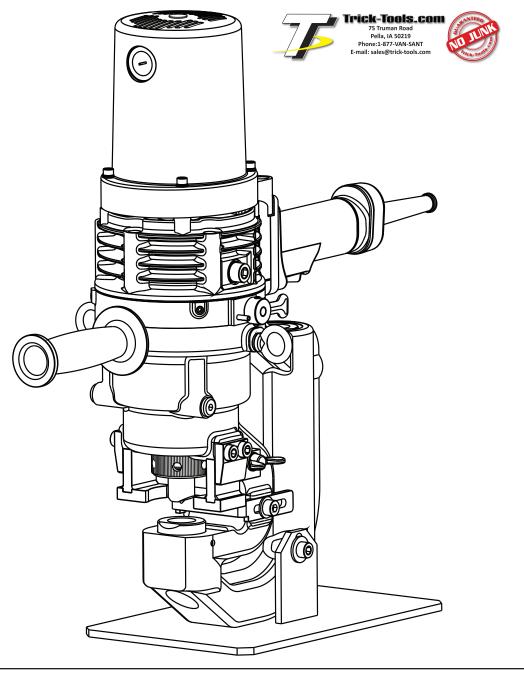
# Hougen<sup>®</sup>-Ogura<sup>™</sup>

# **75006PR PUNCH PRO**<sup>™</sup> ELECTRO-HYDRAULIC HOLE PUNCHER

# **OPERATOR'S MANUAL**

COVERS HOLE PUNCHER PART NUMBERS 0756102 & 0756202



# **Important Safety Instructions**



## 1. Before use, read this Instruction Manual thoroughly.

Do not expose the charger and battery to rain or use them in damp or wet locations, as this may cause overheating or electric shock.

#### 2. Keep work area clean.

Cluttered areas and benches invite injuries.

#### 3. Keep the work area well lighted.

Working where there is insufficient light may cause an accident

### 4. Keep children away.

Do not allow children or unauthorized personnel to handle tool.

#### 5. Store idle tools.

When not in use, tools should be stored in a dry and secure place. Keep out of reach of children.

### 6. Do not force tool.

It will do the job better and safer at the rate for which it was intended. Do not force tool to work beyond its ability. Excessive load will cause seizure of the motor, overheating, smoke and fire.

#### 7. Use right tool.

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

## 8. Wear safety glasses and protective clothing.

Always wear safety glasses, safety footwear, safety gloves, and any other mandated or necessary protective clothing while using this equipment. Failure to do so may result in injury.

## 9. Dress properly.

Do not wear loose clothing or jewelry as 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.

### 10. Hold tool securely.

A tool that is not held securely may injure you. Use clamps or a vice to hold the work. This frees both hands to properly hold, control, and operate the tool. Failure to properly secure the work may result in injury.

## 11. Disconnect the tools power supply, by removing the battery and engaging the Trigger Switch Lock, whenever one of the following situations occur:

The tool is not in use or is being serviced, any parts such as a blade, are being replaced. There is a recognized hazard. Failure to do so may result in unexpected operation and damage or injury.

## 12. Avoid unexpected operation.

Do not carry the tool by the Trigger Switch as this may cause unexpected operation and damage or injury.

#### 13. Do not abuse power cord.

Never carry battery charger by its power cord or pull on the cord to disconnect it. Keep cord away from heat, oil and sharp objects. Place cord so that it will not be stepped on, tripped over, or otherwise subjected to damage or stress. If the tool is dropped or struck, check carefully that the body is not damaged, cracked, or deformed.

#### 14. Do not overreach.

Keep proper footing and balance at all times.

### 15. Maintain tools carefully.

Keep tools sharp and clean for better and safer performance. Follow instructions for lubricating and changing accessories. Inspect battery charger power cord periodically and, if damaged, have it repaired by Hougen Manufacturing, Inc. Keep handles dry, clean, and free from oil and grease.

## 16. Remove keys and wrenches.

Form habit of checking to see that keys and wrenches are removed from tool before starting operation.

## 17. Stay alert when using electric tools.

- · Consider safety of others.
- Operate tool with care.
- · Watch what you are doing.
- · Use common sense.
- · Do not operate tool when you are tired.

#### 18. Check for damaged parts.

- Before using the tool, carefully check all parts for damage, including guards, to ensure that they will operate properly and perform their intended function.
- Check for any misalignment or binding of moving parts; damaged or broken parts and mountings; and any other conditions that may affect its operation.
- Do not use battery charger if electric plug or cord is damaged or if it was dropped or damaged in any way.
- A guard or other part that is damaged should be properly repaired or replaced by an authorized service center unless otherwise indicated in this instruction manual.
- Do not use tool if switch does not turn it on and off.
   Have damaged or defective switch replaced by
   Hougen Manufacturing, Inc.

# 19. Service at Hougen Manufacturing Only. Service this electric appliance in accordance with the relevant safety regulations. Repairs to electric appliances should only be done by a qualified person. Repairs by others may endanger the user. Contact Hougen Mfg., Inc. to arrange servicing.

## 20. Only use the specified accessories or attachment. Use only the specified accessories or attachment described in this Instruction Manual and the Ogura catalog. Use of any other accessories or attachments may result in an accident or injury.

# SAFETY FIRST



Always wear eye protection while using punching tools, or in the vicinity of punching.



**CAUTION!** The slug is ejected at the end of the punch. Do not aim the unit so that ejected slug may hit someone around, or below you.



**CAUTION!** Risk of pinching or crushing . Keep away from moving parts when unit is in use.

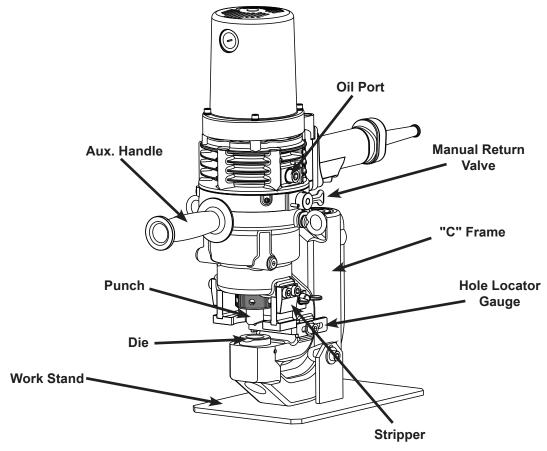


**CAUTION!** To prevent electric shock, do not use power tools near wet areas, or where power tool may become wet.

## PRINCIPLES OF OPERATION

The Hougen-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.



## 75006PR CONTENTS

Hydraulic Oil #32	75377
13/16" Diameter Punch	76366
13/16" Diameter B Die (>1/8-1/4THK)	75605
Pin Spanner	76554
Foot Switch (115V)	75110
Foot Switch (230V)	76480
Foot Switch (230V, Type I)	76479
Work Stand	76552
M3 Hex Key	75742
M5 Hex Key	75744
M6 Hex Key	76556
M8 Hex Key	75746
Tommy Bar	76554
Strap	76555

## OPERATING PROCEDURES

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 is not locked on.

\*Check that the manual return valve is closed.

\*Make sure that the proper punch and die are installed correctly. See **Die Selection** and **Proper Punches and Dies** on next page.

\*If you are using the hole locator gauge, adjust it to the proper distance. See **Hole Locator Gauge Adjustment** on next page.

\*Plug the power cord into the proper power supply.

\*Position the puncher at the proper location on the workpiece using the hole locator gauge 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. Once the punch piston has returned to its home position, tighten the manual return valve.

WARNING! Failure to check punch retaining nut periodically during use, can result in personal injury or damage to the unit could occur.

# **INSTRUCTIONS -- 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.

## **USING THE WORK STAND**

All models can be used with an accessory work stand for bench or table mounting of the Hole Puncher. The stand is standard with all models. To install the stand, first unplug the power cord., then mount the unit to the stand with the supplied hardware.

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 the proper clearance. The second is the 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 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 specific information and tables within this manual for the proper punch and die combination.

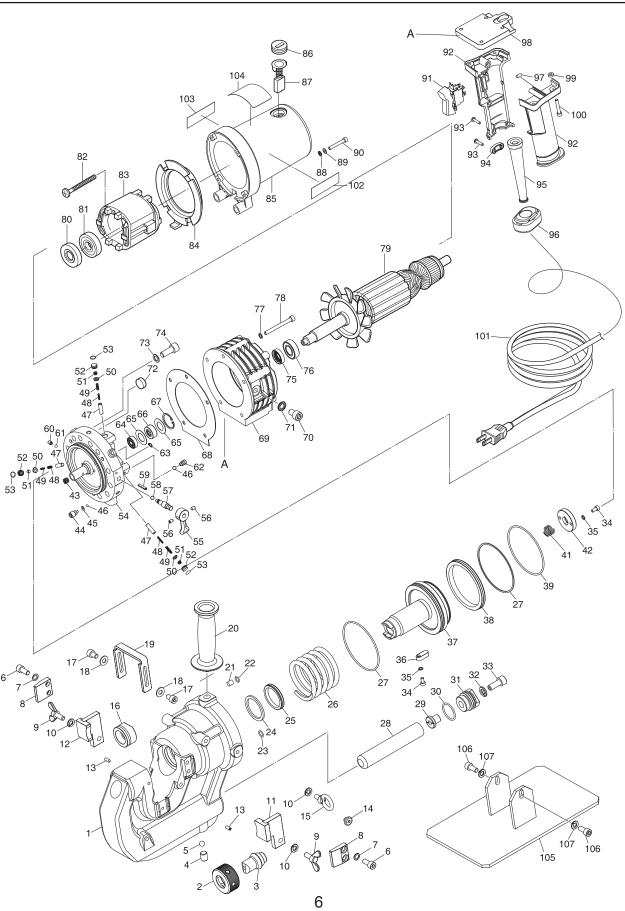
Hougen-Ogura Punches are designed to be used in Structural Steel. If used in harder or higher tensile strength materials, performance will be impeded and serious damaged could occur to your unit.

## HOLE LOCATOR GAUGE ADJUSTMENT

The Hole locator Gauge can be set to hold the Hole Punches at a constant distance from the edge of the workpiece. The gauge is held in place by one or two socket head caps screws. Before making any adjustment,

first, unplug the power cord. To adjust the position of the gauge, loosen the cap screw(s), tap the gauge into the desired position and retighten the cap screw(s).

# **75006PR EXPLODED VIEW**



# PARTS LIST - 75006PR

Det#	Part #	Description	Otv
		· · · · · · · · · · · · · · · · · · ·	Qty
1	76500	"C" Frame	1
2	76501	Punch Retaining Nut	1
3		13/16" Punch	1
4	75357	SCR-SOC Set M12 x 15mm	1
5	75356	Ball-Steel 3/8"	1
6	75602	SCR-SHC M8 x 18mm	4
7	75159	Washer-Serrated Flat 8mm	4
8	76503	Sub Stripper	2
9	76504	Bolt 8 x 20mm	2
10	76111	Washer 8mm	4
11	76505	Stripper R	1
12	76506	Stripper L	1
13	75098	SCR-SOC Set M6 x 12mm	2
14	76507	Plug Bolt	2
15	75362	Eye Bolt	2
16	75605	Die 13/16" B	1
17	75314	SCR-SHC M6 x 12mm	2
18	75157	Washer - Flat 6mm	2
19	76508	Slide Stopper	1
20	75063	Handle Punch	1
21	76509	Spacer	2
22	75240	O-Ring	2
23	75195	O-Ring	1
24	75293	Back Up Ring	1
25	75294	Packing Rod Seal	1
26	76510	Punch Return Spring	1
27	75272	O-Ring	2
28	75344	Oil Bladder	1
29	75136	Screw Bladder	1
30	75355	O-Ring	1
31	75345	Screw-Bladder Bushing	1
32	75155	Washer 10mm	1
33	75138	Retaining Screw	1
34	75037	SOC-SHC M5 x 10mm	3
35	75835	Washer 5mm	3
36	76511	Punch Rod Key	1
37	76512	Punch Rod	1
38	75295	Packing	1
39	75306	Ring Back Up	1
41	76514	Valve Return Spring	1
42	76515	Stopper Plate	1
43	76516	Release Valve Spring	1
44	76517	Seal Bolt	1
45	76518	Washer - 3mm	1
46	75208	Ball - Steel 4mm	4
47	75270	Piston - Pump	3
48	75341	Spring - Piston Return B	3
49	75340	Spring - Piston Return A	3
50	75050	Valve - Check	3
51	75052	Spring - Check Valve	3
52	75325	Packing	3
53	75326	O-Ring	3
54	76519	Cylinder with Piston	1
55	75047	Lever - Return	1
56	75160	SCR-SOC Set M6 x 8mm	2
57	75046	Return Valve	1
58	75085	O-Ring	1
59	75100	Pin - Roll 4 x 20mm	1
60	76520	SCR-SOC Set M6 x 8mm	6

Det#	Part #	Description	Qty
61	76521	Ball - Steel 3/16	6
62	76522	SCR-SOC Set M5 x 6mm	3
63	76523	Stop Ring	1
64	75086	Bearing - Ball	1
65	75271	Needle Holder	2
66	75088	Bearing - Needle	1
67	75298	Ring - Retaining	1
68	76524	Liner	1
69	76525	Pump Case	1
70	75107	SOC-SHC M10 x 15mm	1
71	75090	Seal Washer	1
72	75054	Magnet	2
73	75353	Washer - Flat 10mm	12
74	75316	SOC-SHC M10 x 25mm	12
75	76526	Oil Seal	1
76	75297	Bearing - Oil	1
77	75872	Washer - Flat 6mm	5
78	76527	SOC-SHC M6 x 60mm	5
	76528	Armature Set (120V)	Ī.,
79	76529	Armature Set (230V)	1
80	76530	Insulator Washer	1
81	76531	Bearing - Ball	1
82	76532	SOC-SHC M5 x 80mm	2
02	76533	Field (120V)	
83			1
0.4	76534	Field (230V)	
84	76535	Fan Guide	1
85		76536 Motor Case	
86	76537	Brush Cap	2
87	76538	Carbon Brush (Pair)	1 4
88	75835	Washer - Flat 5mm	<u> </u>
89	75836	Washer - Spring 5mm	4
90	76539	SCR-SHC M5 x 35mm	1
	76540	Trigger Switch	1
92	76541	Handle	
93	76542	Screw 4 x 8mm	6
94	76543	Cord Clamp (120V)	1
	76446	Cord ClamP (230V)	
95	76544	Strain Relief (120V)	1
	76449	Strain Relief (230V)	· ·
96	76545	Rubber	1
97	76546	Rubber Pin	1
98	76547	Grip Base	1
99	76548	Packing Washer	4
100	76549	SCR-SHC M5 x 30mm	4
	75870	Electric Supply (120V)	
101	76541	Electric Supply (230V)	1
	76477	Electric Supply (230V Type I)	
102	75865	Caution Label	1
	76550	Name Label (120V)	
103	76551	Name Label (230V)	1
104		1 1	4
104	76454	Warning Label	1
105	76552	Work Stand	1
106	76502	SCR-SHC M8 x 18mm	2
100	76553	Washer - Flat 8mm	

# **ROUND PUNCHES AND DIES FOR 75006PR**

	ROUNI	D PUNCH		MATERIAL	DIE			
Naminal	Size	Matria	Part No.	Thickness	Size	Part No.		
Nominai	Nominal Actual Metric	tric No.	5/64 (.078) to 1/8 (.125) 14 to 11 GA.	Die 7/16 SA	75578			
7/16"	.433	11mm	76359	5/64 (.078) to 3/8 (.375) 14 to 3 GA.	Die 7/16 SB	75579		
			5/16 (.312) Max.	Die 7/16 CC	75616			
				5/64 (.078) to 1/8 (.125) 14 to 11 GA.	Die 1/2 SA	75581		
1/2"	.512	13mm	76360	5/64 (.078) to 3/8 (.375) 14 to 3 GA.	Die 1/2 SB	75582		
				5/16 (.312) Max.	Die 1/2 CC	75617		
				5/64 (.078) to 1/8 (.125) 14 to 11 GA.	Die 9/16 SA	75584		
9/16"	.551	14mm	76361	5/64 (.078) to 1/2 (.512) 14 to 3 GA.	Die 9/16 SB	75585		
				5/16 (.312) Max.	Die 9/16 CC	75618		
					5/64 (.078) to 1/8 (.125) 14 to 11 GA.	Die 5/8 SA	75588	
5/8"	.625	15.9mm	76362	5/64 (.078) to 1/2 (.512) 14 to 3 GA.	Die 5/8 SB	75589		
				5/16 (.312) Max.	Die 5/8 CC	75620		
	<b>11/16"</b> .688 17.5mm				5/64 (.078) to 1/8 (.125) 14 to 11 GA.	Die 11/16 SA	75592	
11/16"		17.5mm <b>7636</b>	76363	5/64 (.078) to 1/2 (.512) 14 to 3 GA.	Die 11/16 SB	75593		
				5/16 (.312) Max.	Die 11/16 CC	75622		
				5/64 (.078) to 1/8 (.125) 14 to 11 GA.	Die 3/4 SA	75596		
3/4"	.750	19mm	76364	5/64 (.078) to 1/2 (.512) 14 to 3 GA.	Die 3/4 SB	75597		
				5/16 (.312) Max.	Die 3/4 CC	75624		
				5/64 (.078) to 1/8 (.125) 14 to 11 GA.	Die 25/32 SA	75600		
25/32"	.787	20mm	76365	5/64 (.078) to 1/2 (.512) 14 to 3 GA.	Die 25/32 SB	75601		
				5/16 (.312) Max.	Die 25/32 CC	75626		
						5/64 (.078) to 1/8 (.125) 14 to 11 GA.	Die 13/16 SA	75604
13/16"	.812	20.6mm	76366	5/64 (.078) to 1/2 (.512) 14 to 3 GA.	Die 13/16 SB	75605		
			5/16 (.312) Max.	Die 13/16 CC	75628			
			22.2mm <b>76367</b>	5/64 (.078) to 1/8 (.125) 14 to 11 GA.	Die 7/8 SA	75608		
7/8"	.875	22.2mm		5/64 (.078) to 1/2 (.512) 14 to 3 GA.	Die 7/8 SB	75609		
			5/16 (.312) Max.	Die 7/8 CC	75630			
15/16"	030	22 9mm <b>700</b> 22	76368	5/64 (.078) to 1/8 (.125) 14 to 11 GA.	Die 15/16 SA	75612		
15/16" .93	.938	23.8mm	70308	5/64 (.078) to 15/32 (.472) 14 to 3 GA.	Die 15/16 SB	75613		

OBLONG PUNCH		MATERIAL	DIE								
	Size		Part	Thickness	Size	Part					
Nominal	Actual	Metric	No.	711101111000	0.20	No.					
7/16"	.433	11mm	11mm	11mm	11mm	11mm	11mm		5/64 (.078) to 1/8 (.125) 14 to 11 GA.	Die 7/16 x 5/8 A	75709
x 5/8"	X .625	Х	76369	5/64 (.078) to 3/8 (.375) 14 to 3 GA.	Die 7/16 x 5/8 B	75710					
5/8"	.625	15.9mm		5/16 (.312) Max.	Die 7/16 x 5/8 CC	75723					
1/211	1/2" .512 13mm x x x x 3/4" .750 19mm	12mm		5/64 (.078) to 1/8 (.125) 14 to 11 GA.	Die 1/2 x 3/4 A	75712					
X		Х	x <b>76370</b>	5/64 (.078) to 1/2 (.512) 14 to 3 GA.	Die 1/2 x 3/4 B	75713					
3/4"			5/16 (.312) Max.	Die 1/2 x 3/4 CC	75724						
9/16"	.551	·F4 44	1.4mm	14mm	14mm		5/64 (.078) to 1/8 (.125) 14 to 11 GA.	Die 9/16 x 13/16 A	75715		
X	х	X	76371	5/64 (.078) to 1/2 (.512) 14 to 3 GA.	Die 9/16 x 13/16 B	75716					
13/16"	3/16" .827 20.6mm	1	5/16 (.312) Max.	Die 9/16 x 13/16 CC	75725						
44.4011 000	17 Emer	17.5mm x <b>76372</b> 20.6mm	5/64 (.078) to 1/8 (.125) 14 to 11 GA.	Die 11/16 x 13/16 A	75719						
11/16" X			5/64 (.078) to 1/2 (.512) 14 to 3 GA.	Die 11/16 x 13/16 B	75720						
13/16"			5/16 (.312) Max.	Die 11/16 x 13/16 CC	75727						

# **TROUBLE SHOOTING**

PROBLEM	CAUSE	SOLUTION
	MANUAL RETURN VALVE IS OPEN	CLOSE MANUAL RETURN VALVE
MOTOR RUNS BUT	OIL IS INSUFFICIENT	ADD OIL
PUNCH PISTON DOES NOT COME OUT	PISTON HAS NOT RETURNED COMPLETELY TO ITS HOME POSITION DUE TO STEEL CHIPS, DIRT OR OTHER DEBRIS ON THE EXPOSED PUNCH-HOLDER POSITION.	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 THE FACTORY
PUNCH PISTON COMES	MANUAL RETURN VALVE IS NOT COMPLETELY CLOSED	CLOSE MANUAL RETURN VALVE
OUT, BUT PUNCHING POWER IS TOO WEAK	OIL IS INSUFFICIENT OR AIR IS TRAPPED IN RESERVOIR	ADD OIL
TO PUNCH	INTERNAL PUMP OR PISTON PARTS ARE WORN, DIRTY OR DAMAGED AND NOT FUNCTIONING PROPERLY	HAVE MACHINE SERVICED BY THE FACTORY
	OPEN POWER CIRCUIT	CHECK PLUG, EXTENSION CORD, CIRCUIT BREAKER
MOTOR DOES NOT	IMPROPER VOLTAGE	CHECK POWER SOURCE
ROTATE OR POOR ROTATION OF MOTOR	EXCESSIVE VOLTAGE DROP	EXTENSION CORDS ARE OF INSUFFICIENT WIRE SIZE FOR THE LENGTH OF THE CORD.
	WORN OR DAMAGED CORDS OR PLUGS. WORN CARBON BRUSHES. DAMAGED INTERNAL MOTOR PARTS	HAVE MACHINE SERVICED BY THE FACTORY
OIL LEAKING BETWEEN "C" FRAME AND CYLINDER OR BETWEEN	BOLTS ARE NOT TIGHT	TIGHTEN BOLTS
CYLINDER AND PUMP HOUSING	GASKET IS DAMAGED	HAVE MACHINE SERVICED BY THE FACTORY
OIL LEAKING AROUND PISTON OR FROM INTERNAL AREA	INTERNAL SEALS OR SURFACES ARE DAMAGED. OIL LEVELER SACK IS BROKEN	HAVE MACHINE SERVICED BY THE FACTORY
PUNCH DOES NOT	PUNCH OR DIE IS WORN	REPLACE
STRIP OUT OF WORKPIECE AFTER PUNCHING	IMPROPER DIE FOR MATERIAL OR THICKNESS	CHECK FOR PROPER PUNCH AND DIE SELECTION
	WORKPIECE WAS NOT UNDER BOTH STRIPPERS AND IS BINDING OR PUNCH	MAKE SURE THAT THE MATERIAL IS FULLY SEATED IN THE PUNCHING AREA

## **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 fraved, return the machine to an authorized repair center for replacement.
- 4. Check oil level, carefully using the procedure below.

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 be attempted by a qualified repair person. The improper servicing of electrical components can lead to conditions that could cause serious injury.

ANY ATTEMPT BY UNAUTHORIZED PERSONNEL TO SERVICE THE INTERNAL COMPONENTS OF THE PUMP AREA WILL VOID THE WARRANTY.

## **ADDING OIL**

Use of the correct hydraulic oil is essential. Approved oils are Shell "TELLUS Oil" and Exxon "TERESSTIC" (Part No. 75377). Grade #32 viscosity must be used. Check the unit specifications. 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 that plugs the oil port. then add additional oil if necessary. 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 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.
- 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,
- 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 the 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.

## 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 an 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 satidfactory, close the valve and finish the operation.

# NOTES

## **Commercial / Industrial Limited Warranty**

Hougen Manufacturing, Incorporated warrants its Portable Magnetic Drills, Electro-hydraulic Hole Punchers for a period of (1) one year and other products for ninety (90) days from date of purchase against defects due to faulty material or workmanship and will repair or replace (at its option) without charge any items returned. This warranty is void if the item has been damaged by accident or unreasonable use, neglect, improper service, or other causes not arising out of defects in material or workmanship. No other expressed warranty is given or authorized. Hougen Manufacturing, Inc. disclaims any implied warranty of MERCHANTABILITY or FITNESS for any period beyond the expressed warranty and shall not be liable for incidental or consequential damages. Some states do not allow exclusions of incidental or consequential damages or limitation on how long an implied warranty lasts and, if the law of such a state governs your purchase, the above exclusion and limitation may not apply to you. This warranty gives you specific legal rights and you may also have other rights which vary from state to state.

To obtain warranty service, return the item(s), transportation prepaid, to your nearest Factory Authorized Repair Center or to Hougen Manufacturing, Inc., 3001 Hougen Drive, Swartz Creek, Michigan 48473.

Hougen Drills and Cutter are warranted against manufacturing defects only. Subject to Hougen Manufacturing inspection.

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## **Factory Warranty Repair Services**

can be obtained by sending your product to:

Hougen Manufacturing, Inc. 3001 Hougen Drive Swartz Creek, MI 48473 Attn: Repair Department

# **Hougen**-Ogura

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