


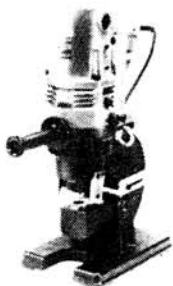
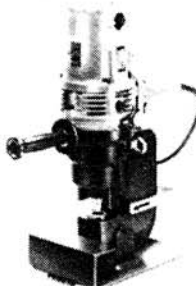


# ***Hougen®-Ogura™***

## **Electro-hydraulic Hole Puncher**

### **INSTRUCTION MANUAL** FOR ALL MODELS

75002	75003	75004
		
75005	75006	
		

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***Hougen®-Ogura™***

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**Read and follow all instructions**  
**Keep these instructions with the machine**

**! WARNING**



Unplug power when changing punches and dies, or when servicing machine.

Unplug power anytime machine is not in use.

Keep fingers away from cutting area during operation.

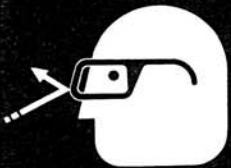
Never place fingers in cutting area when machine is plugged in.

Never leave machine with trigger switch locked on.

Check that the switch is off before plugging the machine in.

Turn off all switches in the event of a power interruption.

Metal cutting punches and dies have sharp edges. Handle them carefully to avoid being cut.



Any tool can shatter. Always wear eye protection.

Seat material fully within cutting area (between both stripper plates).



Do not use the machine in damp area or where it may become wet.



Punched material is ejected at end of cut. Be sure that ejected slug cannot fall and cause injury.

**SAVE THESE INSTRUCTIONS**

# Important Safety Instructions

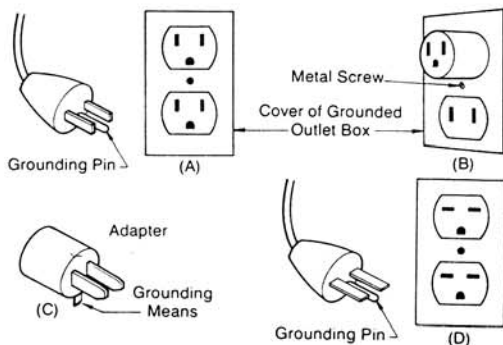
**WARNING:** When using electric tools, basic safety precautions should always be followed to reduce the risk of fire, electric shock, and personal injury, including the following:

## 1. READ ALL INSTRUCTIONS

### 2. Grounding Instructions

- 2a.** This tool should be grounded while in use to protect the operator from electric shock. The tool is equipped with a 3-conductor cord and 3-prong grounding type plug to fit the proper grounding type receptacle. The green (or green and yellow) conductor in the cord is the grounding wire. Never connect the green (or green and yellow) wire to a live terminal. If your unit is for use on 115V, it has a plug that looks like that shown in sketch (A). If it is for use on 230V, it has a plug that looks like that shown in sketch (D). An adapter, see sketches (B) and (C), is available for connecting sketch (A) type plugs to 2-prong receptacles. The green-colored rigid ear, lug, or the like, extending from the adapter must be connected to a permanent ground, such as a properly grounded outlet box. No adapter is available for a plug as shown in sketch (D).

**NOTE:** Use of a grounding adapter is prohibited in Canada by Part I of the Canadian Electrical Code.



### 2b. Extension Cords

Use only 3-wire extension cords that have 3-prong grounding type plugs and 3-pole receptacles that accept the tool's plug. Replace or repair damaged cords.

Make sure the conductor size is large enough to prevent excessive voltage drop which will cause loss of power and possible motor damage.

## 3. FOR ALL DOUBLE-INSULATED TOOLS

### Replacement Parts

When servicing use only identical replacement parts.

## 4. Keep Work Area Clean

Cluttered areas and benches invite injuries.

## 5. Consider Work Area Environment

Do not expose tool to rain.

Do not use tool in damp or wet locations.

Keep work area well lit.

Do not use tool in presence of flammable liquids or gases.

## 6. Guard Against Electric Shock

Prevent body contact with grounded surfaces. For example: pipes, radiators, ranges, refrigerator enclosures.

## 7. Keep Children Away

Do not let visitors contact tool or extension cord.

All visitors should be kept away from work area.

## 8. Store Idle Tools

When not in use, tools should be stored in a dry and high or locked-up place — out of reach of children.

## 9. Do Not Force Tool

It will do the job better and safer at the rate for which it was intended.

## 10. Use Right Tool

Do not force small tool or attachment to do the job of a heavy-duty tool.

Do not use tool for purpose not intended — for example — do not use circular saw for cutting tree limbs or logs.

## 11. Dress Properly

Do not wear loose clothing or jewelry. They can be caught in moving parts. Rubber gloves and non-skid footwear are recommended when working outdoors.

Wear protective hair covering to contain long hair.

## 12. Always wear safety glasses or goggles

## 13. Do Not Abuse Cord

Never carry tool by cord or yank it to disconnect from receptacle. Keep cord from heat, oil and sharp edges.

# Important Safety Instructions

## 14. Secure Work

Use clamps or a vise to hold work. It is safer than using your hand and it frees both hands to operate tool.

## 15. Do Not Overreach

Keep proper footing and balance at all times.

## 16. Maintain Tools With Care

Keep tools sharp and clean for better and safer performance.

Follow instructions for lubricating and changing accessories.

Inspect tool cords periodically and, if damaged, have repaired by authorized service facility.

Keep handles dry, clean, and free from oil and grease.

## 17. Disconnect Tools

When not in use, before servicing, and when changing accessories, such as punches and dies.

## 18. Remove Adjusting Keys and Wrenches

Form habit of checking to see that keys and wrenches are removed from tool before turning it on.

## 19. Outdoor Use Extension Cords

When tool is used outdoors, use only extension cords intended for use outdoors and so marked.

## 20. Stay Alert

Watch what you are doing. Use common sense. Do not operate tool when you are tired.

## 21. Check Damaged Parts

Before further use of the tool, a part that is damaged should be carefully checked to determine that it will operate properly and perform its intended function. Check for alignment of moving parts, binding of moving parts, breakage or parts, mounting, and any other conditions that may affect its operation. A part that is damaged should be properly repaired or replaced by an authorized service center unless otherwise indicated elsewhere in this instruction manual.

Have defective switches replaced by authorized service center.

Do not use tool if switch does not turn it on and off.

## 22. Service at Factory Authorized Repair Center Only

## 23. Operating Near Welding Equipment

When operating any grounded electrical equipment near an arc welder, it is important that both are connected to the same earth ground. If they are not, personal injury could result. Severe damage to the unit could also occur.

## 24. SAVE THESE INSTRUCTIONS

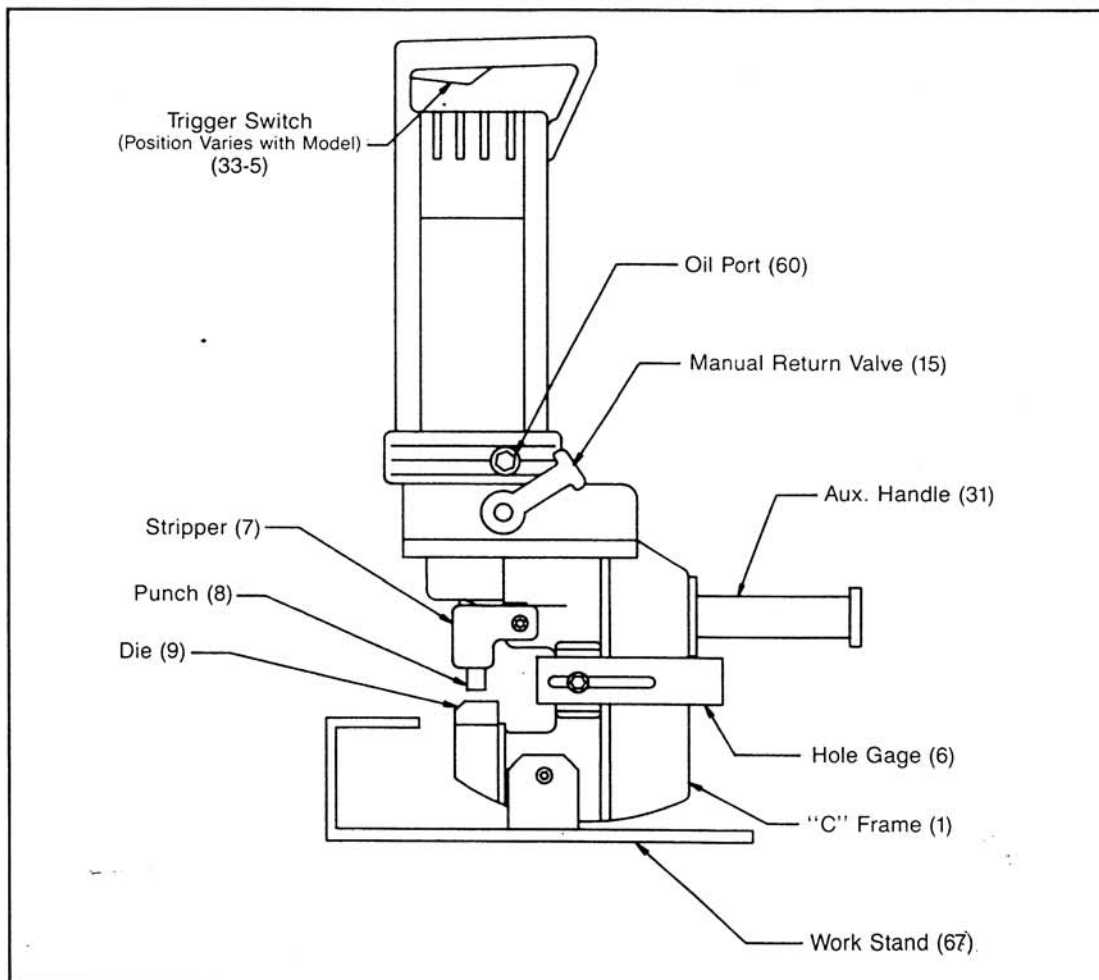
## Extension Cord Selection

Length of Cord in Feet										
115V		25 Ft.	50 Ft.	100 Ft.	150 Ft.	200 Ft.	250 Ft.	300 Ft.	400 Ft.	500 Ft.
230V		50 Ft.	100 Ft.	200 Ft.	300 Ft.	400 Ft.	500 Ft.	600 Ft.	800 Ft.	1000 Ft.
Nameplate Ampere Rating	0-2	18	18	18	16	16	14	14	12	12
	2-3	18	18	16	14	14	12	12	10	10
	3-4	18	18	16	14	12	12	10	10	8
	4-5	18	18	14	12	12	10	10	8	8
	5-6	18	16	14	12	10	10	8	8	6
	6-8	18	16	12	10	10	8	6	6	6
	8-10	18	14	12	10	8	8	6	6	4
	10-12	16	14	10	8	8	6	6	4	4
	12-14	16	12	10	8	6	6	6	4	2
	14-16	16	12	10	8	6	6	4	4	2
	16-18	14	12	8	8	6	4	4	2	2
	18-20	14	12	8	6	6	4	4	2	2

## Principles of Operation

The Hougén-Ogura Electro-hydraulic Hole Puncher is an integrated unit, containing the electric motor, hydraulic pump, and "C"-frame punching unit. It uses hydraulic power to force the punch through the workpiece, and a strong spring to return the punch piston to its "home" position. The patented design includes an automatic valve that releases the hydraulic pressure when the punch piston is at the bottom of its stroke. The automatic valve remains open until the punch piston has fully returned to the home position.

As a result of this design, the piston will not return to its home position automatically unless the full stroke has been completed. Also, the punch will not begin another stroke unless the punch has fully returned to the home position, resetting the automatic valve. To allow the punch piston to be manually returned in the event that the punch cycle is stopped prior to completion, a manual return valve is provided. (See item 15 on the parts breakdown of the Model Manual)



## Hole Locator Gage Adjustment

The Hole Locator Gage (6) can be set to hold the Hole Punches at a constant distance from the edge of the workpiece. The gage is held in place by one or two socket head cap screws. Before making any adjust-

ment, **first unplug the power cord**. To adjust the position of the gage, loosen the cap screw(s), tap the gage into the desired position and re-tighten the cap screw(s).

## Using the Accessory Work Stand

All models can be used with an accessory work stand for bench or table mounting of the Hole Puncher. The stand is optional with the smallest model and comes standard with the larger models. To install the stand, **first unplug the power cord**, then either place the unit on its side and fit the stand over the "C"-frame, or place the stand on a flat surface and slide the "C"-frame in

to the stand. Insert the proper socket head cap screws and tighten them securely. When using the stand, periodically check to make sure that the punched material (slugs) are not stacking up between the exit hole in the "C"-frame and the stand. Keep this area clear of accumulated slugs.

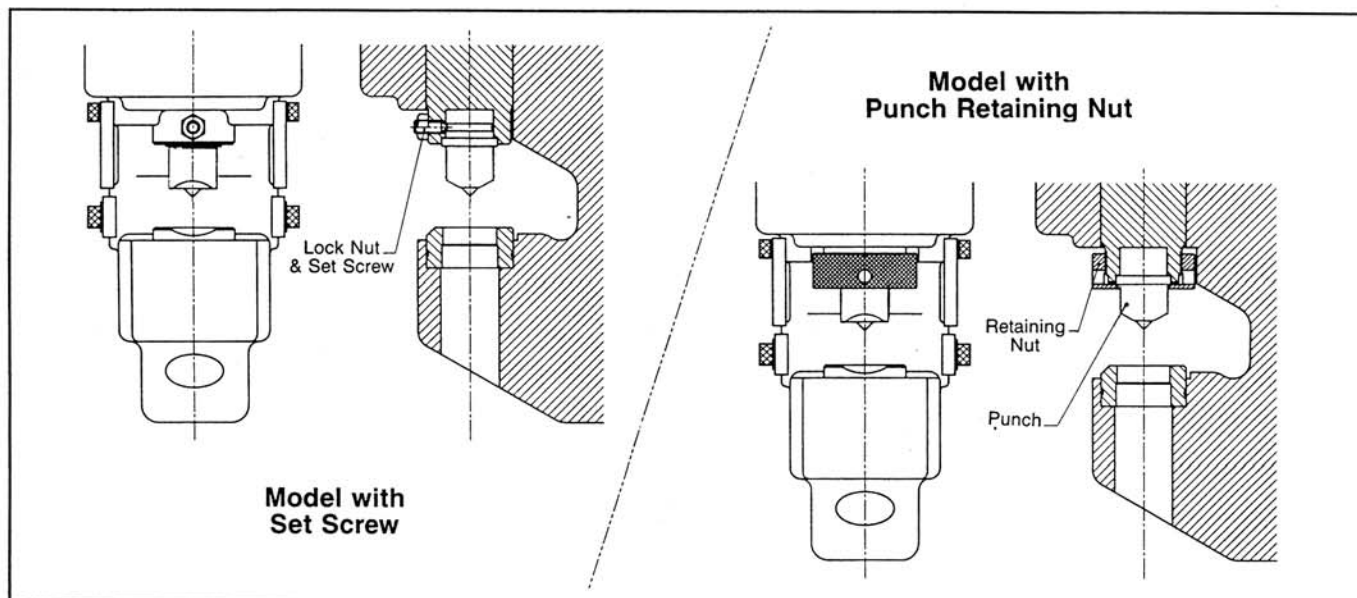


## Selecting Proper Dies

Proper die selection is essential. Other than the obvious necessity of matching shaped punches and dies, there are two other basic selection factors that must be considered. The first is *die clearance*. Different material types and different material thicknesses require different clearances between the punch and die. In order to maintain the best possible hole while remaining within the tonnage capacity of the machine, it is essential to choose the die with proper clearance. The second is *die angle*. Most structural shapes can be punched

with the standard flat dies, but "I"-beams and most channels which have a 2-in-12 taper require the use of special 9-1/2 degree angled dies. Car and ship channel flanges and other structural shapes with a 2 degree taper can be punched with the flat dies. Materials with a flange taper of less than 5 degrees can also be punched with the flat die, however the hole will be slightly angled. *Refer to the Model Manual for specific information and tables that show the proper punch and die combination.*

## Proper Punch Orientation



## Changing Punches and Dies

**Unplug the power cord.** Be sure that the Punch Piston is fully retracted. If necessary, use the Manual Return Valve (15) to retract the Punch Piston. The punch must be removed first. Depending on the model, either loosen the lock nut and set screw with the wrenches supplied to allow the punch to drop out, or using the spanner provided, unscrew and remove the knurled punch retaining nut and the punch. The die can now be removed. The die is held in place by two socket head set screws, one on each side of the "C"-frame. If lock nuts are used, first loosen them, then loosen the set screws. It is not necessary to remove the set screws or lock nuts. Remove the die. Refer to the Model Manual for selection of the proper punch and die set for the material and thickness you are punching. When replacing the punch and die, make sure that the correct orientation of each is used. Shaped punches and dies must be properly aligned with each other. Many of the dies have a beveled edge which must be facing outward to provide clearance for the fillets in many beams and channels. Round punches can be oriented in any

direction, but if one of the beveled surfaces is facing the front, it will be easier to see where you are punching. The die must be installed first. Place it in the "C"-frame in the proper orientation. Make sure that it is seated properly and not resting on a locating shoulder. Tighten the set screws and (if used) the lock nuts. *On the models using the knurled punch retaining nut*, slip the punch into the nut, then carefully holding the cutting end of the punch, insert the punch into the hole in the end of the punch piston in the proper orientation, and tighten the nut. Once it is hand tight and you are sure the punch is properly oriented and seated, use the spanner wrench to be sure the nut is snug. *On models that use a set screw*, carefully hold the punch by its cutting end and insert the other end into the hole in the punch piston. When it is seated in the proper orientation, the set screw and lock nut may be tightened. *Before plugging the hole puncher back in to the power source, make sure that the punch and die are properly aligned and securely tightened.*

## Operating Procedure

**Read, understand and follow all safety instructions and operating procedures.** If you do not understand the instructions or if conditions are not correct for proper operation, do not operate the machine. Consult your supervisor or other responsible person.

- Check that the trigger switch (33-5) is *not* locked on.
- Check that the manual return valve (15) is closed.
- Make sure that the proper punch and die are installed and that they are installed correctly. See the Model Manual for punch and die selection. See **Die Selection and Changing Punches and Dies** in this manual.
- If you are using the hole locator gage (6), adjust it to the proper distance. See **Hole Locator Gage Adjustment** in this manual.
- Plug the power cord into the proper power supply.

- Position the puncher at the proper location on the workpiece using the hole locator gage or by locating the point on the end of the punch into a center punch mark on the piece.

With everything in proper order, the switch can be activated to start the electric motor. The punch piston will move out and push the punch through the material. Keep the switch on until the punch has reached the end of its stroke and stops. Release the switch. The automatic return valve will open at the end of the stroke allowing the punch piston to retract to its home position. The punch piston must return completely before another hole can be punched.

If the punch stops in the midst of its stroke or does not come out of the material, open the manual return valve (15). Once the punch piston has returned to its home position, tighten the manual return valve.

## Special Instructions When Using Accessory Foot Switch

Although the foot switch is guarded against inadvertent operation, it is best to position the foot pedal away from normal standing position. Place it in a position that requires deliberate effort to reach and activate the switch.

The trigger switch should be locked on *only* when ready to punch. Release the trigger switch immediately after punching to prevent operation by inadvertent actuation of the foot switch.

## Helpful Hints for Hole Punching

Each of the punches is provided with a sharp point at its center. If the hole locations are center punched, the point on the end of the punch may be used to "find" the center punched spot.

Also, for accurate and easy positioning of the punch to a hole location, the switch can be intermittently pulsed on and off to jog the punch down to the work surface.

If the position is not satisfactory, open the manual return valve to retract the punch for another attempt. This operation can also be performed with the manual return valve "cracked" open slightly to prevent full punching pressure from being developed. In this manner, the punch can be easily brought right down to the surface without beginning to punch the hole. If the location is satisfactory, close the valve and finish the operation.

## Special Notice Regarding Punches and Dies

The exclusive Hougen-Ogura design offers the maximum in portability and tool life. The punch geometry, combined with controlled die clearance, reduces press tonnage requirements. Hougen-Ogura punches and dies are optimized to the design of each puncher model.

The use of incorrect punches or dies could result in unacceptable performance or damage to the machine and may void the warranty. Use only genuine Hougen-Ogura punches and dies.



## Maintenance

In order to insure smoother operation and longer life of your hole puncher, the following maintenance should be done periodically, based on use:

1. **Keep the machine clean.** It is especially important to keep the sliding portion of the punch piston free from metal chips, scale, dirt, dust or other debris. To clean the punch piston, turn on the switch to move the punch piston *almost* to the bottom of its stroke. If necessary, cycle the punch several times to determine where the bottom of the stroke is, and to

correctly position the punch piston. **Unplug the power cord.** Wipe any debris from the exposed part of the punch piston.

2. Regularly tighten all fasteners and replace any worn components.
3. Check power cord, if cracked or frayed, return the machine to an authorized repair center for replacement.
4. Check oil level, carefully using the procedure below:

## Adding Oil

Use of the correct hydraulic oil is essential. Approved oils are Shell "TELLUS Oil" and Exxon "TERESSTIC". Depending on the hole puncher model, either #32 or #46 viscosity must be used. See Model Manual for correct oil viscosity specification. Make sure that the work area and all equipment are clean so that no dirt, dust or other foreign material can get into the hydraulic oil or pump area.

1. Locate the socket head cap screw (60) that plugs the oil port. It is just above the manual return lever on the right hand side of the Hole Puncher.
2. Lay the Hole Puncher on its left side so that the oil port is facing up.
3. Turn on the switch to move the punch piston *almost* to the bottom of its stroke. If necessary, cycle the punch several times to determine where the bottom of the stroke is, and to correctly position the punch piston. In this position, the maximum amount of oil has been drawn from the pump and the correct fill can be obtained.

4. Carefully open the oil port by removing the socket head cap screw (60).
5. Using the small squeeze bottle supplied with the Hole Puncher, carefully add hydraulic oil to completely fill the reservoir. Rock the Hole Puncher back and forth slightly several times to free any trapped air bubbles, then add additional oil if necessary.
6. Replace the cap screw and wipe up any excess oil.
7. Cycle the Hole Puncher several times with the Manual Return Valve open, and again with the valve closed, to work any trapped air out of the system, then repeat the above procedure, making sure that the punch piston is almost at the bottom of its stroke before removing the cap screw from the oil port.
8. Add additional oil as necessary. If the unit was extremely low on oil, it may be necessary to repeat the procedure several times.

**Note:** All fasteners are metric

## Trouble Shooting



**WARNING:** Unplug power cord before working on machine.

PROBLEM	CAUSE	SOLUTION
Motor runs but punch piston does not come out.	Manual return valve is open.	Close manual return valve.
	Oil is insufficient.	Add oil. (Refer to "ADDING OIL")
	Piston has not returned completely to its home position due to steel chips, dirt or other debris on the exposed punch-holder portion.	Clean debris from exposed punch-holder portion of piston rod. Push punch piston back to its home position.
	Punch piston return spring is too weak to return punch rod.	Have machine serviced by a factory authorized repair center. (See note)
Punch piston comes out, but punching power is too weak to punch hole.	Manual return valve is not completely closed.	Close manual return valve.
	Oil is insufficient or air is trapped in reservoir.	Add oil. (Refer to "ADDING OIL")
	Internal pump or piston parts are worn, dirty or damaged and not functioning properly.	Have machine serviced by factory authorized repair center. (See note)
Motor does not rotate or poor rotation of motor.	Open power circuit.	Check plug, extension cord, circuit breaker, etc. (CAUTION: Make sure that the trigger switch is <b>not</b> locked ON before re-establishing power connection)
	Improper voltage.	Check power source.
	Excessive voltage drop.	Extension cords are of insufficient wire size for the length of the cord. (See "Extension Cord Selection," table page 5.)
	Worn or damaged cords or plugs.	Have machine serviced by factory authorized repair center. (See note)
	Worn carbon brushes.	
	Damaged internal motor parts.	
Oil leaking between "C"-frame and cylinder or between cylinder and pump housing.	Bolts are not tight.	Tighten bolts.
	Gasket is damaged.	Have machine serviced by factory authorized repair center. (See note)
Oil leaking around piston or from internal area.	Internal seals or surfaces are damaged.	Have machine serviced by factory authorized repair center. (See note)
	Oil leveler sack is broken.	
Punch does not strip out of workpiece after punching.	Punch or die is worn.	Replace.
	Improper die for material or thickness.	Check Model Manual for die selection and install proper die.
	Workpiece was not under both strippers and is binding on punch.	Make sure that the material is fully seated in the punching area.

**NOTE:** The internal components of the pump and piston area have very close clearances and are sensitive to damage from dust, dirt, contamination of the hydraulic fluid or improper handling. The disassembly of the pump housing requires special tools and training, and should only be attempted by repair personnel who have been properly trained and have the proper equipment. The improper servicing of electrical components can lead to conditions that could cause serious injury. The pump and piston components and all electrical components should be serviced only by a Factory Authorized Repair Center.

***Any attempt by unauthorized personnel to service the internal components of the pump area will void the warranty.***

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