
HP18284 M

Hydraulic Diesel Power Unit

DRAFT MANUAL



Safety, Operation and Routine Maintenance
User's Manual

 DANGER
SERIOUS INJURY OR DEATH COULD RESULT FROM THE IMPROPER REPAIR OR SERVICE OF THIS TOOL.
REPAIRS AND / OR SERVICE TO THIS TOOL MUST ONLY BE DONE BY AN AUTHORIZED AND CERTIFIED DEALER.



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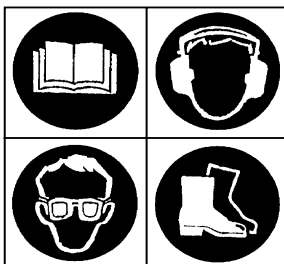
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SERVICING THE POWER UNIT: This manual contains safety, operation, and detailed maintenance instructions. Stanley Hydraulic Tools recommends that servicing of hydraulic tools, other than routine maintenance, must be performed by an authorized and certified dealer. Please read the following warning.



SERIOUS INJURY OR DEATH COULD RESULT FROM THE IMPROPER REPAIR OR SERVICE OF THIS TOOL.

REPAIRS AND / OR SERVICE TO THIS TOOL MUST ONLY BE DONE BY AN AUTHORIZED AND CERTIFIED DEALER.



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 3.

GENERAL SAFETY PRECAUTIONS

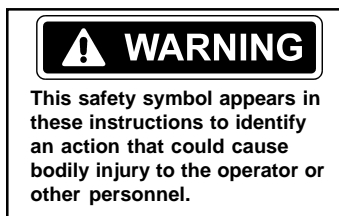
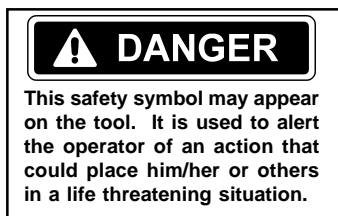
The HPR Compact Power Unit will provide safe and dependable service if operated in accordance with the instructions given in this manual. Read and understand this manual and any stickers and tags attached to the power unit and hoses before operation. Read and understand the engine manual furnished with the unit. 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 power unit unless thoroughly trained or under the supervision of an instructor.
- Always wear safety equipment such as goggles, ear, head protection, and safety shoes at all times when operating the power unit and a tool.
- Do not inspect or clean the power unit while it is running.
- Supply hoses and fittings must have a minimum working pressure rating of 2500 psi/175 bar.
- Be sure all hose connections are tight.
- Make sure all hoses are connected for correct flow direction to and from the tool being used.
- Do not inspect hoses and fittings for leaks by using bare hands. "pin-hole" leaks can penetrate the skin.
- Never operate the power unit in a closed space. Inhalation of engine exhaust can be fatal.
- Never wear loose clothing that can get entangled in the working parts of the power unit.
- Keep all parts of your body away from the working parts of the power unit.
- Keep clear of hot engine exhaust.
- The hydraulic circuit control valve must be in the "OFF" position when coupling or uncoupling a tool. Wipe all couplers clean before connecting. Use only lint-free cloths. Failure to do so may result in damage to the quick couplers and cause overheating of the hydraulic system.
- Do not add fuel to the power unit while the power unit is running or is still hot.
- Do not operate the power unit if diesel odor is present indicating a fuel leak.

- Do not use flammable solvents around the power unit engine.
- Do not operate the power unit within 3.3 ft./1 m of buildings, obstructions, or flammable objects.
- Allow the engine to cool before storing the power unit in an enclosure.
- Do not operate a damaged, improperly adjusted, or incompletely assembled power unit.
- To avoid personal injury or equipment damage, all tool repair, maintenance and service must only be performed by authorized and properly trained personnel.

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.

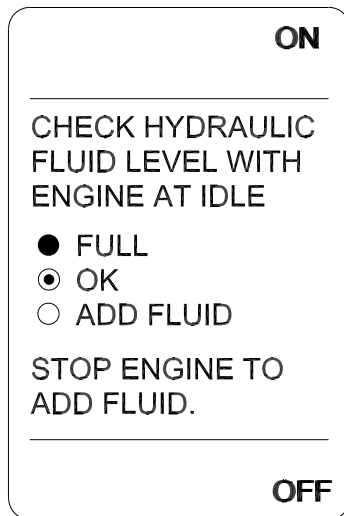


Always observe safety symbols. They are included for your safety and for the protection of the tool.

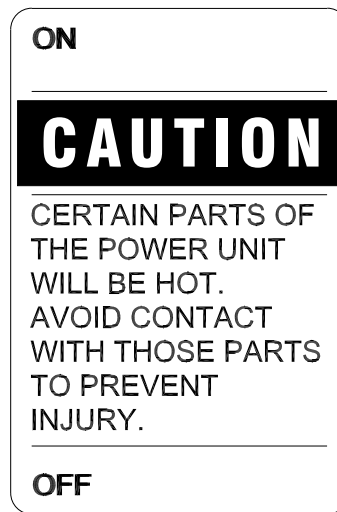
LOCAL SAFETY REGULATIONS

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

TOOL STICKERS & TAGS

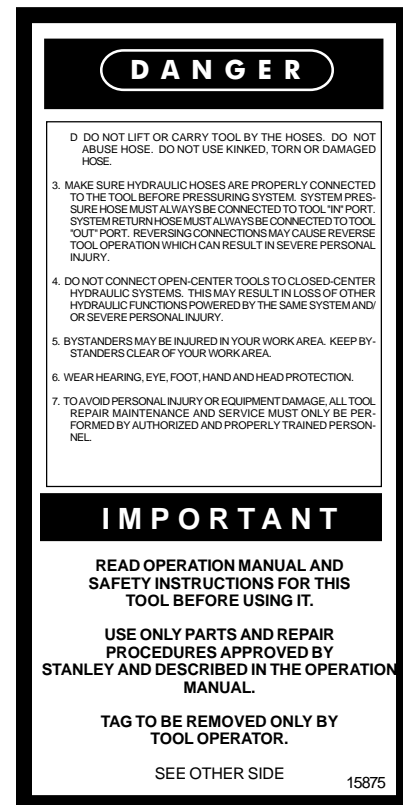
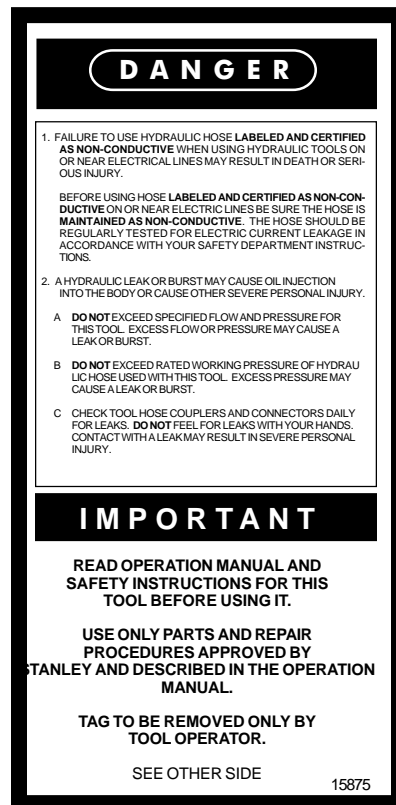


28044 Decal - located on dash panel



28047 Decal - located on dash panel

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



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

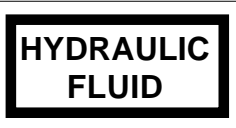
TOOL STICKERS & TAGS CONTINUED

FOR ONE OR TWO 5 GPM TOOLS, PUSH THE COMBINER KNOB IN. FOR ONE 10 GPM TOOL, PULL THE COMBINER KNOB OUT AND TURN BOTH TOOL VALVES ON.

28045 Decal - located on dash panel
N/A for HP10284M

CALIFORNIA
PROPOSITION 65 WARNING
ENGINE EXHAUST CONTAINS CHEMICALS KNOWN TO
THE STATE OF CALIFORNIA TO CAUSE CANCER,
BIRTH DEFECTS AND OTHER REPRODUCTIVE HARM.

29133 Decal - located on frame below dash panel



35686 Decal - located on hydraulic tank filter block

DIESEL FUEL ONLY

32231 Decal - located on fuel tank

**REFER to HP18284M
Start Procedure (Page 10)**

TO START:
BOTH HYDRAULIC VALVES OFF
TURN KEY TO START, HOLD
TO CRANK ENGINE.
RELEASE KEY TO RUN.
NOTE: FOR COLD STARTS,
TURN KEY TO ON, PRESS
AND HOLD GLOW PLUG
BUTTON FOR 10-15 SEC
BEFORE CRANKING.

TO STOP:
BOTH HYDRAULIC VALVES OFF
ENGINE THROTTLE TO SLOW
TURN SWITCH KEY OFF

TO OPERATE TOOLS:
CONNECT TOOL(S)
TURN VALVE(S) ON

35677 Decal - located on dash panel

DANGER

OPERATE UNIT ONLY IN A
WELL VENTILATED AREA.
ENGINES PRODUCE CARBON
MONOXIDE WHICH IS AN
ODORLESS DEADLY POISON.

28046 Decal - located on dash panel

HYDRAULIC HOSE REQUIREMENTS

HOSE TYPES

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

- ① Certified non-conductive
- ② 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.

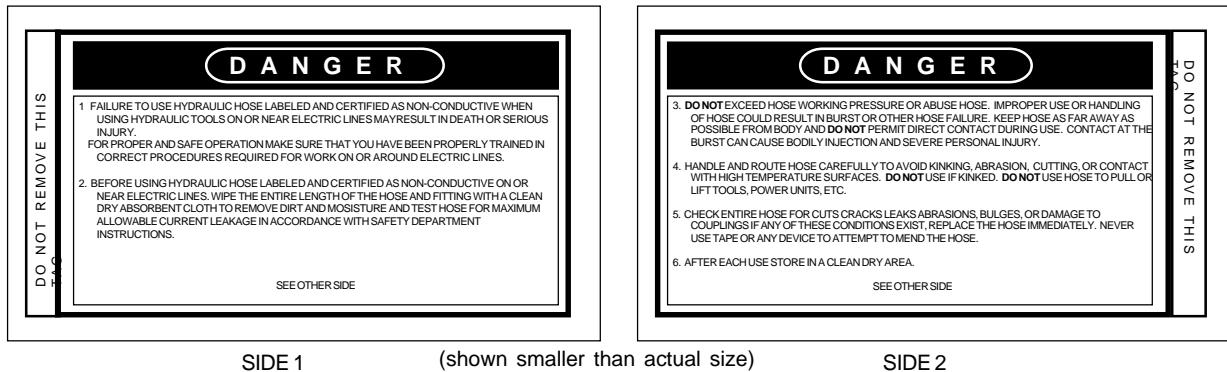
Hoses ② and ③ listed above are **conductive** and **must never** be used near electrical conductors.

HOSE SAFETY TAGS

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.

The tag shown below is attached to "certified non-conductive" hose.

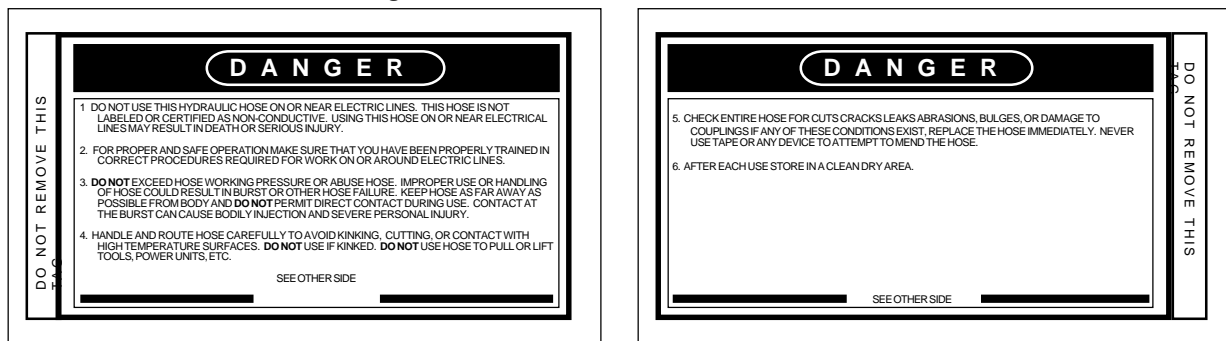


SIDE 1

(shown smaller than actual size)

SIDE 2

The tag shown below is attached to "conductive" hose.



SIDE 1

(shown smaller than actual size)

SIDE 2

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.

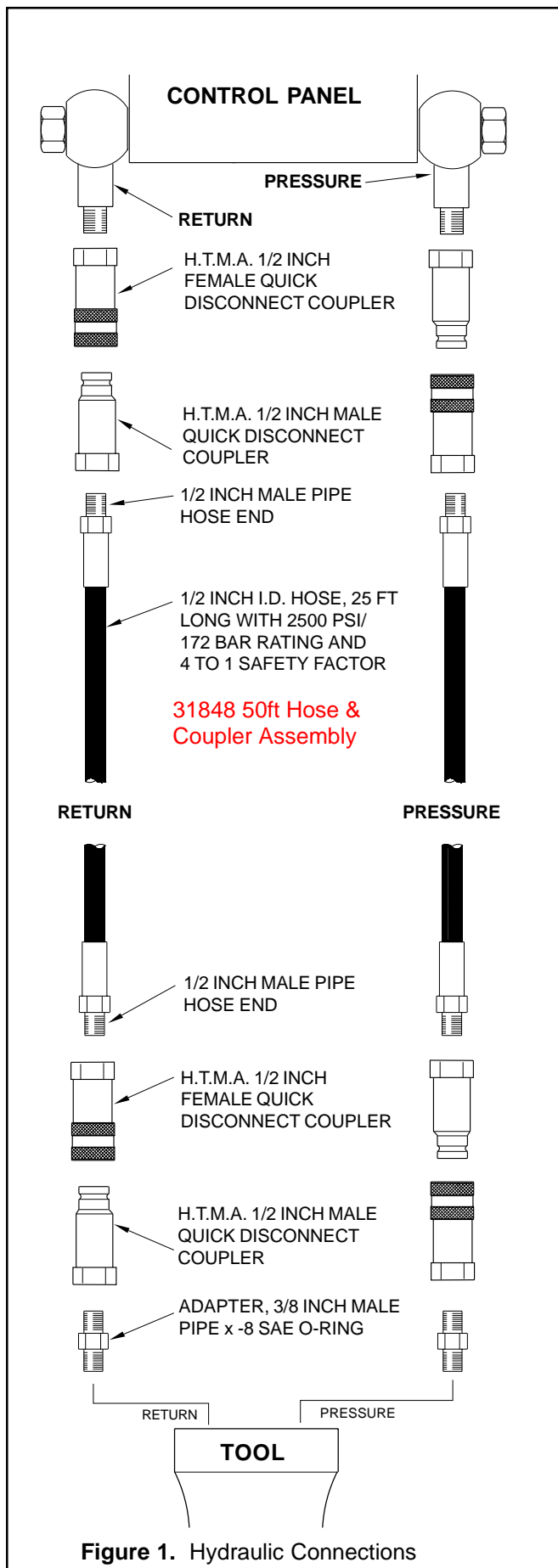


Figure 1. Hydraulic Connections

quick disconnect fittings (NPT type threads). (See Figure 1.)

Longer hoses may be used when necessary, but can effect the operation of the engine automatic throttle due to fluid resistance in the hose. If small diameter or long hoses are used, or if restrictive fittings are connected to the supply and return ports, the pressure required to push the fluid through the system and back to the hydraulic tank will be higher. If the pressure is too high, this will cause the engine RPM to remain at full load if "AUTO" is selected on the automatic throttle. Also see "HYDRAULIC HOSE REQUIREMENTS" earlier in this manual.

QUICK DISCONNECT COUPLERS

H.T.M.A. approved quick disconnect couplings are installed to hydraulic hoses so that the direction of oil flow is always from the male to the female quick disconnect as shown in figure 1. Quick disconnect couplings and hose fittings are selected so that additional fittings such as reducer or adapter fittings are not required.

If adapter fittings are used, they must be approved steel hydraulic fittings meeting a minimum operating pressure rating of 2500 psi/172 bar. Do not use galvanized pipe fittings or black pipe fittings.

Use thread tape or pipe joint compound when installing quick disconnect couplings to hose or tool fittings. Follow the instructions furnished with the selected thread sealant. **DO NOT OVERTIGHTEN THE FITTINGS.**

MAAS HOSE AND COUPLER ASSEMBLY P/N 31848
(Includes 50ft hose set and couplers)

OPERATING INSTRUCTIONS

PREPARATION FOR USE

ENGINE



Do not operate the power unit until you have read the engine operating and maintenance instructions manual furnished in addition to this manual.

1. Engine Crankcase Oil Level

Always check the oil level before starting the engine. Make sure the oil level is at the FULL MARK on the dipstick. Do not overfill. Use oil as specified in the engine operating and maintenance manual.



The engine oil sump must never be overfilled. Overfilling can cause the to engine to overheat and cause crankshaft seal damage.

2. Engine Fuel Level

Check the fuel level. If low, fill with DF-1 or DF-2 diesel fuel (A.S.T.M. D975-66T No. 1 or no. 2 dark).



Shut the engine off before attempting to add fuel to the fuel tank. Do not remove the fuel cap while the engine is running. Do not add fuel to the tank while the engine is hot. Do not fill the fuel tank to a point of overflowing.

HYDRAULIC FLUID

Check the dipstick in the hydraulic fluid reservoir for the proper fluid level. Proper fluid level is indicated when the center section of the dipstick shows oil. If the center section of the dipstick does not show add hydraulic fluid.

7 Do not over fill the hydraulic tank. Oil will rise and leak from the tank breather.

Use fluids meeting the following specifications.

Viscosity (Fluid Thickness)

U.S.

50°F 450 SSU Maximum
100°F 130-200 SSU
140°F 85 SSU Minimum

METRIC

10°C 95 Centistokes
38°C 27-42 C.S.
60°C 16.5 C.S. Minimum

PourPoint -10°F/-23°C Minimum (for cold startup)

Viscosity Index (ASTM D-2220) 140 Minimum

Demulsibility (ASTM D-1401) 30 Minutes Maximum

Flash Point (ASTM D-92) 340°F/171°C Minimum

Rust Inhibition (ASTM D-665 A & B) Pass

Oxidation (ASTM D-943) 1000 Hours Minimum

Pump Wear Test (ASTM D-2882) 60 mg Maximum

The following fluids work well over a wide temperature range at startup, allow moisture to settle out and resist biological growth that may occur in cool operating hydraulic circuits. These fluids are recommended by Stanley Hydraulic Tools. Other fluids that meet or exceed the specifications of these fluids may also be used.

Chevron AW-MV-32

Exxon "Univis" J-26

Mobil D.T.E. 13

Gulf "Harmony" AW-HVI-150-32

Shell "Tellus" T-32

Texaco "Rando" HD-AZ

Union "Unax" AW-WR-32

BATTERY

The supplied 12 Volt DC battery, No maintenance dry cell The battery is air transportable and is suitable for cold weather applications. Make sure the battery cables are tight and clean

HP1 Diesel Starting Procedures

Engine Control Panel

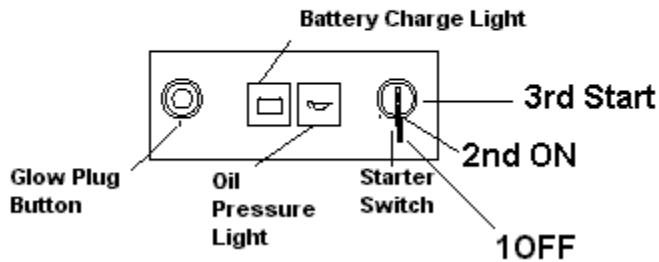


Figure 1

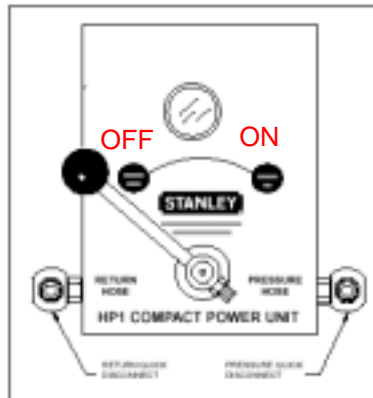


Figure 2

1. Before starting the engine make sure the hydraulic circuit control lever is in the Tool OFF position and the throttle cable is fully depressed. (FIG.2)
2. Turn the three-position switch counter clockwise until the engine begins to crank. When the engine starts release the lever. The switch will default to the ON (2nd) second position. (FIG.1)

For cold starts, turn the starter switch to the ON (2nd) second position. The battery light will come on, then press and hold the glow plug for 10 to 15 seconds. Release the glow plug button and turn the start switch to the third (3rd) start position to crank the engine.

3. When the engine is warmed up, pull the throttle cable to the full open position and lock it into place. This will provide the proper RPM to obtain 8 gpm required to power the hydraulic tools.
4. Push the hydraulic tool circuit control lever right to the ON position. (Fig.2)

Engine Shutdown

1. Place the circuit lever in the OFF position. Push the throttle control completely in. Allow the engine to idle for approximately one minute. Pull the engine shutoff cable this stops the engine. Turn the starter switch OFF (1st)

NOTE: The starter switch must be turned to the off position. Failure to do so will cause battery failure.

Oil Pressure Light

A problem with the engine oil lubricating system exists if the oil pressure light remains on after the engine has started. Shutdown the engine and then have the lubricating system serviced by a qualified technician.

COLD WEATHER STARTUP

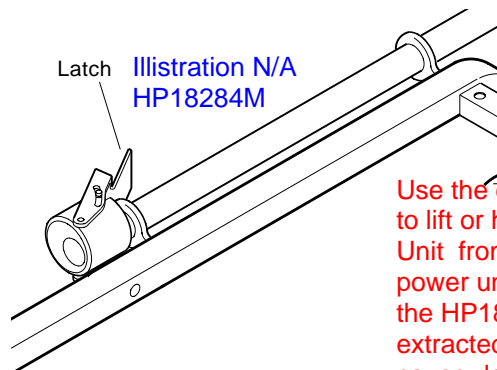
1. Use the procedures described under "Starting The Engine" and then follow the procedures below.
2. Hydraulic fluids are thicker in cold weather, therefore, it is recommended that the engine be run at low idle long enough to bring the fluid temperature up to a minimum of 50°F/10°C or until the top of the hydraulic filter feels warm.
3. If the tools and tool hoses are cold, it is recommended to allow hydraulic fluid to circulate through the tool hoses until warm before using the tools.

USING HANDLE BARS

Do not lift the power unit with the handle bars extracted

The power unit is equipped with retractable handle bars so it can easily be moved at the job site.

1. To use the handle bars, pull each handle bar straight out until the bar locking mechanism engages. The power unit may now be pushed about in a wheelbarrow fashion.
2. To retract the handle bar, push the latch away from the handle bar to release the lock. Then push the handle bar in.



Use the correct number of personnel to lift or hoist the HP18284M Power Unit from the MAAS Trailer. The power unit weighs 384 lbs. Lifting the HP18284M with the handle bars extracted in the transport position will cause damage to them.

STORAGE

- Clean the unit thoroughly before storage. Do not use water pressure.
- Always store the unit in a clean and dry facility.
- If the unit will be stored for a prolonged period (over 30 days and up to 6 months), replace the fuel filter then add diesel fuel preservative to the fuel tank. Follow the directions provided with the fuel preservative.
- Check hydraulic reservoir for water. If water is found, change the oil and circulate it through the tool hose and tool. (See "HYDRAULIC SYSTEM MAINTENANCE" later in this section).
- Disconnect tool hoses.

ENGINE MAINTENANCE

Follow the maintenance schedule and general maintenance instructions in the engine maintenance and operation manual furnished with the power unit. Normal maintenance includes:

- Inspect the air filter daily. Clean if necessary.
- Replace dry air filter every 200 hours of operation.
- Replace fuel filter every 100 hours of operation.
- Change engine oil after first 50 hours of operation, then after every 200 hours of operation. Change more often if cold, moist or dusty conditions exist.
- Change oil filter when engine oil is changed.
- Check oil level daily.
- Each day, remove dirt and debris from engine with a cloth or brush. Do not use water spray.

HYDRAULIC SYSTEM MAINTENANCE

Observe the following for maximum performance and service life from the hydraulic system.

- Always keep hydraulic system and fluids clean.
- Keep water out of fluid.
- Check hydraulic lines and fittings daily for leaks, kinks, etc. Do not use your hand to perform this check.
- Make sure the suction hose (from the hydraulic tank to the inlet manifold) is clamped securely. This reduces the risk of pump cavitation. All pump fittings should be tight.
- Change the hydraulic filter element every 200 hours of operation. Change more often if cold, moist or dusty conditions exist.
- Check oil cooler for debris. Remove debris with air pressure.
- Keep air out of hydraulic lines. Hydraulic system overheating and foam at the hydraulic tank breather

indicate air is present in the lines. Keep all suction line fittings and clamps tight.

- Hydraulic system wear is noted by increased heat during tool operation, reduced tool performance and eventual system breakdown.
- Operate with the fluid temperature at 50° - 140° F/10° - 60° C for improved seal and hose life, and maximum efficiency.

Filling The Reservoir

1. Make sure the engine is stopped before opening the filler cap. Fill slowly with the recommended fluid as listed in the "Operation" section of this manual.
2. Add fluid as needed. Stop filling when the dipstick center registers in the center. Fluid must be visible on center of the dipstick at all times.
3. Secure the filler cap before restarting the engine.

Removing Condensed Moisture From Hydraulic Fluid

Condensation is a frequent problem with cool hydraulic circuits. This condition occurs in moist or cold climates. When warm air in the hydraulic tank draws moisture from the cooler air outside, water accumulates in the tank.

1. To remove water from the hydraulic system, use the "PRESSURE" hose without the quick-disconnect coupler attached. Start the engine and let it run at the idle speed. Pump the fluid into a clean 5 gal./20 ltr container.
2. Turn the engine "OFF" as soon as the hydraulic tank (reservoir) is empty. DO NOT operate the engine with an empty hydraulic tank as pump damage may occur.
3. Allow the fluid to sit long enough for the water to settle to the bottom of the container. Slowly pour the fluid back into the hydraulic tank, avoiding the water at the bottom of the container.

General

Tests and adjustments should be performed periodically to ensure the power unit is operating at maximum efficiency. Stanley Circuit Tester (Part Number 04182) is recommended. This tester can be used to isolate problems in both the engine and hydraulic system prior to any power unit disassembly.

Testing The Hydraulic Circuit

The following tests can be performed to ensure that the hydraulic pump is supplying the correct flow and pressure and that the system relief valve is operating properly.

During these tests, make sure the engine is warm and operating smoothly. If test results are not as specified, refer to the troubleshooting table given in this section for possible causes.

To test the Hydraulic 8gpm circuit, proceed as follows:

1. Set both Circuit Control Levers to the "OFF" (Left) position. Push the Combiner Knob "IN" to separate the two circuits.
2. Connect the Stanley Circuit Tester across two hose ends (where the tool would normally be connected)
3. Fully open the tester restrictor valve (counter clockwise).
4. Start the engine and allow it to run until warm.
5. Pull the engine throttle control completely "OUT" so that the engine is running at full RPM.
6. Move the Circuit Control Lever for the circuit to be tested to the "ON" (up) position.
7. With the engine at high speed, the test flow gauge should read 8 gpm.
8. Slowly turn the restrictor valve clockwise while watching the pressure gauge. The flow rate should stay at 8gpm as the pressure gauge reaches 2100-2200 psi/148-155 bar.
9. At 2100-2200 psi/148-155 bar the relief valve should begin to open. The pressure at which the relief valve

just begins to open is commonly referred to as the "cracking pressure". At the "cracking pressure", the flow rate should start to drop because the relief valve is allowing fluid to bypass to the hydraulic reservoir. The "cracking pressure" is preset at the factory and if it is not within the above range, the relief valve must be reset as follows:

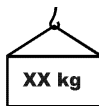
- a. Access to the relief valves can be gained through the top of the power unit between the dash panel and top grille. If more room is required, remove the dash panel. Use an open end or box end wrench to remove the cap on the relief valve.
- b. Use an Allen wrench to adjust the relief valve. Turn clockwise to raise the pressure and counterclockwise to reduce the pressure.
- c. Replace the cap and test for 2100-2200 psi/148-155 bar as described above.
- d. Repeat the above test with the hoses and tester connected to the other circuit.

TROUBLE SHOOTING

PROBLEM	CAUSE	REMEDY
Engine will not run.	Battery not connected.	Attach battery cables, check wires.
	Weak battery.	Test battery, charge or replace.
	No fuel.	Add Fuel.
	Fuel filter plugged.	Replace fuel filter.
Fluid blowing out of fluid reservoir vent.	Defective pump seal.	Replace pump seal.
	Hydraulic tank overfilled.	Correct the fluid level.
Hydraulic tool won't operate.	Control lever setting incorrect.	Set control lever to "TOOL ON".
	Incorrect hose connection to tool.	Make sure the tool hose goes from pressure fitting to tool and back to the return fitting. Fluid always flows from the male to female fittings.
	Quick disconnect fittings defective.	Detach from hose, connect set together and check for free flow.
	Hydraulic fluid level low.	Check for correct fluid level. Fill using the recommended fluid.
	Pump coupling defective.	Check coupling between pump and blower. The coupler should slide only .03-.06 in./1.60-1.60 mm inches between blower and pump.
	Relief valve stuck open.	Adjust or replace valve.
	Incorrect throttle setting	Pull throttle completely out so that engine runs at full rpm.

SPECIFICATIONS

Flow One 8 gpm circuit
 Pressure Range 140 bar / 2000 psi
 Couplers HTMA Flush Face Type Male & Female


 Weight
 Model HP18284M..... 152 kg / 385 lbs

Overall Length
 Model HP18284M.....90cm../35.5 in

Overall Width
 Model HP18284M 61 cm / 24 in.

Overall Height
 Model HP18284M With Hose Basket..... 100.33cm/ 39.5 in.

Engine Duetz Ruggerini MD191, 2 cylinder, diesel, 19 hp
 Fuel Tank Capacity

Model HP18284M..... 16 ltr / 4.2 gal
 Oil Reservoir Capacity 11 ltr / 2.7 gal



or



EHTMA Category "C" (20 lpm @ 138 bar) or "D" (30 lpm @ 138 bar)

ACCESSORIES

P/N	Description
31848	50 ft. Dual Hydraulic Hose, 1/2 in. ID, Wire Braid, with Couplers
31972	25 ft. Dual Hydraulic Hose, 1/2 in. ID, Wire Braid, with Couplers
24070	Flush Face Coupler Set, 1/2 in. NPT NSN 4730-01-479-0555
03974	Bruning Flush Face Coupler Set, 1/2 in. NPT
04182	Flow and Pressure Tester
00936	Adapter, 1/2 SAE to 3/8 in. Male Pipe
02151	Bushing, 1/2 in. to 3/4 in.
04192	Hex Nipple, 1/2 in. Male Pipe
03044	Hex Nipple, 3/8 in. Male Pipe

MAAS TOOLS	NSN	Description
Stanley #		
BR6713016	3820-012-421-440	Military Pavement Breaker
HD45110D	5130-01-178-6338	Military Hammer Drill
PD48142	1710-01-468-8021	MAAS Post Driver
PP10100A	1710-01-468-8024	MAAS Post Puller
HP18299M	4320-01-450-3557	Hydraulic Power Unit Gasoline Powered
HP18284M	1730-01-342-2183	Hydraulic Power Unit Diesil Powered
31848	4720-01-361-5033	50ft. Dual hose Assembly

GENERAL

Service instructions in this section are limited to parts and components manufactured by Stanley Hydraulic Tools. Other major components such as the engine and hydraulic pump should be serviced by representatives of the respective manufacturers as follows:

ENGINE

Duetz Ruggerini, 19 hp
Model MD191

The engine should be serviced only by *Ruggerini Dealers*. It is recommended to contact the Deutz Corporation for the nearest authorized Ruggerini dealer at 1-770-564-7100.

HYDRAULIC PUMP

TBD

Engine Removal

Most engine servicing can be performed without removing the engine. Consult with your Ruggerini Dealer regarding engine repairs.

1. Remove both battery connections. Remove the battery strap or battery hold down. Remove the battery.
2. Remove the wheels by first removing one retaining ring, slide one washer and wheel off of the axle, then pull the other wheel and axle out of the axle brackets.

Fuel Lines and Fuel Tank

3. Follow the applicable instructions below to disconnect engine fuel lines.

Model HP20271: The hoses at the fuel tank must be disconnected. Obtain the following materials for plugging the fuel tank ports and the fuel hoses.

- a. Two short lengths (2 to 3 inches) of fuel hose one with 1/4 inch inside diameter and one with 1/8 inch inside diameter.

- b. Four plug fittings or wood dowels to plug one end of each of the short hoses and also the ends of the hoses disconnected from the fuel tank.

Using the fittings or the wood dowels, plug one end of each of the short hoses.

- c. Thoroughly clean the exterior of the connections of the fuel supply line (16, fig 5) and the fuel return line (12, fig 5) where they are connected to the fuel tank. Disconnect one fuel line at a time, quickly plugging the fuel line and the tank port with the wood dowels or fittings and the short hose lengths to minimize spillage. Wipe up any spillage using appropriate disposal methods.

Model HP18284M: The fuel tank must be removed in order to remove the engine.

- a. Disconnect the hoses (13 & 14, fig 5A) and plug them with a plug fittings.
- b. Remove the 3 capscrews (23, fig 2A) that secure the tank to the frame. Remove the fuel tank.
4. Remove the air cleaner cover and air cleaner.
5. Remove the top grille (8, fig 2 or 47, fig 2A).
6. Remove the fasteners that retain the cooler mounts (6 & 10, fig 1 & fig 1A) and the cooler brace (12, fig 1 and fig 1A) and remove the mounts and brace. The switch box (7, fig 1) and wiring will be loose after this procedure and can then be removed with the engine (this does not apply to model HP20271A).
7. Tie the cooler (8, fig 1 and fig 1A) to the frame rails of the frame (55, fig 2 or 39 fig 2A) so that it will not interfere with removal of the engine.
8. Disconnect the two wires leading to the hour meter.
9. Disconnect the throttle cable (6, fig 2 or fig 2A) at the engine. On model HP20271A, disconnect the stop cable (1, fig 2A) at the engine.
10. Using an Allen wrench, loosen the setscrews on the coupling assy (27 & 28, fig 2 or 16, fig 2A).
11. Unscrew and remove the nuts (37, fig 2 or 35, fig 2A)

- and capscrews (20, fig 1 & fig 1A) and washers.
12. Slide the engine forward being careful not to entangle the electrical wiring and not to damage other components.
 13. Remove the coupling sleeve (28, fig 2 or 17, fig 2A).
 14. Slide the engine, with blower housing attached, out the battery side of the frame for the HP20271 model. For the HP10284M model, slide the engine out the fuel tank side of the frame.

To Reinstall Engine

1. Reverse the above procedures to reinstall the engine.
2. Install the capscrews (20, fig 1 & fig 1A) so that one washer (21, fig 1 or 36 fig 1A) is installed next to the head of the capscrew, one washer is installed between the engine mounting bracket and the frame and one washer is installed between the nut (37, fig 2 or 35, fig 2A) and the frame. Tighten the capscrews and nuts to 20 ft. lb torque
3. After installing the engine, adjust the coupling sleeve as follows:
 - a. Move the coupling flange forward or backwards on the engine drive shaft until the drive shaft is recessed into the coupling flange bore .435 inches. Tighten the setscrews.
 - b. Adjust the coupling flange on the pump until the coupling sleeve has 1/32-1/16 inch end play.

BLOWER HUB, BLOWER WHEEL, INLET RING, & BLOWER HOUSING

1. Remove the engine as described earlier in this section.
2. To remove the blower wheel, remove the five screws (31, fig 1 or fig 1A) around the housing inlet ring (30, fig 1 or 1A) and remove the ring.

3. Remove the blower wheel (26, fig 1 or 24, fig 1A) with the blower hub (25, fig 1 or 1A) by loosening the set screws on the coupler flange (28, fig 1 or 1A).
4. Remove the four capscrews (14, fig 1 or 1A) holding the blower housing (16, fig 1 or 1A) to the engine. Remove the housing.

Re-assembly

1. Reverse the above procedure to reinstall the above components and observe the following added procedures.
 - a. Install capscrews which hold the blower housing to the engine using Loctite™ 242.
 - b. Install capscrews which hold the blower wheel to the blower hub using Loctite™ 680 and torque to 80-100 lb. in.

OIL COOLER

1. Remove the top grille (8, fig 2 or 47, fig 2A).
2. Remove the hoses (3 & 11, fig 5 or 5A).
3. Remove the fasteners that retain the cooler mounts (6 & 10, fig 1 or 1A) and the cooler brace (12, fig 1 or 1A) and remove the mounts and brace. The switch box (7, fig 1) and wiring will be loose after this procedure (this does not apply to model HP20271A).
4. Lift the cooler out.

Re-assembly

1. Reverse the above procedure to reinstall the cooler.

HYDRAULIC PUMP

1. First remove the hydraulic fluid from the tank by either pumping it out with a portable drill pump or draining it into a container.
2. Remove the grille (19, fig 2 or 5, fig 2A).
3. Disconnect the pressure hoses and inlet manifold at

the pump.

3. Remove the 2 capscrews (21, fig 2 or 10, fig 2A) and then remove the pump.

Re-assembly

1. Reverse the above procedure to reinstall the pump and observe the following step.
 - a. Insure the coupling sleeve is installed correctly (see REINSTALL ENGINE).

FUEL TANK

1. If the fuel tank contains fuel, take extreme precautions to remove the fuel into approved containers. Do not attempt to service the fuel tank in unventilated areas or in areas containing electric or natural gas appliances which may start-up unexpectedly or in shop areas where grinding or welding is present, all of which can ignite the fuel vapors.
2. Follow step 3 under "ENGINE REMOVAL" to disconnect and plug the fuel lines.

To remove the tank on the model HP20271, remove the capscrews (47, fig 2) and brackets (44, fig 2) at the top of the fuel tank only. Lift the fuel tank out of the lower brackets.

To remove the tank on the model HP10284M, remove 3 capscrews (23, fig 2A) and bracket 37, fig 2A). Slide the tank out.

Re-assembly

1. Reverse the above procedures to reinstall the fuel tank.

HYDRAULIC TANK

1. First remove the hydraulic fluid from the tank by either pumping it out with a portable drill pump or draining it into a container.
2. Remove the grille (19, fig. 2 or 5, fig 2A) by removing the 4 capscrews (9, fig. 2 or 3, fig 2A).

3. Remove the hoses (7 & 11, fig. 5 or 5A) by loosening the hose clamps.
4. The hydraulic tank can now be removed by removing the 2 capscrews (32, fig. 2 or 23, fig 2A) and the tank support tab (29, fig. 2 or 26, fig 2A).
5. The filter can be removed from the filter head (6, fig. 4) by spinning it off counter clockwise (this does not apply to model HP10284M).
6. On model HP20271, the filter block (4, fig. 4) is removed by first removing the capscrews (2, fig. 4). Hold the grip plate in place with your fingers to prevent it from falling into the tank. For the model HP20271A, the filter assembly is removed by first removing the breather (6, fig 4A) and the dipstick bolt (12, fig 4A).

Re-assembly

1. Reinstall the components and complete assembly to the frame by reversing the above procedures.

DASH PANEL & VALVE ASSY

1. If it is necessary to remove the valve assembly, the battery must first be removed in order to gain access to the hose fittings and wiring located on the back of the panel.
2. After the hoses are removed, the valve assembly may be removed by first removing the capscrews (15, fig. 2 or 3, fig 2A and 27, fig. 3). Then remove the capscrews (27, fig 3) holding the valve to the dash panel.

Valve Spools

1. To remove the valve spools, remove the retaining rings (14, fig. 3) and pull the valve spools out of the valve body.
2. Inspect the finish of the valve spools and bores of the valve block. If scored or scratched, replace the part(s).

Relief Valves

DESCRIPTION: The relief valves allow oil to by-pass to the reservoir when the system pressure reaches a pre-set value. The relief valves are set to by-pass at a "cracking" pressure of 2100-2200 psi/148-155 bar.

While adjustments can be made to the relief settings (see TESTING and TROUBLESHOOTING), the parts of the relief valves are not serviceable.

Re-assembly

1. Reverse the above procedure to reinstall the above components.

Figure 1A
Engine & Blower Parts
Model HP20271A & HP18284M

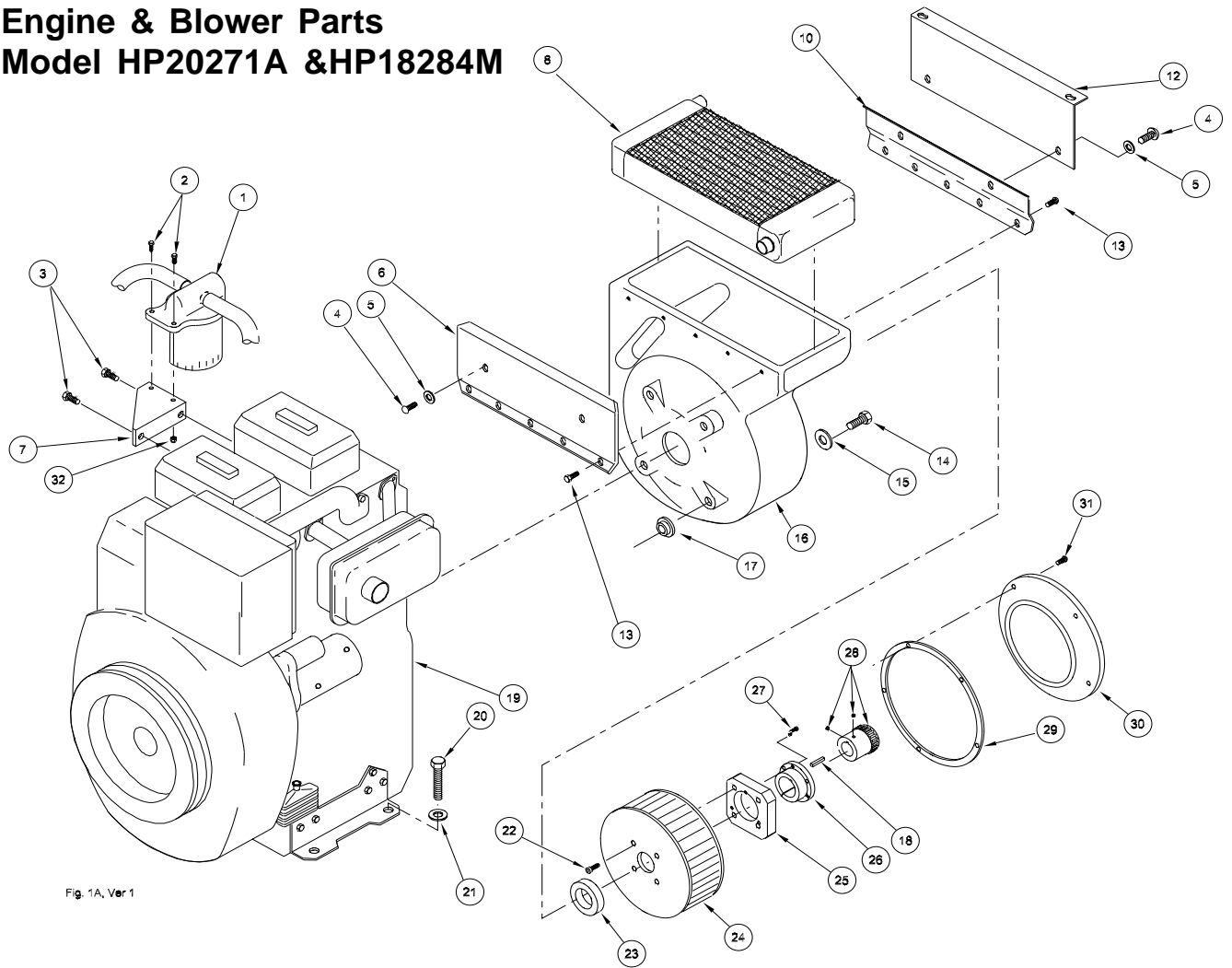


Fig. 1A, Ver 1

ITEM	P/N	QTY	DESCRIPTION	ITEM	P/N	QTY	DESCRIPTION
1	----	1	Filter Bracket (Supplied with Item 19)	17	21681	4	Spacer
2	370508	2	Capscrew	18	07818	1	Key
3	----	2	Capscrew (Supplied with Item 19)	19	56641	1	Engine, Ruggerini MD191
4	31241	7	Capscrew	20	14876	4	Capscrew
5	03031	10	Lock Washer	21	04585	22	Washer
6	40053	1	Cooler Mount	22	32232	4	Capscrew
7	56670	1	Fuel Filter Bracket	23	38878	1	Spacer
8	40078	1	Cooler	24	56640	1	Blower Wheel
9	----	--	NO ITEM	25	38877	1	Blower Hub
10	40054	1	Cooler Mount	26	39057	1	QD Bushing
11	----	--	NO ITEM	27	----	4	Capscrew (Supplied with Item 26)
12	56637	1	Cooler Brace	28	21687	1	Coupling Assy
13	08668	10	Sheet Metal Screw	29	08669	1	Gasket
14	02474	4	Capscrew	30	56643	1	Inlet Ring
15	02477	8	Washer	31	08667	5	Tapping Screw
16	07783	1	Blower Housing	32	03906	2	Locknut

Figure 2A
Frame Parts
Model HP20271A & HP18284M

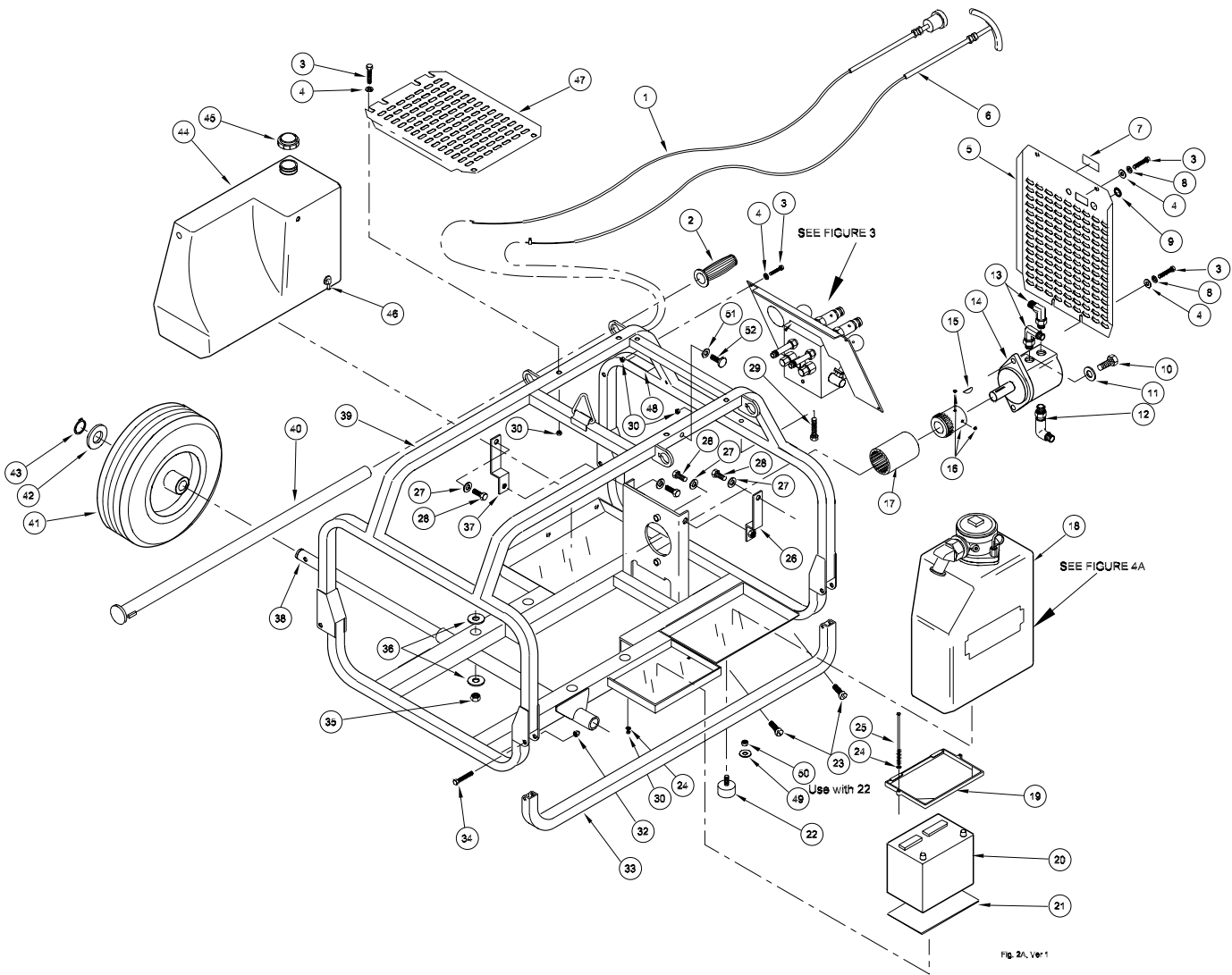


Fig. 2A, Ver 1

ITEM	P/N	QTY	DESCRIPTION	ITEM	P/N	QTY	DESCRIPTION	ITEM	P/N	QTY	DESCRIPTION
1	56634	1	Stop Cable	20	04303	1	Battery	42	21318	2	Washer
2	08080	2	Handle Grip	21	10499	1	Battery Pad	43	31240	2	Retaining Ring
3	21319	11	Capscrew	22	21713	2	Vibration Mount	44	56635	1	Fuel Tank
4	04539	15	Washer	23	31241	5	Capscrew	45	56636	1	Fuel Tank Cap
5	56632	1	Grille	24	04539	4	Washer	46	----	-	Supplied with Item 44
6	21715	1	Throttle Cable	25	56671	2	Capscrew	47	27759	1	Top Grille
7	29133	1	Warning Sticker	26	56644	1	Tank Support	48	35686	1	Decal, Hyd. Fluid
8	01219	4	Lockwasher	27	03031	10	Washer	49	04585	2	Washer
9	56672	1	Plug	28	04416	3	Capscrew	50	00147	2	Nut
10	02116	2	Capscrew	29	21319	1	Capscrew	51	26831	2	Washer
11	01459	2	Lock Washer	30	00719	10	Locknut	52	21714	2	Bumper
12	21335	1	Elbow	31	----	-	NO ITEM				
13	27767	2	Elbow	32	03906	4	ESNA Nut				
14	56659	1	Pump	33	31699	2	Carry Handle				
15	----	1	Key (Included with pump)	34	370513	4	Capscrew				
16	21687	1	Coupling Assy (Incl items 17)	35	04353	12	Locknut				
17	----	1	Part of Item 16	36	04585	22	Washer				
18	52754	1	Hydraulic Tank	37	56645	1	Tank Support				
19	56669	1	Battery Hold Down	38	56631	1	Axle				
				39	56619	1	Frame Weldment				
				40	28089	1	Handle Tube				
				41	56653	2	Wheel, Foam Filled				

Figure 4
Hydraulic Tank Parts
Model HP20271A & HP18284M

ITEM	P/N	QTY	DESCRIPTION
	52754	1	Hydraulic Tank Kit (Incl items 1-14)
1	52774	1	Lid
2	52775	1	Spring
3	43592	1	Service Kit (Incl Item 4), Lid O-ring, Filter Receptacle O-ring, Breather Element and Breather Cover)
4	40408	1	Filter Element
5	40080	1	Filter Assy (Incl Items 1-5 and 11-13)
6		1	Capscrew
7	40364	1	Elbow, 45°
8		1	Capscrew
9	40389	1	Tank
10	40133	1	Grip Plate
11	52782	1	Gasket
12	52773	1	Dipstick Bolt
13	52772	1	Dipstick
14	04306	1	Hose

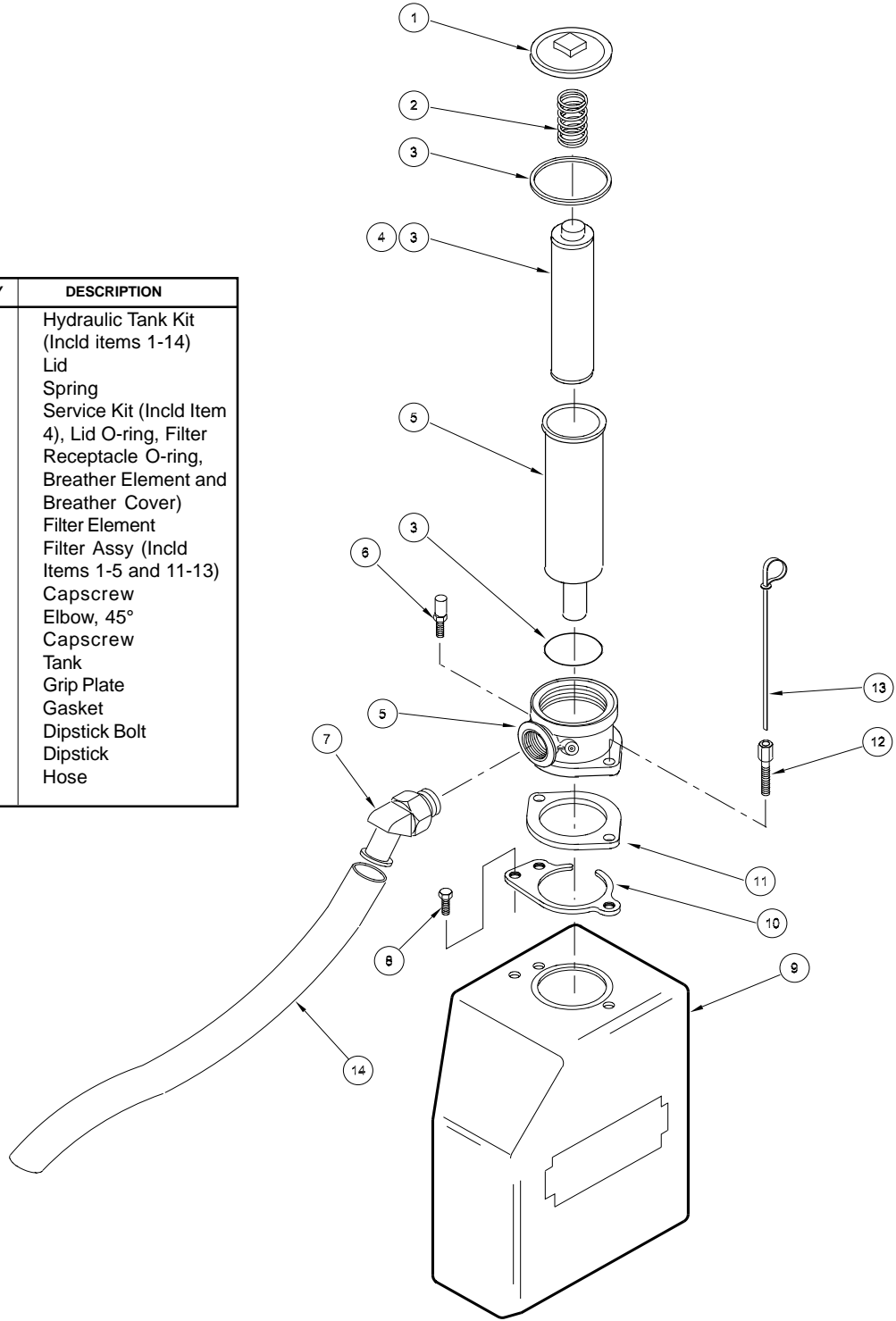


Figure 5
Dash Panel & Valve Assembly

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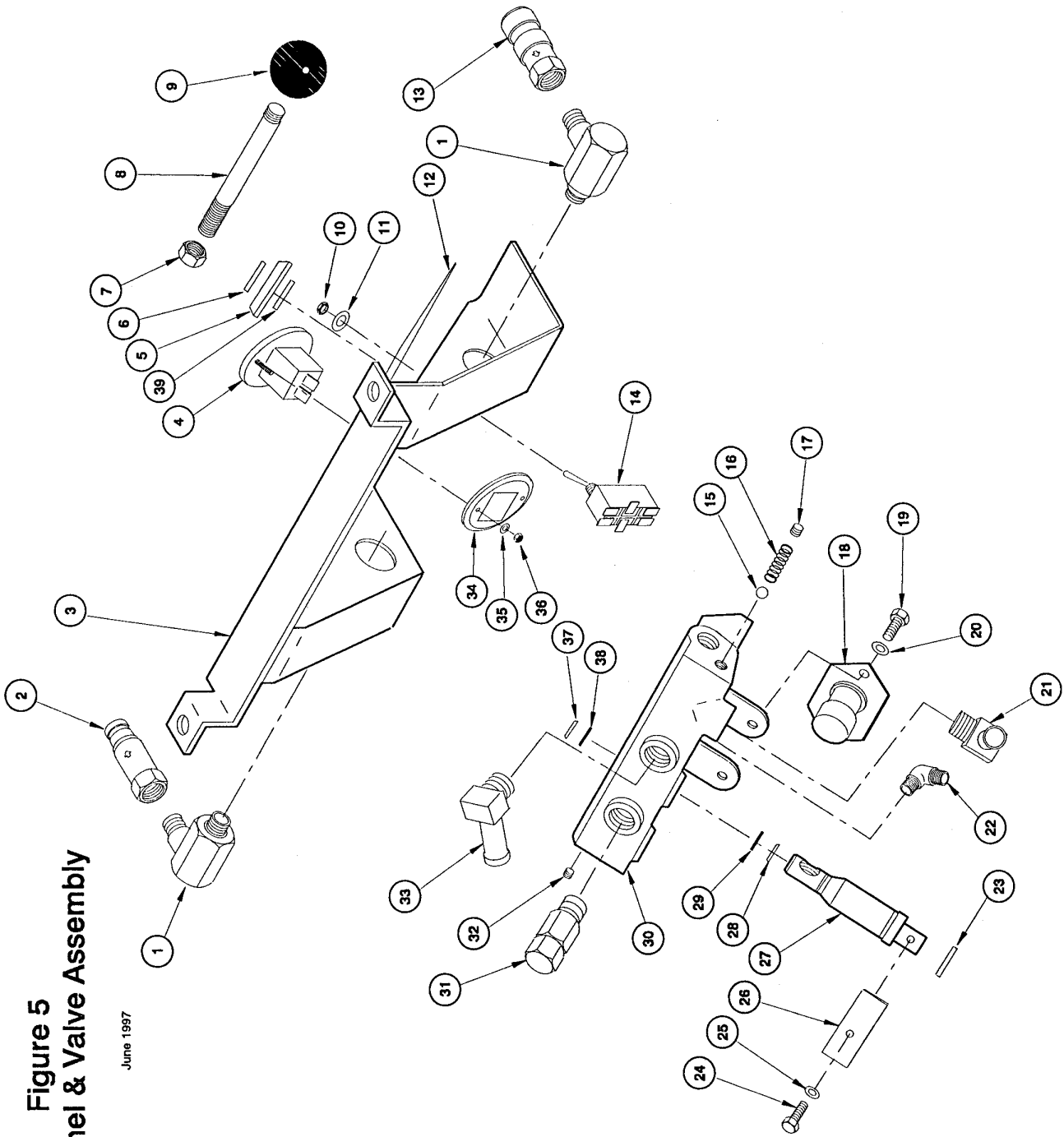


FIG. 5 DASH PANEL & VALVE ASSY

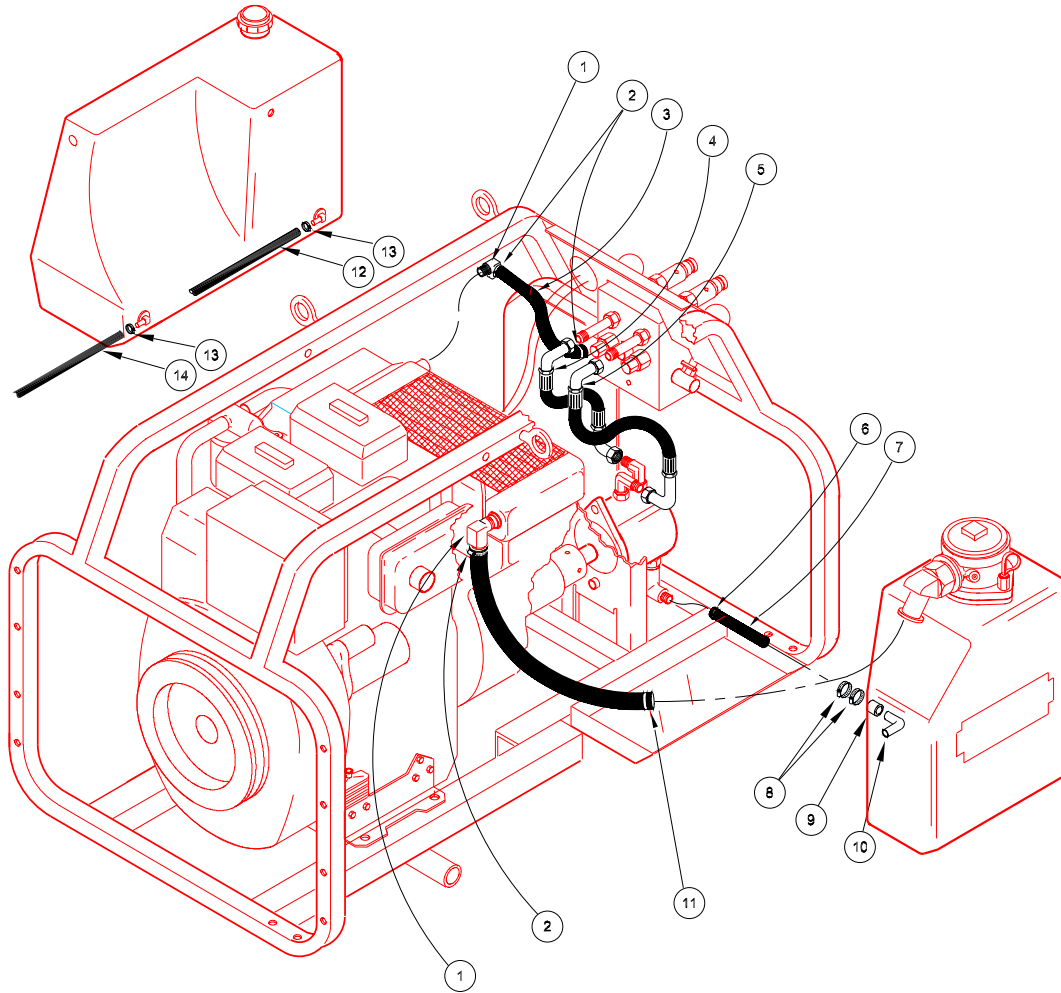
1	25633	1	Swivel Fitting
2	24061	1	Male Coupler Body - 1/2 in.
3	24237	1	Panel Weldment Assy (incl'd item 12)
4	20606	1	Hour Meter
5	07760	1	Spool Washer
6	07820	1	Retaining Ring
7	00147	1	Nut
8	05849	1	Control Rod
9	02633	1	Knob
10	-----	1	Incl'd with item 14
11	-----	1	Incl'd with item 14
12	07766	1	Decal
13	24060	1	Female Coupler Body - 1/2 in.
14	07808	1	ON/OFF Switch
15	07793	1	Steel Ball
16	07754	1	Spring
17	01212	1	Pipe Plug
18	07968	1	Starter Switch
19	00899	2	Capscrew

Item No	P/N	Qty	Description
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FIG. 5 DASH PANEL & VALVE ASSY Continued . . .

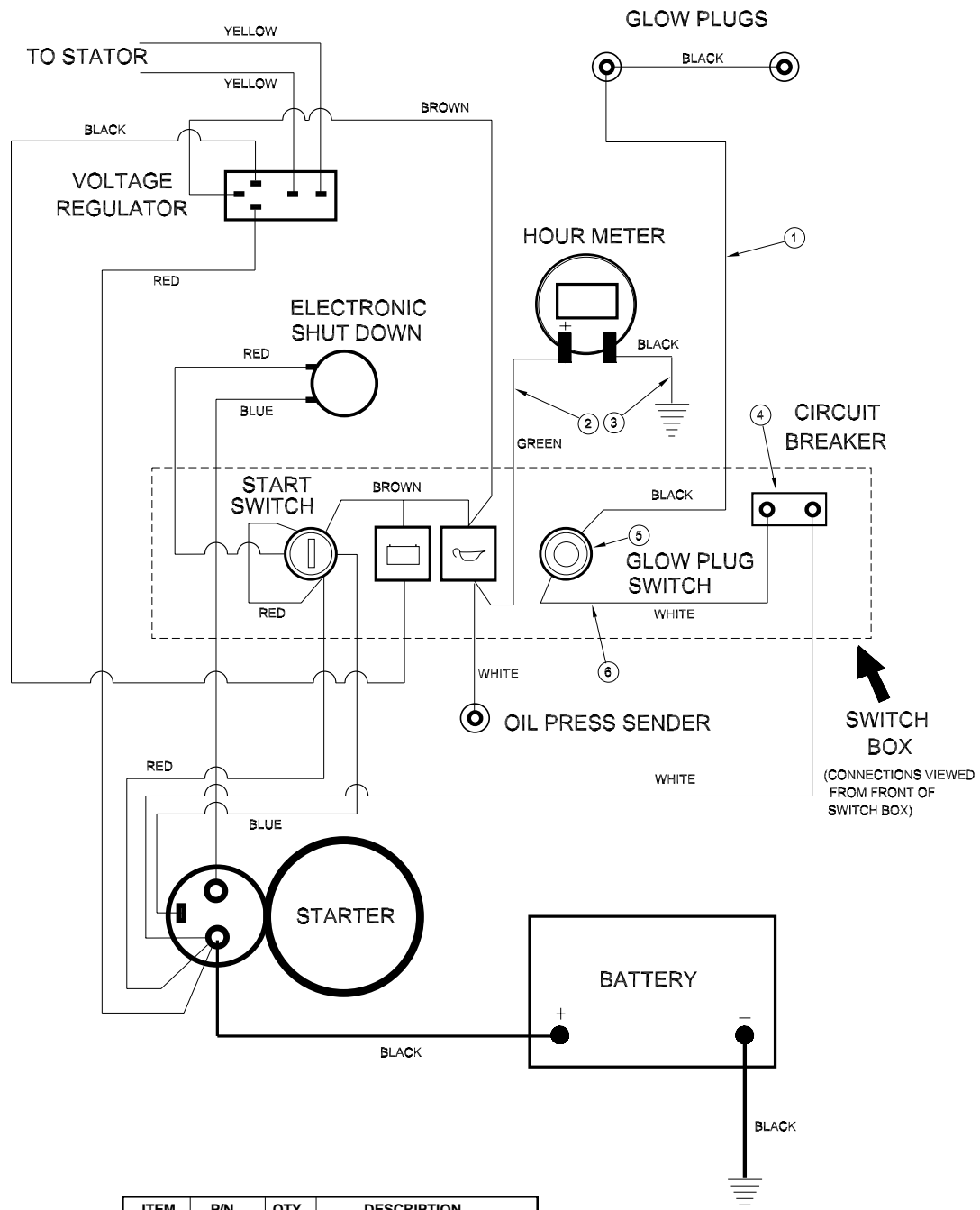
20	01298	2	Lock Washer
21	07792	1	Elbow Fitting
22	01539	1	Elbow Fitting
23	07745	1	Spool Stop Washer
24	05551	1	Capscrew
25	01459	1	Lock Washer
26	07753	1	Bar
27	07771	1	Valve Spool
28	06988	1	Backup Ring
29	06989	1	O-ring
30	07781	1	Valve Block
31	04312	1	Relief Valve
32	00955	1	Pipe Plug
33	04868	1	Elbow Hose Barb
34	----	1	Incl'd with item 4
35	----	2	Incl'd with item 4
36	----	1	Incl'd with item 4
37	01403	1	O-Ring
38	07794	1	Back-up Ring
39	00140	1	Quad Ring

Figure 5A
Hoses, Fittings, and Clamps
Model HP20271A & HP18284M



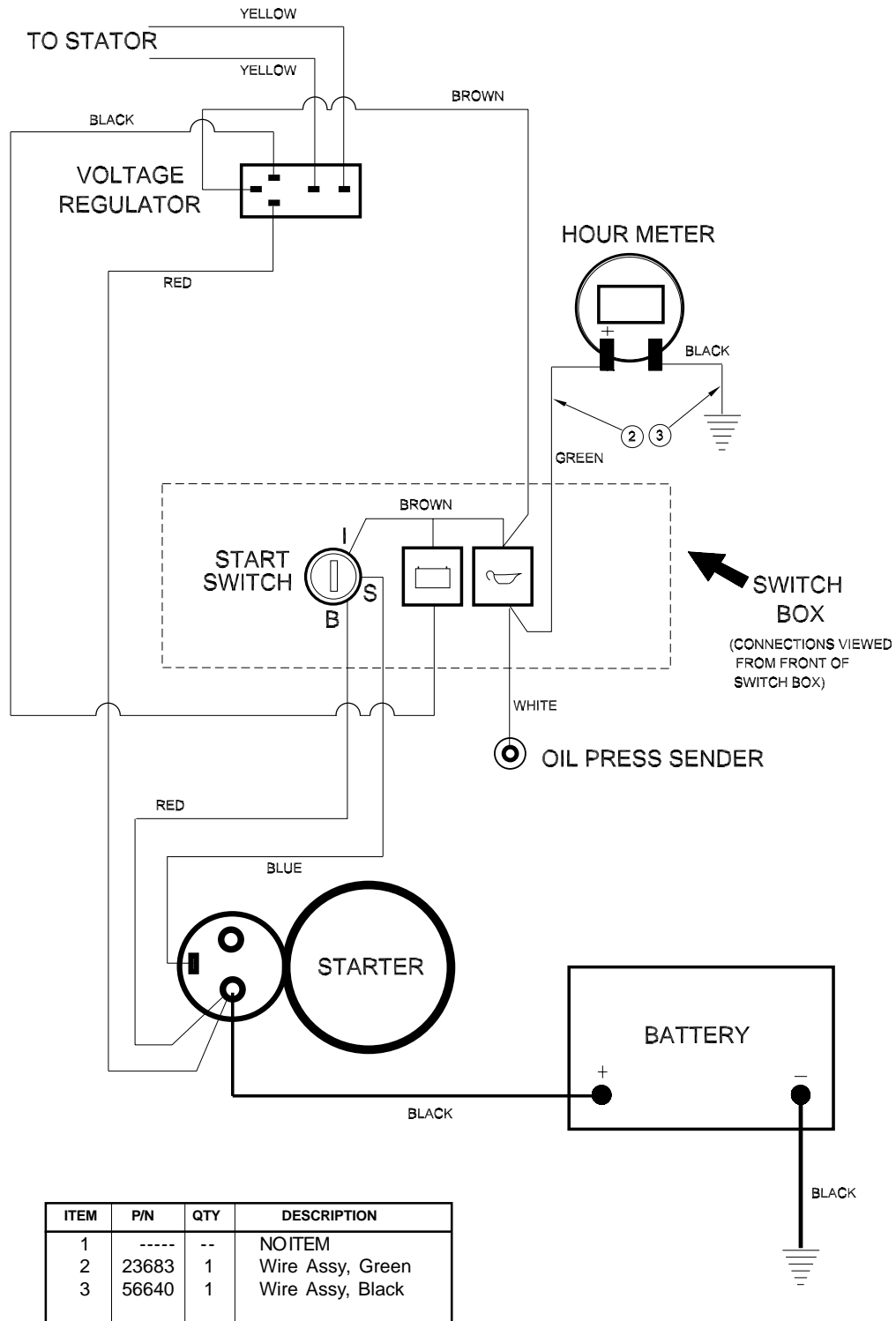
ITEM	P/N	QTY	DESCRIPTION
1	07821	2	90° Elbow
2	04889	4	Hose Clamp
3	35220	1	Hose, Cooler Supply
4	35218	1	Hose Assy
5	35217	1	Hose Assy
6	08045	1	Hose Clamp
7	35343	1	Hose, Suction
8	11179	2	Hose Clamp
9	07747	1	Sleeve, Suction
10	27781	1	Tube, Suction
11	04306	1	Hose
12	56696	1	Hose
13	04317	2	Hose Clamp
14	04308	1	Hose

Figure 6
Wiring Diagram
Model HP20271/ HP18284M



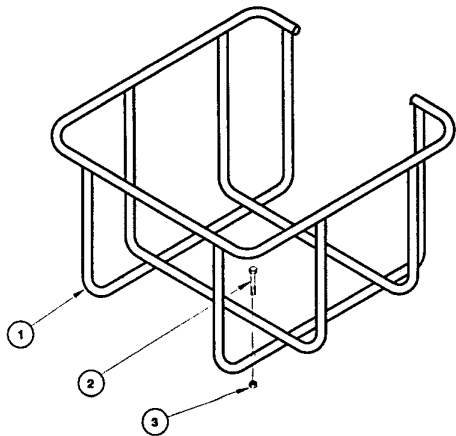
ITEM	P/N	QTY	DESCRIPTION
1	21815	1	Wire Assy, Black
2	23683	1	Wire Assy, Green
3	08725	1	Wire Assy, Black
4	21776	1	Circuit Breaker
5	21775	1	Glow Plug Switch
6	21812	1	Wire Assy, White

Figure 6A
Wiring Diagram
Model HP20271A



P/N 13360 HOSE BASKET KIT (Optional Accessory)

Included with HP10284M



Item No.	Part No.	Qty.	Description
1	24187	1	Hose Basket Assy
2	10948	4	Capscrew
3	00719	3	Nut

Stanley Hydraulic Tools (hereinafter called "Stanley"), subject to the exceptions contained below, warrants new hydraulic tools for a period of one year from the date of sale to the first retail purchaser, or for a period of 2 years from the shipping date from Stanley, whichever period expires first, to be free of defects in material and/or workmanship at the time of delivery, and will, at its option, repair or replace any tool or part of a tool, or new part, which is found upon examination by a Stanley authorized service outlet or by Stanley's factory in Milwaukie, Oregon to be DEFECTIVE IN MATERIAL AND/OR WORKMANSHIP.

EXCEPTIONS FROM WARRANTY

NEW PARTS: New parts which are obtained individually are warranted, subject to the exceptions herein, to be free of defects in material and/or workmanship at the time of delivery and for a period of 6 months after the date of first usage. Seals and diaphragms are warranted to be free of defects in material and/or workmanship at the time of delivery and for a period of 6 months after the date of first usage or 2 years after the date of delivery, whichever period expires first. Warranty for new parts is limited to replacement of defective parts only. Labor is not covered.

FREIGHT COSTS: Freight costs to return parts to Stanley, if requested by Stanley for the purpose of evaluating a warranty claim for warranty credit, are covered under this policy if the claimed part or parts are approved for warranty credit. Freight costs for any part or parts which are not approved for warranty credit will be the responsibility of the individual.

SEALS & DIAPHRAGMS: Seals and diaphragms installed in new tools are warranted to be free of defects in material and/or workmanship for a period of 6 months after the date of first usage, or for a period of 2 years from the shipping date from Stanley, whichever period expires first.

CUTTING ACCESSORIES: Cutting accessories such as breaker tool bits are warranted to be free of defects in material and or workmanship at the time of delivery only.

ITEMS PRODUCED BY OTHER MANUFACTURERS: Components which are not manufactured by Stanley and are warranted by their respective manufacturers.

- a. Costs incurred to remove a Stanley manufactured component in order to service an item manufactured by other manufacturers.

ALTERATIONS & MODIFICATIONS: Alterations or modifications to any tool or part. All obligations under this warranty shall be terminated if the new tool or part is altered or modified in any way.

NORMAL WEAR: any failure or performance deficiency attributable to normal wear and tear such as tool bushings, retaining pins, wear plates, bumpers, retaining rings and plugs, rubber bushings, recoil springs, etc.

INCIDENTAL/CONSEQUENTIAL DAMAGES: To the fullest extent permitted by applicable law, in no event will STANLEY be liable for any incidental, consequential or special damages and/or expenses.

FREIGHT DAMAGE: Damage caused by improper storage or freight handling.

LOSS TIME: Loss of operating time to the user while the tool(s) is out of service.

IMPROPER OPERATION: Any failure or performance deficiency attributable to a failure to follow the guidelines and/or procedures as outlined in the tool's operation and maintenance manual.

MAINTENANCE: Any failure or performance deficiency attributable to not maintaining the tool(s) in good operating condition as outlined in the Operation and Maintenance Manual.

HYDRAULIC PRESSURE & FLOW, HEAT, TYPE OF FLUID: Any failure or performance deficiency attributable to excess hydraulic pressure, excess hydraulic back-pressure, excess hydraulic flow, excessive heat, or incorrect hydraulic fluid.

REPAIRS OR ALTERATIONS: Any failure or performance deficiency attributable to repairs by anyone which in Stanley's sole judgement caused or contributed to the failure or deficiency.

MIS-APPLICATION: Any failure or performance deficiency attributable to mis-application. "Mis-application" is defined as usage of products for which they were not originally intended or usage of products in such a manner which exposes them to abuse or accident, without first obtaining the written consent of Stanley. PERMISSION TO APPLY ANY PRODUCT FOR WHICH IT WAS NOT ORIGINALLY INTENDED CAN ONLY BE OBTAINED FROM STANLEY ENGINEERING.

WARRANTY REGISTRATION: STANLEY ASSUMES NO LIABILITY FOR WARRANTY CLAIMS SUBMITTED FOR WHICH NO TOOL REGISTRATION IS ON RECORD. In the event a warranty claim is submitted and no tool registration is on record, no warranty credit will be issued without first receiving documentation which proves the sale of the tool or the tools' first date of usage. The term "DOCUMENTATION" as used in this paragraph is defined as a bill of sale, or letter of intent from the first retail customer. A WARRANTY REGISTRATION FORM THAT IS NOT ALSO ON RECORD WITH STANLEY WILL NOT BE ACCEPTED AS "DOCUMENTATION".

NO ADDITIONAL WARRANTIES OR REPRESENTATIONS

This limited warranty and the obligation of Stanley thereunder is in lieu of all other warranties, expressed or implied including merchantability or fitness for a particular purpose except for that provided herein. There is no other warranty. This warranty gives the purchaser specific legal rights and other rights may be available which might vary depending upon applicable law.