PUNCHING MOUNTING PLATES

R-1010 WIRE SPRING RELAY PUNCH

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1. GENERAL

1.1 The R-1010 is designed to punch a wire spring relay mounting hole in 2" mounting plates. The complete hole is produced in a single punching operation thus eliminating the need for drilling.

1.2 The following is a list of the equipment which is necessary for the operation of the punch and is contained in the R-1010 Shipping Case.

1. Punch Unit (See Figure 1) consists of 6 major parts.
    1. Die Assembly
    2. Punch and Stripper Assembly
    3. Punch Driver Assembly
    4. Locking Pin
    5. Enerpac Hydraulic Pump
    6. Greenlee Ram

1.3 Placement of the hydraulic pump on a cart will facilitate the punching operation.

2. PREPARATION

2.1 Check the oil level in the pump by removing the filler plug. The oil should be within 1/2" from the top. If low, fill the reservoir to the required level with R-3157 Hydraulic Oil only.

2.2 Open the air vent on the pump by loosening the petcock on the filler plug.

2.3 Operate the manual valve to the center (neutral) position.

2.4 Set the JOG/RUN switch to the JOG position.

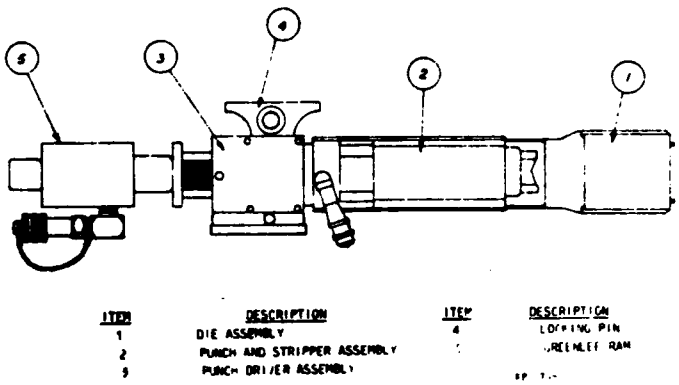

FIG. 1 R-1010 WIRE SPRING RELAY PUNCH ASSEMBLY VIEW

2.5 The punch is shipped assembled in preparation to punch. Dissassemble by removing the locking pin and sliding the punch driver and punch stripper assembly off the die assembly. (Refer to Figure 1 for visual description of parts).

2.6 Screw the Greenlee Ram fully onto the punch driver.

2.7 Connect the hydraulic hose from the "A" port of the pump valve to the Greenlee Ram (silver fittings). Connect the hose from the "R" port of the pump valve to the punch and stripper assembly (black fittings).

2.8 Insert the jack from the punch driver into the receptacle on the rear of the pump.

NOTE: This completes a low voltage circuit which is used to insure full engagement of the locking pin before starting the pump.

CAUTION: USE OF ANY OTHER JACK IN THIS RECEPTACLE COULD CAUSE DAMAGE TO THE TOOL.

3. OPERATION

3.01 Use of this punch requires two installers.

3.02 Loosen the mounting screws on the plate to be punched, and on several adjacent plates above and below the plate to be punched.

3.03 Install the die assembly from the rear of the frame by sliding the thin steel blades between the mounting plates. See Figure 2.

CARE SHOULD BE TAKEN TO PREVENT WIRING FROM BECOMING DAMAGED OR TRAPPED BETWEEN THE BLADES.

FIGURE 2

3.04 From the front side of the frame, slide the punch and stripper assembly and punch driver onto the protruding blades. As shown in Figure 3. The punch has been designed with a feature to prevent inverted assembly of the punch and die. However, to eliminate the possibility of serious punch damage the installer shall verify proper punch and die alignment each time the punch is assembled.

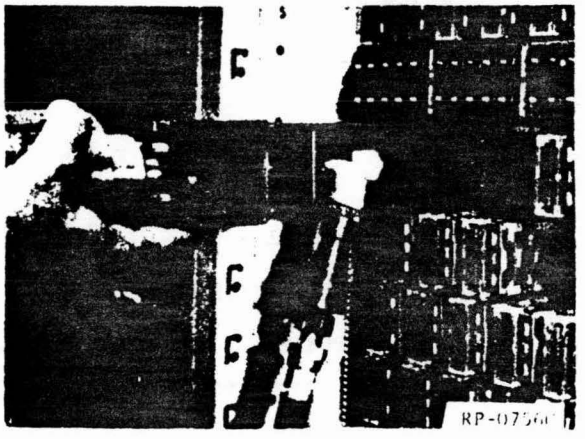

FIGURE 3

3.05 Apply pressure on the tool from both sides of the frame and install the locking pin. See Figure 4. The pin must be fully engaged or the pump motor will not run.

3.06 Assembling the punch to a mounting plate should take very little force. At no time shall a hammer be used to assemble this tool. Difficult assembly is an indication of tool damage, or improper assembly. Should this occur the tool shall be removed from the mounting plate and inspected.

3.07 With installers working from both sides of the frame, the punch can be slid into position. The stripper plate (block sitting flush against the front side of the mounting plate) is the same width as a wire spring relay and may be used for spacing of the punchings.

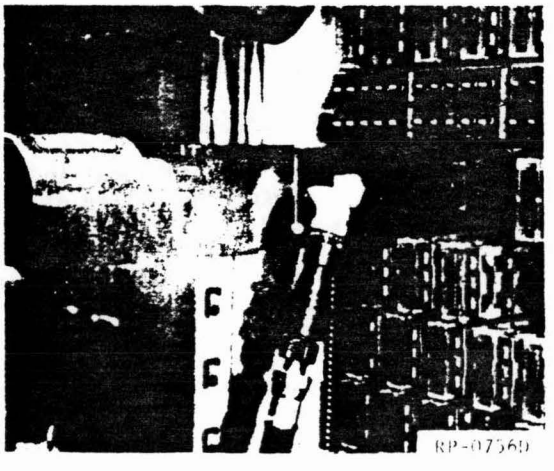

FIGURE 4

3.08 To Punch:

a) Move the valve handle on the pump to the right (part marked "A").

b) Support the weight of the punch unit until the punch begins to penetrate the mounting plate.

c) Depress the pendant button switch in order to punch. The switch should not be continuously operated, but rather released and reoperated several times during the punching processes.

d) CAUTION: RELEASE THE SWITCH IMMEDIATELY AFTER THE SNAP FROM THE PUNCH BREAKTHROUGH IS HEARD.

3.09 To Strip:

a) Move the valve handle on the pump to the left (part marked "R").

b) To strip, depress the pendant button switch.

c) CAUTION: RELEASE THE SWITCH AFTER THE PUNCH AND STRIPPER ASSEMBLY HAS VISIBLY MOVED.

d) Return the valve handle to the punch position.

3.10 In most cases the punch may be slid to an adjacent hole. However, due to the different clearances encountered in mounting plates this may not be possible. In these instances the locking pin shall be removed and the whole punch shall be reinstalled. Under no circumstances shall a hammer be used to slide the tool from one mounting plate position to another. When removing, care should be taken to catch the slugs which may fall from the die assembly.

4. MAINTENANCE

4.1 The R-1010 Punch shall be returned to Installation Stockkeeping for maintenance and sharpening once every two months.

4.2 Wipe the punch assembly clean from any oil spillage that occurs during connecting and disconnecting of the hoses. Excessive oil leakage from the punch, hoses, or fittings, could be an indication of punch damage. The tool shall be returned to the stockkeeping location if this occurs.

4.3 Periodically the punch and die should be visually checked for worn or chipped edges. This condition may also be detected by irregular or burred edges on the punched hole. Return the punch for sharpening should this occur.

4.4 The punch is equipped with a set of spare blades. If a blade should break, the following procedure shall be used for field replacement.

a) Blades shall be replaced in pairs.

b) Remove the socket head screws from the die assembly.

c) Hold the die assembly from becoming separated and remove the blades.

d) Install the new blades. The notches in the corners of the blades must align with the dowel pins in the die or the punch cannot be correctly assembled.

e) Replace and tighten the socket head screws.

f) Before punching verify proper punch die alignment.

4.5 Before punching, check the oil level in the pump.

5. SPECIAL INSTRUCTIONS AND SAFETY

5.1 The punching operation transmits an impact to other apparatus located on the mounting plate. Apparatus that may be damaged, such as tubes or lamps, should be removed or loosened from the plate before punching.

5.2 The Enerpac Hydraulic Pump for the R-1010 has been adjusted to deliver a maximum of 6000psi. No other pump shall be used with this tool, doing so could result in tool damage.

5.3 The shock of the punching operation may dislodge dust and other foreign material from old frames, adversely affecting adjacent equipment. KS-20406 Freon TF cleaner will be found to be extremely useful for cleaning wire spring relays and other electromechanical components. However, it is most important that prior to spraying, a piece of white blotter paper be inserted immediately below the relay now to catch the solvent drippings and loosened foreign particles.

5.4 Safety glasses shall be worn during all punching operations.

5.5 Punching shall only be accomplished in undrilled mounting locations. Punching over existing holes can damage the tool.

5.6 Because of the manufacturing material involved there are a few mounting plates which display very hard characteristics. Consequently, some mounting plates will be harder to punch than others. In some very rare instances the plate may be too hard to punch. Should the punch not perforate the plate after activating the pump in a half a minute, the plate shall be modified by drilling techniques outlined in Sec. 54 of this Handbook.

5.7 When mounting the wire spring relay subsequent to punching it may be noticed that the winding terminals of the relay are very close to coming in contact with the mounting plate. In these instances, 1/4" of RM-628436 Black C-2 Sleeving shall be placed on the winding terminals to insure proper insulation.

6. SHIPPING

6.1 The pump petcock shall be closed before shipping.

6.2 Two shipping cases are provided for the R-1010. The punch assembly fits in the small shipping case which in turn fits in the large shipping case. At no time shall the pump and punch be shipped separately.

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