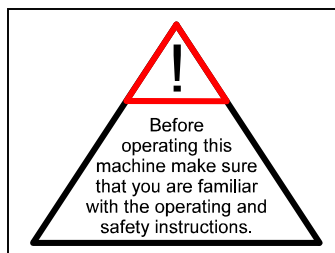


MODEL 5 1220 0010 HYDRAULIC HACKSAW



OPERATING MANUAL



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.

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

Read Operating Instructions carefully. Familiarize yourself with the following safety markers used in the operating instructions to draw your attention to potential risks when handling or operating the tool:

WARNING!

– indicates risk of severe personal injury or accidents.

CAUTION!

– indicates risk of material damage.

IMPORTANT!

– indicates risk of malfunction.

Before you proceed to operate the tool, make sure that all warning labels are attached to the device.

GENERAL SAFETY PRECAUTIONS

The Hydraulic Reciprocating Saw will provide safe and dependable service if operated in accordance with the instructions given in this manual. Read and understand the safety precautions given in this manual and any stickers and tags attached to the tool before operation. Failure to do so can result in personal injury or equipment damage.

- Operators must start in a work area without bystanders.
- Establish a training program for all operators to ensure safe operation.
- The operator must be familiar with all prohibited work areas such as excessive slopes and dangerous terrain conditions.
- Do not operate the tool if it is damaged, improperly adjusted or not completely and correctly assembled.
- Always wear safety equipment such as goggles, ear and eye protection, and safety shoes when operating the tool.
- 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 operate the tool unless thoroughly trained or under supervision of an instructor.
- When working near electrical conductors, always assume that all conductors are energized and that insulation, clothing and hoses can conduct electricity. Use hose labeled and certified as non-conductive.
- Do not operate tool at fluid 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.

HYDRAULIC SYSTEM REQUIREMENTS

The hydraulic system should provide a flow of 2.6-13.2 gpm / 10-50 lpm at an operating pressure of 950-2000 psi / 66-140 bar. Recommended relief valve setting is 2100-2250 psi / 145-155 bar.

WARNING!

Never use your hydraulic tool without a pressure relief valve in line!

The system should not have more than 250 psi / 17 bar back pressure measured at the tool 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 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 / 4° C difference between ambient temperature and oil 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. Petroleum base hydraulic fluids with anti-wear and non-conductive properties and a viscosity index over 140 meet the recommended requirements over a wide range of operating temperatures.

The recommended hose size is .500 inch / 12 mm I.D. to 50 ft / 15 m long and .625 inch / 16 mm I.D. minimum up to 100 ft / 30 m long.

The saw return hose must connect directly to the circuit return line and go straight through the oil filter, thermal valve, and oil cooler to the reservoir. To prevent trapped or reversed pressure, fluid should not be returned through a blocking or reversing valve.

Do not use emulsifying hydraulic fluids. Keep the recommended fluids drained of settled moisture. Water in the fluid can cause pump cavitation.

The Reciprocating Saw cannot be operated with the hydraulic flow reversed. Supply (IN) and return (OUT) hoses must be connected as marked on the sides of the tool ports.

IMPORTANT!

Do not run the tool return hose through stack or directional valves. If the circuit is operated from a stack valve, tap only the pressure port to the valve. Connect the tool return directly to the return fluid line

Your Hydraulic Reciprocating Saw is an open-center tool. Operate open-center tools from open-center hydraulic circuits only. Operate closed-center tools from closed-center hydraulic circuits only.

IDENTIFYING CIRCUIT TYPE (OC OR CC)

Your circuit type can be determined by the pump and valves in the hydraulic circuit. If the tool pressure supply is from an accumulator, the circuit is closed-center (CC). If pressurized fluid is from a pressure-compensated pump or is from the same lines that feed a CC stack valve, the circuit is CC.

If the pump is variable displacement and pressure compensated, or if the tool pressure supply is taken from an accumulator charging valve bypass line, open-center (OC) tools can be operated even though other operations, such as booms, might be powered by CC circuits.

OC circuits are recommended for hand-held tools because fluid temperature and flow can be controlled over a wide range of tool pressure requirements. In addition, fixed displacement pumps can be used to warm fluid in cold weather operations, yet keep fluid cool during prolonged operations.

EQUIPMENT PROTECTION AND CARE

IMPORTANT!

In addition to the Safety Precautions on pages 2 and 3 of this manual, observe the following for equipment protection and care.

Always store the tool in a clean, dry space, safe from damage or pilferage.

Always keep critical tool markings, such as labels and stickers, legible.

Always replace hoses, couplings and other parts with replacement parts recommended by SPITZNAS. Supply hoses must have a minimum working pressure rating of 2500 psi / 175 bar.

Always use hoses that have an oil resistant inner surface and an abrasive resistant outer surface. Whenever near electrical conductors, use clean hose labeled and certified non-conductive hose.

Tool repair should be performed by experienced personnel only.

Make sure all couplers are wiped clean before connection.

The hydraulic power supply valve must be in the "OFF" position when coupling or uncoupling hydraulic tools. Failure to do so can result in damage to the quick couplers and cause overheating of the hydraulic system.

Do not exceed 13.2 gpm / 50 lpm flow rate. Rapid failure of the tool's internal seals might result.

Make sure the circuit PRESSURE hose (with male quick disconnect) is connected to the "IN" port below the right-hand side of the tool. The circuit RETURN hose (with female quick disconnect) is connected to the "OUT" port below the tool center.

Do not reverse the fluid flow from that marked on the tool ports. Flows, when reversed, will not be limited by the priority flow control valve

Always use the open-center (OC) tool on open-center circuits.

OPERATION

GENERAL

The Hydraulic Reciprocating Saw is only used in conjunction with a clamping device. For this purpose the ground-in receiving bolt of the clamping device is placed in the lateral bore in gear casing cover and fixed by means of the locking device. Formly clamped work-piece will yield a clean cut and will reduce saw blade damage. The selection of the clamping device and of the saw blade depends on the type and size of the work-piece. The saw blade must be cooled and/or lubricated with lubricant or oil.

SAW BLADE INSTALLATION

WARNING!

Before you start changing the saw blade, make sure that the tool is disconnected from power source in order to avoid unintentional operation of the tool and injury. Disconnect only unpressurized hoses.

Use a single-head wrench SW 13 to unscrew the hexagon nuts and remove the thrust plate. Install blade and thrust blade in the proper direction and tighten hexagon nuts.

CHECK POWER SOURCE

1. Using a calibrated flowmeter and pressure gauge, check that the hydraulic power source develops a flow of 2.6-13.2 gpm / 10-50 lpm at 950-2000 psi / 66-140 bar.
2. Make certain that the hydraulic power source is equipped with a relief valve set to open at 2100-2250 psi / 145-155 bar.
3. Check that the hydraulic circuit matches the tool for open-center (OC) operation.

CHECK THE TOOL

1. Make certain all tool accessories are correctly installed. Failure to install tool accessories properly can result in damage to the tool or personal injury.
2. There should be no signs of leaks.
3. The tool should be clean and dry with all fittings and fasteners tight.

CONNECT HOSES

1. Wipe all hose couplers with a clean lint-free cloth before making connections.
2. Connect the hoses from the hydraulic power source to the tool fittings or quick disconnects. Connect the return hose first and disconnect it last to eliminate or reduce trapped pressure for easier quick-connect fitting attachment.

Note: If uncoupled hoses are left in the sun, pressure increase within the hoses can make them difficult to connect. When ever possible, connect the free ends of hoses together.

3. Observe the flow indicators stamped on the hose couplers to ensure that the flow is in the proper direction. The female coupler on the tool's "IN" port is the inlet coupler. See illustration on page 1.
4. Turn the rotary sleeve of the valve momentarily. If the saw does not operate, the hoses might be reversed. Verify correct connection of the hoses before continuing.

CUTTING

1. Observe all safety precautions.
2. Fix the clamp device to your work-piece.
3. Place the saw at the clamp device and fix it with the locking device.
4. Install the correct saw blade, see "SAW BLADE INSTALLATION".
5. Connect the tool to the power source.
6. Move the hydraulic circuit control valve to the "ON" position.
7. With the so prepared saw, you may now proceed to carry out your work.
8. Put the saw in cutting position and turn the rotary sleeve of the valve to activate the saw.
9. Release the rotary sleeve to stop the saw.
10. To change saw blades, proceed as described above. Adhere to safety instructions!
11. For dismounting the saw and clamp device upon completion of cutting work, follow the mounting instructions in reverse order.

IMPORTANT!

When cutting a structure that might contain electrical wiring, be sure to know the location of the wiring and avoid cutting into it. The housing can carry electrical current from live electrical wires into which the saw is accidentally cut resulting in injury or death.

COLD WEATHER OPERATION

If the saw is to be used during cold weather, preheat the hydraulic fluid at low engine speed. When using the normally recommended fluids, fluid temperature should be at or above 50 °F/10 °C (400 SSU/ 82 centistokes) before use. Damage to the hydraulic system or saw can result from use with fluid that is too viscous or too thick.

SPECIFICATIONS

| | |
|--------------------------------------|---------------------------------|
| Cutting capacity for pipes | Ø 530 |
| Cutting capacity for profiles | Ø 290 |
| Motor output | 3.6 hp / 2.8 kW |
| Stroke number | 300 1/min |
| Stroke | 2.4 in / 60 mm |
| Pressure | 2000 psi / 140 bar |
| Flow Range | 2.6-13.2 gpm / 10-50 lpm |
| Hydraulic connection | Quick couplings ½" FF |
| Hose diameter | .500 in / 12 mm |
| Length | 23.6 in / 600 mm |
| Weight | 22.3 lbs. / 10.1 kg |

SERVICE INSTRUCTIONS

Good maintenance practice keeps the Reciprocating saw on the job and increases its service life.

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

Follow the procedure contained in the "HYDRAULIC SYSTEM REQUIREMENTS" section of this manual to ensure peak performance from the tool.

Do not disassemble the tool until you know whether the problem is in the hydraulic power supply, the gearbox module, or the power and control (rear) module. Then only disassemble the tool as necessary to repair as required. **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 reassemble. Further wear and tool failure can result if the original cause is not corrected.

TOOL MODULE ASSEMBLIES

The Reciprocating saw consists of three modules, 1st a gearbox module, 2nd a motor module and 3rd a valve/handle module with flow control valve.

Isolate the service problem to the circuit or one of the modules before separating the referring modules. The TROUBLE-SHOOTING section contains information to help isolate the problem.

PRIOR TO DISASSEMBLY

Clean the exterior of the tool.

Make sure to have all new seals so they can be replaced during reassembly. Note the orientation of seals before removal. Install new seals in the same position as the original seals.

Note: For orientation of the parts identified in the following procedures, refer to the

sectional drawing and parts list located at the end of this manual.

Disassembly

Disassemble into main components valve, hydraulic motor and gearbox complete valve after loosening screws item 15. Remove screws item 8 and separate gearbox from hydraulic motor. Continue to disassemble.

1. Valve

Turn rotary sleeve item 302 to load the retainer spring and remove screw item 304. Hold the sleeve loaded while removing snapping item 305. Be careful for the loaded spring might push off the rotary sleeve. Turn off the sleeve and loosen valve assembly by turning guide item 315. Unscrew pin item 303 from pin item 312. Pull out valve assembly. Remove snapping item 307 to get gland item 306. After loosening screw item 308 control piston item 310, compression spring item 317 and spring seat item 311 can be removed. Load the compression spring item 316 to remove snapping item 313. Now you can push out the pin item 312 with all the seals.

2. Motor

Remove screws item 7 and plate item 6. Separate plate item 11 from motor item 10 by loosening nipples item 12.

3. Gearbox

Loosen acorn nuts item 94 and screws item 97 and pull out connection parts item 1-8 from gear housing item 30. Disconnect the bevel gear item 46 and bearing item 43 from shaft item 5 after loosening nut item 59. Loosen the screws item 88 and 89, remove the gear housing cover item 70 and connecting rod item 77. Remove the screws item 65, pull out the crankshaft item 51 with bearing plate item 62. Pay attention to balance ring item 49.

Reassembly

Before starting reassembly check all parts for wear and replace them if necessary. Wear parts are in particular O-rings, radial shaft seals and bearings.

1. Handle

Reassembly is performed essentially the same as disassembly, but in reverse order. Grease all O-rings before assembly. Make sure that the O-rings do not get damaged when the valve parts are inserted. To assemble snap ring item 312 load the compression spring item 316. Adjust the rotary sleeve position by adding shims item 333 to one or the other side of the sleeve.

2. Motor

and

3. Gearbox

Reassembly is carried out essentially using the reverse procedure. Grease all seals before assembly.

We recommend changing the grease in the gear housing after 300 hours of operation. Use a special-purpose gear grease only:

| | |
|----------------------------------|-----------------|
| Consistency class (DIN 51818) | 2 |
| Saponification type | Lithium |
| Worked penetration | 265 to 295 |
| Temperature range | -25°C to +125°C |

The proper quantity of grease is very important from the point of good lubrication and low heat generation. The grease quantities listed in the following table must be complied with:

| Grease | Quantity in grams |
|---------------------|-------------------|
| In the crank casing | 100 |
| In the bevel gears | 40 |
| In the spur gears | 30 |

Use only ORIGINAL SPITZNAS SPARE PARTS for repairs.

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 saw, always check that the hydraulic power

source is supplying the correct hydraulic flow and a pressure to the tool as listed in the table. Use a flowmeter known to be accurate. Check the flow with the hydraulic fluid temperature at least 80°F/270°C.

| PROBLEM | CAUSE | REMEDY |
|--------------------------|--------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Saw will not start. | Power not being supplied. | Check to make certain that both hoses are connected. Turn hydraulic circuit control valve "ON". |
| | Defective quick disconnect. | Check each disconnect separately. Replace as necessary. |
| | Jammed motor and or parts. | Separate modules and inspect. See SERVICE INSTRUCTIONS. Do not force parts together |
| | Flow reversed through hoses. | Correct the power source control valve position. Prevent reverse flow by using only one port from the valve for pressure, the return tool hose to the cooler and the filter line. Correct the quick-disconnect male/female routing per instructions and the arrows on the fittings. |
| Low cutting performance. | Incorrect hydraulic flow. | Check that the hydraulic power source is producing 2.6-13-2 gpm / 10-50 lpm at 950-2000 psi/66-140 bar. |
| | Defective quick disconnect. | Check each quick disconnect separately. |
| | Hydraulic circuit relief set too low, hoses too restrictive or the hydraulic fluid is too thick. | Set relief valve at 2100 psi / 145 bar. |
| | Fluid restriction in hose or valve. Excess back pressure. | Locate and remove restriction. |
| | | Use correct fluid. |
| | | Fluid not warmed-up. Preheat system. |
| | | Hoses too long for hose I.D. Use shorter hose. |
| | Priority flow control valve is malfunctioning. | Do not separate modules. See SERVICE INSTRUCTIONS. |

| PROBLEM | CAUSE | REMEDY |
|-----------------------------------------------------|-----------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Low cutting performance. | Flow reversed through hoses. | Correct the power source control valve position. Prevent reverse flow by using only one port from the valve for pressure, the return tool hose to the cooler and the filter line. Correct the quick-disconnect male/female routing per instruction and the arrows on the fittings. |
| | Gearbox parts worn/broken | Repair or replace. See SERVICE INSTRUCTIONS. |
| Saw runs too fast. | Incorrect hydraulic flow. | Check that hydraulic power source is not producing over 13.2 / 50 lpm at 950-2000 psi / 66-140 bar. |
| | Hydraulic flow reversed. | Correct the tool hoses, "IN" and "OUT" per instructions and if the power supply valve is reversible, reconnect the tool return hose to the oil cooler or to the filter directly. |
| | Priority valve faulty. | Do not separate modules. Remove, inspect and replace priority valve if necessary. See SERVICE INSTRUCTIONS. |
| Rotary sleeve operation erratic. Control difficult. | Sleeve mechanism blocked. | Do not separate modules. Clean sleeve area. Adjust sleeve. See SERVICE INSTRUCTIONS. |
| Fluid leak between motor and valve housing. | Motor capscrews loose. | Separate modules. Tighten to recommended torque. |
| Fluid leaks at flow control valve | Damaged O-rings. | Do not separate modules. Replace them as required. |
| | Wrong hydraulic fluid. Circuit too hot. | See OPERATING INSTRUCTIONS for correct fluid/circuit specifications. |
| | Hydraulic pressure and return hoses reversed. | Correct hose connections. |
| | | |

| PROBLEM | CAUSE | REMEDY |
|------------------------------------------|--------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| Fluid gets hot. Power unit working hard. | Open center tool on a closed center circuit or vice versa. | Use tools to match circuit. |
| | Circuit relief set too low. | Adjust relief valve to 2100-2250 psi / 145-155 bar. |
| | Too much fluid going through tool. | Adjust flow for 13.2 gpm / 50 lpm maximum. |
| | Circuit is generating high heat with flow controls. | Use pump size and rpm for producing needed flow only. Eliminate circuit heating causes. |
| | Circuit has contaminants that have caused wear and high heat generation. | Replace worn pump and valves. Install a large clean filter and keep the fluid clean. |
| Loud noise from gearbox. | Bearings or gears worn or broken. | Repair or replace. See SERVICE INSTRUCTIONS. |
| Strong vibrations while cutting. | Clamp device not fixed properly. | Fix clamp device. |
| | Saw blade blunt. | Replace saw blade |