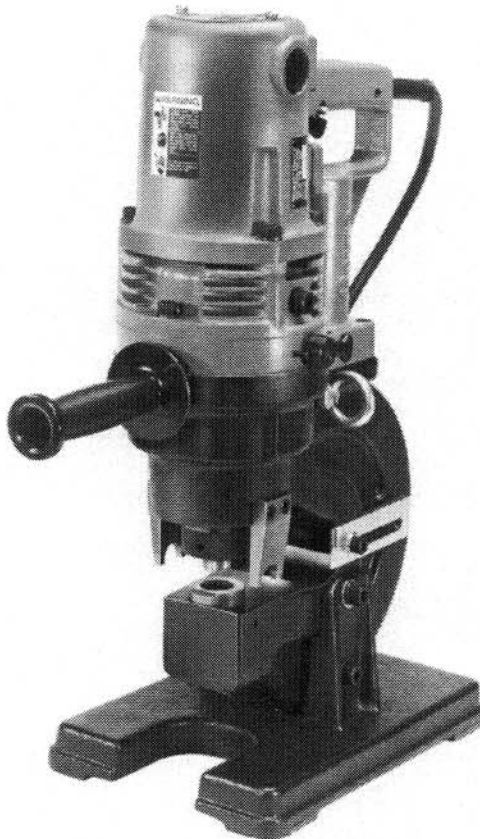


HOUGEN[®] - OGURA[™]

PUNCH PRO[™] ELECTRO-HYDRAULIC HOLE PUNCHER

OPERATOR'S MANUAL 75005



Hougen - Ogura

Electro-Hydraulic Hole Puncher



Welcome to Hougen-Ogura

Congratulations on your purchase of the Hougen-Ogura Electro-hydraulic Hole Puncher. Your model is designed to produce superior holes quickly and efficiently. Through constant innovation and development, Hougen is committed to provide you with hole-producing tools and products that lead the industrial world. Before attempting to operate your new Electro-Hydraulic hole puncher, please read all instructions first. These include the Instruction Manual, the Model manual and the Caution and Warning labels on the unit itself. With proper use, care and maintenance your model will provide you with years of effective hole punching performance. Once again, thank you for selecting our product and welcome to Hougen-Ogura!

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STANDARD ACCESSORIES

ITEM	QUANTITY
Hydraulic Oil Refill	1
13/16" Dia. Punch (P/N 75539) -- attached to the machine	1
13/16" Dia. Die (P/N 75556) for 1/4" to 3/8" thick material, attached to the machine	1
13/16" Dia. A-type Die (P/N 75555) for 1/8" to 1/4" thick material	1
Spanner (Pin Type)	1
Hex Keys (M4, M5, M6, M8, M10)	5
Foot Switch	1
Work Stand	1
Warranty Card	1
Operators Manual with Instructions	1

Unpacking Your New Electro-hydraulic Hole Puncher

1. Open the shipping carton. Lift the steel carrying case from the shipping carton. Open the carrying case and remove the protective shipping materials.
2. Open the product literature package which includes this manual which has the Instruction manual included. In addition to this manual you'll find the Product Registration Card. Complete and mail the postage paid Product registration Card now. It is important that Hougen Manufacturing Inc. have a record of product ownership.
3. **READ AND FOLLOW ALL INSTRUCTIONS** before attempting to operate your new Electro-Hydraulic Hole Puncher.
4. Open the hardware package and check the contents.
5. After checking the contents of the hardware package confirm that the following punch and die are attached to the unit itself. 11/16" Diameter punch and 11/16" T-type Die.
6. Remove your new Electro-Hydraulic Hole Puncher from the carrying case. It comes assembled from the factory with the following exceptions.
 - a) Screw the auxiliary puncher handle into the cylinder.
 - b) Mount work stand for stationary application operation with hardware provided.
7. Your new Electro-Hydraulic Hole Puncher was factory adjusted prior to shipping. Check to make sure the punch and die set is securely mounted and all fasteners are snug and have not vibrated loose in transit. **Note: All fasteners are metric.**
8. Reread safety warnings listed in this manual to avoid injury. Follow operating procedures.

Note: Use only recommended hydraulic fluids -- Shell "Tellus Oil" #46 or Exxon "Teresstic" #46. One gallon refills are available supplied with an easy pour container. Order by Hougen Part Number 75376. The Model 75005 has a 17.0 oz. reservoir capacity.

Important Safety Instructions

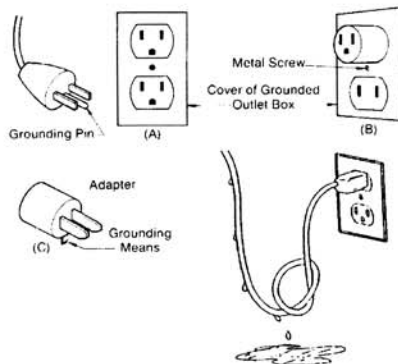
WARNING: When using electric tools, basic safety precautions should always be followed to reduce the risk of fire, electric shock, and personal injury, including the following.

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 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 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 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.

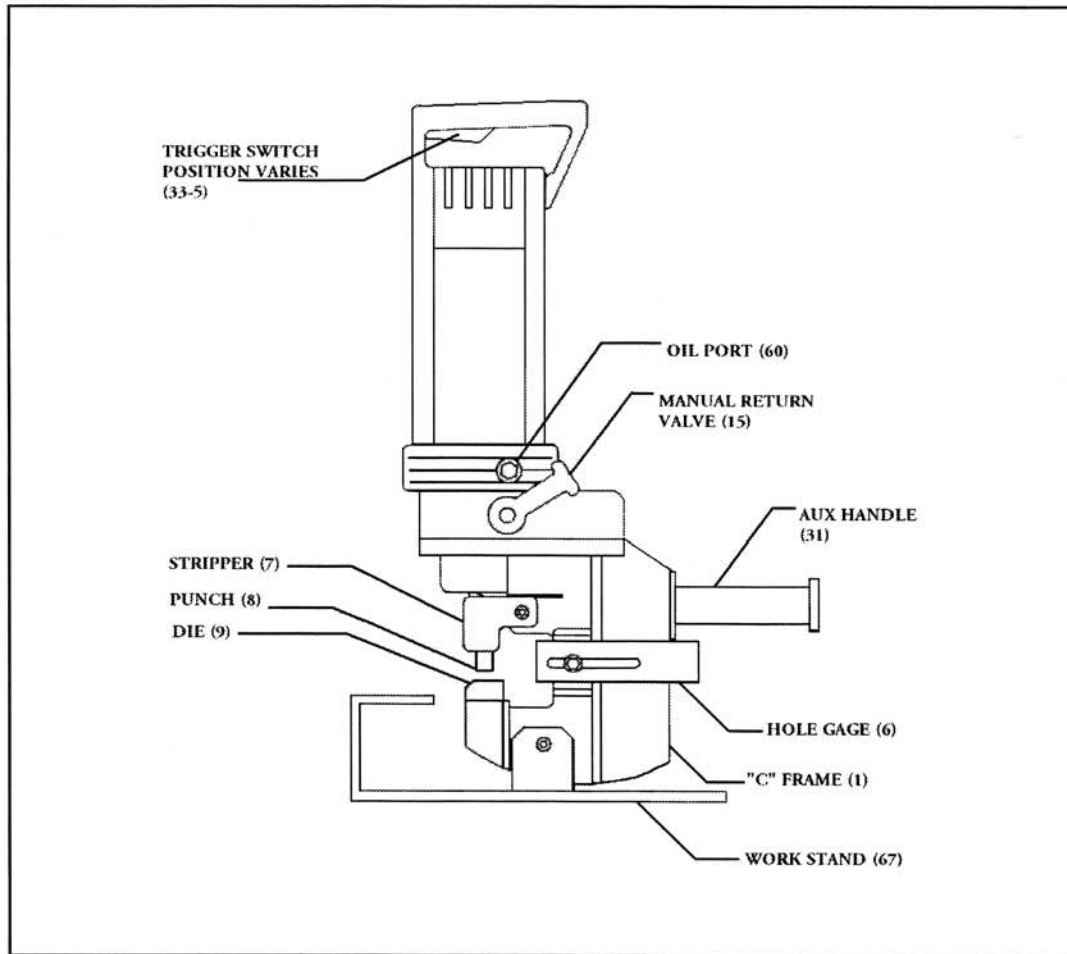
13. Do Not Abuse Cord.

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

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. (See Item #15 on the parts breakdown.



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 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 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 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.

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 (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 correctly. See **Die Selection** and **Proper 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.

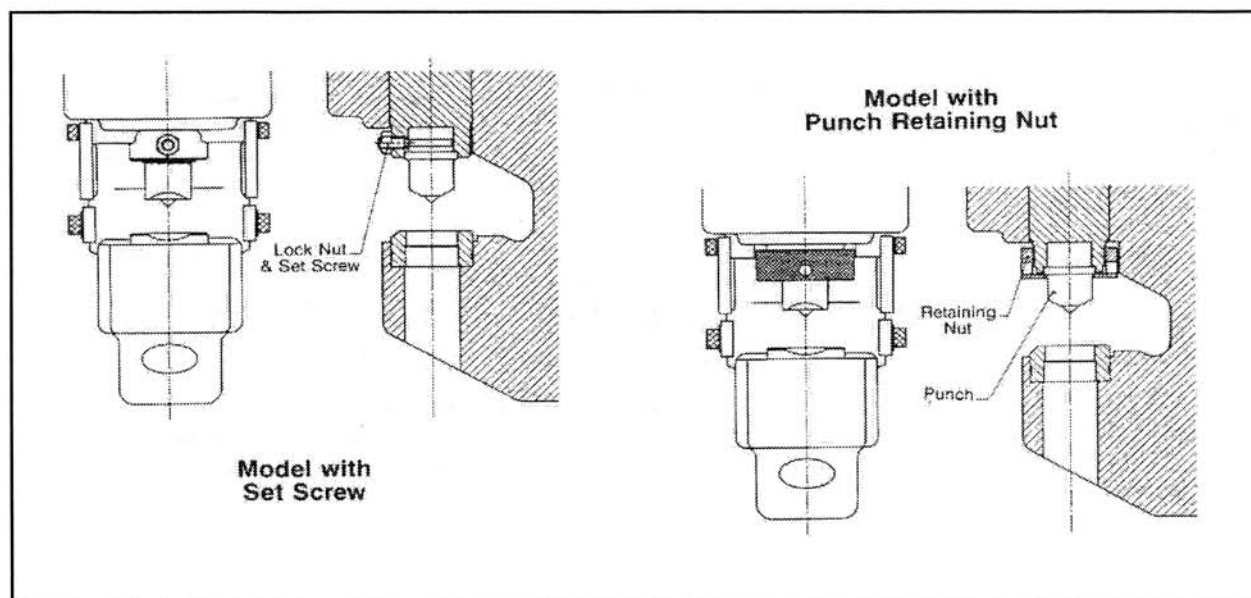
If the position is not satisfactory, open the manual return valve to retract the punch for another attempt. This operation can also be performed with the manual return valve "cracked" open slightly to prevent full punching pressure from being developed. In this manner, the punch can be easily brought 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.

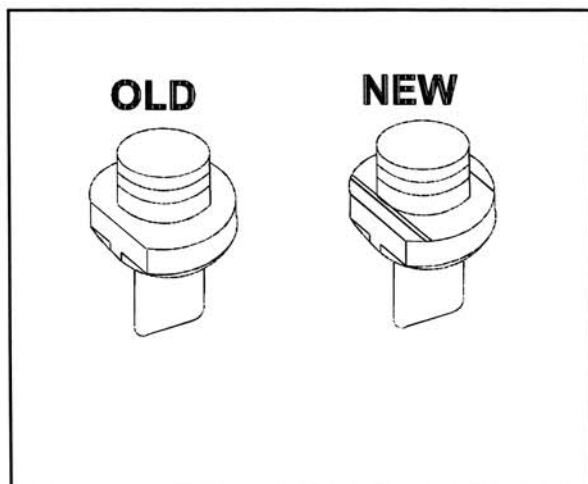
The use of incorrect punches or dies could result in unacceptable performance or damage to the machine and may void the warranty. Use only genuine Hougen-Ogura punches and dies.

Proper Punch Orientation



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. 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 orientated 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. Insert a piece of material (steel) between the punch and die. Cycle the punch piston down until it puts pressure against the punch. This will ensure that the punch is well seated. With the spanner wrench, tighten the retaining nut. Before using the punch verify that the retaining nut is tight and orientation of the punch and die is correct.



SAFETY NOTE: PUNCH INSTALLATION

Prior to installing a new punch, first check the cavity in the punch piston to ensure it is free of any burrs or debris. Install the new punch, making sure that it is properly seated in the punch piston. If it is properly seated and the orientation is correct, hand tighten the retaining nut. Insert material between the punch and die and cycle the punch piston down until it puts pressure against the punch. This puts tension against the punch and the flat bar and ensures it is seated. Once it is properly seated, tighten the retaining nut or set screws and nuts.

Periodically check the retaining nut and make sure it is tightened according to instructions. Failure to do so, may cause serious damage to your unit and may cause personal injury

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. 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 (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 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.

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.

Extension Cord Selection

Length of Cord in Feet

Nameplate Ampere rating	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.
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	8	
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	

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.

Round Punches and Dies for Model 75005

ROUND PUNCHES			MATERIAL		DIES		
Nominal Size	Actual Size	Metric Size	Part No.	Thickness	Style	Size	Part No.
				>1/8" (.125) to 1/4" (.250)	A,H	Die 7/16 A	75541
7/16"	0.433	11mm	75532	>1/4" (.250) to 3/8" (.375)	A,H	Die 7/16 B	75542
				5/16" (.312) Max.	C	Die 7/16 C	75559
				>1/8" (.125) to 1/4" (.250)	A,H	Die 1/2 A	75543
1/2"	0.512	13mm	75533	>1/4" (.250) to 3/8" (.375)	A,H	Die 1/2 B	75544
				5/16" (.312) Max.	C	Die 1/2 C	75560
				>1/8" (.125) to 1/4" (.250)	A,H	Die 9/16 A	75545
9/16"	0.551	14mm	75534	>1/4" (.250) to 3/8" (.375)	A,H	Die 9/16 B	75546
				5/16" (.312) Max.	C	Die 9/16 C	75561
				>1/8" (.125) to 1/4" (.250)	A,H	Die 5/8 A	75547
5/8"	0.625	15.9mm	75535	>1/4" (.250) to 3/8" (.375)	A,H	Die 5/8 B	75548
				5/16" (.312) Max.	C	Die 5/8 C	75562
				>1/8" (.125) to 1/4" (.250)	A,H	Die 11/16 A	75549
11/16"	0.688	17.5mm	75536	>1/4" (.250) to 3/8" (.375)	A,H	Die 11/16 B	75550
				5/16" (.312) Max.	C	Die 11/16 C	75563
				>1/8" (.125) to 1/4" (.250)	A,H	Die 3/4 A	75551
3/4"	0.75	19mm	75537	>1/4" (.250) to 3/8" (.375)	A,H	Die 3/4 B	75552
				5/16" (.312) Max.	C	Die 3/4 C	75564
				>1/8" (.125) to 1/4" (.250)	A,H	Die 25/32 A	75553
25/32"	0.787	20mm	75538	>1/4" (.250) to 3/8" (.375)	A,H	Die 25/32 B	75554
				5/16" (.312) Max.	C	Die 25/32 C	75565
				>1/8" (.125) to 1/4" (.250)	A,H	Die 13/16 A	75555
13/16"	0.812	20.6mm	75539	>1/4" (.250) to 3/8" (.375)	A,H	Die 13/16 B	75556
				5/16" (.312) Max.	C	Die 13/16 C	75566
				>1/8" (.125) to 1/4" (.250)	A,H	Die 7/8 A	75557
7/8"	0.875	22.2mm	75540	>1/4" (.250) to 3/8" (.375)	A,H	Die 7/8 B	75558
				5/16" (.312) Max.	C	Die 7/8 C	75567

Oblong Punches and Dies for Model 75005

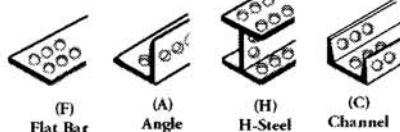
PUNCHES

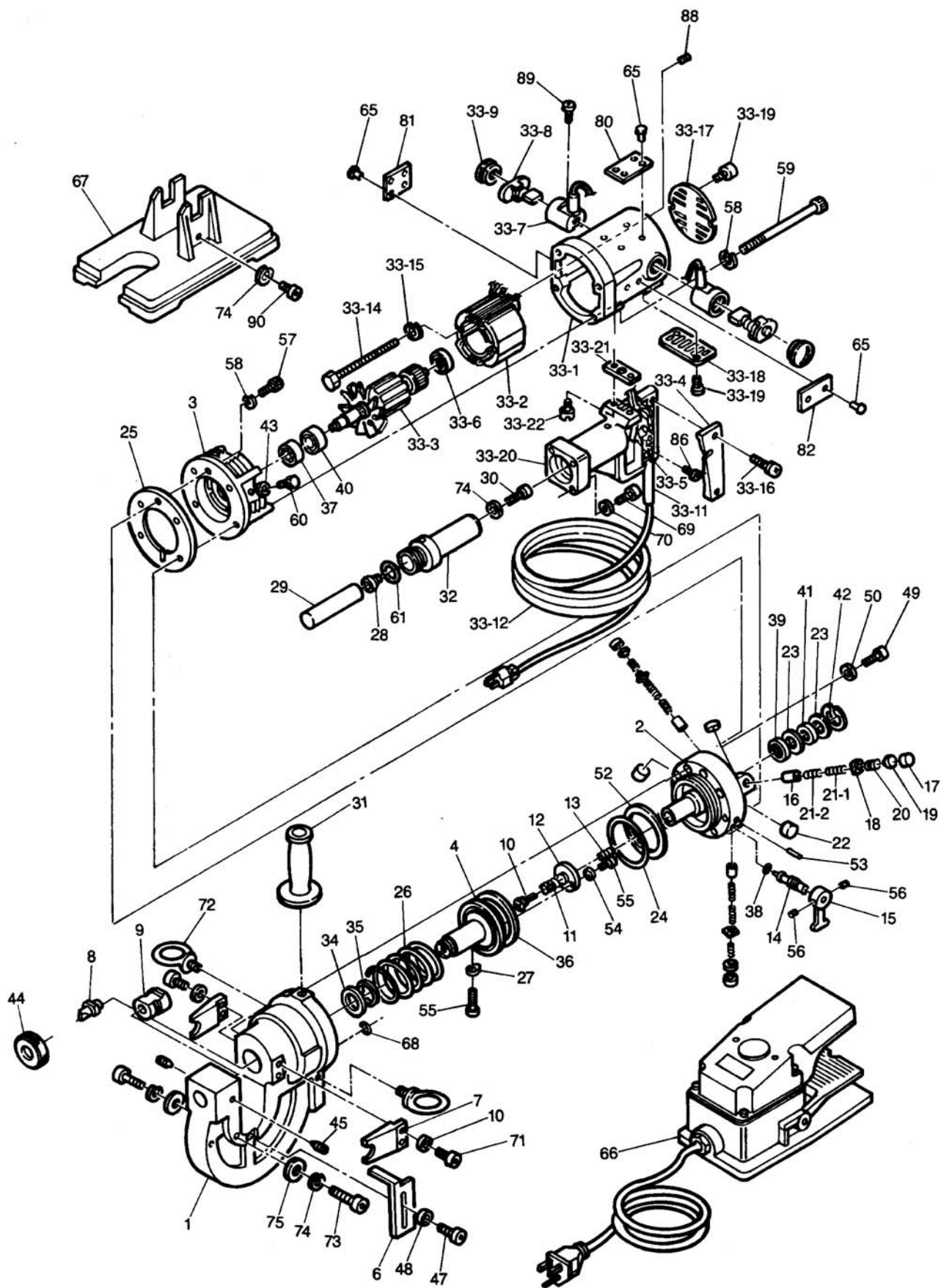
MATERIAL

DIES

Nominal Size	Actual Size	Metric Size	Part No.	Thickness	Style	Size	Part No.
				>1/8" (.125) to 1/4" (.250) 10 to 3 GA.	A,H	Die 7/16 x 5/8 A	75694
7/16" x 5/8"	.433 x .650	11mm x 16.5mm	75690	>1/4" (.250) to 3/8" (.375)	A,H	Die 7/16 x 5/8 B	75695
				5/16" (.312) Max	C	Die 7/16 x 5/8 C	75702
				>1/8" (.125) to 1/4" (.250) 10 to 3 GA.	A,H	Die 1/2 x 3/4 A	75696
1/2" x 3/4"	.512 x .768	13mm x 19.5mm	75691	>1/4" (.250) to 3/8" (.375)	A,H	Die 1/2 x 3/4 B	75697
				5/16" (.312) Max	C	Die 1/2 x 3/4 C	75703
				>1/8" (.125) to 1/4" (.250) 10 to 3 GA.	A,H	Die 9/16 x 13/16 A	75698
9/16" x 13/16"	.551 x .827	14mm x 21mm	75692	>1/4" (.250) to 3/8" (.375)	A,H	Die 9/16 x 13/16 B	75699
				5/16" (.312) Max	C	Die 9/16 x 13/16 C	75704
11/16" x 13/16"	.709 x .827	18mm x 21mm	75693	>1/8" (.125) to 1/4" (.250)	A,H	Die 11/16 x 13/16 A	75700
				>1/4" (.250) to 3/8" (.375)	A,H	Die 11/16 x 13/16 B	75701

Legend





PARTS LIST - 75005

Detail No.	Description	Part No.	No. Req.
1	"C" Frame	75260	1
2	Cylinder	75261	1
3	Pump Housing	75262	1
4	Punch Piston (old)	75263	1
	Punch Piston (new)	75263A	1
6	Hole Locator	75264	1
7	Stripper	75265	2
8	Punch 13/16 Dia.	75539	1
9	Die 13/16 A type	75555	1
	Die 13/16 B Type	75556	1
10	Release Valve	75266	1
11	Valve Return Spring	75267	1
12	Stop Plate	75268	1
13	Valve Return Spring	75269	1
14	Return Valve	75046	1
15	Return Lever	75047	1
16	Pump Piston	75270	3
17	Rubber Packing	75049	3
18	Check Valve	75050	3
19	Spring Retainer	75051	3
20	Check Valve Spring	75052	3
21-1	Piston Return Spring	75340	3
21-2	Piston Return Spring	75341	3
22	Magnet	75054	3
23	Spacer	75271	2
24	O-Ring	75272	1
25	Gasket	75273	1
26	Punch Return Spring	75274	1
27	Punch Piston Key	75275	1

Detail No.	Description	Part No.	No. Req.
25	Gasket	75273	1
26	Punch Return Spring	75274	1
27	Punch Piston Spring	75275	1
28	Screw Bladder	75136	1
29	Oil Bladder	75137	1
30	Bladder Ret. Screw	75138	1
31	Punch Handle	75063	1
32	Bladder Cover	75276	1
33-1	Motor Housing	75277	1
33-2	Field	75278	1
33-3	Armature	75279	1
33-4	Switch Cover	75280	1
33-5	Switch	75365	1
33-6	Ball Bearing	75281	1
33-7	Brush Cover	75282	2
33-8	Carbon Brush (Pair)	75283	1
33-9	Brush Cap	75284	2
33-11	Strain Relief	75074	1
33-12	Power Cord	75148	1
33-14	Hex Head Bolt	75285	2
33-15	Hex Lock washer	75150	2
33-16	Pan Head Screw	75286	2
33-17	Motor Top Grill	75287	1
33-18	Motor Side Grill	75288	1
33-19	Pan Head Screw	75289	4
33-20	Adapter Plate	75290	1
33-21	Switch Bracket Gasket	75291	1
33-22	Slotted Retainer	75292	2
34	Back Up Ring	75293	1

PARTS LIST - 75005 (Cont)

Detail No.	Description	Part No.	No. Req.
35	Rod Seal Packing	75294	1
36	Packing	75295	1
37	Oil Seal	75296	1
38	O-Ring	75085	1
39	Ball Bearing	75086	1
40	Ball Bearing	75297	1
41	Roller Bearing	75088	1
42	Retaining Ring	75298	1
43	Washer Seal	75090	1
44	Punch Ret. Nut (Old)	75299	1
	Punch Ret. Nut (New)	75299A	1
45	Soc. Set Screw	75300	1
47	Soc. Head Screw	75301	1
48	Flat washer	75302	1
49	Soc. Head Screw	75303	8
50	Flat washer	75304	8
51	Spanner Nut (Old)	75305	1
52	Back Up Ring	75306	1
53	Roll Pin	75100	1
54	Flat Washer	75105	3
55	Soc. Head Screw	75307	3
56	Soc. Head Screw	75103	2
57	Soc. Head Screw	75236	1
58	Heli Lock washer	75093	5
59	Soc. Head Screw	75308	1
60	Soc. Head Screw	75107	1
61	O Ring	75309	1
65	Rivet	75109	10
66	Foot Switch	75110	1

Detail No.	Description	Part No.	No. Req.
67	Work Stand	75311	1
68	O Ring	75312	2
69	Soc. Head Screw	75313	4
70	Flat washer	75097	4
71	Soc. Head Screw	75314	4
72	Eye Bolt	75315	1
73	Soc. Head Screw	75316	2
74	Heli Lock washer	75155	4
75	Flat washer	75317	2
80	Warning Tag	75033	1
81	Caution Tag	75034	1
82	Name Plate	75031	1
86	Pan Head Screw	75350	1
88	Soc. Set Screw	75318	2
89	Pan Head Screw	75247	2
90	Soc. Head Screw	75226	1

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. (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 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. (Refer to "ADDING 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, etc. (CAUTION: Make sure that the trigger switch is NOT 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).
	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 on 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 for one (1) year and its Electro-hydraulic Hole Punchers 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 (Rotabroach Cutters) 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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