

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



# **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, 7. 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 causing 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 sufaces. For example: pipes, radiators, ranges, refrigerator enclosures.

#### 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<br>(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!** 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.



### 75004A CONTENTS

| Hydraulic Oil  | 75376 |
|--|-------|
| 11/16" Diameter Punch                                    | 75492 |
| 11/16" Diameter Die - Type S - For material 1/8" to 1/4" | 75444 |
| 11/16" Diameter Die - Type T - For material 1/4" to 3/8" | 75445 |
| Pin Spanner  | 75903 |
| 10mm Open End Wrench                                     | 75771 |
| Foot Switch  | 75110 |
| Work Stand   | 75194 |
| МЗ Нех Кеу   | 75742 |
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| М5 Нех Кеу   | 75744 |
| М6 Нех Кеу   | 75745 |
| М8 Нех Кеу   | 75746 |
|  |       |

### **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** in this Manual

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

### **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 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).

# **REMOVING AND INSTALLING PUNCHES**

Prior to removing a punch, jog the punch piston down until it puts pressure on a piece of material that is of the appropriate thickness. With a pin spanner, loosen the retaining nut. Manually release the punch piston with the manual release valve, disconnect the unit from the power supply and then remove the retaining nut and punch. Prior to installing a different punch, check for debris in the retaining nut and punch piston. Clean if necessary. Prior to installing a punch, verify the "O" ring on the punch piston is clean and not damaged. Place your punch into the retaining nut, properly align the punch within the punch piston and hand tighten the retaining nut. Plug in power, jog the punch piston down until it makes contact with your work surface. Tighten the retaining nut with the pin spanner. Manually release the punch piston. Your now ready to punch your material. Failure to align your punch properly could result in serious damage to your machine. It is not necessary to remove your die to install the

It is not necessary to remove your die to install the punch piston.

### 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.

# **IMPORTANT NOTES:**



#### **INSTALLING A PUNCH**

- 1. To make the operation easier, first remove the strippers on both sides.
- 2. Reference your Operators manual and remove your punch and the die.
- 3. Install a new punch and punch retaining nut.
- 4. Install the die (Reference the steps above and work in reverse)



Your Hougen-Ogura punch unit has been equipped with a new die configuration. Please review this information prior to operating your machine



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.

NOTE : 75004A utilizes the "old" style die.



**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.

## **ADDING OIL**

Use of the correct hydraulic oil is essential. Approved oils are Shell "TELLUS Oil" and Exxon "TERESSTIC" (Part No. 75376). Grade #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 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.

### MODEL 75004A EXPLODED VIEW



# MODEL 75004A PARTS LIST

| Det # | Part #  | Description                  | Qty | Det # | Part # | Description             | Qty    |
|-------|---------|------------------------------|-----|-------|--------|-------------------------|--------|
| 1     | 75063   | PUNCHER HANDLE               | 1   | 50    | 75160  | SCR-SET M6 X 8MM        | 2      |
| 2     | 75192   | SCR-SOC SET M10 X 10MM       | 1   | 51    | 75047  | RETURN LEVER            | 1      |
| 3     | 75191   | STEEL BALL                   | 1   | 52    | 75100  | ROLL PIN                | 1      |
| 4     | 75156   | SCR-SHC M6 X 15MM            | 6   | 53    | 75054  | MAGNET                  | 3      |
| 5     | 75157   | FLAT WASHER 6MM              | 2   | 54    | 75241  | SCR-SHC M8 X 25MM       | 2      |
| 6     | 75182   |                              | 1   | 55    | 75322  |                         | 1      |
| 7     | 75492   |                              | 1   | 56    | 75220  | GASKET                  | 1      |
| 0     | 75007   |                              | 1   | 57    | 75086  |                         | 1      |
| 10    | 75009   |                              | 1   | 50    | 75055  |                         | 2      |
| 10    | 75300   |                              | 1   | 50    | 75000  |                         | 2      |
| 10    | 75215   |                              | 0   | 59    | 75000  |                         | 1      |
| 12    | 75102   | WASHER-HELI LUCK             | 0   | 60    | 75089  | RETAINING RING          | 1      |
| 13    | /51/5   | SCR-WING HD M6 X 15MM        | 1   | 61    | 75860  | PUMP HOUSING            | 1      |
| 14    | 75091   | NUT HEX M6                   | 2   | 62    | 75090  | SEAL WASHER             | 1      |
| 15    | 75189   | SCR-SOC SET M6 X 20MM        | 2   | 63    | 75107  | SCR-SHC M10 X 15MM      | 1      |
| 16    | 75210   | "C" FRAME                    | 1   | 64    | 75084  | OIL SEAL                | 1      |
| 17    | 75236   | SCR-SHC M8 X 30MM            | 13  | 65    | 75087  | BALL BEARING            | 1      |
| 18    | 75159   | FLAT WASHER 8MM              | 15  | 66    | 75872  | WASHER HW6MM            | 4      |
| 19    | 75516   | DIE-RD 11/16" S-TYPE         | 1   | 67    | 75871  | BOLT HB6 X 50MM         | 4      |
|       | 75517   | DIE-RD 11/16" T-TYPE         | 1   | 68    | 75874  | SUB PLATE               | 1      |
| 20    | 75219   | CYLINDER PACKING             | 1   | 69    | 75821  | ARMATURE                | 1      |
| 21    | 75233   | BACKUP RING                  | 1   | 70    | 75822  | PAPPER WASHER           | 1      |
| 22    | 75234   | PACKING ROD SEAL             | 1   | 71    | 75823  | BALL BEARING 608 LLB    | 1      |
| 23    | 75221   | PUNCH RETURN SPRING          | 1   | 72    | 75824  | THURST WASHER 16MM      | 1      |
| 24    | 75137   | OIL BLADDER                  | 1   | 73    | 75825  | RUBBER PIN 4MM          | 1      |
| 25    | 75138   | SCR-BLADDER                  | 1   | 74    | 75826  | BOLT HB4 X 20MM         | 4      |
| 26    | 75190   | O-RING                       | 1   | 75    | 75827  | FAN GUIDE               | 1      |
| 27    | 75188   | SCR BLADDER BUSHING          | 1   | 76    | 75828  | SCREW 5 X 65MM          | 2      |
| 28    | 75155   | WASHER-HELLLOCK              | 1   | 77    | 75820  |                         | 1      |
| 20    | 75138   |                              | 1   | 78    | 75830  |                         | 1      |
| 30    | 75000   |                              | 1   | 70    | 75831  |                         | 2      |
| 30    | 75099   |                              | 1   | 19    | 75031  |                         | 2      |
| 20    | 75155   |                              | 1   | 01    | 75064  |                         | 2      |
| 32    | 75906   | PUNCH PISTON                 | 1   | 81    | 75864  |                         | 1      |
| 34    | 75235   | PACKING                      | 1   | 82    | 75833  | RIVEI                   | 4      |
| 35    | 75216   | RELEASE VALVE                | 1   | 83    | 75834  | ANIT VIBRATION RUBBER B | 2      |
| 36    | 75217   | VALVE RETURN SPRING          | 1   | 84    | 75835  | FLAT WASHER 5MM         | 4      |
| 37    | 75218   | STOP PLATE                   | 1   | 85    | 75836  | SPRING WASHER 5MM       | 4      |
| 38    | 75101   | FLAT WASHER                  | 2   | 86    | 75837  | BOLT HB 5 X 25MM        | 4      |
| 39    | 75102   | SCR-SHC M4 X 6MM             | 2   | 87    | 75865  | WARNING TAG             | 1      |
| 40    | 75240   | O-RING                       | 1   | 88    | 75869  | NAME TAG                | 1      |
| 41    | 75184   | VALVE RELEASE SPRING         | 1   | 89    | 75838  | MOTOR HOUSING SET       | 1      |
| 42    | 75048-A | PUMP PISTON 5.996 X 13MM     | 1-3 | 90    | 75839  | HANDLE SET              | 1      |
|       | 75048-B | PUMP PISTON 5.997 X 13MM     | 1-3 | 91    | 75840  | LABEL                   | 1      |
|       | 75048-C | PUMP PISTON 5.998 X 13MM     | 1-3 | 92    | 75841  | PIN 3MM                 | 2      |
|       | 75048-D | PUMP PISTON 5.999 X 13MM     | 1-3 | 93    | 75842  | COMPRESSION SPRING 4MM  | 1      |
|       | 75048-E | PUMP PISTON 6.000 X 13MM     | 1-3 | 94    | 75843  | ROCK BUTTON             | 1      |
|       | 75048-F | PUMP PISTON 6.001 X 13MM     | 1-3 | 95    | 75844  | SWITCH TG71B            | 1      |
|       | 75048-G | PUMP PISTON 6.002 X 13MM     | 1-3 | 96    | 75845  | SPACER                  | 1      |
|       | 75048-H | PUMP PISTON 6.033 X 13MM     | 1-3 | 97    | 75846  | SWITCH LEVER            | 1      |
|       | 75048-1 | PLIMP PISTON 6 004 X 13MM    | 1-3 | 98    | 75847  |                         | 1      |
|       | 75048-1 | PLIMP PISTON 6 005 Y 13MM    | 1_3 | 90    | 75848  | CORD CLAMP              | 1      |
| 12    | 75050   |                              | 2   | 100   | 75940  | SCREW 4 Y 19MM          | ,<br>0 |
| 40    | 10000   |                              | 3   | 100   | 10049  |                         | 2      |
| 44    | 15050   |                              | 3   | 101   | 10000  |                         | 4      |
| 45    | 75052   | CHECK VALVE SPRING           | 3   | 102   | /5841  | SUREW 4 X 25MM          | 5      |
| 46    | 75326   | U-RING                       | 3   | 103   | 75852  | STRAVIN RELIEF          | 1      |
| 47    | 75325   | RUBBER PACKING SEAL W/GROOVE | 3   | 104   | 75870  | POWER CORD              | 1      |
| 48    | 75085   | O-RING                       | 1   | 105   | 75194  | WORK STAND              | 1      |
| 49    | 75046   | RETURN VALVE                 | 1   | 106   | 75110  | FOOT SWITCH             | 1      |
|       |         |                              |     |       | 75903  | PIN SPANNER             | 1      |

# **ROUND PUNCHES AND DIES**

|          | ROUND PUNCH |        |   | MATERIAL                                  |            | DIE         |             |
|----------|-------------|--------|---|---|------------|-------------|-------------|
| Nominal  | Size        | Metric | Part<br>No.                               | Thickness                                 | Style      | Size        | Part<br>No. |
| Tommar   | Actual      | Metric |   | 5/64 (.078) to 1/8 (.125)<br>14 to 11 GA  | F, A, H    | Die 1/4 R   | 75495       |
| 1/4"     | .256        | 6.5mm  | 75484                                     | >1/8 (.125) to 1/4 (.250)<br>10 to 3 GA.  | F, A, H    | Die 1/4 S   | 75496       |
| 5 (1 0)  | 9mm         | 75495  | 5/64 (.078) to 1/8 (.125)<br>14 to 11 GA. | F, A, H                                   | Die 5/16 R | 75497       |             |
| 5/10     | 5/10 .315   | omm    | 7 3465                                    | >1/8 (.125) to 1/4 (.250)<br>10 to 3 GA.  | F, A, H    | Die 5/16 S  | 75498       |
| 11/32"   | 335         | 8 5mm  | 75486                                     | 5/64 (.078) to 1/8 (.125)<br>14 to 11 GA. | F, A, H    | Die 11/32 R | 75499       |
|          |             |        |   | >1/8 (.125) to 1/4 (.250)<br>10 to 3 GA.  | F, A, H    | Die 11/32 S | 75500       |
|          |             |        |   | 5/64 (.078) to 1/8 (.125)<br>14 to 11 GA. | F, A, H    | Die 3/8 R   | 75501       |
| 3/8"     | .394        | 10mm   | 75487                                     | >1/8 (.125) to 1/4 (.250)<br>10 to 3 GA.  | F, A, H    | Die 3/8 S   | 75502       |
|          |             |        |   | 5/16 (.312)<br>max.                       | С          | Die 3/8 C   | 75524       |
|          |             |        |   | 5/64 (.078) to 1/8 (.125)<br>14 to 11 GA. | F, A, H    | Die 7/16 R  | 75503       |
| 7/16"    | .433        | 11mm   | 75488                                     | >1/8 (.125) to 1/4 (.250)<br>10 to 3 GA.  | F, A, H    | Die 7/16 S  | 75504       |
|          |             |        |   | >1/4 (.250)<br>to 3/8 (.375)              | F, A, H    | Die 7/16 T  | 75505       |
|          |             |        |   | 5/16 (.312)<br>max.                       | С          | Die 7/16 C  | 75525       |
|          |             |        |   | 5/64 (.078) to 1/8 (.125)<br>14 to 11 GA. | F, A, H    | Die 1/2 R   | 75506       |
| 1/2"     | .512        | 13mm   | 75489                                     | >1/8 (.125) to 1/4 (.250)<br>10 to 3 GA.  | F, A, H    | Die 1/2 S   | 75507       |
|          |             |        |   | >1/4 (.250)<br>to 3/8 (.375)              | F, A, H    | Die 1/2 T   | 75508       |
|          |             |        |   | 5/16 (.312)<br>max.                       | С          | Die 1/2 C   | 75526       |
|          |             | 14mm   | 75490                                     | 5/64 (.078) to 1/8 (.125)<br>14 to 11 GA. | F, A, H    | Die 9/16 R  | 75509       |
| 9/16"    | .551        |        |   | >1/8 (.125) to 1/4 (.250)<br>10 to 3 GA.  | F, A, H    | Die 9/16 S  | 75510       |
|          |             |        |   | >1/4 (.250)<br>to 3/8 (.375)              | F, A, H    | Die 9/16 T  | 75511       |
|          |             |        |   | 5/16 (.312)<br>max.                       | С          | Die 9/16 C  | 75527       |
|          |             | 15.9mm | 75491                                     | 5/64 (.078) to 1/8 (.125)<br>14 to 11 GA. | F, A, H    | Die 5/8 R   | 75512       |
| 5/8"     | .625        |        |   | >1/8 (.125) to 1/4 (.250)<br>10 to 3 GA.  | F, A, H    | Die 5/8 S   | 75513       |
|          |             |        |   | >1/4 (.250)<br>to 3/8 (.375)              | F, A, H    | Die 5/8 T   | 75514       |
|          |             |        |   | 5/16 (.312)<br>max.                       | С          | Die 5/8 C   | 75528       |
|          |             |        |   | 5/64 (.078) to 1/8 (.125)<br>14 to 11 GA. | F, A, H    | Die 11/16 R | 75515       |
| 11/16"   | 688         | 17.5mm | 75492                                     | >1/8 (.125) to 1/4 (.250)<br>10 to 3 GA.  | F, A, H    | Die 11/16 S | 75516       |
| 11/10    | .000        |        |   | >1/4 (.250)<br>to 3/8 (.375)              | F, A, H    | Die 11/16 T | 75517       |
|          |             |        |   | 5/16 (.312)<br>max.                       | С          | Die 11/16 C | 75529       |
| 3/4" .75 |             |        | 75493 -                                   | 5/64 (.078) to 1/8 (.125)<br>14 to 11 GA. | F, A, H    | Die 3/4 R   | 75518       |
|          | .750        | 19mm   |   | >1/8 (.125) to 1/4 (.250)<br>10 to 3 GA.  | F, A, H    | Die 3/4 S   | 75519       |
|          |             |        |   | >1/4 (.250)<br>to 3/8 (.375)              | F, A, H    | Die 3/4 T   | 75520       |
|          |             |        |   | 5/16 (.312)<br>max.                       | С          | Die 3/4 C   | 75530       |
| 25/32"   | .787        | 20mm   | 75494 -                                   | 5/64 (.078) to 1/8 (.125)<br>14 to 11 GA. | F, A, H    | Die 25/32 R | 75521       |
|          |             |        |   | >1/8 (.125) to 1/4 (.250)<br>10 to 3 GA.  | F, A, H    | Die 25/32 S | 75522       |
|          |             |        |   | >1/4 (.250)<br>to 3/8 (.375)              | F, A, H    | Die 25/32 T | 75523       |
|          |             |        |   | 5/16 (.312)<br>max.                       | С          | Die 25/32 C | 75531       |

# **OBLONG PUNCHES AND DIES**

| OBLONG PUNCH    |                                  |                               |                          | MATERIAL                                  | DIE             |                    |       |
|-----------------|----------------------------------|-------------------------------|--------------------------|---|-----------------|--------------------|-------|
|                 | Size                             |                               | Part                     | Thickness                                 | Style           | Size               | Part  |
| Nominal<br>1/4" | Actual                           | 6.5mm                         | NO.                      | 5/64 (.078) to 1/8 (.125)<br>14 to 11 GA. | F, A, H         | Die 1/4 x 1/2 R    | 75674 |
| x<br>1/2"       | x x<br>1/2" .512 13              | x<br>13mm                     | 75669                    | >1/8 (.125) to 1/4 (.250)<br>10 to 3 GA.  | F, A, H         | Die 1/4 x 1/2 S    | 75675 |
| 11/32"<br>x     | .335<br>x                        | 8.5mm                         | 75070                    | 5/64 (.078) to 1/8 (.125)<br>14 to 11 GA. | F, A, H         | Die 11/32 x 1/2 R  | 75676 |
| 1/2"            | .512                             | 13mm                          | 75070                    | >1/8 (.125) to 1/4 (.250)<br>10 to 3 GA.  | F, A, H         | Die 11/32 x 1/2 S  | 75677 |
|                 |                                  | 11mm<br>x<br>16.5mm           | 11mm<br>x 75671<br>6.5mm | 5/64 (.078) to 1/8 (.125)<br>14 to 11 GA. | F, A, H         | Die 7/16 x 5/8 R   | 75678 |
| 7/16"           | .433                             |                               |                          | >1/8 (.125) to 1/4 (.250)<br>10 to 3 GA.  | F, A, H         | Die 7/16 x 5/8 S   | 75679 |
| 5/8"            | x x<br>5/8" .650                 |                               |                          | >1/4 (.250)<br>to 3/8 (.375)              | F, A, H         | Die 7/16 x 5/8 T   | 75680 |
|                 |                                  |                               |                          | 5/16 (.312)<br>max.                       | С               | Die 7/16 x 5/8 C   | 75687 |
|                 | 1/2" .512<br>x x<br>3/4" .768    | 13mm<br>x<br>19.5mm           | 13mm<br>x 75672<br>9.5mm | 5/64 (.078) to 1/8 (.125)<br>14 to 11 GA. | F, A, H         | Die 1/2 x 3/4 R    | 75681 |
| 1/2"            |                                  |                               |                          | >1/8 (.125) to 1/4 (.250)<br>10 to 3 GA.  | F, A, H         | Die 1/2 x 3/4 S    | 75682 |
| 3/4"            |                                  |                               |                          | >1/4 (.250)<br>to 3/8 (.375)              | F, A, H         | Die 1/2 x 3/4 T    | 75683 |
|                 |                                  |                               | 5/16 (.312)<br>max.      | С   | Die 1/2 x 3/4 C | 75688              |       |
|                 | 9/16" .551<br>x x<br>13/16" .827 | .551 14mm<br>x x<br>.827 21mm | 14mm<br>x 75673<br>21mm  | 5/64 (.078) to 1/8 (.125)<br>14 to 11 GA. | F, A, H         | Die 9/16 x 13/16 R | 75684 |
| 9/16"           |                                  |                               |                          | >1/8 (.125) to 1/4 (.250)<br>10 to 3 GA.  | F, A, H         | Die 9/16 x 13/16 S | 75685 |
| 13/16"          |                                  |                               |                          | >1/4 (.250)<br>to 3/8 (.375)              | F, A, H         | Die 9/16 x 13/16 T | 75686 |
|                 |                                  |                               |                          | 5/16 (.312)<br>max.                       | С               | Die 9/16 x 13/16 C | 75689 |



# Troubleshooting

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

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