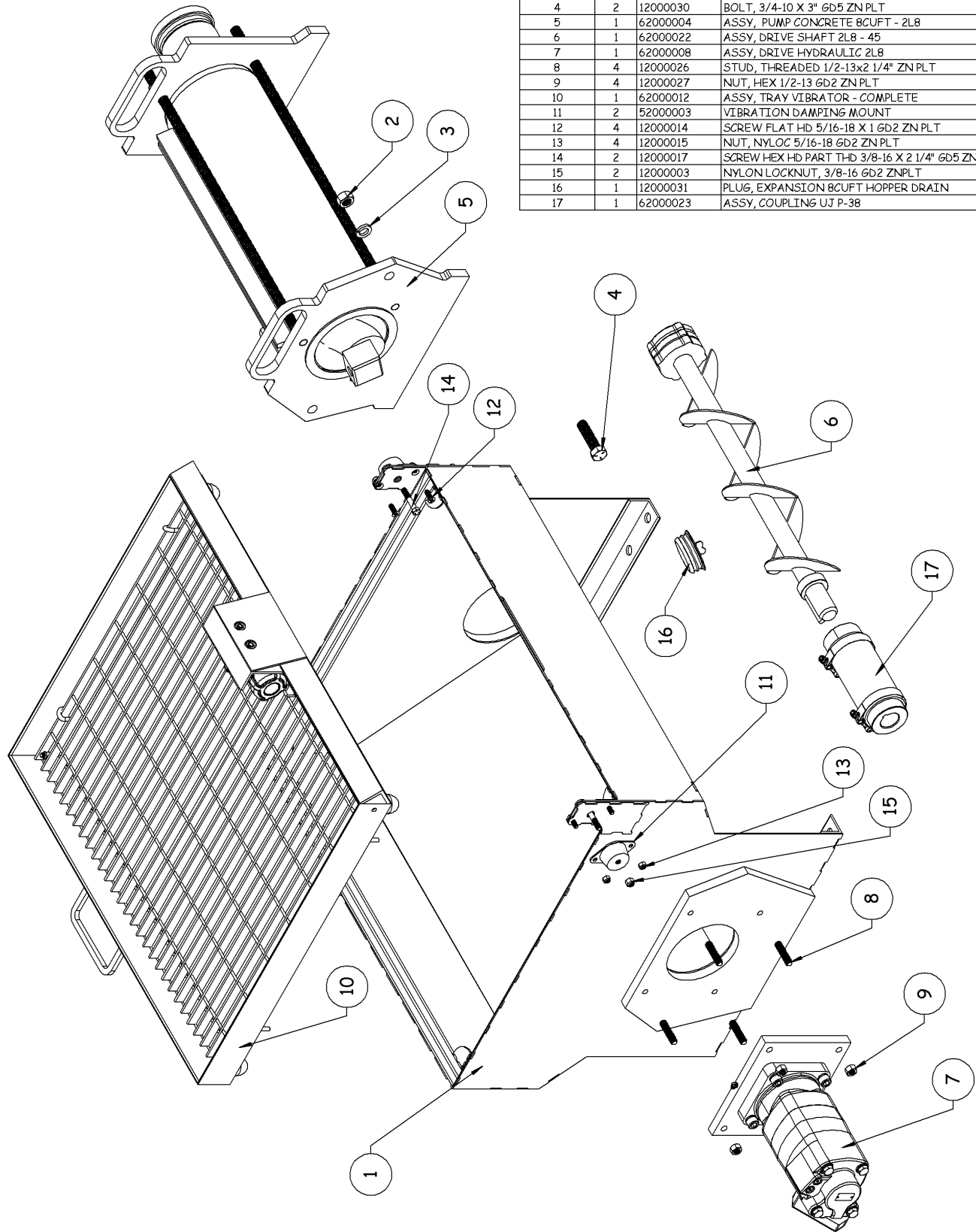
The pumping unit is a progressive cavity “rotor / stator” pump unit comprised of a helical rotating “rotor” with the rubber lined “stator”. As material is drawn / fed into the pumping unit it is moved through a series of cavities that progress from one end to the other, causing the material to be moved towards the outlet.

Once the material has reached the outlet it is guided through a reducer via a std. 4” concrete flange connection into the dispensing hose through to the hose outlet where the material is applied.

A number of different devices can be fitted to the outlet of the tube for different means of application. For details of these different devices please contact Ventures Equipment directly.

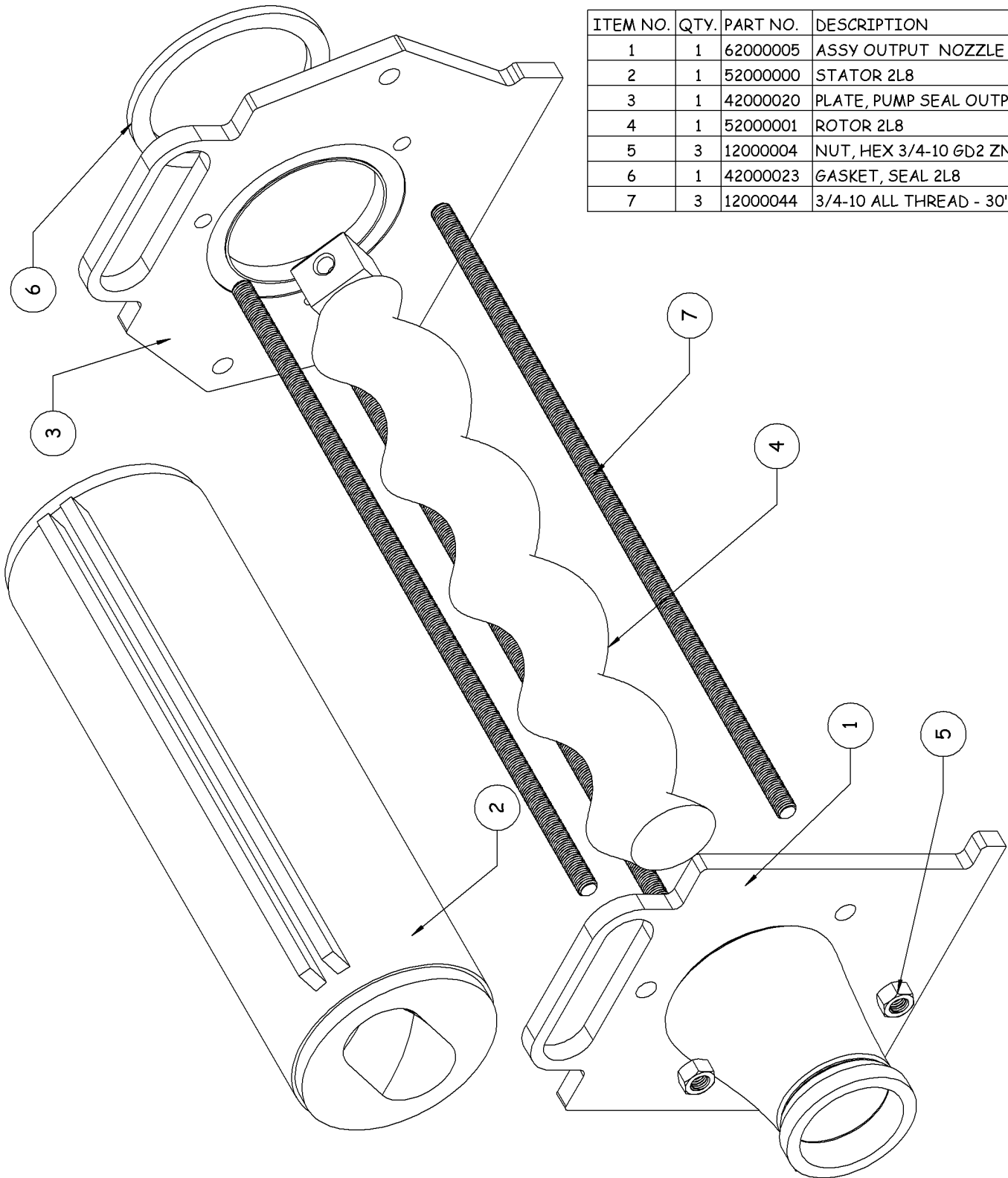
Machine illustrations

Pumping Section



ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	1	62000001	ASSY, HOPPER 8CUFT
2	2	12000004	NUT, HEX 3/4-10 6D2 ZNPLT
3	2	12000029	WASHER, SPLIT 3/4 - GALV
4	2	12000030	BOLT, 3/4-10 X 3" 6D5 ZN PLT
5	1	62000004	ASSY, PUMP CONCRETE 8CUFT - 2L8
6	1	62000022	ASSY, DRIVE SHAFT 2L8 - 45
7	1	62000008	ASSY, DRIVE HYDRAULIC 2L8
8	4	12000026	STUD, THREADED 1/2-13x2 1/4" ZN PLT
9	4	12000027	NUT, HEX 1/2-13 6D2 ZN PLT
10	1	62000012	ASSY, TRAY VIBRATOR - COMPLETE
11	2	52000003	VIBRATION DAMPING MOUNT
12	4	12000014	SCREW FLAT HD 5/16-18 X 1 6D2 ZN PLT
13	4	12000015	NUT, NYLOC 5/16-18 6D2 ZN PLT
14	2	12000017	SCREW HEX HD PART THD 3/8-16 X 2 1/4" 6D5 ZNPLT
15	2	12000003	NYLON LOCKNUT, 3/8-16 6D2 ZNPLT
16	1	12000031	PLUG, EXPANSION 8CUFT HOPPER DRAIN
17	1	62000023	ASSY, COUPLING UJ P-38

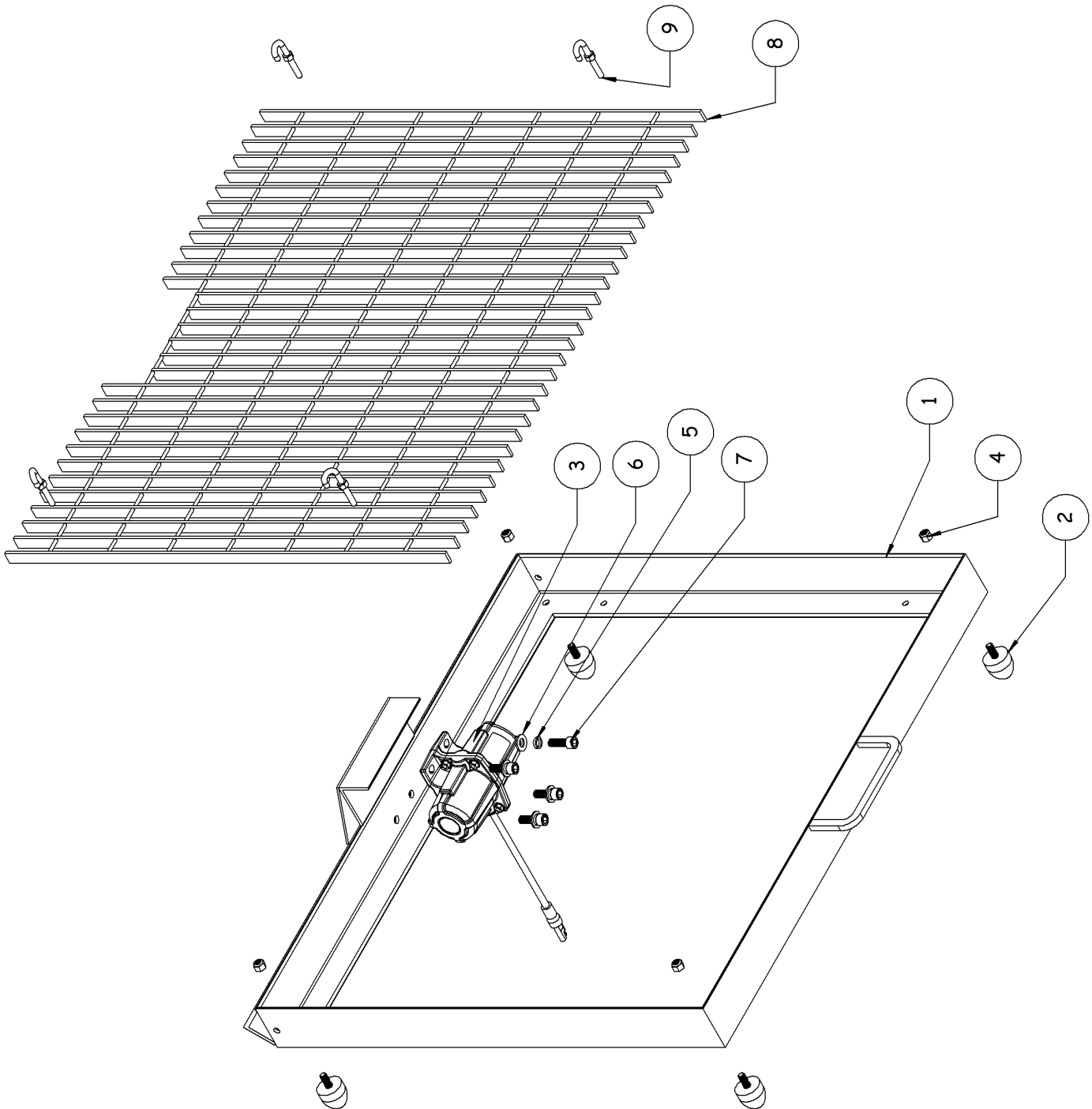
Pump Assembly



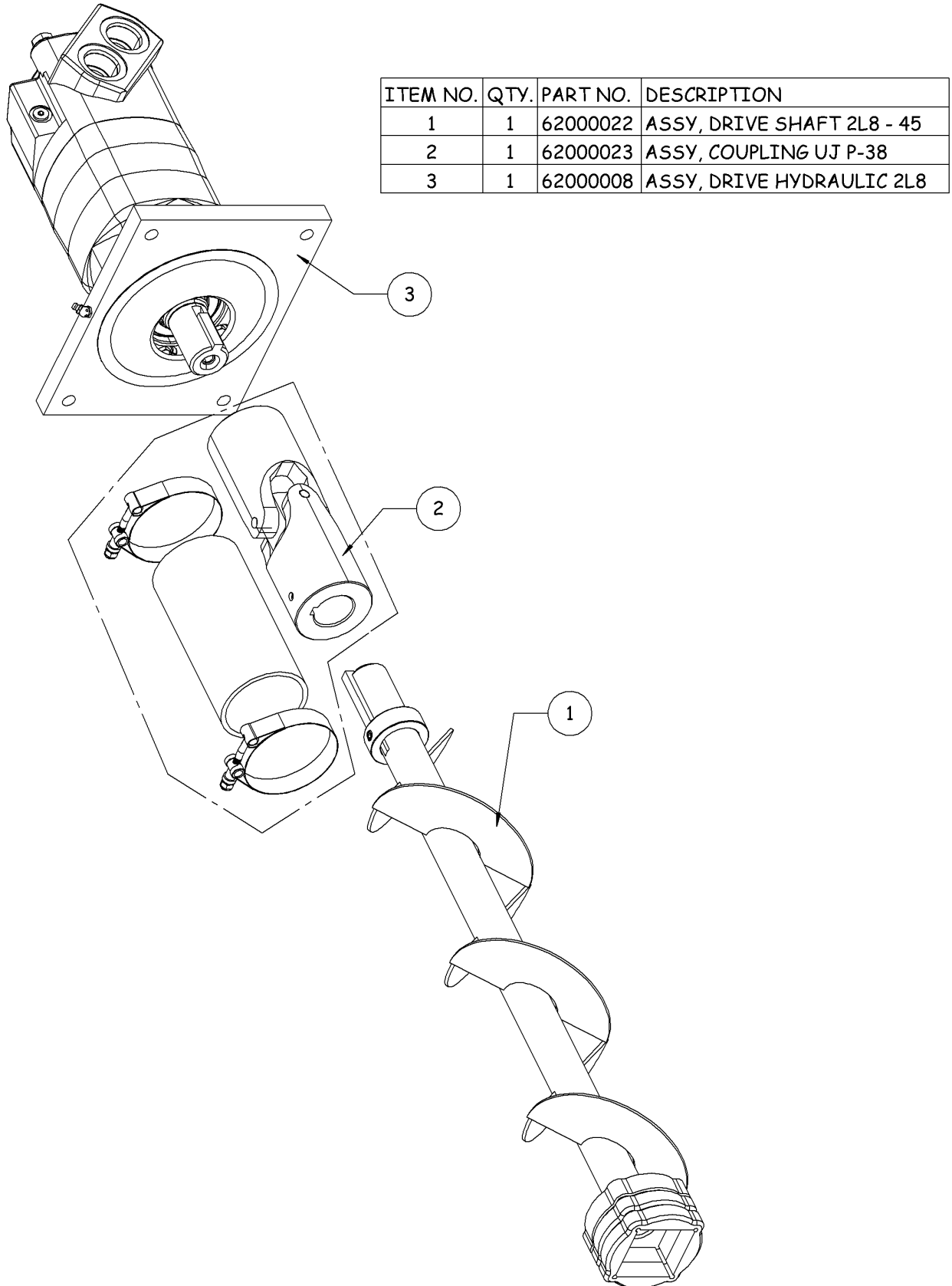
ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	1	62000005	ASSY OUTPUT NOZZLE 2L8
2	1	52000000	STATOR 2L8
3	1	42000020	PLATE, PUMP SEAL OUTPUT 2L8
4	1	52000001	ROTOR 2L8
5	3	12000004	NUT, HEX 3/4-10 6D2 ZNPLT
6	1	42000023	GASKET, SEAL 2L8
7	3	12000044	3/4-10 ALL THREAD - 30"

Vibrator Tray Assembly

ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	1	62000014	ASSY, VIBRATOR TRAY 8 CUFT
2	4	12000018	STOP, BUMPER VIB TRAY 8 CUFT
3	1	22000000	VIBRATOR, SDC12-200
4	4	12000003	NYLON LOCKNUT, 3/8-16 6D2 ZNPLT
5	4	12000022	WASHER, HI COLLAR 7/16"
6	4	12000023	WASHER, STEEL 7/16" ZN PLT
7	4	12000024	SCREW, SOC HD 7/16-14x1 1/4 6D8 ZN PLT
8	1	42000084	GRATING, P38.
9	4	12000045	BOLT, J 5/16-18 x 3" WITH NUT ZN PLT



Drive Line Assembly



Note - #2 comes complete with seal tube, UJ and clamps – unit will require greasing prior to use. Refer to Section 5 - “seal replacement and UJ removal” for instructions.

Controls and switches

Pump Control Panel



“Forward” is a maintained switch that will run the rotor / stator pump in the pumping direction, the indicator light will illuminate during operation.

“Reverse” is a spring return position and will allow the pump to reverse whilst the switch is operated. The indicator will illuminate during operation.

The graduated rotary knob controls the speed at which the pump rotates during operation and can be adjusted during operation.

System pressure gauge, reading pressure of the motor system during rotation.



Vibrator switch operates the vibrator mounted on the hinged grate on top of the pumping hopper and is used to assist grading the material through the grate. Do not operate with engine stopped, avoiding depletion of the battery.



Engine Ignition switch and starter switch



In the “RUN” position the ignition is “ON” and the engine ready to run. In the “RUN” position all other switches become operable and the hydraulic cooling fan will operate (not independently switched). Do not leave the switch in the “RUN” position with the engine stopped.

The “START” position is a spring return position. When twisted clockwise it will engage the engine starter. When released it will disengage.

NOTE: The engine has power generation abilities to cover the operation of both the cooling fan and vibrator whilst running. When not running the battery will drain rapidly. It is strongly advised that all switches be turned OFF when the engine is not running.

Engine Choke lever



Move the lever to the right to operate the choke “ON”, left to turn “OFF”

Engine Throttle lever



To increase engine speed slide the lever to the left. To decrease slide the lever to the right.

Section 3 –Transportation and pre-operation checks

Overview

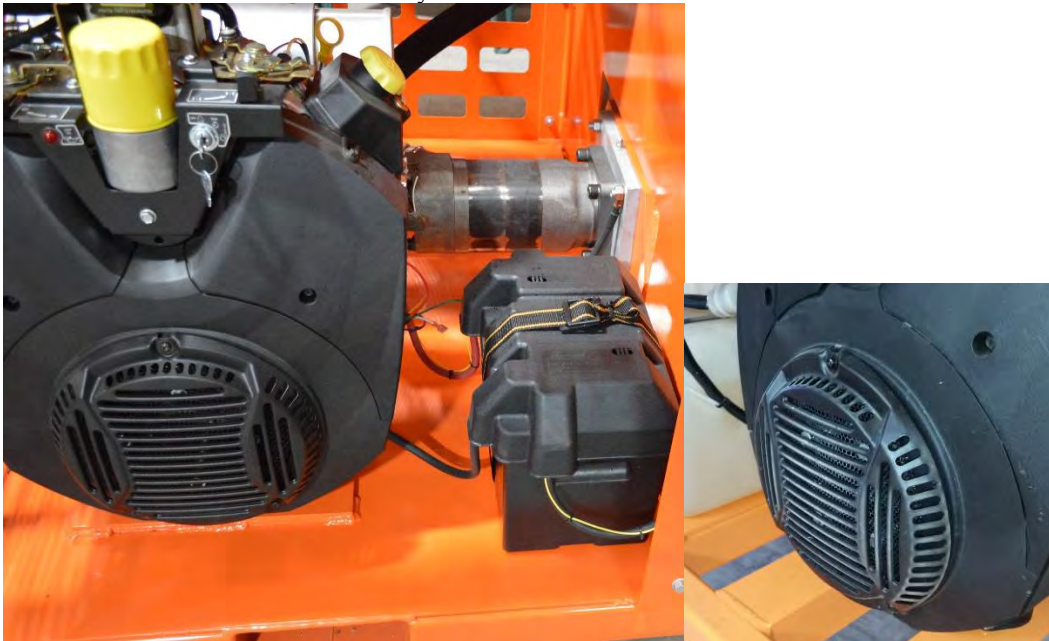
The unit is a “skid based” unit with slots for forklift access.

Prior to any transportation ensure ALL parts of the pump, ALL lids secured, ALL tools, etc. either stowed or secured.

Drive system

Engine exhaust and ventilation

The fan cowl of the engine must be free of ALL obstructions. The fan must be free to rotate and draw air at all times to ensure that the motor is correctly cooled.



Pay attention to the engine exhaust flow direction as it will be hot and contain exhaust fumes.



Prior to operation ALL fluid levels should be checked and be in good order.

Engine oil level

Check using the dip stick situated at the rear of the engine (looking from the operator controls). Filling is carried out through the filler cap.



Hydraulic fluid

Hydraulic oil level is checked through the sight tube from the outside of the machine.



Filling access is on top of the unit by twisting the locking handle lifting the top cover flap.



Hydraulic fluid filling via the filling cap with built in strainer

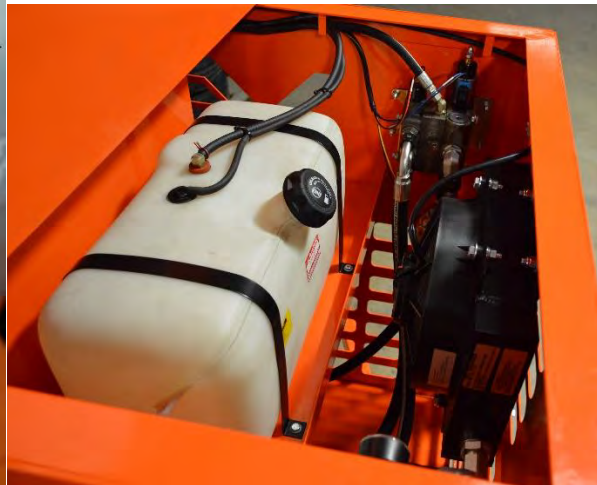


Fuel level

Is checked though the side wall of the tank and filled via the filler opening.

Danger – Do not fill whilst the engine is running.

Danger – Do not fill whilst the engine is hot.



Battery

Check all battery connections for security and being free of corrosion.



Cooling fan

The cooling fan operates whenever the unit is operational. Due to the low volume of hydraulic oil in the system correct operation of the fan is critical
Ensure that the vent and the fan are clear of all obstructions

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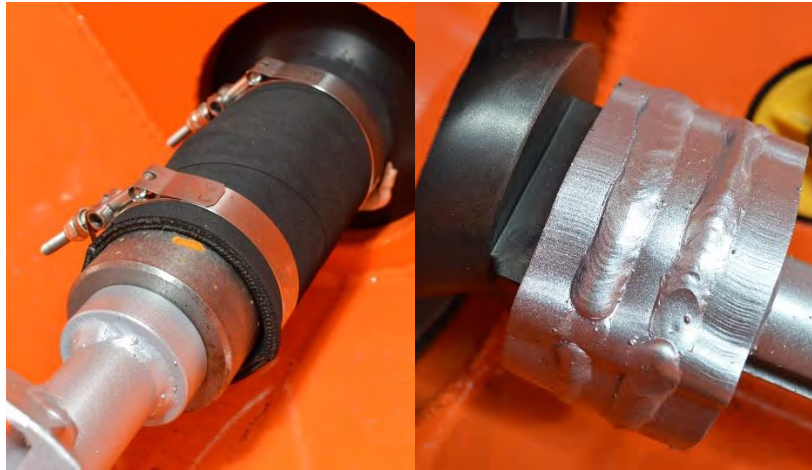
Pumping unit

Ensure that the pumping unit is correctly secured to the front of the material hopper and all nuts tight and secure.

Pay attention to the clamp nuts installed either side of the stator unit. Make sure they are tightened and pinned securely.



Check that the drive shaft is correctly engaged into the UJ and that the socket is engaged over the head of the rotor.



Check that the fasteners that hold the hydraulic motor to its mounting plate and in turn the plate to the hopper are secure.



Check that the vibrator grate is in the lowered position, resting on its rubber “bumper” feet.



Rubber / Poly bumper shown.



Ensure that ALL fasteners are present, in good condition and tightened securely prior to any operation.

Section 4 – Machine operation

Ensure that the unit is clear of bystanders and other possible hazards before starting.

Startup

Place the engine choke lever in the “ON” position.



i Choke is not required for a warm engine.

Note - slide lever to the right to operate or close the choke. Slide to the left to stop or open the choke.

Throttle / accelerator lever



Ignition / starting key



- Slide the throttle lever to the right to the slowest position. Start the engine using the ignition starter key. Once running, progressively open the choke lever by sliding to the left until the engine runs without hesitation. Let the engine warm up for a few minutes.
- For troubleshooting the engine start up, refer to the engine user manual supplied.

Shut Down

When shutting down, move the switch on the pump control panel to the middle “off” position then slow the engine to idle using the throttle lever sliding to the right. Leave to idle for a few minutes prior to turning off using the ignition key set to the “off” position.

Operation

The vibrator grate / safety cover is used to both protect the operator and to assist in the grading of the material passing into the pumping hopper. The grate will prevent items larger in size than the rotor / stator can process. **The vibrator grate must be in the lowered position during operation.**

The vibrator grate hinges upwards and swings past vertical to allow for unobstructed access to the hopper.



While the engine is warming, use this time to pre-wet the pumping hopper with water and a small amount of dish soap. Approx. one table spoon per pint of water is adequate and provides a level of lubrication for the dry rotor and stator making it easier to break free without damage.

- Once the engine is warm and no longer running on choke, the throttle lever can slowly be moved to the left, increasing the engine revs to maximum.
- Set the speed control on the pump control panel to approx. 50, then push the switch toggle to the “FWD” position and observe the hydraulics to turn on and rotate the pump in the forwards direction, indicated by the water from the hopper being pumped out of the unit.
- If the drive shaft does not start turning immediately move the toggle of the switch to “REV” and observe the pump to turn in reverse.
- Immediately release the toggle and push to the “FWD” position once again and check that the pump now runs in the forward direction.
- If the driveshaft does not turn, then repeat both the forward and rev operations to rock the rotor back and forth to progressively draw the soapy water into the rotor stator allowing lubrication, which in turn allows the driveshaft to turn the rotor.

Once the driveshaft will repeatedly start without trouble then the unit is ready for operation by trained and qualified operators.

NOTE – Do not operate the driveshaft in reverse for periods longer than a few seconds. Reverse is used to break free and to depressurize the pumping hoses in the event of a blockage.

NOTE – Do not operate the unit without either soapy water or material in the pumping hopper, or premature wear and / or damage to the stator can result.

General notes for operation

- Grease drive shaft seal daily with water resistant, corrosion inhibited grease via the grease fitting / Zerk in the motor flange.
- For starting the pump, ensure that the throttle is at maximum and direction control is set to “FWD”.
- Do not let hopper run dry while pump is running.
- To stop machine Move the Pump Control Panel switch to the center position.
- If a hose becomes plugged while pumping, stop the machine, then reverse the driveshaft direction on pump to relieve line pressure using the Pump Control Panel switch set to “REV”.
- Never point a hose towards personnel when pump is working.
- When cleaning the pump, do not remove the safety grate while pump is running. Wash out hopper

- with water and let it run out of the hose. When the hopper is clean, run foam balls through hose with clean water then wipe down with a damp rag.
- Hopper draining can be assisted by the removal of the drain plug from the lower section.



- If access is required into the hopper, then turn off the engine before lifting the grate. Pump can be disassembled by removing the clamping nuts facilitating easier clean up.
- 3/8 Special is supplied with an adjustable stator. The sleeve can be tightened to bring working pressure back to normal range as the stator wears. This should be done evenly along the length and in small increments. Overtightening the stator will cause premature wear and heat up material.
- Always check hoses and cords for wear.
- The unit runs at high pressures and temperatures. Use caution when moving or touching parts of the unit.
- Check the condition of the Universal joint seal tube. Look for signs of wear or cuts on the tube.
- Check that the fasteners are all secure.

Section 5 – Simple maintenance and cleaning

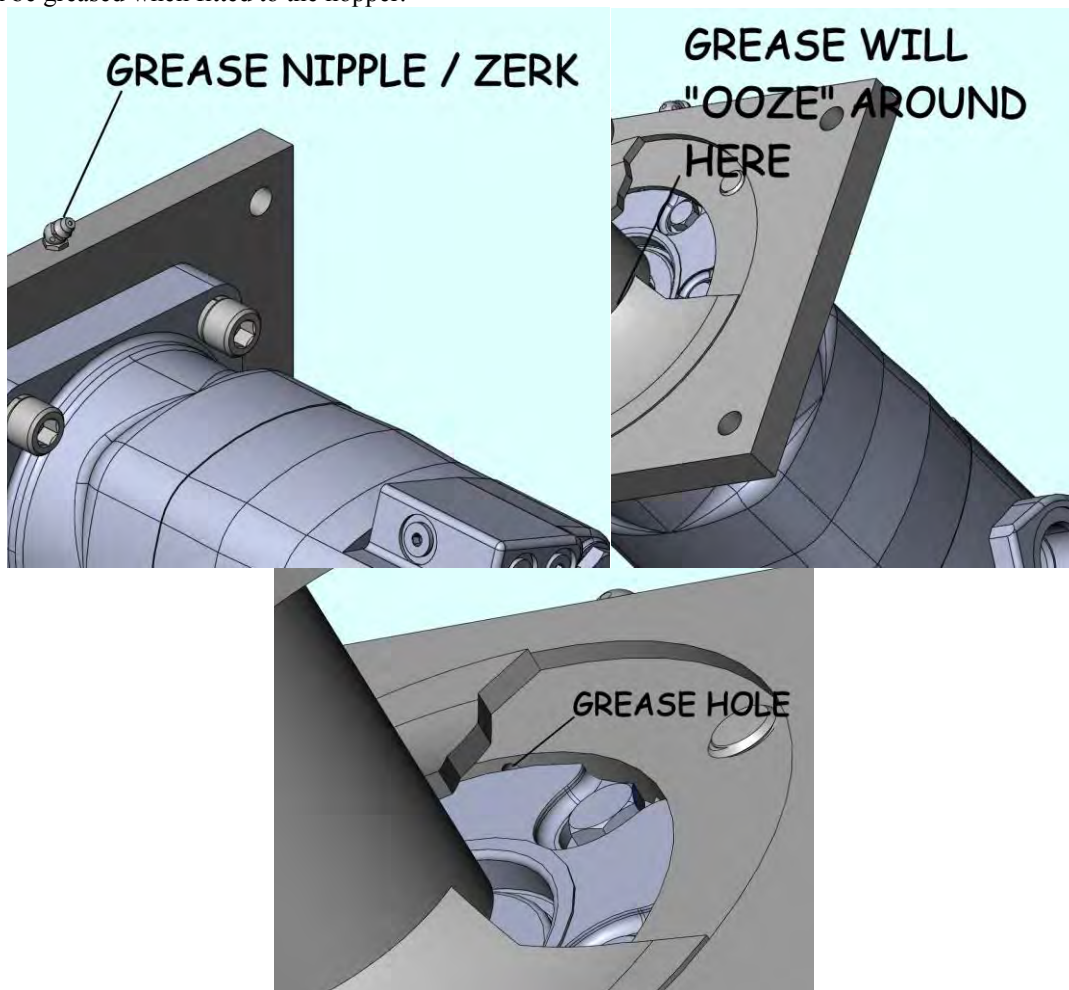
The 3/8 Special pumping unit is very simple to maintain.

The biggest part of maintenance on the unit is cleaning after a job. Failure to clean properly after use will damage seals, paint, and moving parts due to material build up. This causes wear and likely hinder operation and startup next time.

Pay particular attention to the seal between the rotor stator flange and the flange on the front of the hopper. When cleaning also pay attention to the grease seal around the drive / Universal joint, fixed to the drive flange at the rear of the machine.

Seal Greasing

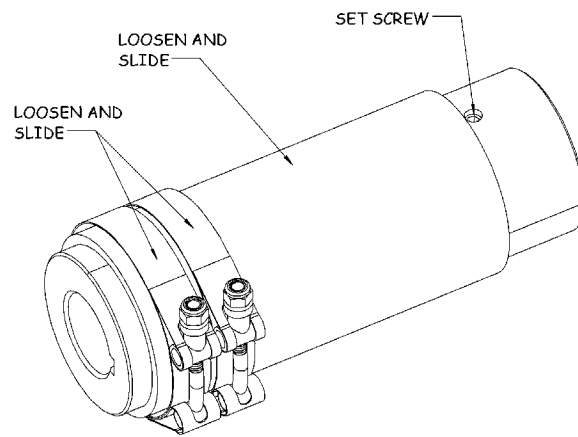
Ensure that the seal between the drive coupling and the motor is greased each day or after each clean down with a water resistant, corrosion inhibiting, extreme pressure grease. Grease until a small amount of grease can be seen “oozing” from around the drive. The illustration shows the unit removed from the hopper but it can be greased when fitted to the hopper.



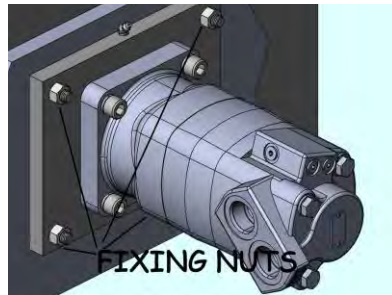
Grease seal replacement and UJ removal

NOTE - Grease seal replacement has to be carried out with the drive unit removed from the hopper.

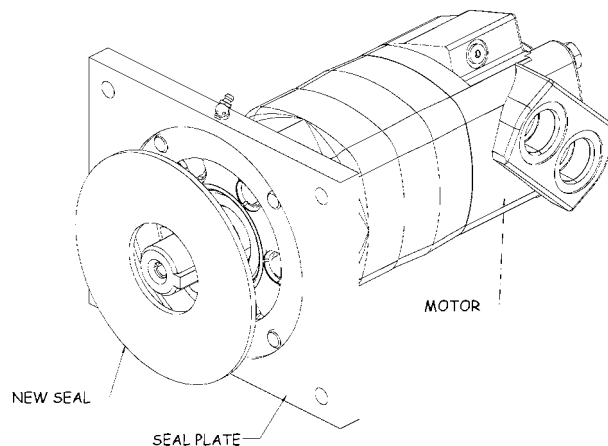
- Remove the pump assembly from the front of the unit.
- Thoroughly clean the driveshaft, the UJ and the seal area inside the hopper.
- Loosen the two band clamps on the UJ seal tube, then slide the seal tube towards the seal / motor until the set screw securing the UJ to the driveshaft is exposed.



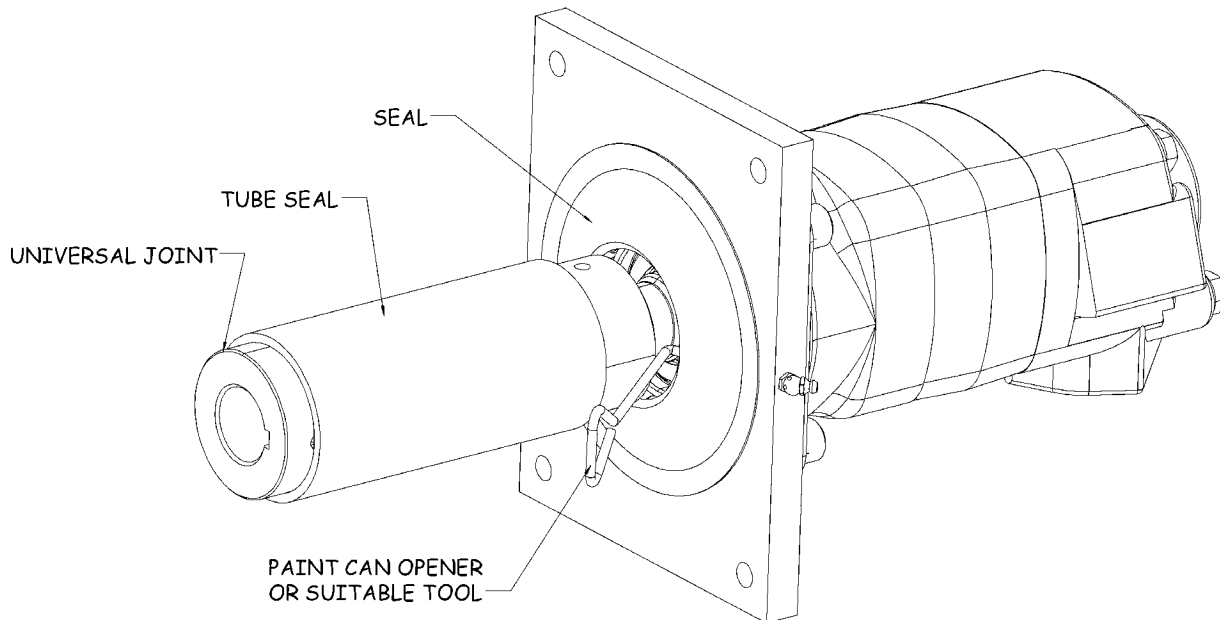
- Loosen the set screw and remove the driveshaft from the UJ.
- Slide the seal tube in the opposite direction, towards the driveshaft, until the set screw is exposed in the UJ that secures it to the motor shaft.
- Loosen the set screw.
- Remove the universal Joint.
- Remove the four fixing nuts from the flange plate and withdraw the motor assembly from the hopper rear.



- Remove the rubber seal from the counterbore in the plate.
- Thoroughly clean the seal area and the flange. Ensure that the old contaminated grease is removed.
- Apply some fresh grease to the inner lip and back face of the new seal, then place it into the counter bore in the motor mounting plate. Apply some grease to the outside of the shaft of the motor.



- Assemble the motor and grease seal assembly to the back of the hopper and retain with the four nuts previously removed.
- Slide the universal joint over the motor shaft ensuring that the key is located in both slots. Slide it on until it lightly touches the undeformed seal face, then using a suitable tool (paint can opener) hook the seal over the universal joint and use a circular motion whilst pushing the joint towards the motor fully assemble the seal lip over the UJ and push the UJ home onto the step on the motor shaft. The action of hooking the seal over the UJ is similar to assembling a tire onto a wheel rim.



- Secure the set screw once more when the UJ is fully assembled. The seal lip will slide over and cover the set screw hole during the re-greasing process later.
- Slide the UJ seal tube back towards the motor until the other set screw that secures the driveshaft is exposed.
- Place the two band clamps over the universal joint, but do not secure yet.
- Pump fresh grease inside the UJ through the driveshaft hole until it is about 2" from the end.
- Assemble the driveshaft complete with key into the UJ until the collar touches the end of the universal joint during which time the grease will be pushed into the coupling and "ooze" from around the seal tube.
- Ensure that the key is fully assembled then lock the set screw to the keyed shaft.
- Slide the seal tube back towards the pump until about 1 1/8" of UJ is exposed, then reassemble the band clamps about 1/2" – 3/4" from the seal tube ends.
- Grease the new seal via the grease fitting on the motor assembly until grease can be seen "oozing" from between the seal lip and the UJ

Note - Grease using a highly water resistant, high corrosion protection, and extreme pressure type grease on a daily basis, or after each time the unit is cleaned down.

Note - The seal needs to be replaced once the seal no longer holds grease, is broken or cracked or worn to the same diameter as the drive, indicated by a flat appearance instead of deformed when fully greased.

Engine Maintenance

– Please refer to manufacturer's data for servicing

Hydraulic system Maintenance

– Perform a hydraulic filter and fluid change, in line with the engine service interval schedule. The system should be warm when changing the hydraulic fluids to aid draining but **NOT** “Hot” so as scalding or burning could occur.

- Drain the hydraulic oil from the system via the bolt at the base of cyclonic reservoir.



- Remove the hydraulic filter and replace. Take care when unscrewing the filter as the unit and lines will be full of oil.
- Replace the filter with a new one of the same model and tighten per manufacturer’s specifications.



Section 6 - Winterization

Winterizing is required especially for climates likely to freeze. Freezing is mainly a problem for items containing water.

- The engine and hydraulics do not need to be winterized, however, it is recommended that the fuel in the fuel tank be stabilized for extended periods of storage.
- Follow the engine manufacturer’s instructions for extended storage and winterization.

Battery

The battery should be placed on a battery maintainer / float charger to ensure a full state of charge throughout the storage period. Failure to maintain a full state of charge will render the battery depleted / “Flat” when next required. Float chargers / maintainers are available at most automotive stores or online retailers.

Section 7 – Notes on wear of rotor / stator pump unit

A **rotor** is the metal corkscrew looking item that **ROT**ates inside the stator.

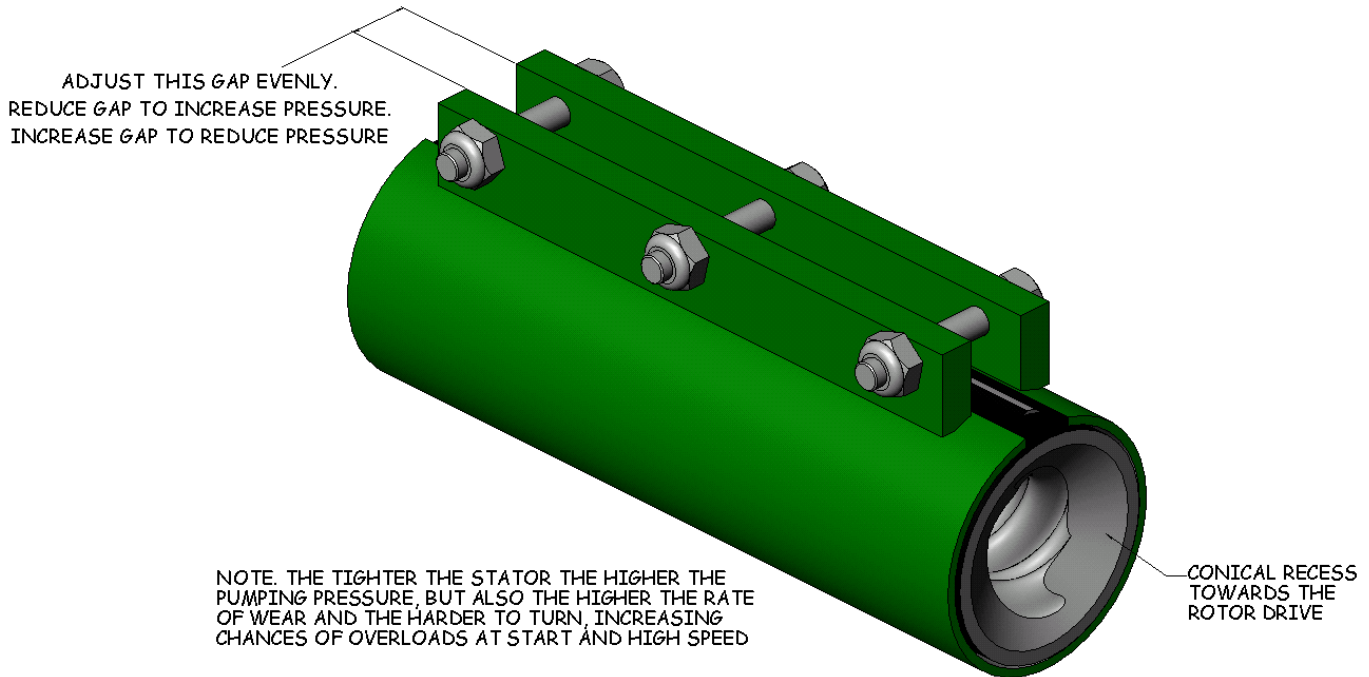
A **stator** is the **STAT**ionary part that the rotor rotates inside.

Stator adjustment

Some of the stators supplied are adjustable. Some are not.

The adjustable units allow the tightening of some bolts to squeeze together two flanges, which in turn reduce the diameter of the inside of the stator allowing a tighter fit around the rotor giving renewed ability to produce higher pressures, similar to when the unit was new.

D8-1.5 ILLUSTRATED



Wear issues

Dry running of a rotor-stator pump.

A screw pump can only work reliably if there is adequate and appropriate lubrication. The lubricant reduces the friction between the rotor and the stator. If this lubricating film is damaged, high temperatures are reached and the elastomer wears within a very short time. Even if dry running lasts only a few seconds with new parts, the effect resembles that of a wheel spin on a car tire, dramatically affecting length of service.

The use of simple dish soap or specific water based lubricants mixed with water whilst hose cleaning or pump priming can dramatically reduce the negative effects of dry running and help prolong the natural life of the rotor and stator.

Please note - Rotor stator wear is directly related to the amount of work that the unit has to perform. A low-pressure job with a smooth mix will cause less wear than a high-pressure job with smooth mix. A low-pressure job with a course mix will wear more than a low-pressure job with a smooth mix.

The life of a rotor stator combo will need to be determined on a job-by-job basis, being dependent upon the coarseness of the mix and the amount of pressure required.



LIMITED WARRANTY POLICY

Ventures EQ. warrants each of its new machines to be free of defects in material and workmanship under normal use and services for a period of one (1) year from the date of delivery.

The warranty is issued **ONLY** to the **INITIAL USER**. The warranty period begins when the product is delivered to the initial user or when first put into service, whichever occurs first. Said warranty is void if the machine is subject to misuse, neglect, accident or abuse.

The Ventures EQ. obligation under this warranty is limited to correcting without charge, at its warehouse, any parts or parts thereof which shall be returned to its warehouse, transportation/shipping prepaid and upon Ventures EQ. examination proves to have been originally defective. Correction of such defects by repair or replacement shall constitute fulfillment of all obligations to the initial user. This warranty does not include labor or transportation charges unless specifically identified and authorized in writing by Ventures EQ., nor does the warranty apply to any unit upon which repairs or unauthorized alterations have been made.

The warranty does not apply to normal maintenance service or to normal replacement of certain machine parts which are subject to normal wear (including but not limited to pins, bushings, seals, rotors, stators, hoses, shaft couplings and connectors, pump shafts, filter elements, batteries and tires).

THIS IS A LIMITED WARRANTY AND IS IN LIEU OF ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING ANY WARRANTY OF MERCHANTABILITY OF FITNESS FOR A PARTICULAR PURPOSE. In no event shall Ventures EQ. be made liable for incidental, general or consequential damage, loss or any expense directly or indirectly related and resulting from use or lack of use caused by delay in delivery, parts failure, or any other causes associated with the product use. No person, firm or corporation is authorized to assume for Ventures EQ. any other liability in connection with the sale of Ventures EQ. products.