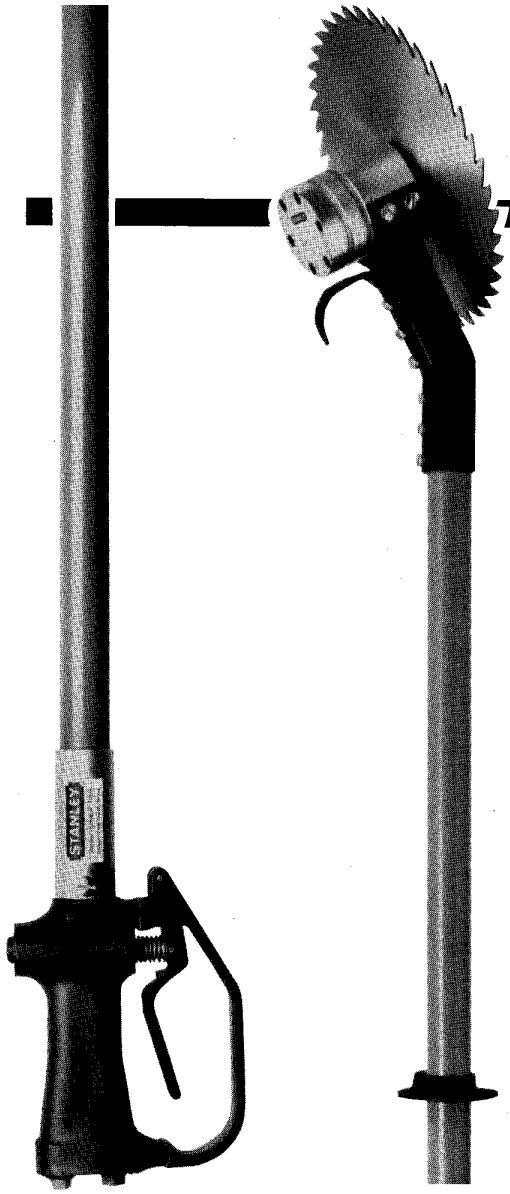
CR22
HYDRAULIC CIRCLE SAW



Safety, Operation and Maintenance Manual

Focused on performance ™

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05424 10/93R

SAFETY PRECAUTIONS

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

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

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

GENERAL SAFETY PRECAUTIONS

The CR22 Circle Saw 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 saw and hose before operation. Failure to do so could result in personal injury or equipment damage.

- Operators must start in a work area without bystanders. Flying debris can cause serious injury.
- 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 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 saw.
- Know the location of buried or covered services before starting your work.
- Without the use of non-conductive accessories, this tool is not for use near energized lines. Failure to comply with this warning could result in serious personal injury.
- Use care when handling the saw, especially near the saw blade.
- 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 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.
- To avoid personal injury or equipment damage, all tool repair, maintenance, and service must only be performed by authorized and properly trained personnel.

TOOL STICKERS AND TAGS

The safety related stickers and tags attached to the saw prior to shipment from the factory are shown below.

The pressure and flow rates specified must never be exceeded. All stickers and tags must be read and understood prior to operating the tool.

The information listed on these stickers and tags must be legible at all times. Always replace those that have become worn or damaged. Replacements are available from your Stanley distributor.

DANGER

THE SAW BLADE OF THE CR22 WILL CONTINUE TO ROTATE FOR 15 SECONDS OR MORE AFTER RELEASING THE ON/OFF TRIGGER. DURING THIS "COAST DOWN" TIME, CONTACT WITH THE BLADE OF THE CR22 MAY RESULT IN SEVERE PERSONAL INJURY.

AFTER RELEASING THE ON/OFF TRIGGER, SAW OPERATORS MUST BE CERTAIN THAT THE BLADE HAS COME TO A COMPLETE STOP BEFORE PLACING THE SAW ON THE GROUND, LOWERING THE SAW INTO THE TRUCK'S BUCKET, STORING THE SAW OR CONTACTING THE BLADE IN ANY WAY. FAILURE TO OBSERVE THESE PRECAUTIONS MAY RESULT IN SEVERE PERSONAL INJURY.

KEEP OTHER WORKERS AND BYSTANDERS CLEAR OF THE WORK AREA TO AVOID SEVERE PERSONAL INJURY RESULTING FROM CONTACT WITH THE SAW BLADE AS WELL AS FALLING LIMBS, BRANCHES AND OTHER DEBRIS. 17274

SAW BLADE ROTATION DANGER STICKER

CLOSED CENTER

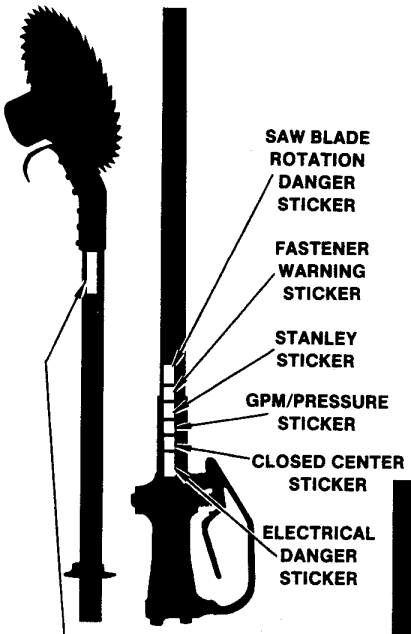
FOR USE ON CLOSED CENTER HYDRAULIC SYSTEM

CLOSED CENTER STICKER (WHEN APPLICABLE)

WARNING

TO AVOID SEVERE PERSONAL INJURY, DO NOT OPERATE WITH NON-FACTORY APPROVED FASTENERS OR WITH LOOSE, MISSING OR DAMAGED FASTENERS. 15863

FASTENER WARNING STICKER



ARNETT TESTING LABORATORY
Portland, Oregon
Electrically Certified
Serial No.

DIELECTRIC CERTIFICATION STICKER

DANGER

ELECTROCUTION HAZARD

Failure to use hydraulic hose labeled and certified as non-conductive when using hydraulic tools on or near electrical lines may result in death or serious injury

For proper and safe operation read owners manual and make sure that you have been properly trained in correct procedures required for work on or around electric lines

ELECTRICAL DANGER STICKER

CAUTION

5-7 GPM/19-26 LPM
DO NOT EXCEED 2000 PSI/140 BAR

■DO NOT EXCEED SPECIFIED FLOW OR PRESSURE ■USE CLOSED-CENTER TOOL ON CLOSED-CENTER SYSTEM ■USE OPEN-CENTER TOOL ON OPEN-CENTER SYSTEM ■CORRECTLY CONNECT HOSES TO TOOL "IN" AND "OUT" PORTS ■IMPROPER HANDLING, USE OR MAINTENANCE OF TOOL COULD RESULT IN A LEAK, BURST OR OTHER TOOL FAILURE ■CONTACT AT A LEAK OR BURST CAN CAUSE OIL INJECTION INTO THE BODY ■ FAILURE TO OBSERVE THESE PRECAUTIONS CAN RESULT IN SERIOUS PERSONAL INJURY 03784

GPM/PRESSURE STICKER

DANGER

1 FAILURE TO USE HYDRAULIC HOSE **LABELED AND CERTIFIED AS NON-CONDUCTIVE** WHEN USING HYDRAULIC TOOLS ON OR NEAR ELECTRICAL LINES MAY RESULT IN DEATH OR SERIOUS INJURY

BEFORE USING HOSE **LABELED AND CERTIFIED AS NON-CONDUCTIVE** ON OR NEAR ELECTRIC LINES BE SURE THE HOSE IS **MAINTAINED AS NON-CONDUCTIVE** THE HOSE SHOULD BE REGULARLY TESTED FOR ELECTRIC CURRENT LEAKAGE IN ACCORDANCE WITH YOUR SAFETY DEPARTMENT INSTRUCTIONS

2 A HYDRAULIC LEAK OR BURST MAY CAUSE OIL INJECTION INTO THE BODY OR CAUSE OTHER SEVERE PERSONAL INJURY

A **DO NOT** EXCEED SPECIFIED FLOW AND PRESSURE FOR THIS TOOL EXCESS FLOW OR PRESSURE MAY CAUSE A LEAK OR BURST

B **DO NOT** EXCEED RATED WORKING PRESSURE OF HYDRAULIC HOSE USED WITH THIS TOOL EXCESS PRESSURE MAY A CAUSE LEAK OR BURST

C CHECK TOOL HOSE COUPLERS AND CONNECTORS DAILY FOR LEAKS **DO NOT** FEEL FOR LEAKS WITH YOUR HANDS CONTACT WITH A LEAK MAY RESULT IN SEVERE PERSONAL INJURY

IMPORTANT

READ OPERATION MANUAL AND SAFETY INSTRUCTIONS FOR THIS TOOL BEFORE USING IT.

USE ONLY PARTS AND REPAIR PROCEDURES APPROVED BY STANLEY AND DESCRIBED IN THE OPERATION MANUAL.

TAG TO BE REMOVED ONLY BY TOOL OPERATOR.

SEE OTHER SIDE 15875

DANGER

D **DO NOT** LIFT OR CARRY TOOL BY THE HOSES **DO NOT** ABUSE HOSE **DO NOT** USE KINKED TORN OR DAMAGED HOSE

3 MAKE SURE HYDRAULIC HOSES ARE PROPERLY CONNECTED TO THE TOOL BEFORE PRESSURIZING SYSTEM SYSTEM PRESSURE HOSE MUST ALWAYS BE CONNECTED TO TOOL "IN" PORT SYSTEM RETURN HOSE MUST ALWAYS BE CONNECTED TO TOOL "OUT" PORT REVERSING CONNECTIONS MAY CAUSE REVERSE TOOL OPERATION WHICH CAN RESULT IN SEVERE PERSONAL INJURY

4 **DO NOT** CONNECT CLOSED-CENTER TOOLS TO OPEN-CENTER HYDRAULIC SYSTEMS THIS MAY CAUSE EXTREME SYSTEM HEAT AND/OR SEVERE PERSONAL INJURY

DO NOT CONNECT OPEN-CENTER TOOLS TO CLOSED-CENTER HYDRAULIC SYSTEMS THIS MAY RESULT IN LOSS OF OTHER HYDRAULIC FUNCTIONS POWERED BY THE SAME SYSTEM AND/OR SEVERE PERSONAL INJURY

5 BYSTANDERS MAY BE INJURED IN YOUR WORK AREA KEEP BYSTANDERS CLEAR OF YOUR WORK AREA

6 WEAR HEARING EYE FOOT HAND AND HEAD PROTECTION

IMPORTANT

READ OPERATION MANUAL AND SAFETY INSTRUCTIONS FOR THIS TOOL BEFORE USING IT.

USE ONLY PARTS AND REPAIR PROCEDURES APPROVED BY STANLEY AND DESCRIBED IN THE OPERATION MANUAL.

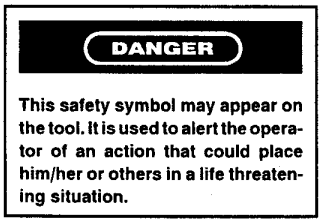
TAG TO BE REMOVED ONLY BY TOOL OPERATOR.

SEE OTHER SIDE 15875

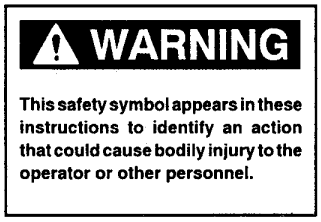
The safety tag at right is attached to the saw when shipped from the factory. Read and understand the safety instructions listed on this tag before removal. We suggest you retain this tag and attach it to the saw when not in use.

SAFETY SYMBOLS

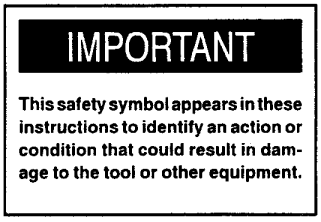
Safety symbols are used to emphasize all operator, maintenance and repair actions which, if not strictly followed, could result in a life-threatening situation, bodily injury or damage to equipment.



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.



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

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

LOCAL SAFETY REGULATIONS

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

EQUIPMENT PROTECTION AND CARE

IMPORTANT

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

- Always store an idle saw in a clean dry space, safe from damage or pilferage.
- Operate the tool within its rated capacity.
- Do not use the tool for applications for which it was not designed.
- Keep the blade surfaces clean.
- Keep cutting edges sharp.
- Routinely check that all fasteners are tight. Check that NO fasteners are missing from the saw. Replace any missing fasteners immediately using a thread adhesive such as Loctite 242.
- Always keep critical tool markings, such as labels, warning and danger stickers legible.
- Always replace hoses, couplings and other parts with replacement parts recommended by Stanley Hydraulic Tools. The hydraulic supply hoses must have a minimum working pressure rating of 2500 psi/175 bar.
- All hoses must have an oil resistant inner surface and an abrasive resistant outer surface. Whenever near electrical conductors use **clean** (nonmetallic braid) nonconductive hose.
- To avoid personal injury or equipment damage, all tool repair, maintenance and service must only be performed by authorized and properly trained personnel.
- Make sure all couplers are wiped clean before connection.
- The hydraulic circuit control valve must be in the "OFF" position when coupling or uncoupling hydraulic tools. Failure to do so may result in damage to the quick couplers and cause overheating of the hydraulic system.

6. Remove the shaft seal back-up washer retaining ring, the back-up washer and seal.

7. If the shaft ball bearing must be replaced, remove the retaining ring and, with the small diameter end of the shaft down through a hole, and the bearing supported around it, tap or press down on the shaft end, pushing it out of the bearing.

8. Clean and inspect all parts as follows:

INSPECTION

Gear Chamber

The chamber bores and chamber bottoms around the shaft bushings should be polished, not rough or grooved. Shaft bushings should look **grey** in color. If bushing bores are yellow-bronze they should be replaced, and the cause of wear investigated.

For bushing replacement, send housings to a Stanley Hydraulic Tools dealer or obtain bushing replacement tools. The flat surface around the gear chambers and the bolt holes should be flat and free of nicks which could cause misalignment or leaks.

Gears

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

Front Bearing Housing

The surface near the gears should show two interconnecting polished circles without a step. The bottom of the o-ring groove should be smooth as should the rest of the flat surface. Inspect the bushing bores. They should look **grey** in color. If the bushing bores are yellow-bronze they should be replaced, and the cause of wear investigated.

For bushing replacement, send housings to a Stanley Hydraulic Tools dealer or obtain bushing replacement tools.

Shake the bearing housing and the two seal vent balls should rattle. Unless there are leaks at the plugs or the balls are jammed by fluid contaminants, it is not necessary to remove the plugs or check the balls. If they are removed, be sure that the check seats (the bottom of the holes into which the balls are placed around the small oil holes) are smooth. If not, the seat can usually be fixed by cleaning and then placing the ball in the hole, and tapping on the ball with an aluminum or bronze rod.

Reassemble the ball and plug with the inner end of the plug **just starting** to show in the hole as viewed through the oil slot on the gear face of the housing. You can also use wire through this hole to feel when the plug is deep enough. Use thread sealant such as Loctite PST on the plug threads.

The bore for the shaft seal should be smooth or oil leakage may occur.

Main Shaft

The diameter should be smooth each side of the v-groove keyway. Signs of polishing are normal. Grooves, roughness or reduced diameter are sure indicators of fluid contamination. The grit particles imbed in the bushings and grind into the hardened shaft, which must then be replaced. The shaft surface condition must also be checked at the shaft seal contact zone, a ring near large shaft flange.

If shaft wear is in excess of normal polishing, the shaft must be replaced. Check the hydraulic system for excess contamination in the fluid and for filter condition. Operating conditions may require changing from a 25-micron filter to an oversized 10-micron filter.

REASSEMBLY

1. To replace the bearing on the main shaft, support the bearing inner race and press the shaft through. Install the retaining ring on the shaft.

2. Install the o-ring on the outside diameter of the seal liner, then install the quad ring on the inside of the seal liner. Make sure the quad ring is completely in the groove and not twisted or otherwise distorted.

3. Protect the gear face of the bearing housing from damage and install the shaft seal with the lips toward gear face. Replace the seal washer and retaining ring.

4. Place the bearing housing with the large hole up on a smooth clean surface under a press with a clearance hole for the shaft. Insert the shaft with the ball bearing installed into the housing until the press is required to insert. Using a sleeve with a diameter slightly smaller than the outside of the bearing, press the bearing into the bore. DO NOT press on the shaft end to seat the bearing. Press only on the bearing outer race. Install the retaining ring into the bearing housing.

5. Secure the bearing housing gear face up in a vice using soft v-blocks. Hold needle roller in the v-groove of the motor shaft and slide the drive gear over the shaft and roller. Install the idler gear shaft, then slide on the idler gear. Grease the o-ring and seat it into its grooves on the face of the bearing housing.

6. Note the alignment of the screw holes through the gear housing with those in the bearing housing. Carefully slide the gear housing straight down over the gears. Do not force or "rattle" parts together to avoid damaging the gears or gear bores, etc. The assembly is a close fit, but does not require force to assemble if all the parts are properly aligned.

7. Ensure that the mating faces of the gear housing and bearing housing are against each other. Turn the motor shaft manually to check for free rotation. Install the capscrews and recheck for rotation. Lubricate and tighten the capscrews to 75-85 lb-in.

8. Connect the motor to a hydraulic oil supply and check for smooth running. Motors will sometimes be tight and require "break-in". This is accomplished by turning the shaft with a wrench while pressure is applied. Turn the shaft both with and against the hydraulic pressure until the motor starts and runs freely.

FOR VALVE ASSEMBLY, TUBES AND YOKE

DISASSEMBLY

VALVE ASSEMBLY — CONVENTIONAL

1. Disconnect the saw from the hydraulic oil power source.

2. Remove the flat-head capscrews which fasten valve assembly to the outer tube.

3. Pull the valve assembly away from the outer tube assembly. Note the orientation of the valve assembly to the motor.

4. Remove the spool screw from the end of the spool.

5. Remove the two flat head screws from the trigger guard.

6. Pull the entire trigger guard, trigger and valve spool assembly from the spool bore.

7. Drive the roll pin from the trigger to remove the spool.

VALVE ASSEMBLY — DUAL SPOOL

1. Disconnect the saw from the hydraulic oil power source.

2. Remove the flat-head capscrews which fasten valve assembly to the outer tube.

3. Pull the valve assembly away from the outer tube assembly. Note the orientation of the valve assembly to the motor.

4. Drive the roll pin from the trigger.

5. Remove the two flat-head screws from the trigger guard. Remove the trigger and guard assembly.

6. Push the valve spool out of the valve handle.

7. To disassemble the spool assembly, remove the retaining ring from the groove in front of the selector screw and unscrew the selector across from the spool.

OIL TUBES, YOKES AND OUTER TUBE

1. Remove the three pan head or hex socket round screws and the three lockwashers attaching the motor yoke to the outer tube assembly.

2. Pull the outer tube assembly free from the motor yoke.

3. Remove the two oil tubes and tube support from the motor yoke.

REASSEMBLY

PRIOR TO REASSEMBLY

- Clean all parts with a degreasing solvent.

HYDRAULIC HOSE REQUIREMENTS

HOSE TYPES

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

1. Labeled and 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.

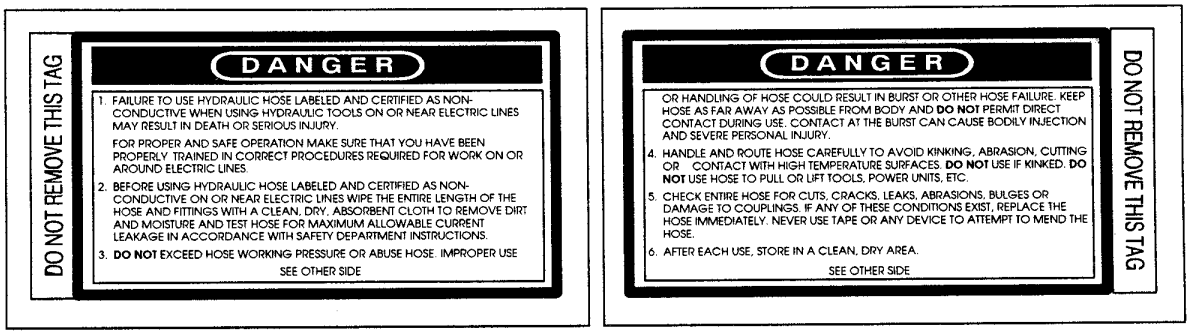
Hoses 2 and 3 listed above are conductive and must never be used near electrical conductors.

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

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

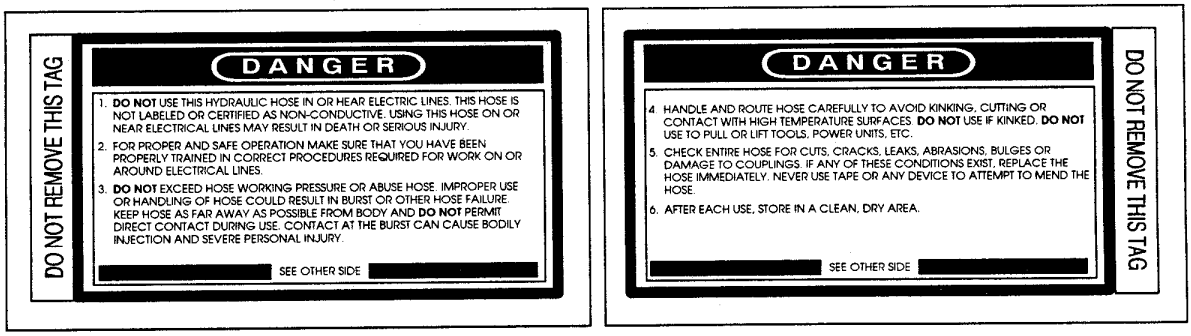
1 CERTIFIED NON-CONDUCTIVE HOSE

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



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

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



HOSE PRESSURE RATING

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

HYDRAULIC SYSTEM REQUIREMENTS

- The hydraulic system should provide a flow of 5-7 gpm/19-26 lpm at an operating pressure of 1000-2000 psi/70-140 bar. Recommended relief valve setting is 2100-2250 psi/145-155 bar.

- The system should not have 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 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/22°C difference between ambient temperature and oil temperature.

- The hydraulic system should have a minimum of 25 micron 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 antiwear properties and a viscosity index over 140 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.

OPERATION

COLD WEATHER OPERATION

If the saw is to be used during 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.

Damage to the hydraulic system or saw can result from use with oil that is too viscous or thick.

PREOPERATION PROCEDURES

CHECK POWER SOURCE

1. Using a calibrated flowmeter and pressure gauge, check that the hydraulic power source develops a flow of 5-7 gpm/19-26 lpm at 1000-2000 psi/70-140 bar.

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

Note: Open-center (o.c.) models will bypass flow at low pressure and closed-center (c.c.) models will cause bypass at the relief pressure setting on o.c. system. Make sure the saw valve type matches the hydraulic system type.

On dual-spool models, the spool valve can be set to match the system type. For open-center, the selector screw must be fully out to the stop. For closed-center operation, the selector must be fully in (bottomed in the spool).

CHECK THE TOOL

1. Make certain all fasteners are installed and tight. Saw failure could result with possible personal injury.

2. Make certain the blade is sharp.

3. There should be no signs of leaks.

4. The tool should be clean.

CONNECT HOSES

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

2. Connect hoses from the hydraulic power supply to the tool. It is a good practice to connect return hoses first and disconnect them last to minimize or avoid trapped pressure within the tool.

3. Observe the flow indicators stamped on hose couplers to ensure that the oil flow will be in the proper direction. The female coupler on the tool's "IN" port is the inlet coupler. See illustration in PARTS LIST section for tool port identification.

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

OPERATING PROCEDURES

TOOL OPERATION

⚠ WARNING

Make certain that the saw is unobstructed and the tool firmly held before starting the hydraulic power supply.

- Observe all safety precautions given in this manual.
- Do not operate a circle saw unless you have been specifically trained to do so.
- Keep all parts of the body away from the saw blade during operation of the tool.
- Carry the saw with the unit de-energized and the blade away from the body.
- Always connect the hoses to the tool hose couplers before energizing the power source.
- Do not operate a circle saw that is damaged, improperly adjusted or is not completely and securely assembled.

• Keep the saw and handles clean and free of oil and contaminates.

• Do not hang the saw on utility wires or cables.

• Do not leave the saw hanging in a tree.

• Do not leave cut branches in a tree.

• Branches bent under tension are considered hazardous.

• Do not allow binding of the saw blade.

• The saw blade will continue to spin for up to 15 seconds or more after releasing the ON/OFF trigger. During this "coast down" time contact with the saw blade may result in severe personal injury. Refer to page 2.

• Use extreme caution when sawing small size brush and saplings. Slender material may catch in the saw blade and be thrown toward the operator.

• Keep the saw blade away from all surfaces when starting rotation of the blade.

• Do not reverse blade rotation direction by changing oil flow direction. The saw is designed to operate in only one direction.

• Do not use the saw around energized transmission lines.

• Do not inspect, clean or repair the saw with the power source operating or with operating pressure at the saw. Accidental engagement of the tool can cause serious injury.

• Do not operate the saw at oil temperatures above 140° F/60° C. Operation at higher temperatures can cause higher then normal temperatures at the tool which can cause operator discomfort.

⚠ WARNING

The following are general woodcutting procedures and techniques. Differences in the terrain, vegetation, and type of wood will make this information more or less valid for particular areas. For advice on specific woodcutting problems or techniques for your area, consult your local Stanley representative or your county agent. They can often provide information that will make your work safer and more productive.

• After releasing the ON/OFF trigger, saw operators must be certain that the saw blade has come to a complete stop before placing the saw on the ground, lowering the saw into the truck's bucket, storing saw or contacting the blade in any way. Failure to observe these precautions may result in severe personal injury.

• The saw operator must keep other workers and bystanders clear of the work area, including the area into which cut limbs or debris can result in severe personal injury.

MAKING CUTS

1. Move the hydraulic circuit control valve to the "ON" position to pressurize the circuit.

2. Maintain a firm grip on the saw handle. While maintaining firm footing and balance, position the saw blade near the material to be cut.

3. Squeeze the ON/OFF valve handle trigger and allow the saw blade to reach FULL speed.

IMPORTANT

The saw blade must reach FULL speed before attempting a cut.

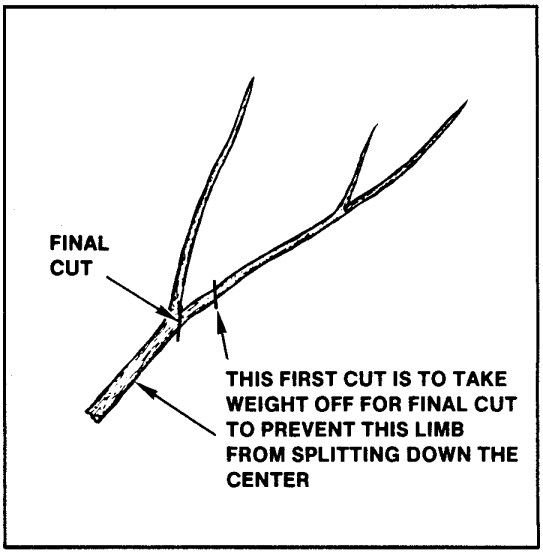


Figure 1. Flush Cutting a Limb Having a Tendency to Split or Tear.

4. In sawing limbs which have a tendency to split or tear when making a single saw flush cut, (as in figure 1), it is advisable to make more than one cut. The first cut is made a few inches from the point of the flush cut. Removing the weight of the limb being trimmed out and leaving a short stub. The stub is then flushed off as described above (see figure 2). Whenever practical, the cut shall be treated with tree paint if it is larger than 1 inch in diameter. This technique will avoid breaking the lateral which you are trying to save or splitting the remaining limb down the center as the flush cut is made.

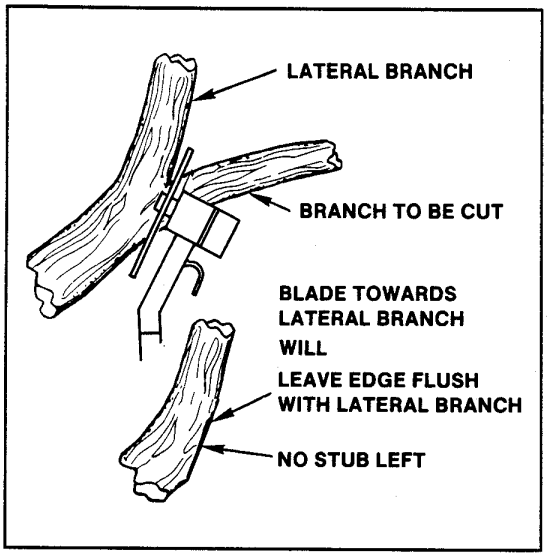


Figure 2. Flush Cut

⚠ WARNING

Do not cut material that is directly overhead. When it falls it may cause operator injury.

5. Watch the saw reaction to making a cut. Control the movement of the saw.

6. Release the ON/OFF valve handle trigger to stop saw blade rotation.

7. Reposition the saw to make the next cut and continue operating the saw as stated above.

⚠ WARNING

After releasing the ON/OFF trigger, saw operators must be certain that the saw has come to a complete stop after 15 seconds or more "coast down" period before placing the saw into the truck's bucket, storing the saw or contacting the blade in any way. Failure to observe this warning may result in severe personal injury.

AFTER OPERATION

1. Wipe the saw thoroughly with a clean dry or slightly oiled cloth.

2. Clean tree pitch and residue from the blade. Handle the blade with care to avoid getting cut by the sharp teeth .

3. Check all fasteners for tightness.

4. When the saw is not in use, store horizontally in a clean dry space and protected from damage.

5. Protect the blade teeth and keep the teeth sharp. A sharp blade will cut cleaner and faster.

SERVICE INSTRUCTIONS

Note: For orientation of parts, refer to the parts illustration contained in the PARTS LIST section of this manual.

- Observe all safety precautions.
- Disconnect the saw from the hydraulic oil power source.

BLADE INSTALLATION

1. Handle the saw blade with care. The cutting edges are sharp and careless handling could result in injury.

2. Remove the cotter pin, nut and moveable collar from the motor shaft.

Note: The nut and shaft are left-hand threaded.

3. Remove the used saw blade.

4. Install the new saw blade engaging the arbor hole with the drive arbor on the fixed collar.

Note: The correct direction of rotation is clockwise as viewed from the shaft end of the motor. (See Figure 3.)

5. Install the moveable collar, recessed face toward the saw blade.

6. Install and tighten the nut.

7 Install the cotter pin to lock the nut to the motor shaft. Bend the ends of the cotter pin.

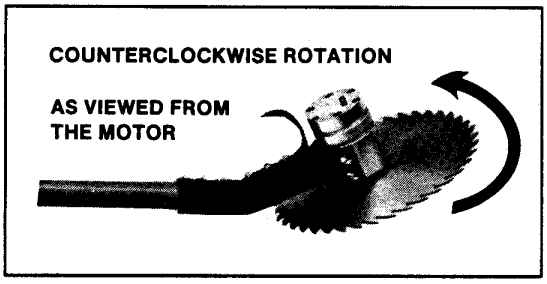


Figure 3. Saw Blade Rotation.

DISASSEMBLY

PRIOR TO DISASSEMBLY

- Clean exterior of tool.
- Obtain Seal Kit (Part Number 19945) so that all seals exposed during disassembly can be replaced. Note orientation of seals before removal. Install new seals in the same way.

REMOVAL OF MOTOR

1. Remove cotter pin, nut, moveable collar and saw blade.

Note: The nut and shaft have left-hand threads.

2. Remove the four capscrews that hold the motor to the yoke.

3. Pull the motor assembly out of the motor yoke and from the oil tubes.

DISASSEMBLY OF MOTOR

1. Remove retaining ring and fixed collar

2. Using soft v-blocks, secure the motor in a vise by clamping around the ball-bearing end with the output shaft **down.** Remove the motor capscrews.

3. Using a flat-blade screwdriver or similar tool, gently pry **all around** the groove between the gear chamber and the front bearing housing. Lift the gear chamber straight up. DO NOT tilt housing or pry on the flat surface inside the surrounding groove as this will damage the sealing surface.

4. Lift the rear gear housing straight up slowly. Be careful the gears do not drop out of the housing and become damaged. Remove the gears and needle roller key. Remove the o-ring .

5. Remove the front bearing housing from the vise. Protect the flat surface with the o-ring groove from damage and remove the retaining ring from around the bearing. Hold the housing and tap lightly on the small diameter end of shaft to remove the shaft and bearing from the front of the housing.

• Ensure that all the seals that were exposed have been replaced with new parts.

• Apply clean grease or o-ring lubricant to all parts during reassembly.

VALVE ASSEMBLY — CONVENTIONAL

1. Replace the two o-rings in the end of the valve handle and the two o-rings in the valve spool bore.

2. Reassemble the trigger, guard and spool assembly.

3. Lube the end of the spool and with the spring in place, insert the spool into the valve handle with a twisting motion.

4. Install the spool screw to retain the spool.

5. Install two flat head screws to retain the trigger guard.

VALVE ASSEMBLY — DUAL SPOOL

1. Replace the two o-rings in the end of the valve handle and the one o-ring in the valve spool bore.

2. Replace the o-ring on the selector screw.

3. Reassemble the spool assembly by installing the selector screw and the retaining ring.

4. Replace the o-ring on the spool assembly.

5. Lubricate the spool and insert it into the valve handle.

6. With the spring in place over the end of the spool, assemble the trigger to the spool by installing the roll pin.

7. Install the two flat-head screws to retain the trigger guard.

8. For closed-center operation, turn the selector screw fully into the spool until it bottoms.

9. For open-center operation, turn the selector screw fully out to the stop.

OIL TUBES, YOKES AND OUTER TUBE

1. Mark both ends of one tube with red paint.

2. Install the oil tubes in the motor yoke by inserting the bent end of the oil tubes through the motor yoke from the outer tube assembly end.

3. Slide the tube support over the bent ends of the oil tubes.

4. Lube the ends of the oil tube assemblies and install in the motor as follows:

   a. With the motor shaft pointing to the left, install the oil tube marked with red into the bottom oil tube port in the motor. This is the pressure port.

   b. Install the second oil tube.

5. Push the motor and yoke together until the motor is seated in the yoke, and tube support is pushed into the neck of the motor yoke.

6. Secure the motor with four capscrews.

7. Install the outer tube assembly into the motor yoke and secure with three lock washers and three pan head or hex socket round screws.

8. With the motor shaft pointing to the left, install the valve assembly into the outer tube assembly making sure the red-marked oil tube is inserted into the oil tube port in the valve handle farthest from the trigger. Secure with two flat head capscrews.

9. Install the fixed collar on the motor shaft and secure with the retaining ring.

10. Install the saw blade using the BLADE INSTALLATION instructions in this manual.

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

PROBLEM	CAUSE	REMEDY
Tool will not operate.	Hydraulic system not engaged or running.	Engage or start hydraulic system.
	Hydraulic system control valve "OFF".	Turn the system control valve "ON"
	Tool not connected to the hydraulic system.	Connect tool to the system.
Trigger and valve spool stick.	Damaged trigger guard.	Repair or replace.
	High back pressure.	Determine cause of restriction or flow pressure loss in return line and remove restriction.
	Tool reverse plumbed to the system.	Correctly connect the pressure and return lines.
	Valve spool or spool bore scored by contaminated hydraulic fluid.	Repair or replace parts and clean hydraulic system.
Saw cuts poorly.	Blade is dull.	Replace with sharp blade.
	Saw is running backwards.	Check direction of rotation. Correct rotation is counterclockwise as viewed from motor side of blade. (See Figure 3.) Connect system pressure line to the port farthest from trigger guard, return line to tool port nearest trigger guard.
	Blade installed backwards.	Install the blade correctly. Blade teeth point in direction of rotation, counterclockwise as viewed from motor side of blade. (See Figure 3.)
Saw slows excessively under load.	System relief valve set too low.	Check system and adjust relief valve to crack open at 2100 psi.
	Tool motor worn.	Inspect and repair.
Hydraulic oil leaks from motor shaft.	Motor shaft seal worn.	Inspect and replace.
Hydraulic oil leaks between valve handle and outer tube handle.	Oil tube seals worn or oil tube(s) worn.	Inspect and replace.

SPECIFICATIONS

Capacity ..... 9 inch/23 cm blade (6-inch/15 cm cut)
System Type ..... HTMA Type I or II, o.c. or c.c.
Pressure Range ..... 1000-2000 psi/70-140 bar
Flow Range ..... 5-7 gpm/19-26 lpm
Optimum Flow ..... 7 gpm/26 lpm
Weight ..... 8 lb/3.6 kg
Length ..... 81-inch/206 cm
Porting Size and Type
Conventional ..... 3/8-inch NPT in handle
Dual-Spool ..... 8 SAE o-ring ports in handle
Hose Whips ..... No
Motor ..... HYREVZ™

NOTE

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

ACCESSORIES

PART NO.	DESCRIPTION
	TOOLS
00200	6-inch/15 cm Circle Saw, 44 Tooth
00425	9-inch/23 cm Circle Saw, 44 Tooth

WARRANTY

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

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

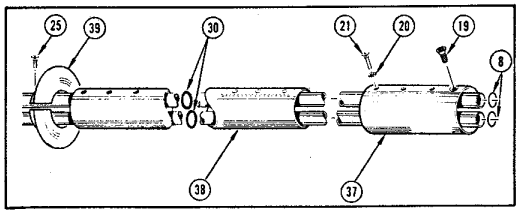
Stanley reserves the right to replace or repair only those parts which, under our examination, prove to have been defective at the time of purchase.

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

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

There is no other warranty expressed or implied.

SERVICE AND REPAIR NOTES

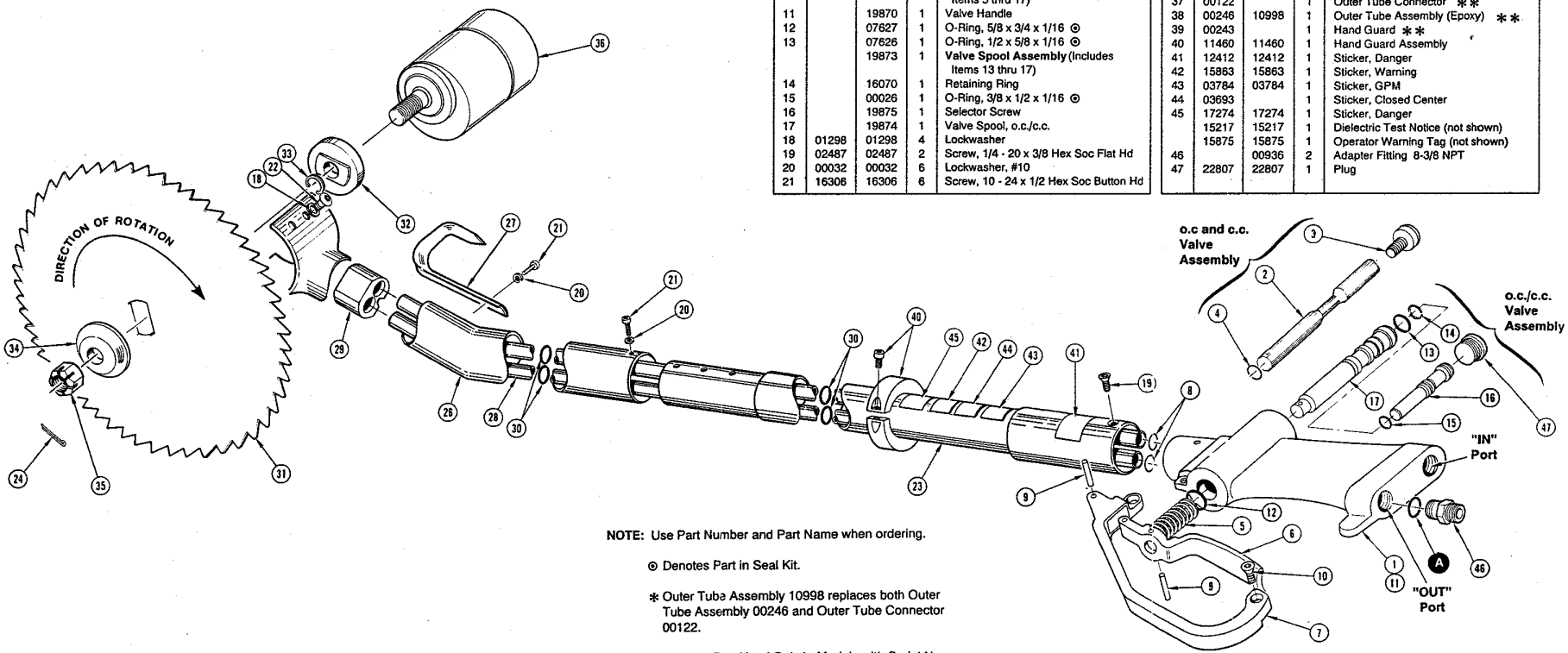


Outer Tube Parts for Saw Serial Numbers 6665 and Lower.

PARTS LIST

Item No.	Part No. oc or cc Models	Part No. oc/cc Model	Qty.	Description
	01728		1	**Valve Assembly, o.c.** (Includes Items 1 thru 10)
	01729		1	**Valve Assembly, c.c.** (Includes Items 1 thru 10)
1	01986		1	Valve Handle
2	01716		1	Spool, o.c.
	01717		1	Spool, c.c.
3	01812		1	Screw
4	04911		2	O-Ring, 1/2 x 5/8 x 1/16 ⊙
5	16556	19868	1	Spring
6	01718	19879	1	Trigger
7	01715	19877	1	Guard
8	16668	00018	2	O-Ring, 7/16 x 9/16 x 1/16 ⊙
9	01534	01534	2	Roll Pin, 1/8 x 1-1/4
10	16307	16307	2	Screw, 1/4 - 20 x 3/4 Hex Soc Flat Hd
		19869	1	**Valve Assembly, o.c./c.c.** (Includes Items 5 thru 17)
11		19870	1	Valve Handle
12		07627	1	O-Ring, 5/8 x 3/4 x 1/16 ⊙
13		07626	1	O-Ring, 1/2 x 5/8 x 1/16 ⊙
		19873	1	**Valve Spool Assembly** (Includes Items 13 thru 17)
14		16070	1	Retaining Ring
15		00026	1	O-Ring, 3/8 x 1/2 x 1/16 ⊙
16		19875	1	Selector Screw
17		19874	1	Valve Spool, o.c./c.c.
18	01298	01298	4	Lockwasher
19	02487	02487	2	Screw, 1/4 - 20 x 3/8 Hex Soc Flat Hd
20	00032	00032	6	Lockwasher, #10
21	16306	16306	6	Screw, 10 - 24 x 1/2 Hex Soc Button Hd

Item No.	Part No. oc or cc Models	Part No. oc/cc Model	Qty.	Description
22	05831	05831	4	Capscrew, 1/4 -20 x 1/2 Hex Soc Button Hd
23	10998	10998	1	Outer Tube Assy ✻
24	03134	03134	1	Cotter Pin, 1/8 x 1-1/8
25	00245		1	Screw, 8 - 32 x 1/2 Phil Hd
26	00029	00029	1	Yoke
27	00242	00242	1	Brush Hook
28	11314	11314	2	Oil Tube Assembly (Steel Ends)
29	01719	01719	1	Tube Support
30	00360	00360	4	O-Ring, 7/16 x 5/8 x 3/32 ⊙
31	00425	00425	1	Saw Blade, 9 in. Dia, 44 Tooth
32	00227	00227	1	Fixed Collar
33	00103	00103	1	Retaining Ring, Ext., 1/2 in. ⊙
34	00125	00125	1	Movable Collar
35	03133	03133	1	Nut
36	19227	19227	1	Motor Assembly
37	00122		1	Outer Tube Connector ✻✻
38	00246	10998	1	Outer Tube Assembly (Epoxy) ✻✻
39	00243		1	Hand Guard ✻✻
40	11460	11460	1	Hand Guard Assembly
41	12412	12412	1	Sticker, Danger
42	15863	15863	1	Sticker, Warning
43	03784	03784	1	Sticker, GPM
44	03693		1	Sticker, Closed Center
45	17274	17274	1	Sticker, Danger
	15217	15217	1	Dielectric Test Notice (not shown)
	15875	15875	1	Operator Warning Tag (not shown)
46		00936	2	Adapter Fitting 8-3/8 NPT
47	22807	22807	1	Plug



NOTE: Use Part Number and Part Name when ordering.

⊙ Denotes Part in Seal Kit.

✻ Outer Tube Assembly 10998 replaces both Outer Tube Assembly 00246 and Outer Tube Connector 00122.

✻✻ Denotes Part Used Only in Models with Serial No. 6665 and Lower.

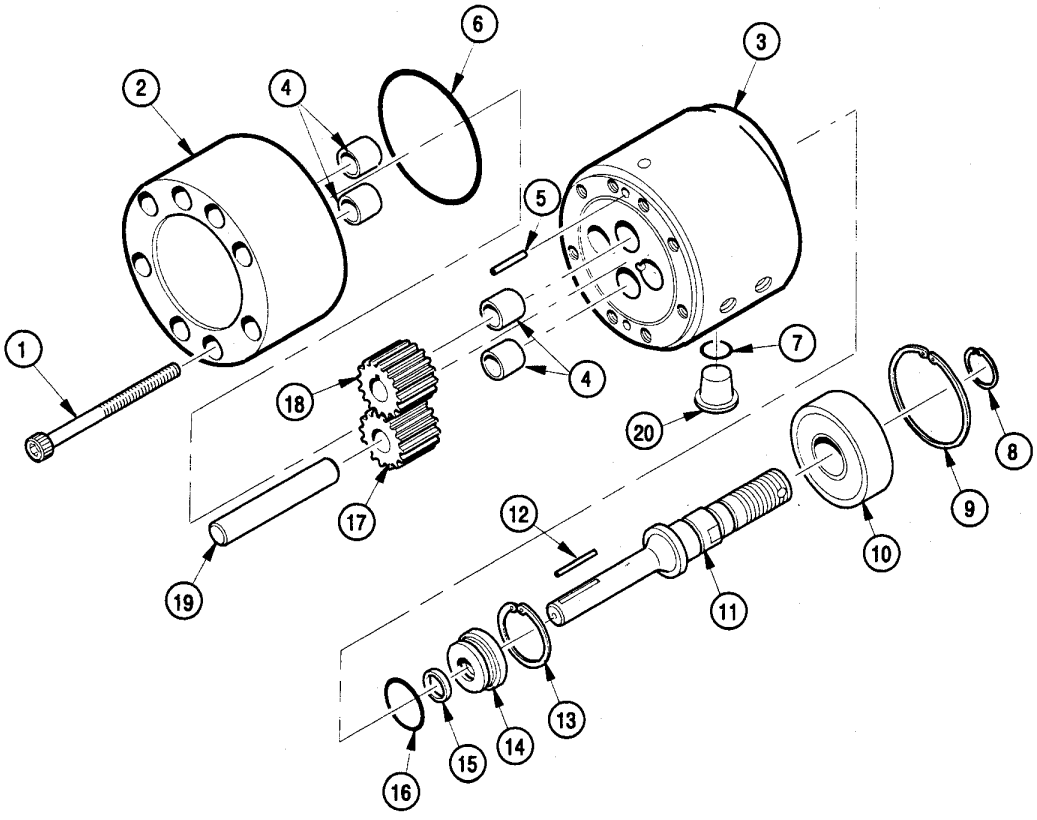
Ⓐ Supplied as part of item (46)

PARTS LIST

Item No.	Part No.	Qty.	Description
1	00753	8	Capscrew, 10-24 x 1-1/4 HSH
2	19226	1	**Gear Housing Assembly** (Includes two each of Item 4)
3	19214	1	**Front Bearing Housing Assembly** (Includes Items 4 and 5)
4	04041	4	Bushing
5	00289	2	Dowel Pin, 3/16 x 3/4
6	00020	1	O-Ring ⊙
7	16668	2	O-Ring ⊙
8	00008	1	Retaining Ring, 19/32 EXT
9	00118	1	Retaining Ring, 1-1/4 INT
10	00007	1	Ball Bearing
11	19189	1	Motor Shaft
12	03227	1	Needle Roller
13	04856	1	Retaining Ring, 7/8 INT
14	19215	1	Seal Liner
15	00173	1	Quad Ring ⊙
16	00171	1	O-Ring ⊙
17	04105	1	Idler Gear
18	04106	1	Drive Gear
19	07612	1	Idler Shaft
20	06586	2	Plastic Plug

SEAL KIT DATA

Part No.	Qty.	Description
Seal Kit Part No. 19945		
16668	4	O-Ring
00020	1	O-Ring
00173	1	Quad Ring
00171	1	O-Ring
04911	2	O-Ring
16070	1	Retaining Ring
00360	4	O-Ring
00103	1	Retaining Ring
00018	2	O-Ring
07626	1	O-Ring
07627	1	O-Ring
00026	1	O-Ring



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