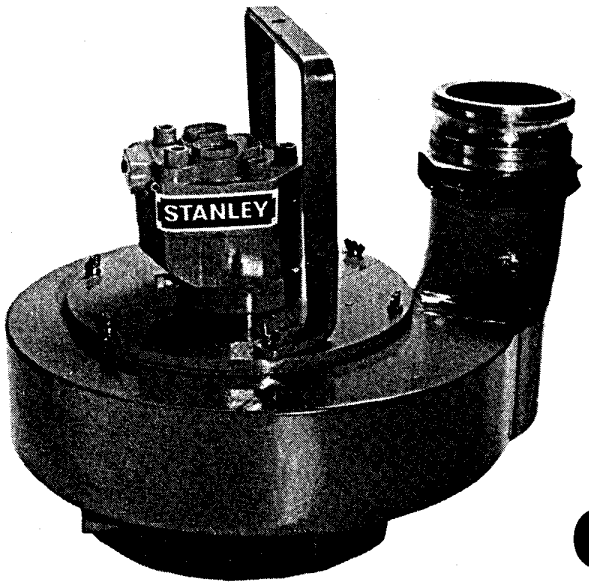
TP08
TRASH PUMP



Safety, Operation and Maintenance Manual

Focused on performance ™

STANLEY®
helps you do things right

22628 3/92

SAFETY PRECAUTIONS

Tool operators and maintenance personnel must always comply with the safety precautions given in this manual and on the stickers and tags attached to the tool and hose.

These safety precautions are given for your safety. Review them carefully before operating the tool and before performing maintenance or repairs.

Supervising personnel should develop additional precautions relating to the specific work area and local safety regulations. If so, place the added precautions in the space provided on page 3.

GENERAL SAFETY PRECAUTIONS

The TP08 Trash Pump will provide safe and dependable service if operated in accordance with the instructions given in this manual. Read and understand this manual and any stickers and tags attached to the trash pump and hose before operation. Failure to do so could result in personal injury or equipment damage.

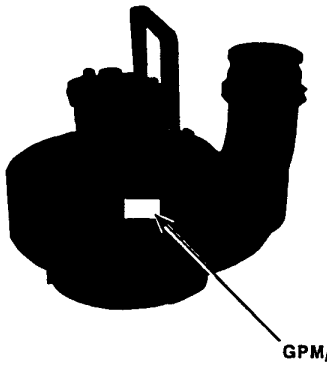
- Establish a training program for all operators to ensure safe operation.
- Operators must start in a work area without bystanders. The operator must be familiar with all prohibited work areas such as excessive slopes and dangerous terrain conditions.
- Do not operate the trash pump unless thoroughly trained or under the supervision of an instructor.
- Always wear safety equipment such as goggles, ear and head protection, leg protection, gloves, snug fitting clothing, and safety shoes at all times when operating the trash pump.
- Never use the trash pump near energized transmission lines. Know the location of buried or covered services before starting work.
- Never wear loose clothing that can get entangled in the working parts of the trash pump.
- Do not overreach. Maintain proper footing and balance at all times.
- Do not inspect or clean the trash pump while the hydraulic power source is connected. Accidental engagement of the trash pump can cause serious injury.
- Always connect hoses to the trash pump hose couplers before energizing the hydraulic power source. Make sure all hose connections are tight.
- Do not lift the trash pump by pulling on the hydraulic hoses. Use a suitable line fastened to the trash pump handle.
- Do not put your hand under the volute while the trash pump is running.
- To avoid personal injury or equipment damage, all trash pump repair, maintenance and service must only be performed by authorized and properly trained personnel.

TOOL STICKERS AND TAGS

A flow and pressure sticker is attached to the trash pump at the location shown. Never exceed the flow and pressure levels specified on this sticker.

7-10 GPM
DO NOT EXCEED 2000 PSI

GPM/PRESSURE STICKER

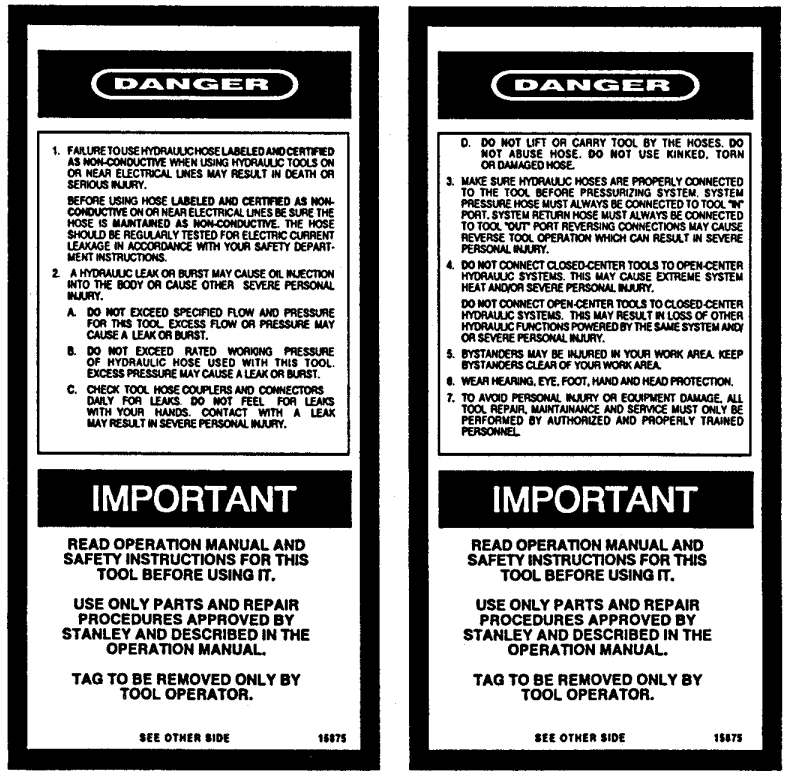


GPM/PRESSURE STICKER

The information listed on the above sticker must be legible at all times. Always replace a worn or damaged sticker. A replacement is available from your Stanley distributor.

SAFETY TAGS

The safety tag at right is attached to the trash pump when shipped from the factory. Read and understand the safety instructions listed on this tag before removal. We suggest you retain this tag and attach it to the trash pump when not in use.



SAFETY SYMBOLS

Safety symbols are used to emphasize all operator, maintenance and repair actions which, if not strictly followed, could result in a life-threatening situation, bodily injury or damage to equipment.

DANGER

This safety symbol may appear on the tool. It is used to alert the operator of an action that could place him/her or others in a life threatening situation.

⚠ WARNING

This safety symbol appears in these instructions to identify an action that could cause bodily injury to the operator or other personnel.

IMPORTANT

This safety symbol appears in these instructions to identify an action or condition that could result in damage to the tool or other equipment.

Always observe safety symbols. They are included for your safety and for the protection of the tool.

LOCAL SAFETY REGULATIONS

Enter any local safety regulations here. Keep these instructions in an area accessible to the operator and maintenance personnel.

EQUIPMENT PROTECTION AND CARE

IMPORTANT

In addition to the Safety Precautions on pages 1 thru 3 of this manual, observe the following for equipment protection and care.

- Always store an idle trash pump in a clean, dry space, safe from damage or pilferage.
- Always keep critical tool markings, such as labels and warning stickers legible.
- Trash pump repair must only be performed by authorized and properly trained service personnel.
- Make sure all couplers are wiped clean before connection. Use only lint-free cloths.
- The hydraulic circuit control valve must be in the "OFF" position when coupling or uncoupling the trash pump. Failure to do so can result in damage to the quick disconnect couplers and cause overheating of the hydraulic system.
- Always replace hoses, couplings and other parts with replacement parts recommended by Stanley Hydraulic Tools. Supply hoses must have a minimum working pressure rating of 2500 psi/175 bar.
- All hoses must have a fluid resistant inner surface and an abrasive resistant outer surface.

HYDRAULIC HOSE REQUIREMENTS

HOSE TYPES

Hydraulic hose types authorized for use with Stanley Hydraulic Tools are as follows:

❶ Labeled and certified non-conductive

❷ Wire braided (conductive)

❸ Fabric braided (not certified or labeled non-conductive)

Hose ❶ listed above is the only hose authorized for use near electrical conductors.

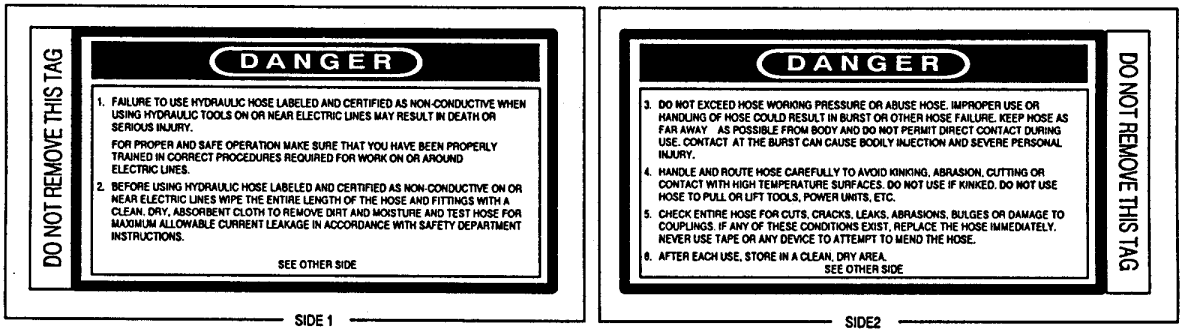
Hoses ❷ and ❸ listed above are **conductive** and **must never** be used near electrical conductors.

To help ensure your safety, the following DANGER tags are attached to all hoses purchased from Stanley Hydraulic Tools. DO NOT REMOVE THESE TAGS.

If the information on a tag is illegible because of wear or damage, replace the tag immediately. A new tag can be obtained at no charge from your Stanley distributor.

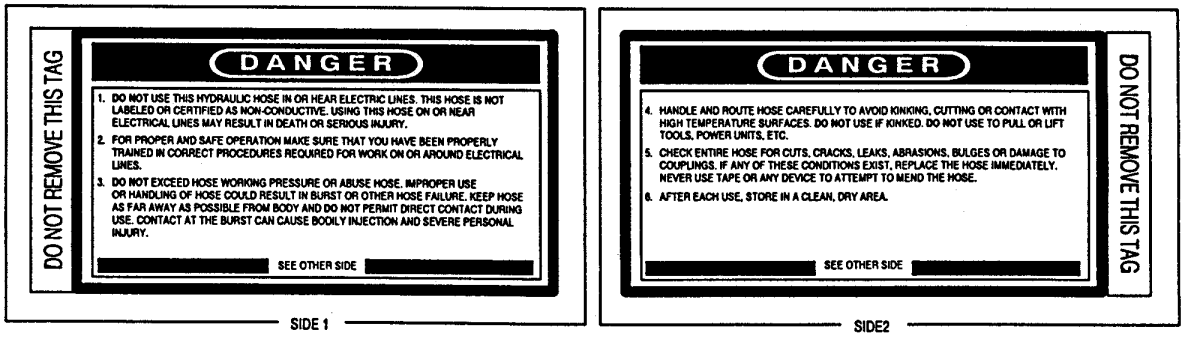
❶ CERTIFIED NON-CONDUCTIVE HOSE

This tag is attached to all certified and labeled **non-conductive** hose.



❷ AND ❸ WIRE- AND FABRIC-BRAIDED (NOT CERTIFIED OR LABELED NON-CONDUCTIVE)

This tag is attached to all **conductive** hose.



HOSE PRESSURE RATING

The rated working pressure of the hydraulic hose **must be equal to or higher than** the relief valve setting on the hydraulic system used to power the trash pump.

HYDRAULIC SYSTEM REQUIREMENTS

- The hydraulic system should provide a flow of 7-10 gpm/26-38 lpm at an operating pressure of 2000 psi/140 bar. Recommended relief valve setting is 2100 psi/145 bar.

- The hydraulic system should not have more than 250 psi/17 bar back pressure measured at the trash pump end of the operating hoses. The system conditions for measurement are at maximum fluid viscosity or 400 ssu/82 centistokes (minimum operating temperatures).

- The hydraulic system should have sufficient heat rejection capacity to limit the maximum fluid temperature to 140°F/60°C at the maximum expected ambient temperature. The recommended minimum cooling capacity is 5 hp/3.73 kW at a 40°F/4°C difference between ambient temperature and fluid temperature.

- The hydraulic system should have a minimum of 25 micron full-flow filtration. It is recommended that filter elements be sized for a flow of at least 30 gpm/114 lpm for cold temperature startup and maximum dirt holding capacity.

- The hydraulic fluid used should have a viscosity between 100 and 400 ssu/20 and 82 centistokes at the maximum and minimum expected operating temperatures. Hydraulic fluids of petroleum base with antiwear and non-conductive properties and viscosity indexes over 140 meet the recommended requirements over a wide range of operating temperatures.

- Do not use emulsifying hydraulic fluids and keep the recommended fluids drained of settled moisture. Water in the fluid can cause pump cavitation and will reduce or negate the personnel safety factor gained through the use of non-conductive hoses.

- The recommended hose sizes are listed in Table 1. Avoid the use of quick couplers to attach multiple hose lengths. To connect hoses together, use full size hose ends and pipe couplings.

Table 1. Recommended Hose Sizes

Hoses	Pump-To-Power Source (Length-Ft.)	Inside Diameter (Minimum)	SAE Specifications
Pressure and Return	Up To 50 ft/15 m	1/2-inch/13 mm	SAE100R1-8
Pressure and Return	50-100 ft/15-30 m	5/8-inch/16 mm	SAE100R2-10
Pressure	100-300 ft/30-90 m	5/8-inch/16 mm	SAE100R2-10
Return	100-300 ft/30-90 m	3/4-inch/19 mm	SAE100R1-12

OPERATION

PREOPERATION PROCEDURES

CHECK POWER SOURCE

1. Using a calibrated flow meter and pressure gauge, make sure the hydraulic power source develops a flow of 7-10 gpm/26-38 lpm at 2000 psi/140 bar.

2. Make certain that the power source is equipped with a relief valve set to open at 2100-2250 psi/145-155 bar maximum.

3. Make certain that the power source return pressure does not exceed 250 psi/17 bar.

4. Make sure the trash pump inlet is clear of debris. Remove any obstruction before operating. Refer to WATER HOSE AND PUMPING CHAMBER CLEANING.

CONNECT HOSES

1. Wipe all hose couplers with a clean lint-free cloth before making connections.

IMPORTANT

Do not connect pressure to the return port. Motor shaft seal limit is 250 psi/17 bar.

2. Connect the hoses from the hydraulic power source to the couplers on the trash pump or trash pump hoses. It is a good practice to connect return hose first and disconnect it last to minimize or avoid trapped pressure within the trash pump motor.

Note: If uncoupled hoses are left in the sun, pressure increase inside the hoses might make them difficult to connect. Whenever possible, connect the free ends of the hoses together.

3. Observe the arrow on the couplers to ensure that the flow is in the proper direction. The female coupler on the trash pump is the inlet (pressure) coupler.

PUMP OPERATION

1. Observe all safety precautions.

2. Attach a 4-inch/102 mm diameter fire hose to the trash pump outlet. For best performance, keep the fire hose as short as possible and lay it out to avoid sharp bends or kinks.

   Do not attach a nozzle to the outlet end of the fire hose. For high-pressure water pumping, use a Stanley SM20 and nozzle. The TP08 is designed for high GPM water flow at low water pressure (head).

3. Attach a rope or cable to the trash pump's handle. Lower the trash pump into the liquid to be pumped. Do not raise or lower the trash pump by its hoses or couplers to avoid damage to the hoses or couplers.

⚠ WARNING

Never point the hose at bystanders.

4. Turn on the hydraulic power source. Watch for solids in the liquid being pumped. If solids are excessive, the discharge flow might decrease. If this happens, stop the trash pump and check for the cause of the problem.

   Under some conditions, the liquid being pumped might be slowed enough so it can no longer push particles in the liquid. If this happens, particles can accumulate in the pumping chamber, causing further restriction. The impeller then acts as a "grinding wheel," which causes accelerated trash pump wear. Reduced liquid flow can be caused by the following:

- The trash pump sinks into solids at the bottom of the hole.

- The end of the outlet hose is too high, causing an excessive lift height for the column of liquid being pushed by the trash pump. This slows the flow of liquid to a level where it can no longer carry solids.

- The flow and pressure of hydraulic fluid to the trash pump is too low, which reduces impeller speed. A 20 percent decrease in hydraulic fluid flow can reduce pump performance by 50 percent. When operating at reduced hydraulic flow and pressure, the end of the outlet hose should not be more than 30 ft/9 m above the liquid.

Note: It will not damage the pump to operate it "dry."

5. When pumping is complete, set the hydraulic control valve to the "OFF" position. Lift the trash pump from the work area using the rope or cable to avoid damage to the hoses or couplers.

IMPORTANT

Observe the following for trash pump protection and care.

6. The trash pump must maintain a minimum impeller speed in order to move solid particles through the pump. While pumping liquids containing large solids, monitor the flow from the outlet of the fire hose. If it begins to slow, turn off the hydraulic power source and lift the trash pump from the work area. Disconnect the hydraulic hoses and clean at the water hose and the pumping chamber. Pumping chamber cleaning procedures can be found in the SERVICE INSTRUCTIONS section of this manual.

IMPORTANT

Pumping liquids with a solids-to-liquid ratio greater than 30 percent solids to 70 percent liquid will cause accelerated impeller wear.

7. To maintain optimum performance, it is good practice to periodically inspect the impeller for wear or damage. This is especially important following the pumping of liquids containing sharp, abrasive solids. Impeller inspection procedures can be found in the SERVICE INSTRUCTIONS section of this manual.

COLD WEATHER OPERATION

If the trash pump is to be used during cold weather, preheat the hydraulic fluid at low power source speed. When using the normally recommended fluids, fluid should be at or above 50°F/10°C (400 ssu/82 centistokes) before use.

Damage to the hydraulic system or pump motor seals can result from use with fluid that is too viscous or thick.

SERVICE INSTRUCTIONS

INTRODUCTION

Good maintenance practice keeps the trash pump on the job and increases its service life.

The most important maintenance practice is to keep the hydraulic fluid clean at all times. Contaminated hydraulic fluid causes rapid wear and/or failure of internal parts.

Follow the procedures contained in the HYDRAULIC SYSTEM REQUIREMENTS section of this manual to ensure peak performance from the trash pump.

Never disassemble the trash pump motor unless proper troubleshooting procedures have isolated the problem to an internal part. then, disassemble the trash pump only to the extent necessary to replace the defective part. KEEP CONTAMINANTS SUCH AS DIRT AND GRIT AWAY FROM INTERNAL PARTS AT ALL TIMES.

Always determine and correct the cause of the problem prior to assembly. Further wear and trash pump failure can result if the original cause is not corrected.

TRASH PUMP CLEANING, ADJUSTMENT, AND INSPECTION

WATER HOSE AND PUMPING CHAMBER CLEANING

Debris such as weeds, sand and other solids might become trapped in the pumping chamber. This can reduce pumping performance. It is important that the pumping chamber be kept clean at all times.

Clean out the debris and then determine whether or not the fire hose is clogged or the power source is not providing adequate flow/pressure to properly drive the trash pump. If the trash pump is not cleared, heavy solids will not be removed from the trash pump, eventually damaging or destroying the impeller.

To clean the water hose and pumping chamber:

1. Remove the water hose from the trash pump. If it is clogged, lift near the outlet end of the hose and then shake it to loosen any debris. Continue shaking while working toward the inlet end until the entire water hose is free of all debris.

2. Look into the pump outlet and inlet (bottom) and remove any debris. If you are unable to clear the debris, you must open the trash pump.

To open the trash pump:

1. Disconnect the hydraulic hoses from the pump.

2. Remove the six 1/4-20 wing nuts securing the handle and volute/motor mount plate to the volute weldment. Lift the volute/motor mount plate from the volute weldment and place it on a clean, flat work surface.

3. Remove the shim(s) from the top of the volute weldment.

4. Clean out the pumping chamber.

5. Remove any debris from the water outlet and inlet.

IMPELLER INSPECTION

1. Check the impeller blades for cracks, chips, and signs of excessive wear. Also, see if it has been rubbing against the bottom wear plate. If the impeller is excessively worn, it must be replaced. Refer to the TRASH PUMP DISASSEMBLY PROCEDURES in this section.

Note: There should be a close fit between the impeller and the bottom wear plate, however, there should not be any drag.

2. If there is excessive drag, add a shim between the volute weldment and the volute/motor mount plate.

3. If the clearance between the volute weldment and the bottom wear plate exceeds 1/16 of an inch, remove a shim to achieve a closer fit.

4. If hydraulic fluid appears above the impeller, then the motor shaft seal has failed. Refer to the MOTOR SHAFT SEAL DISASSEMBLY PROCEDURES later in this section.

BOTTOM WEAR PLATE INSPECTION

1. Check the bottom wear plate for cracks, deep scratches and signs of excessive wear. Scratches deeper than 1/16-inch/ 2 mm might affect pump performance.

2. If the wear plate is not damaged, add or remove shim(s) as required to achieve a proper fit.

3. If the wear plate is damaged, it must be replaced.

PREPARING THE TRASH PUMP FOR OPERATION AFTER CLEANING AND INSPECTION

If no other trash pump servicing is required, prepare it for normal operation:

1. Remove the grease fitting cap and inject two pumps of underwater grease into the lip excluder housing.

2. Replace the grease fitting cap.

3. Replace the shim(s) onto the top of the volute weldment.

4. Place the volute/motor mount plate onto the volute weldment.

5. Secure the volute/motor mount plate to the volute weldment using the six 1/4-20 wing nuts.

TRASH PUMP DISASSEMBLY AND ASSEMBLY

The following procedures should be performed only if:

- It is determined (after a complete inspection) that the trash pump power module (motor) is malfunctioning.
- Hydraulic fluid is leaking between the motor cap assembly and the bearing carrier assembly.
- Hydraulic fluid leaking from the motor shaft.
- The shafts and gears need to be replaced.

PRIOR TO DISASSEMBLY

- Clean the exterior of the trash pump.
- Obtain Seal Kit, part number 22646 to replace all seals exposed during disassembly. Note the orientation of the seals before removing them. Install new seals the same way they were removed.

PRIOR TO ASSEMBLY

- Clean all parts with a degreasing solvent.
- Make sure all seals that were exposed have been replaced with new parts.
- Apply clean underwater grease to all parts during assembly.

IMPELLER REMOVAL

1. Open the trash pump. Refer to the WATER HOSE AND PUMPING CHAMBER CLEANING procedures provided earlier in this section.

2. Place the motor in a soft vise with the impeller facing up.

3. Remove the nut and washer securing the impeller to the motor shaft.

4. Carefully pull the impeller off of the motor shaft.

Note: The woodruff key might fall out of the motor shaft keyway. Make sure it is not lost.

5. Check the impeller blades for cracks, chips and signs of excessive wear which can affect pump performance. Replace the impeller if damaged, seriously worn, or out of balance.

IMPELLER REPLACEMENT

1. Grease the woodruff key, impeller bore, and motor shaft with underwater grease.

2. Replace the woodruff key and then slip the impeller onto the motor shaft.

3. Secure the impeller to the motor shaft using the washer and nut.

MOTOR SHAFT SEAL REPLACEMENT

1. Remove the impeller. Refer to the IMPELLER REMOVAL procedures provided earlier in this section.

2. Remove the six 1/4-20 x 1/2-inch/13 mm flat head capscrews securing the top wear plate to the volute/motor mount plate.

3. Remove the three 3/8 x 1-3/4-inch/44.5 mm flat hex head capscrews securing the volute/motor mount plate to the power module.

4. Check the top wear plate for cracks, deep scratches and signs of excessive wear. Scratches deeper than 1/16-inch/2 mm might affect pump performance.

5. If the wear plate is damaged, it must be replaced.

6. Remove the excluder from the bottom of the seal carrier housing.

7. Remove the two 3/8-16 x 1-1/4-inch/32 mm socket head capscrews securing the seal carrier housing to the bearing carrier assembly.

8. Hold the motor shaft in (to prevent bearing damage) while removing the seal carrier housing and enclosed parts from against the bearing carrier housing and the motor shaft.

9. Remove the bronze seal carrier, seal retainer, quad ring, and o-ring.

10. If the excluder seal anvil has been damaged, it can be pressed out from the inside and then replaced.

11. Inspect the motor shaft surface where the bronze seal carrier was installed. If the motor shaft is damaged, then it must be replaced. Refer to the MOTOR DISASSEMBLY procedures provided later in this section.

12. Using clean underwater grease, lubricate the seal retainer washer, new quad ring, bronze seal retainer, and o-ring. The greased quad ring will squeeze into the retainer and MUST NOT BE TWISTED or it will not seal.

13. Place the o-ring inside the bearing carrier housing. Place the flat side of the retainer washer against the quad ring, slide it (with the seal carrier) onto the greased motor shaft, and then into the bearing carrier pocket.

14. Place the seal carrier (with seal anvil) over the motor shaft.

15. Push the seal retainer up against the bearing carrier assembly.

16. Secure the seal carrier housing to the bearing carrier assembly using two 3/8-16 x 1-1/4-inch/32 mm socket head capscrews. Tighten the capscrews to a torque value of 18 ft lb/24.3 Nm.

17. Secure the top wear plate to the volute/motor mount plate using the six 1/4-20 x 1/2-inch/13 mm flat head capscrews.

18. Lubricate and install the excluder lip seal over the motor shaft with the lip pressed against the anvil pocket.

19. Replace the impeller. Refer to the IMPELLER REPLACEMENT procedures provided earlier in this section.

MOTOR DISASSEMBLY

1. Remove the two 1/2-13 x 2-3/4-inch/ 70 mm and the three 1/2-13 x 2-1/4-inch/ 57 mm capscrews securing the motor cap assembly to the bearing carrier assembly.

2. Carefully lift the motor cap assembly away from the bearing carrier assembly.

Note: The key might fall out of the motor shaft keyway. Make sure it is not lost. Also, the gears and idler shaft might remain in the motor cap assembly. Do not drop or damage them.

3. Remove the o-ring from inside the motor cap assembly.

MOTOR CHAMBER AND PARTS CLEANING AND INSPECTION

Inspect and clean all parts as follows:

Cleaning

- Clean all parts with a degreasing solvent.

- Blow dry all parts with compressed air and wipe clean. Use only lint-free cloths.

Gears

- The gears should have straight tips without nicks, square tooth ends and smooth even polish on the teeth and end surfaces. Check for cracks at the groove in the drive gear bore.

Motor Cap Assembly

- The surface near the gears should show two overlapping polished circles without a step. The bottom of the o-ring groove should be smooth as should the rest of the flat surface.

Motor Shaft

- The diameter should be smooth on each side of the keyway; signs of polishing are normal. Grooves, roughness or a reduced diameter are indications of fluid contamination. Replace the seals if the motor shaft requires replacement.

- If the motor shaft must be removed refer to the MOTOR SHAFT SEAL REPLACEMENT procedures to remove the needle bearing. In addition, the key must also be removed from the motor shaft keyway before removing the motor shaft.

Note: The motor shaft and needle bearing are separated by removing the retaining ring. When separating, make sure you do not scratch any seal areas.

- Check the hydraulic system for excess contamination in the fluid and for filter condition. Operating conditions might require changing from a 25 micron filter to an oversized 10 micron filter.

MOTOR ASSEMBLY

1. If the motor shaft was replaced, install the needle bearing onto the motor shaft.

2. Using clean underwater grease, grease the motor shaft and then insert it through the lower end of the bearing carrier assembly.

3. Replace the motor shaft seal parts. Refer to the MOTOR SHAFT SEAL REPLACEMENT procedures provided earlier in this section.

4. Using clean underwater grease, grease the key, keyway, and motor shaft. Replace the key and then place the drive gear over the key.

5. Install the idler shaft and idler gear assembly onto the flat motor surface of the bearing carrier.

6. Lubricate and install the o-ring into the motor cap assembly groove.

7. Slide the motor cap assembly over the gears and shafts until completely down flat. DO NOT TIP CAP OR FORCE IT OVER GEARS.

8. Secure the motor cap assembly to the bearing carrier assembly using the two greased 1/2-13 x 2-3/4-inch/70 mm and the three greased 1/2-13 x 2-1/4-inch/57 mm capscrews. Tighten each capscrew to a torque value of 60 ft lb/81.4 Nm.

9. Secure the top wear plate to the volute/motor mount plate using the six 1/4-20 x 1/2-inch/13 mm flat head capscrews.

10. Grease the woodruff key, impeller bore, and motor shaft with underwater grease.

11. Replace the woodruff key and then slip the impeller onto the motor shaft.

12. Secure the impeller to the motor shaft using the washer and nut.

13. Prepare the trash pump for normal operation. Refer to the PREPARING THE TRASH PUMP FOR OPERATION procedures provided earlier in this section.

TROUBLESHOOTING

If symptoms of poor performance develop, the following chart can be used as a guide to correct the problem.

When diagnosing faults in operation of the trash pump, always check that the hydraulic power source is supplying the correct hydraulic flow and pressure to the trash pump as listed in the table. Use a flow meter known to be accurate. Check the flow with the hydraulic fluid temperature at least 80°F/27°C.

PROBLEM	CAUSE	REMEDY
Pump will not start.	No hydraulic fluid flow or pressure.	Turn on power unit and check that 7-10 gpm/26-38 lpm at 2000 psi/140 bar is available at the trash pump.
	Defective couplers.	Check the couplers by connecting them together with the hydraulic power supply operating and with the control valve in the ON" position. The power supply should operate without "loading" from the couplers.
	Impeller jammed with debris.	Clean the pumping chamber as described in the SERVICE INSTRUCTIONS section of this manual.
	Impeller rubbing against wear plates.	Check and adjust the impeller clearance as described in the SERVICE INSTRUCTIONS section of this manual.
	Defective power module.	Repair or replace the power module.
Poor pump performance.	Hydraulic flow reversed.	Check that the hoses are correctly connected to the pump motor ports. The female coupler should be connected to the "IN" port. The return fluid must never flow through a reversing valve.

PROBLEM	CAUSE	REMEDY
Poor pump performance.	Improper hydraulic fluid flow.	Check that 7-10 gpm/26-38 lpm at 2000 psi/140 bar is available at the trash pump. A 20 percent decrease in flow can result in a 50 percent decrease in pump performance. 8 gpm/30 lpm is the best circuit flow.
	Trash pump submersed in sediment.	Lift the trash pump from the bottom of the hole or chamber. Use a flat support under the pump if necessary.
	Trash pump inlet restricted.	Remove restriction and thoroughly clean.
	Discharge hose kinked or restricted.	Straighten the hose. If the hose must bend at the top of the hole, use a piece of split rigid conduit with large diameter of the expanded hose. This keeps the hose from kinking. Use a 90° 4-inch pipe elbow on the trash pump outlet if necessary.
	Discharge hose too small.	Use 4-inch diameter fire hose.
	Water lift too high.	Lower the outlet end of the discharge hose.
	Impeller worn or damaged.	Check impeller for damage and excessive wear. Replace if necessary.
	Wear plates worn or damaged.	Check wear plates for damage and excessive wear. Replace if necessary.
Hydraulic fluid in discharge flow.	Motor shaft seal failure.	Replace the motor shaft seal.

SPECIFICATIONS

Capacity	800 gpm/3,028 lpm
Weight	59 lbs/26.7 kg
Height (over handle)	16.5-inches/42 cm
Length	19-inches/48.3 cm
Width	15-inches/38.1 cm
Pressure	2,000 psi/140 bar
Flow Range	7-10 gpm/26-38 lpm
Maximum Flow	10 gpm/38 lpm
Porting	#10 SAE (pressure) #12 SAE (return)
Connect Size and Type	1/2-inch male pipe (pressure) 3/4-inch male pipe (return)
Discharge Diameter	4-inch/100 mm Camlock
Inlet Diameter	4-inch/100 mm

NOTE

Weights, dimensions and operating specifications listed are subject to change without notice. Where specifications are critical to your application, please consult the factory.

WARRANTY

Hand held tools and their parts are warranted against defect in materials and workmanship for a period of 12 months from the date of purchase. Exceptions are cutting parts, steels, and other parts not manufactured by Stanley (such as impact mechanisms, alternators, regulators, and hoses), and parts subject to normal wear and tear (such as o-rings, saw blades, and other parts that become worn through normal use of the tool).

The Warranty Registration Card packed with the tool must be filled out and returned to Stanley upon receipt of the tool.

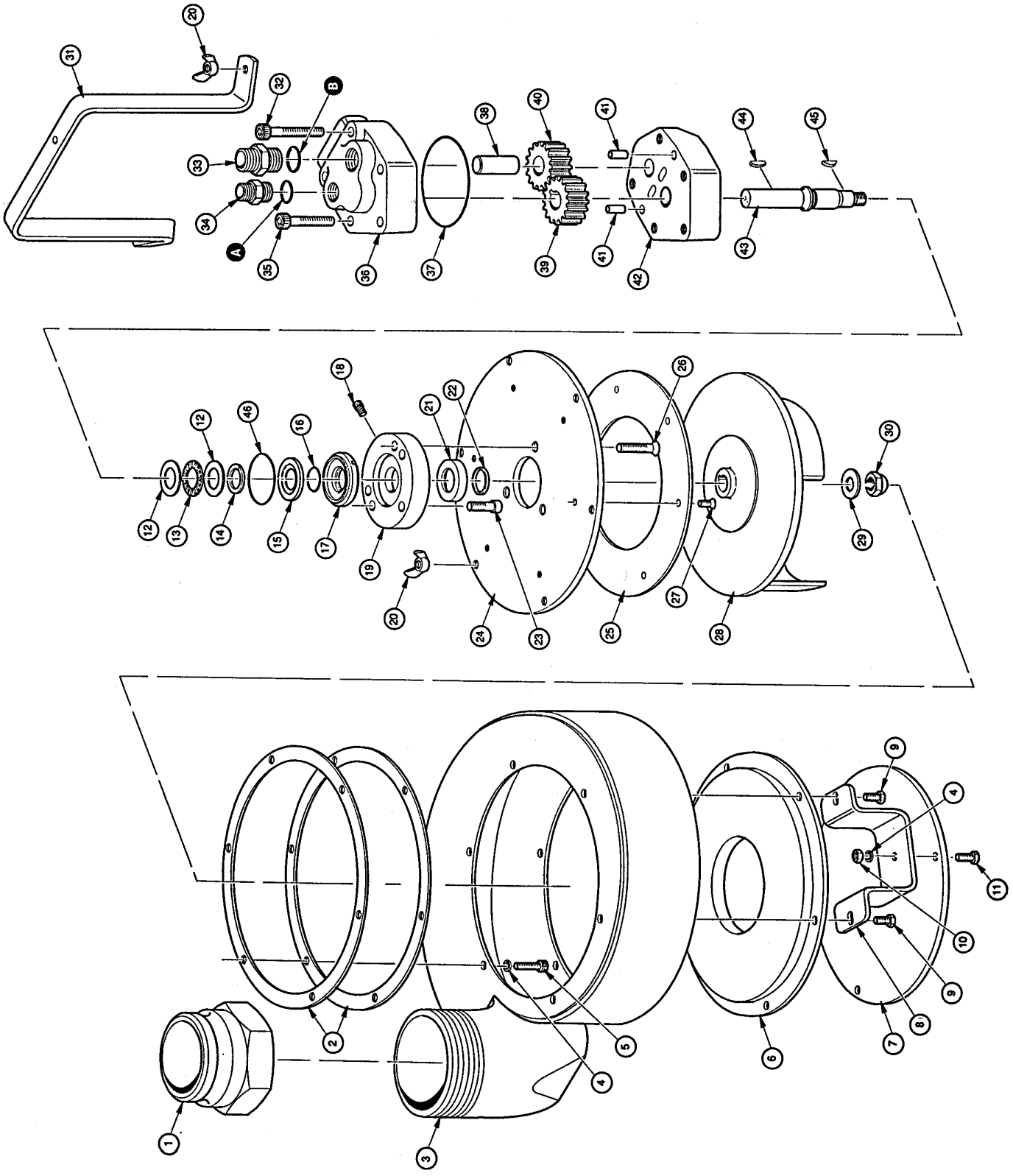
Stanley reserves the right to replace or repair only those parts which under our examination prove to have been defective at the time of purchase.

Shipping charges are prepaid by the customer unless otherwise authorized by Stanley.

The warranty is void if maximum flow and pressure ratings are exceeded.

There is no other warranty expressed or implied.

SERVICE AND REPAIR NOTES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A
B

PARTS LIST

Item No.	Part No.	Qty.	Description
1	21967	1	Male Adapter/Female Thread 4-8 NPT
2	21966	As Req	Shim
3	21960	1	Volute Weldment
4	01324	9	Lockwasher, 1/4 (STNLS)
5	21962	6	Capscrew, 1/4-20 UNC x 1 1/4 HSH (STNLS)
6	21964	1	Wear Plate-lower
7	21965	1	Plate-Stand Base
8	21963	3	Brace
9	02446	6	Capscrew, 1/2-20 UNC x 5/8 (STNLS)
10	00788	3	Hex Nut, 1/2-20 UNC (STNLS)
11	00596	3	Capscrew, 1/4-20 UNC x 3/4 (STNLS)
	21959	1	Power Module (Consists of Items 12 thru 19, 21 thru 30 and 32 thru 46)
12	20680	2	Bearing Race
13	08020	1	Needle Bearing
14	07820	1	Retainer Ring
15	20657	1	Seal Retainer
16	21021	1	Seal, Quad Ring ⊙
17	20665	1	Seal Carrier
18	01220	1	Gease Fitting 1/8 Capped
19	21976	1	Lip Excluder Housing
20	21961	6	Wing Nut, 1/4-20 UNC
21	21981	1	Seal Anvil
22	21975	1	Seal-Face Excluder ⊙
23	10793	2	Capscrew, 3/8-16 UNC x 1 1/4 HSH (STNLS)
24	21977	1	Plate-Volute/Motor Mount
25	21993	1	Wear Plate-Top
26	21978	3	Capscrew, 3/8 x 1 3/4 Flat Hex Head (STNLS)
27	21989	6	Capscrew, 1/4-20 UNC x 1/2 Flat Head (STNLS)
28	21979	1	Impeller
29	03827	1	Washer, 1/2 (STNLS)
30	21988	1	Acorn Nut, 1/2-20 UNF
31	21968	1	Handle
32	21987	2	Capscrew, 1/2-13 UNC x 2 3/4 HSH (STNLS)
33	06263	1	Adapter #12 SAE-3/4 Male Pipe
34	07882	1	Adapter #10 SAE-1/2 Male Pipe
35	21986	3	Capscrew, 1/2-13 UNC x 2 1/4 HSH (STNLS)
36	21972	1	Motor Cap Assembly
37	15385	1	O-Ring ⊙
38	21984	1	Idler Shaft
39	21974	1	Drive Gear
40	21983	1	Idler Gear Assembly
41	22065	2	Dowel, 3/8 x 1
42	20691	1	Bearing Carrier Assembly
43	21971	1	Motor Shaft
44	21985	1	Key
45	00600	1	Woodruff Key
46	01872	1	O-Ring ⊙

NOTE: Use Part Number and Part Name when ordering.

⊙ Denotes Part in Seal Kit.

SEAL KIT DATA

Part No.	Qty.	Description
Seal Kit Part No. 22646		
15385	1	O-Ring
21975	1	Excluder 7/8 I.D.
21021	1	Quad Ring Q4119-366Y
01872	1	O-Ring #136 90D
01604	1	O-Ring #910
06891	1	O-Ring #912

Ⓐ Supplied as part of Item (34)

Ⓑ Supplied as part of Item (33)

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