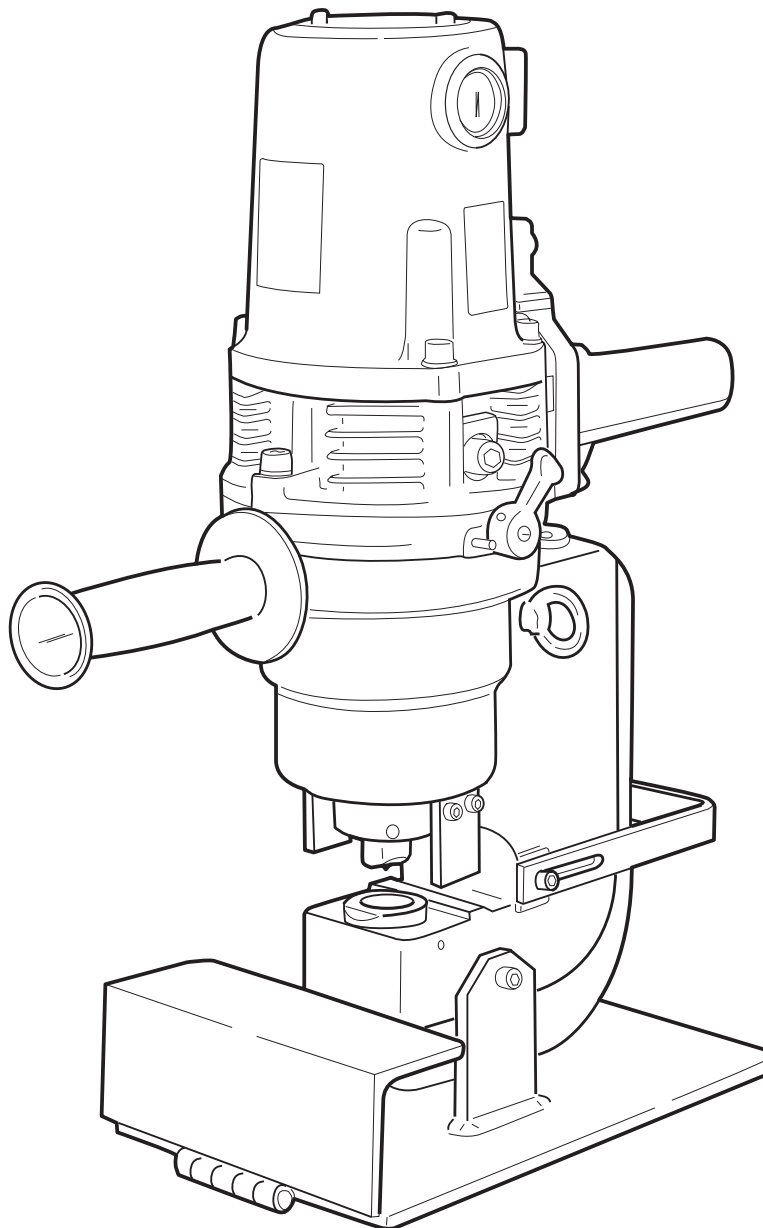


Hougen[®]-**Ogura**[™]

PUNCH PRO[™] **ELECTRO-HYDRAULIC HOLE PUNCHER**



OPERATOR'S MANUAL
Model 75006

IMPORTANT SAFETY INSTRUCTIONS

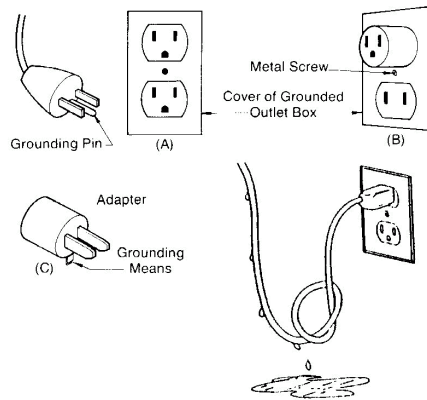
WARNING: When using electric tools, basic safety precautions should always be followed to reduce the risk of fire, electric shock, and personal injury, including the following.

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). 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.

NOTE: Use of a grounding adapter is prohibited in Canada by Part 1 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 will cause loss of power and possible motor damage

3. FOR ALL DOUBLE-INSULATED TOOLS

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 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.

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.

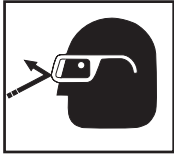
12. Always wear safety glasses or goggles.

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.

LENGTH OF CORD IN FEET							
115V (Amps)	25 FT.	50 FT.	100 FT.	150 FT.	200 FT.	250 FT.	300 FT.
5-6	18	16	14	12	10	10	8
6-8	18	16	12	10	10	8	6
8-10	18	14	12	10	8	8	6
10-12	16	14	10	8	8	6	6
12-14	16	12	10	8	6	6	6
14-16	16	12	10	8	6	6	4

SAFETY FIRST



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



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



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.

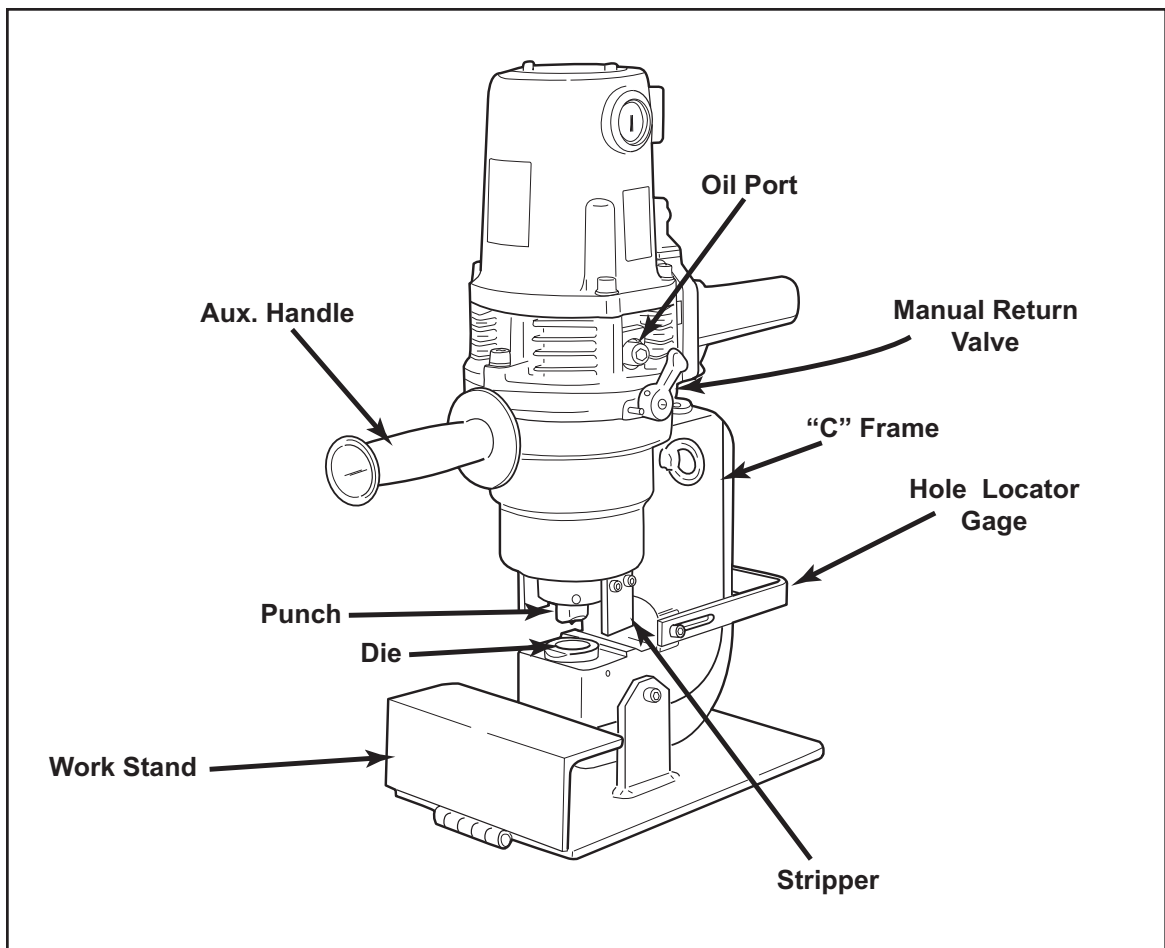


CAUTION! To prevent electric shock, do not use power tools near wet areas, or where power tool may become wet.

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.



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** below.

*If you are using the hole locator gage, adjust it to the proper distance. See **Hole Locator Gage Adjustment** below.

*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. 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.

HOLE LOCATOR GAGE ADJUSTMENT

The Hole locator Gage 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 caps screws. Before making any adjustment,

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 retighten the cap screw(s).

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.

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.

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. 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.

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 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.

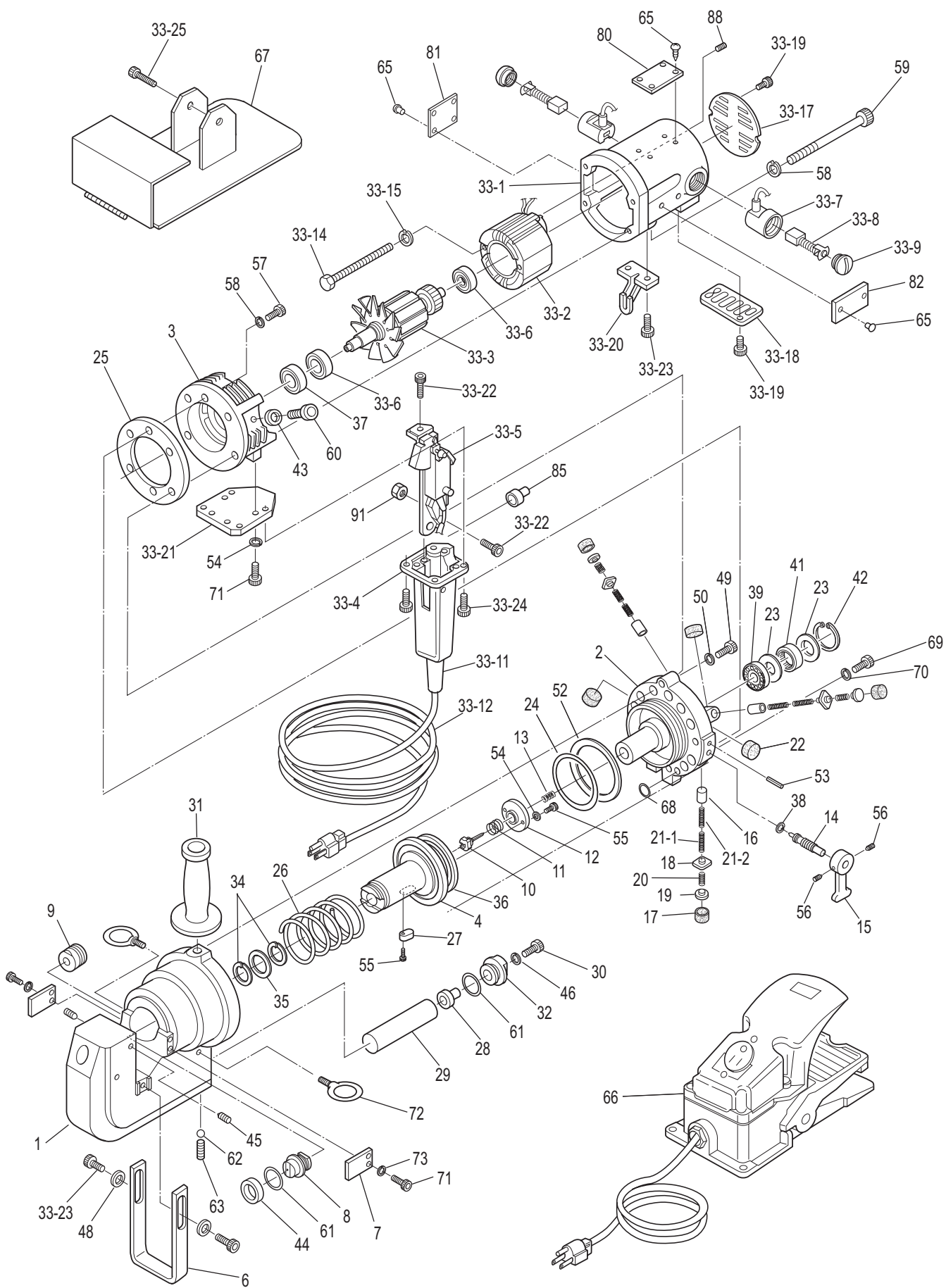
HELPFUL HINTS FOR HOLE PUNCHING

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 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.

75006 EXPLODED VIEW



PARTS LIST - 75006

DET. #	PART#	DESCRIPTION	QTY.
1	75331	"C" FRAME	1
2	75332	CYLINDER	1
3	75333	PUMP HOUSING	1
4	75334	PUNCH PISTON	1
6	75335	HOLE LOCATOR	1
6	75164	"O" RING	1
7	75336	STRIPPER	2
8	75575	PUNCH (13/16" DIA)	1
9	75606	DIE (13/16" C-TYPE)	1
	75607	DIE (13/16" D-TYPE)	1
10	75337	RELEASE VALVE	1
11	75338	VALVE RETURN SPRING	1
12	75268	STOP PLATE	1
13	75339	VALVE RELEASE SPRING	1
14	75046	RETURN VALVE	1
15	75047	RETURN LEVER	1
16	75270	PISTON PUMP	3
17	75049	RUBBER PACKING	3
18	75050	CHECK VALVE	3
19	75051	SPRING RETAINER	3
20	75052	CHECK VALVE SPRING	3
21-1	75340	PISTON RETURN SPRING	3
21-2	75341	PISTON RETURN SPRING	3
22	75054	MAGNET	3
23	75271	SPACER	2
24	75272	O-RING	1
25	75342	GASKET	1
26	75343	PUNCH RETURN SPRING	1
27	75275	PUNCH PISTON KEY	1
28	75136	BLADDER SCREW	1
29	75344	OIL BLADDER	1
30	75138	BLADDER RETAINING SCREW	1
31	75063	PUNCH HANDLE	1
32	75345	BLADDER BUSHING SCREW	1
33-1	75277	MOTOR HOUSING	1
33-2	75278	FIELD	1
33-3	75279	ARMATURE	1
33-4	75346	SWITCH HANDLE	1
33-5	75365	SWITCH	1
33-6	75281	BALL BEARING	1
33-7	75282	BRUSH HOLDER	2
33-8	75283	CARBON BRUSH (PAIR)	1
33-9	75284	BRUSH CAP	2
33-11	75074	STRAIN RELIEF	1
33-12	75347	POWER CORD	1
33-14	75285	HEX HD BOLT M5 X 50MM	2
33-15	75150	HEL LOCK WASHER 5MM	2
33-17	75287	MOTOR TOP GRILL	1
33-18	75288	MOTOR SIDE GRILL	1
33-19	75289	PAN HD SCREW M5 X 8MM	4
33-20	75348	SUPPORT BRACKET	1

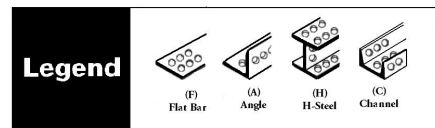
DET. #	PART#	DESCRIPTION	QTY.
33-21	75349	ADAPTOR PLATE	1
33-22	75350	PAN HD SCREW M4 X 8MM	4
33-23	75156	SOC HD SCREW M6 X 15MM	4
33-24	75351	SOC HD SCREW M6 X 18MM	4
33-25	75301	SOC HD SCREW M8 X 15MM	2
34	75293	BACK UP RING	2
35	75294	ROD SEAL PACKING	1
36	75295	PACKING	1
37	75296	OIL SEAL	1
38	75085	O-RING	1
39	75086	BALL BEARING	1
40	75297	BALL BEARING	1
41	75088	ROLLER BEARING	1
42	75298	RETAINING RING	1
43	75090	WASHER SEAL	1
44	75352	PUNCH RETINING NUT	1
45	75092	SOC SET SCREW M6 X 15MM	2
46	75155	HELI LOCK WASHER M10	1
48	75157	FLAT WASHER	2
49	75316	SOC HD SCREW M10 X 25MM	11
50	75353	SERR. FLAT WASHER 10MM	11
52	75309	BACK UP RING	1
53	75100	ROLL PIN 4MM X 20MM	1
54	75105	SERR. FLAT WASHER 5MM	6
55	75307	SOC HD SCREW M5 X 10MM	3
56	75160	SOC SET SCREW M6 X 8MM	2
57	75236	SOC HD SCREW M8 X 30MM	1
58	75093	HEL LOCK WASHER 8MM	5
59	75354	SOC HD SCREW M8 X 85MM	4
60	75107	SOC HD SCREW M10 X 15MM	1
61	75355	O-RING	2
62	75356	STEEL BALL	1
63	75357	SOC SET SCREW M12 X 15MM	1
65	75109	RIVET	10
66	75110	FOOT SWITCH	1
67	75359	WORK STAND	1
68	75360	O-RING	1
69	75303	SOC HD M12 X 25MM	2
70	75304	SERR FLAT WASHER 12MM	2
71	75361	SOC HD SCREW M5 X 15MM	8
72	75362	EYE BOLT	2
73	75150	HELI LOCK WASHER 5MM	4
80	75033	WARNING TAG	1
81	75034	CAUTION TAG	1
82	75032	NAME TAG	1
85	75113	WIRE CONNECTOR (LARGE)	1
88	75318	SOC SET SCREW M5 X 6MM	2
89	75247	PAN HD SCREW M3 X 5MM	2
91	75310	HEX NUT M4	2

ROUND PUNCHES AND DIES FOR 75006

ROUND PUNCH				MATERIAL		DIE	
Nominal	Size		Part No.	Thickness	Style	Size	Part No.
	Actual	Metric					
7/16"	.433	11mm	75568	5/64 (.078) to 1/8 (.125) 14 to 11 GA.	F, A, H	Die 7/16 A	75578
				>1/8 (.125) to 1/4 (.250) 10 to 3 GA.	F, A, H	Die 7/16 B	75579
				>1/4 (.250) to 3/8 (.375)	F, A, H	Die 7/16 C	75580
				5/16 (.312) max.	C	Die 7/16 CC	75616
1/2"	.512	13mm	75569	5/64 (.078) to 1/8 (.125) 14 to 11 GA.	F, A, H	Die 1/2 A	75581
				>1/8 (.125) to 1/4 (.250) 10 to 3 GA.	F, A, H	Die 1/2 B	75582
				>1/4 (.250) to 3/8 (.375)	F, A, H	Die 1/2 C	75583
				5/16 (.312) max.	C	Die 1/2 CC	75617
9/16"	.552	14mm	75570	5/64 (.078) to 1/8 (.125) 14 to 11 GA.	F, A, H	Die 9/16 A	75584
				>1/8 (.125) to 1/4 (.250) 10 to 3 GA.	F, A, H	Die 9/16 B	75585
				>1/4 (.250) to 3/8 (.375)	F, A, H	Die 9/16 C	75586
				>3/8 (.375) to 1/2 (.500)	F, A, H	Die 9/16 D	75587
				5/16 (.312) max.	C	Die 9/16 CC	75618
				>5/16 (.312) to 1/2 (.500)	C	Die 9/16 CD	75619
5/8"	.625	15.9mm	75571	5/64 (.078) to 1/8 (.125) 14 to 11 GA.	F, A, H	Die 5/8 A	75588
				>1/8 (.125) to 1/4 (.250) 10 to 3 GA.	F, A, H	Die 5/8 B	75589
				>1/4 (.250) to 3/8 (.375)	F, A, H	Die 5/8 C	75590
				>3/8 (.375) to 1/2 (.500)	F, A, H	Die 5/8 D	75591
				5/16 (.312) max.	C	Die 5/8 CC	75620
				>5/16 (.312) to 1/2 (.500)	C	Die 5/8 CD	75621
11/16"	.688	17.5mm	75572	5/64 (.078) to 1/8 (.125) 14 to 11 GA.	F, A, H	Die 11/16 A	75592
				>1/8 (.125) to 1/4 (.250) 10 to 3 GA.	F, A, H	Die 11/16 B	75593
				>1/4 (.250) to 3/8 (.375)	F, A, H	Die 11/16 C	75594
				>3/8 (.375) to 1/2 (.500)	F, A, H	Die 11/16 D	75595
				5/16 (.312) max.	C	Die 11/16 CC	75622
				>5/16 (.312) to 1/2 (.500)	C	Die 11/16 CD	75623
3/4"	.750	19mm	75573	5/64 (.078) to 1/8 (.125) 14 to 11 GA.	F, A, H	Die 3/4 A	75596
				>1/8 (.125) to 1/4 (.250) 10 to 3 GA.	F, A, H	Die 3/4 B	75597
				>1/4 (.250) to 3/8 (.375)	F, A, H	Die 3/4 C	75598
				>3/8 (.375) to 1/2 (.500)	F, A, H	Die 3/4 D	75599
				5/16 (.312) max.	C	Die 3/4 CC	75624
				>5/16 (.312) to 1/2 (.500)	C	Die 3/4 CD	75625
25/32"	.787	20mm	75574	5/64 (.078) to 1/8 (.125) 14 to 11 GA.	F, A, H	Die 25/32 A	75600
				>1/8 (.125) to 1/4 (.250) 10 to 3 GA.	F, A, H	Die 25/32 B	75601
				>1/4 (.250) to 3/8 (.375)	F, A, H	Die 25/32 C	75602
				>3/8 (.375) to 1/2 (.500)	F, A, H	Die 25/32 D	75603
				5/16 (.312) max.	C	Die 25/32 CC	75626
				>5/16 (.312) to 1/2 (.500)	C	Die 25/32 CD	75627

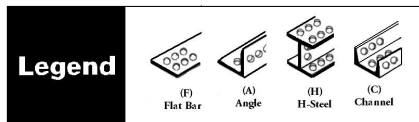
Punching capacity data is based on mild steel of 65,000 psi tensile strength.

ROUND PUNCH				MATERIAL		DIE	
Nominal	Size		Part No.	Thickness	Style	Size	Part No.
	Actual	Metric					
13/16"	.812	20.6mm	75575	5/64 (.078) to 1/8 (.125) 14 to 11 GA.	F, A, H	Die 13/16 A	75604
				>1/8 (.125) to 1/4 (.250) 10 to 3 GA.	F, A, H	Die 13/16 B	75605
				>1/4 (.250) to 3/8 (.375)	F, A, H	Die 13/16 C	75606
				>3/8 (.375) to 1/2 (.500)	F, A, H	Die 13/16 D	75607
				5/16 (.312) max.	C	Die 13/16 CC	75628
				>5/16 (.312) to 1/2 (.500)	C	Die 13/16 CD	75629
7/8"	.875	22.2mm	75576	5/64 (.078) to 1/8 (.125) 14 to 11 GA.	F, A, H	Die 7/8 A	75608
				>1/8 (.125) to 1/4 (.250) 10 to 3 GA.	F, A, H	Die 7/8 B	75609
				>1/4 (.250) to 3/8 (.375)	F, A, H	Die 7/8 C	75610
				>3/8 (.375) to 1/2 (.500)	F, A, H	Die 7/8 D	75611
				5/16 (.312) max.	C	Die 7/8 CC	75630
				>5/16 (.312) to 1/2 (.500)	C	Die 7/8 CD	75631
15/16"	.938	23.8mm	75577	5/64 (.078) to 1/8 (.125) 14 to 11 GA.	F, A, H	Die 15/16 A	75612
				>1/8 (.125) to 1/4 (.250) 10 to 3 GA.	F, A, H	Die 15/16 B	75613
				>1/4 (.250) to 3/8 (.375)	F, A, H	Die 15/16 C	75614
				>3/8 (.375) to 15/32 (.469)	F, A, H	Die 15/16 D	75615



OBLONG PUNCHES AND DIES FOR 75006

OBLONG PUNCH				MATERIAL		DIE	
Size			Part No.	Thickness	Style	Size	Part No.
Nominal	Actual	Metric					
7/16" x 5/8"	.433 x .650	11mm x 16.5mm	75705	5/64 (.078) to 1/8 (.125) 14 to 11 GA.	F, A, H	Die 7/16 x 5/8 A	75709
				>1/8 (.125) to 1/4 (.250) 10 to 3 GA.	F, A, H	Die 7/16 x 5/8 B	75710
				>1/4 (.250) to 3/8 (.375)	F, A, H	Die 7/16 x 5/8 C	75711
				5/16 (.312) max.	C	Die 7/16 x 5/8 CC	75723
1/2" x 3/4"	.512 x .768	13mm x 19.5mm	75706	5/64 (.078) to 1/8 (.125) 14 to 11 GA.	F, A, H	Die 1/2 x 3/4 A	75712
				>1/8 (.125) to 1/4 (.250) 10 to 3 GA.	F, A, H	Die 1/2 x 3/4 B	75713
				>1/4 (.250) to 3/8 (.375)	F, A, H	Die 1/2 x 3/4 C	75714
				5/16 (.312) max.	C	Die 1/2 x 3/4 CC	75724
9/16" x 13/16"	.551 x .827	14mm x 21mm	75707	5/64 (.078) to 1/8 (.125) 14 to 11 GA.	F, A, H	Die 9/16 x 13/16 A	75715
				>1/8 (.125) to 1/4 (.250) 10 to 3 GA.	F, A, H	Die 9/16 x 13/16 B	75716
				>1/4 (.250) to 3/8 (.375)	F, A, H	Die 9/16 x 13/16 C	75717
				>3/8 (.375) to 1/2 (.500)	F, A, H	Die 9/16 x 13/16 D	75718
				5/16 (.312) max.	C	Die 9/16 x 13/16 CC	75725
				5/16 (.312) to 1/2 (.500)	C	Die 9/16 x 13/16 CD	75726
11/16" x 13/16"	.709 x .827	18mm x 21mm	75708	5/64 (.078) to 1/8 (.125) 14 to 11 GA.	F, A, H	Die 11/16 x 13/16 A	75719
				>1/8 (.125) to 1/4 (.250) 10 to 3 GA.	F, A, H	Die 11/16 x 13/16 B	75720
				>1/4 (.250) to 3/8 (.375)	F, A, H	Die 11/16 x 13/16 C	75721
				>3/8 (.375) to 1/2 (.500)	F, A, H	Die 11/16 x 13/16 D	75722
				5/16 (.312) max.	C	Die 11/16 x 13/16 CC	75727
				5/16 (.312) to 1/2 (.500)	C	Die 11/16 x 13/16 CD	75728



TROUBLE SHOOTING

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
	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 OUT, BUT PUNCHING POWER IS TOO WEAK TO PUNCH	MANUAL RETURN VALVE IS NOT COMPLETELY CLOSED	CLOSE MANUAL RETURN VALVE
	OIL IS INSUFFICIENT OR AIR IS TRAPPED IN RESERVOIR	ADD OIL
	INTERNAL PUMP OR PISTON PARTS ARE WORN, DIRTY OR DAMAGED AND NOT FUNCTIONING PROPERLY	HAVE MACHINE SERVICED BY THE FACTORY
MOTOR DOES NOT ROTATE OR POOR ROTATION OF MOTOR	OPEN POWER CIRCUIT	CHECK PLUG, EXTENSION CORD, CIRCUIT BREAKER
	IMPROPER VOLTAGE	CHECK POWER SOURCE
	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 CYLINDER AND PUMP HOUSING	BOLTS ARE NOT TIGHT	TIGHTEN BOLTS
	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 STRIP OUT OF WORKPIECE AFTER PUNCHING	PUNCH OR DIE IS WORN	REPLACE
	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

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

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