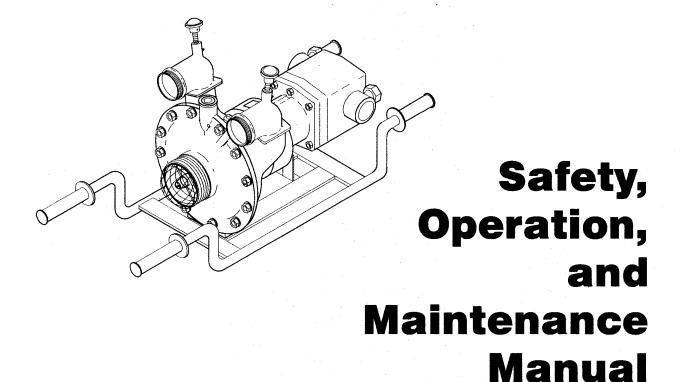
FP40

HYDRAULIC FIRE PUMP



Focused on performance™



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.

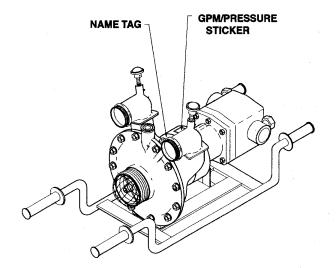
These safety precautions are given for your safety. Review them carefully before operating the tool and before performing general maintenance or repairs.

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 4.

GENERAL SAFETY PRECAUTIONS

The FP40 Hydraulic Fire 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 fire pump and hose before operation. Failure to do so could result in personal injury or equipment damage.

- Operator 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.
- Establish a training program for all operators to ensure safe operation.
- Do not operate the tool unless thoroughly trained or under the supervision of an instructor.
- Always wear safety equipment such as goggles, ear and head protection, and safety shoes at all times
 when operating the tool.
- Never use tools near energized transmission lines. Know the location of buried or covered services before starting your work.
- Do not overreach. Maintain proper footing and balance at all times.
- Do not inspect or clean the tool while the hydraulic power source is connected. Accidental engagement of the tool can cause serious injury.
- Always connect hoses to the tool hose couplers before energizing the hydraulic power source. Be sure all hose connections are tight.
- Do not operated the tool at oil temperatures above 140°F/60°C. Operation at higher temperatures can cause higher than normal temperatures at the tool which can result in operator discomfort.
- Never wear loose clothing that can get entangled in the working parts of the tool.
- Do not operate a damaged, improperly adjusted, or incompletely assembled fire pump.
- Do not put hand over suction strainer while the pump is running.
- Do not engage the pump without assuring the discharge hoses are secure. If a nozzle is connected to the discharge hose, at least two people should grasp and secure the hose before the pump is engaged.
- To avoid personal injury or equipment damage, all tool repair, maintenance and service must only be performed by authorized and properly trained personnel.



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

CAUTION

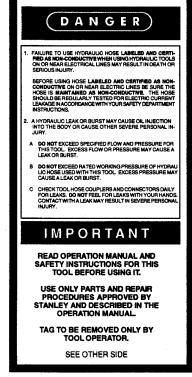
8-30 GPM/30-113 LPM O NOT EXCEED 2400 PRIMER RAD

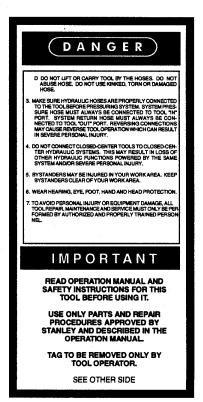
BDO NOT EXCEED SPECIFIED FLOW OR PRESSURE. MUSE CLOSED-CENTER TOOL ON OCIOSED-CENTER SYSTEM. BUSE OPEN-CENTER TOOL ON OPEN-CENTER SYSTEM. BCORRECTLY CONNECT HOSES TO TOOL "IN" AND "OUT" PORTS. BIMPROPER HANDLING, USE OR MAINTENANCE OF TOOL COULD REBULT IN A LEAK, BURST OR OTHER TOOL FAILURE. BCONTACT AT A LEAK OR BURST CAN CAUSE OIL INJECTION INTO THE BOOY. MEALURE TO OSSERVE THESE PRECAUTIONS CAN RESULT IN SERIOUS PERSONAL INJURY.

GPM/PRESSURE STICKER P/N 24119 (shown actual size)

The information listed on the flow and pressure sticker must be legible at all times. Replace this sticker if it becomes worn or damaged. A replacement is available from your local Stanley distributor.

The safety tag (p/n 15875) at right is attached to the fire 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 fire pump when not in use.





SAFETY TAG P/N 15875 (Shown smaller than actual size)

HYDRAULIC HOSE REQUIREMENTS

HOSE TYPES

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

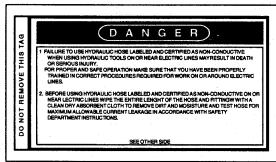
- 1 Certified non-conductive
- Wire-braided (conductive)
- 3 Fabric-braided (not certified or labeled non-conductive)
- Hose 1 listed above is the only hose authorized for use near electrical conductors.
- Hoses 2 and 3 listed above are conductive and must never be used near electrical conductors.

To help ensure your safety, the following DANGER tags are attached to all hose 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 may be obtained at no charge from your Stanley Distributor.

1 CERTIFIED NON-CONDUCTIVE HOSE

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





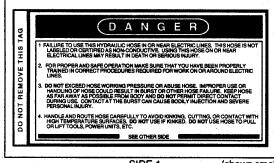
SIDE 1

(shown smaller then actual size)

SIDE 2

2 AND 3 WIRE-BRAIDED AND FABRIC-BRAIDED (NOT CERTIFIED OR LABELED NON-CONDUCTIVE) HOSE

This tag is attached to all conductive hose.





SIDE 1

(shown smaller then actual size)

SIDE 2

HOSE PRESSURE RATING

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

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.



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.



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.

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

IMPORTANT

In addition to the Safety Precautions on pages 1 thru 4 of this manual, observe the following for equipment protection and care.

- Always store the pump in a clean dry space, safe from damage or pilferage.
- Do not exceed the rated flow and pressure limits or use the fire pump for applications beyond its design capacity.
- Do not use the fire pump to pump any other fluids except water.
- Always keep critical tool markings such as labels and warning stickers legible.
- 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.
- Permit only experienced personnel to perform tool repair.
- Be sure to wipe all couplers clean before connecting. Use only lint-free cloths.
- The hydraulic circuit control valve must be in the "OFF" position when coupling or uncoupling the fire pump. Failure to do so may result in damage to the quick couplers and cause overheating of the hydraulic system.
- Check fastener tightness often and before each use daily.

HYDRAULIC SYSTEM REQUIREMENTS

- The hydraulic system should provide a flow of 8-30 gpm/30-113 lpm at an operating pressure of 1000-2400 psi/70-168 bar. Recommended relief valve setting is 2500 psi/172 bar.
- The system should have no more than 250 psi/ 17 bar backpressure measured at the tool end of the operating hoses. The system conditions for measurement are at maximum fluid viscosity of 400 ssu/82 centistokes (minimum operating temperatures).
- The hydraulic system should have enough heat rejection capacity to limit the maximum oil 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/ 22°C difference between ambient temperature and oil temperature.
- The hydraulic system should have a minimum of 25 micron filtration. Recommend using filter elements 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. Petroleum base hydraulic luids with antiwear properties and a viscosity index over 140 ssu/28 centistokes will meet the recommended requirements over a wide range of operating temperatures.
- The recommended hose size is .500 inch/12 mm I.D. up to 50 ft/15 m long and .625 inch/16 mm I.D. minimum up to 100 ft/30 m long.

PREOPERATION PROCEDURES

PREPARATION FOR INITIAL USE

- The unit as shipped has no special unpacking or assembly requirements prior to usage. The unit may be connected to a hydraulic source upon receipt.
- 2. Check that the pump inlet screen is clean. Remove any obstruction before operating the pump. Refer to PUMP CLEANING PROCEDURES.

CHECK HYDRAULIC POWER SOURCE

- 1. Using a calibrated flowmeter and pressure gauge, check that the hydraulic power source develops a flow of 8-30 gpm/30-113 lpm at 1000-2400 psi/70-168 bar.
- 2. Make certain the hydraulic power source is equipped with a relief valve set to "crack" open at 2500 psi/172 bar maximum.

CONNECT HOSES

- 1. Wipe all hose couplers with a clean lint-free cloth before making connections.
- Connect the hoses from the hydraulic power source to the hose couplers on the fire pump. It is a good practice to connect the return hose first and disconnect it last to minimize or avoid trapped pressure within the fire pump motor.
- 3. Observe flow indicators stamped on hose couplers to be sure that oil will flow in the proper direction. The female coupler is the inlet coupler.

Note: The pressure increase in uncoupled hoses left in the sun may result in making them difficult to connect. When possible, connect the free ends of operating hoses together.

OPERATING PROCEDURES

1. Observe all safety precautions.

IMPORTANT

Do not exceed a suction height of more than 25 feet (7 meters).

NOTE: The maximum suction lift (vertical height) of the FP40 Fire Pump is 25 feet (7 meters). Even at this height the output pressure drops to about one half and adjustment of the number of hoses and nozzles may be required. Trying to obtain more water from the pump than the suction pipe is able to deliver will cause the pump to cavitate which will quickly wear out and damage the interior parts of the pump.

- 2. Connect a suction hose fitted with a 4 inch -4 NST/NH female hose end to the inlet fitting of the pump. Make sure the other end of the hose contains a strainer. Place the strainer end of the hose in the water.
- 3. Connect an outlet hose fitted with a 2 1/2 inch 7.5 NST/NH female hose end to each of the outlet fittings. If only one outlet is to be used, turn the knob on the unused outlet clockwise until it stops. This will lock the check valve in the outlet and prevent water from exiting the outlet. Avoid bends or kinks in the outlet hose.

A WARNING

Make sure outlet ends of each outlet hose are secure so that when the fire pump is engaged the outlet hoses do not whip. It is recommended that two people grasp the outlet end of each hose if a fire nozzle is attached.

PRIMING THE PUMP

1. Turn on the hydraulic power source and run the

fire pump at a slow speed. If not using the MANUAL PRIMING PUMP ACCESSORY remove the 21331 pipe plug in the top of the suction cover.

- 2. Add water to the suction cover through the pipe plug inlet until the pump begins to draw water on its own. Replace the 21331 pipe plug.
- 3. Adjust the hydraulic system to the desired fire pump water output.



Note: Water output is proportional to the RPM of the hydraulic motor.

- 4. When finished using the fire pump, set the hydraulic on/off valve at the hydraulic power source to "OFF".
- 5. Drain all water from the pump by removing the 01219 pipe plug located at the bottom of the 26738 pump body.

CLEANING THE SUCTION STRAINER & SUCTION HOSE

IMPORTANT

If water output slows or stops, the suction hose, suction strainer, pump chamber, or outlet hose may be clogged with debris making it necessary to perform the following steps.

- 1. Turn of the hydraulic power source.
- Remove debris from the suction hose and suction strainer. If debris has found its way into the pump chamber see CLEANING THE PUMP-ING CHAMBER.

CLEANING THE PUMPING CHAMBER

1. Turn off the hydraulic power source.

- 2. Pry the 26776 Strainer Screen out using a flat blade screw driver and remove any debris found in the inlet. If debris has found its way into the impeller and diffuser, follow steps 3 through 5.
- Remove the 26760 screw, 26761 lock washer, and 26758 shaft nose located in the suction cover inlet.
- 4. Remove 12 each 26764 nuts and 12 each 26763 lock washers which fasten the suction cover to the pump body and lift the suction cover away from the pump body.
- 5. Clean all debris from the pump cover, pump body, impeller and diffuser. If it is necessary to disassemble the impeller and diffuser, refer to IMPELLER & DIFFUSER REMOVAL instructions found later in this manual.

COLD WEATHER OPERATION

- Before using the fire pump in cold weather, preheat the hydraulic oil at low engine speed.
 When using the normally recommended oils, oil should be at or above 50 F/10 C (400 ssu/82 centistokes) before use.
- 2. Damage to the hydraulic system or fire pump motor can result from use with oil that is too viscous or thick.
- 3. After use always drain water from the pump by removing the 01219 pipe plug found at the bottom of the pump body. Failure to do so may allow water in the pump to freeze which can severely damage the pump housings and internal components.
- 4. Before storing, pour 8 to 12 ounces of ethylene glycol type anti-freeze into the suction inlet of the pump. Run the pump at low speed for several seconds.

SERVICE INSTRUCTIONS

Good maintenance practices will keep the pump on the job and increase its service life.

The single-most important maintenance practice is to keep the hydraulic oil clean at all times. Contaminated hydraulic oil will cause rapid wear and/or failure of motor internal parts.

Follow the procedures outlined in the "HYDRAU-LIC SYSTEMS REQUIREMENTS" section of this manual to ensure peak performance from the tool.

PRIOR TO DISASSEMBLY

- Clean tool exterior.
- Obtain the seal kit so that all seals exposed during disassembly can be replaced. Note orientation of seals before removing them. Install new seals in the same way.

NOTE: For orientation of the parts identified in the following procedures, refer to the parts drawing in this manual.

PUMP DISASSEMBLY

SUCTION COVER REMOVAL

- 1. Remove 2 each 371802 capscrews and 1 each 370151 capscrew which hold the frame assembly to the pump. Set the frame assembly aside.
- 2. Pry the 26776 strainer from the pump cover using a flat blade screw driver.
- Remove the 26760 screw, 26761 washer, and 26758 shaft nose from the front of the pump cover.
- 4. Remove 12 each 26764 nuts and 12 each 26763 washers which fasten the pump cover to the pump body. Remove the pump cover.

IMPELLER & DIFUSSER REMOVAL

- 1. Perform Suction Cover Removal procedures.
- 2. Remove the 26749 nut and 26750 tab washer from the front of the pump shaft.
- 3. Lift the 26739 impeller off the pump shaft. It

may be necessary to use a bearing puller to perform this task.

- 4. Remove the 26769 key from the pump shaft.
- 5. Lift the 26746 pump seal off the pump shaft.
- 6. Remove 3 each 26764 nuts and 3 each 26763 washers which fasten the 26740 diffuser to the pump body and lift out the diffuser.

CHECKVALVE DISASSEMBLY

- 1. Remove 4 each 26870 nuts and 4 each 26869 lock washers which fasten the 26860 check valve assembly to the pump body.
- 2. Lift off the checkvalve assembly taking care to prevent the 26861 flap from falling out. Turn the checkvalve assembly upside down and lift out the flap.
- 3. Remove the 26867 roll pin using a punch and unscrew the 26864 knob from the 26862 screw.
- 4. Remove the 26862 screw by unscrewing through the bottom of the checkvalve body.

MOTOR REMOVAL

- 1. Remove 2 each 371057 capscrews and 2 each 20871 lock washers which fasten the hydraulic motor to the 25333 motor mount.
- 2. Pull the motor away from the motor mount.
- 3. Remove the 24097 coupling sleeve.

PUMP SHAFT REMOVAL

- 1. Perform SUCTION COVER REMOVAL, IMPELLER AND DIFUSSER REMOVAL, and MOTOR REMOVAL as previously described.
- 2. Remove 6 each 26767 nuts and 6 each 26766 lock washers which fasten the 25333 motor mount to the pump body and set the motor mount aside.
- 3. Remove 26751 capscrew, 265761 lock washer, and the 26752 washer from the motor end of the pump shaft.
- 4. Lift off the 26744 pump coupling and the 26770

key.

- 5. Remove the 26755 snap ring which retains the 26747 bearing. Lift off the 26754 washer.
- 6. Using a mallet, drive the pump shaft out from the impeller side. NOTE: The 26747 bearing may also come out with the pump shaft. If not, it will be necessary to drive it out with a punch from the impeller side.

MOTOR DISASSEMBLY

The hydraulic motor is not manufactured by Stanley Hydraulic Tools. The motor is a PARKER NICHOLS model #M28-127-12S-20NB. Servicing of the Parker motor or instructions for servicing the Parker motor may be obtained from any Parker Hannifin dealer.

A seal kit for the motor is included with the 27514 pump seal kit.

PUMP ASSEMBLY

PUMP SHAFT REPLACEMENT

- 1. Apply grease to the 26757 and 26756 o-rings and install into the pump shaft bore on the pump body.
- 2. Install the 26747 bearing into the pump body followed by the 26754 washer and 26755 snap ring.
- 3. Apply grease to the 26742 pump shaft and install into the pump body. Light tapping with a mallet may be required.

HYDRAULIC MOTOR REPLACEMENT

- 1. Place the pump body on a work surface, impeller side down, being careful not to damage the flange surface. Install the 26744 coupling with 26770 key onto the pump shaft and secure with the 26752 washer, 26761 lock washer, and 26751 capscrew.
- 2. Install the 25333 motor mount onto the pump body with 6 each 26766 lock washers and 6 each 26767 nuts.
- 3. Install the 24097 coupling sleeve through the motor mount and into the the pump coupling.

- 4. Install the 27551 coupling flange with 27512 key onto the hydraulic motor shaft. Position the coupling flange so that the distance between the face of the pilot diameter surface of the hydraulic motor's mounting flange to the backside (opposite side from that which the sleeve fits in) of the largest diameter of the 27551 coupling flange is .845 inches/21 mm. Tighten the set screw in the coupling flange.
- 5. Install the 26082 hydraulic motor with 2 each 24095 lock washers and 2 each 371802 capscrews.

IMPELLER & DIFUSSER REPLACEMENT

- 1. Replace the diffuser into the pump body and install 3 each 26763 lock washers and 3 each 26764 nuts.
- 2. Install a new 26746 pump seal onto the pump shaft.
- 3. Install the impeller and key onto the pump shaft. Install the 26750 tab washer and the 26749 nut. After tightening the nut, bend a portion of the washer up against one flat of the nut.

SUCTION COVER REPLACEMENT

- 1. Apply grease to the 26768 o-ring and install into the 26741 suction cover.
- 2. Install the suction cover onto the pump body with 12 each 26763 lock washers and 12 each 26764 nuts.
- 3. Install the 26758 shaft nose onto the motor shaft followed by the 26761 lock washer and 26760 screw.
- 4. Press the 26776 strainer into the suction cover inlet.

FRAME ASSEMBLY REPLACEMENT

- 1. After performing all other procedures in this manual, installation of the frame assembly is the last and final step to be performed.
- 2. The frame assembly attaches to the bottom of the pump body and to the bottom end of the motor mount using 2 each 24095 lock washers and 2 each 371802 capscrews, and 1 each 01214 lock washer and 1 each 370151 capscrew.

TROUBLESHOOTING

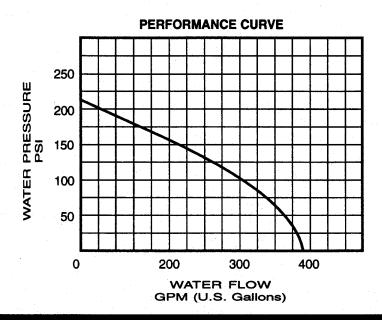
If symptoms of poor performance develop, the following chart can be used as a guide to correct the problem.

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

PROBLEM	CAUSE	REMEDY
Pump will not draw water.	Pump not primed.	Prime pump. See operation instructions for proper priming procedures.
	Suction height is too high.	Reduce suction height. See operation instructions.
e Silveni (Birlin)	Strainer, hose, or pumping chamber clogged.	See operation instructions for cleaning the strainer and suction hose and pumping chamber.
	Suction hose or fitting gaskets are damaged.	Inspect the suction hose for cracks or holes. Check fitting gaskets.
	Drain plug is open or not tight causing pump to draw air	Tighten drain pipe plug.
	Fill plug is open or not tight causing pump to draw air.	Tighten fill pipe plug.
Low output flow or pressure.	Suction problems. Not enough water can get through.	Review causes and remedies for "Pump will not draw water" problem.
Sudden drop in output flow or pressure.	Suction problems. Not enough water can get through.	Review causes and remedies for "Pump will not draw water" problem.
	Output hose has burst.	Inspect output hose for damage.
	Motor shaft coupler sleeve or couplers damaged.	Inspect coupler sleeve, couplers, and keys for damage. Replace if required.
	Hydraulic power source is not delivering correct oil flow and/or pressure.	Test hydraulic power source. Service as required.

SPECIFICATIONS

Maximum Output (water flow)	378 gpm/1431 lpm
Maximum Output (water pressure)	215 psi/14.83 bar
Pressure Range	
Flow Range	
Maximum Oil Flow	
Connect Size and Type	
Weight (less couplers)	
Overall Length	
Width	
Height	20.9 inches/53 cm
Water Outlet Size	
Water Inlet Size	



WARRANTY

Hand held tools and their parts are covered by a limited warranty against defects 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).

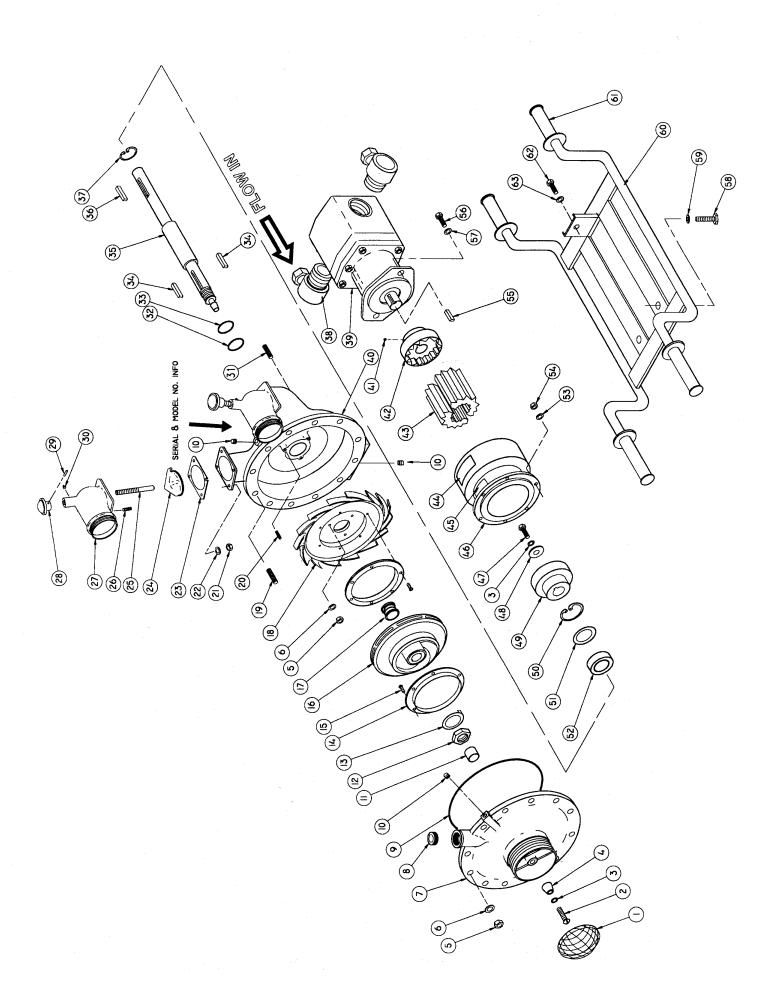
The Warranty Registration Card packed with the tool must be filled out and returned to Stanley upon receipt of the tool.

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.

Ask your dealer to explain the limitations and extents of this warranty.



FIRE PUMP PARTS LIST

Item No.	Part No.	Qty	Description
51	26754	-	Washer
ß	26747	-	Bearing
83	26766	9	Lock Washer
ß	26767	9	NG
જ	27512	-	Key
93	20871	8	Capscrew
24	371057	8	Lock Washer
8	371802	7	Capscrew
ස	24095	7	Lock Washer
8	24080	-	Frame Assembly
69	08080	Ņ	Handle Grip
ଥ	370151	-	Capscrew
8	01214	-	Lock Washer

SEAL KIT DATA

		Seal Kit Part No. 27514
Part No.	Qty	Description
26768	1	O-ring
26746	-	Pump Seal
26757	-	O-ring
26756	-	O-ring
27513	-	Motor Seal Kit

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Description	Strainer	Screw	Lock Washer	Shaff Nose Nut	Lock Washer	Suction Cover	Pipe Plug, 3/4 NPT Hex Socket	O-mig Pipe Plug. 1/4 NPT Hex Socket	Nose Bearing	Nut	Tab Washer	Screw	Impeller	Pump Seal	Diffuser	onis.	New	Lock Washer	Gasket	Flap	Screw	Stud	Knob	Roll Pin	Grease Fitting	Stud		Key	Pump Shaft	Key Snor Ding	Swivel	Hydraulic Motor	Pump Body	Set Screw	Coupling Flange	Coupling Sieeve GPM Sticker 8-30 GPM	Name Tad - FP40	Motor Mount	Capscrew	Washer	Pump Coupling Snap Ring	
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Part No.	26776	26760	26761	26/38	26763	26741	21331	01219	26759	26749	26750	26753	26739	26746	26740	17/97	20/02	70670 70869 70869	26863	26861	26862	20007	26864	26867	26866	26765	76756	26769	26742	26770	26084	26082	26738	01397	27551	2409/	24120	25333	26751	26752	26744 26755	4
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SERVICE AND REPAIR NOTES



Stanley Hydraulic Tools

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