

Electropunch

MODEL C

INSTALLATION, OPERATING, MAINTENANCE INSTRUCTIONS



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Model -C Serial Number: _____

PPK Serial Number: _____

Table of Contents

Warranty.....	3
Installation.....	4
Operation.....	5
Maintenance.....	5
Troubleshooting.....	5
Disassembly.....	5
Dimensions & Specifications.....	6
Head Assembly Bill of Materials.....	7
Parts List.....	7
Machine Diagram.....	8
Press Dimensions.....	9
General Specifications.....	9
Preventative Maintenance & Trouble Shooting.....	10-12

The Model C Electropunch is an electric high speed production tool for staking, riveting, marking, and punching.

Upon receipt of your Model C Electropunch, inspect it for any damage that may have occurred during shipping. If there is damage, notify Air-Hydraulics, Inc. immediately. Study all instructions and drawings carefully before installation.

ELECTROPUNCH

The Electropunch operates on the electromagnetic principal. Current for operation is 115 volt AC, 60 cycle, single phase (or 230 volt AC, 60 cycle, single phase, with a Power Pak) . Required “on” time of the palm buttons or foot switch is (1/10) of a second. In most applications, the impact is controlled through a variable transformer type impact controller (Power Pak) which allows the voltage to be varied to the solenoid coil. This adjustment results in a staking blow of a few pounds up to 3500 pounds or 8000 pounds with the Power Pak controller. With proper operation and maintenance, the Electropunch will give 2 or 3 million cycles (expected life of coil). Outlined below are recommended operation and maintenance procedures.

Operation: Depressing the Dual Palm Buttons or Footswitch for longer than (1/10) of a second will tend to overheat the coil and consume an unnecessary amount of current which will shorten the expected life of the coil. Consequently, the control enclosure has a timer built-in to prevent the coil from being energized for less than (1/2) second. If purchased with out controls, the coil should not be energized for an extended length of time. An operator quickly learns the optimum time to hold the switch after familiarization of the machine’s operation.

Important note: the Electropunch should never be “dry cycled” or cycled at maximum stroke. This will cause the spindle bearing to “roll” or “peen over” causing dragging or binding.

Maintenance: There are only two moving parts in the Electropunch – the spindle and solenoid plunger. The spindle bearing should be lubricated every few days with two drops of “Moluballoy” spindle oil. (A tube is provided with each machine.) If operation is in an area where dust or dirt may collect on the spindle, cleaning regularly is recommended. These contaminates tend to be “dragged” into the bearing at each stroke causing the Electropunch to become sluggish and reducing it’s power. If this occurs, the spindle and bearing should be disassembled and cleaned with “carbon tetrachloride” or other solvent. Wipe clean and apply two drops of “Moluballoy” oil when reassembling.

Although the Electropunch is simple in operation and maintenance, the above procedures, if followed, will insure long, trouble-free operation.

Warranty

Air-Hydraulics, Inc. warrants to the original user that all products manufactured will be free from defects in material and workmanship and will possess the characteristics represented in writing by us. Claim for breach of the above warranty must be made within a period of one year from date of delivery to the user. Upon satisfactory proof of claim, we will make any necessary repairs or corrections, or at our discretion, replace defective parts at the factory, transportation charges prepaid. Charges for correcting defects will not be allowed, nor can we accept goods returned for correction unless we are notified in writing and the return or correction is authorized by us in writing. **The foregoing is in lieu of all other warranties, expressed or implied, including any warranties that extend beyond the description of the product.** This paragraph set forth the extent of our liability for breach of any warranty in connection with the sale or use of our products. It is understood we will not be liable for consequential damages such as loss of profit, or expense, whether based on tort or contract. This warranty is void if the articles covered by the warranty have not been properly installed, maintained and used.

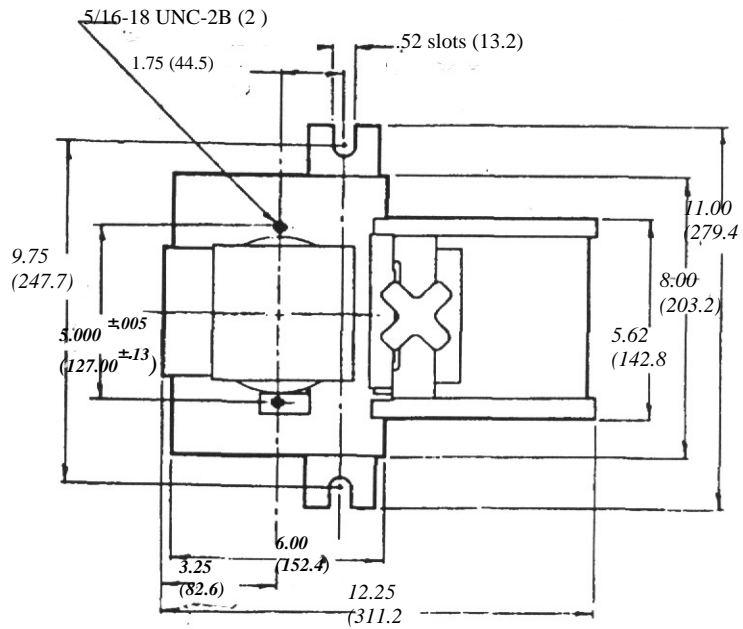


Figure 1.

Installation

Mounting: See figure 1

Wiring: The Model C is equipped with a Power Pak (control unit), and electrical cord, and a molded three-prong plug. See Power Pak installation instructions in Power Pak kit.

Tools: The striking tool must have a shank .624 to .625 x 7/8" long with a shoulder on the shank which butts against the bottom of the spindle. Harden tool after machining for longer life.

- Set-up:
1. Loosen the two large cap screws [fig. 2 (pg. 6), #17] that are holding the yoke clamp (fig. 2, #15). Next, loosen the four set screws [fig. 3 (pg. 7), #4] on the right side of the frame which hold the gib (fig. 3, #18) in position. **Caution-** Excessive loosening will result in the gib falling out.
 2. Position the head for easy access to the spindle. This is accomplished by using the hand-wheel on the elevating screw assembly (fig. 3, #19).
 3. Install and lock tool in spindle. Pull spindle down and insert taper pin (fig. 3, #25) in hole provided. Insert work-piece in nest. Lower head until the tool engages the work-piece.
 4. Slightly tighten the four set screws, and then tighten the cap screws. Take the taper pin out of the spindle. **Caution-** If head is in the full down or up position, avoid excessive tightening of top or bottom set screws to prevent gib from bending.

Operation

The Model C Electropunch receives its power from the Power Pak. Closing the hand switch(es) or foot switch initiates the firing circuit, after which power to the Electropunch passes through this switch. The operator must hold the switch closed for 60 milliseconds for the Model C to achieve full power. Holding the switch longer will not overheat the Electropunch coil, as power is cut off by the Power Pak. The switch must be released to re-fire the machine. Power on the Model C Electropunch is varied by turning the control knob on the Power Pak.

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Troubleshooting

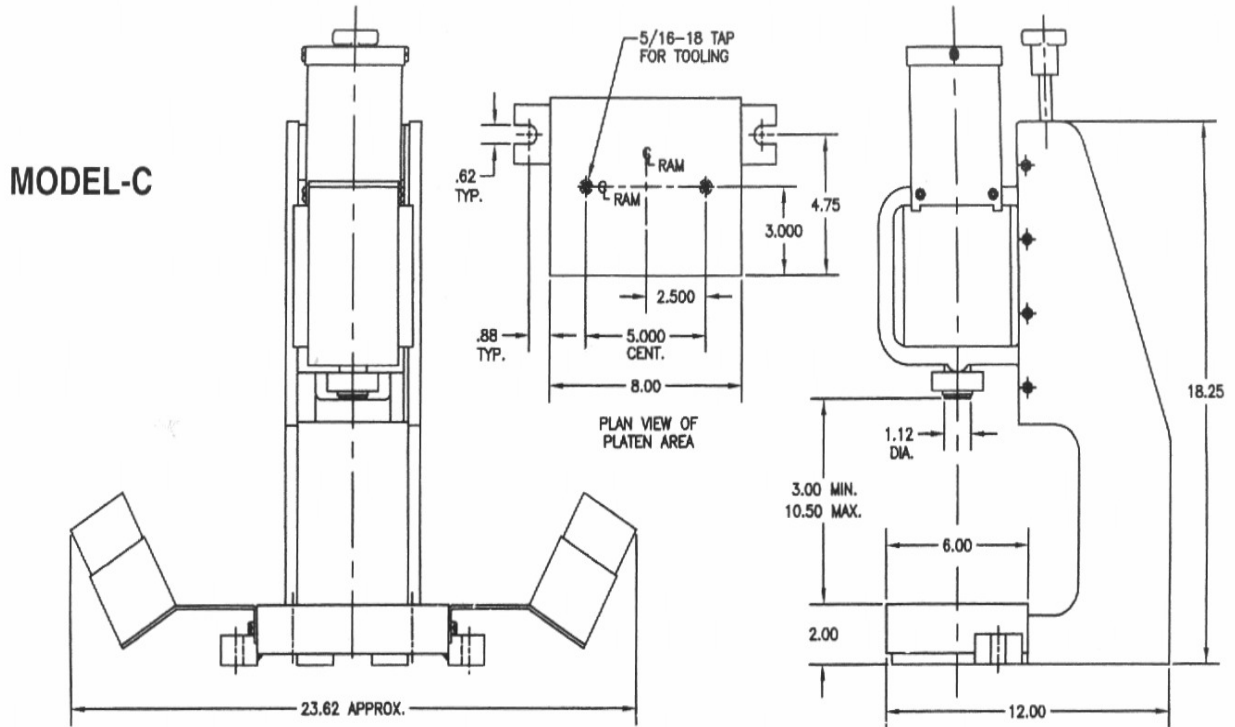
Unit does not operate

1. Check all electrical connections to be sure electrical contact is being made.
2. Check the solenoid. If it does not operate, check the coil for an open winding with a continuity test.
3. See Power Pak installation and maintenance instructions.

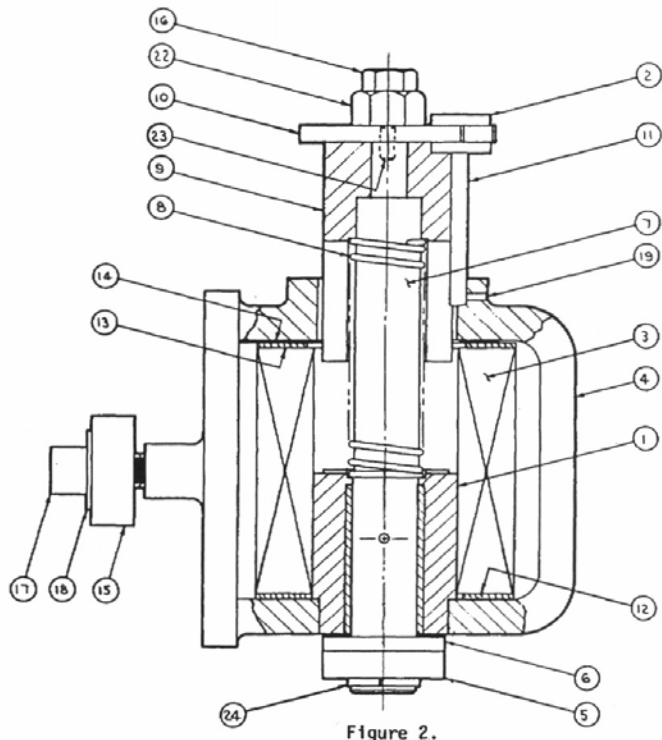
Disassembly

For replacement of a coil or cleaning the spindle bearing, remove the guard cover and unscrew the lock nut found on top of the guide plate. Clamp a .625 dia. piece in the tool hole so that a wrench or other means may be used to hold the spindle from rotating when unscrewing the lock nut. *If this is not done, the guide pin may end.* After the guide plate has been removed, the spindle may be driven down through the armature and out through the bearing in the bottom of the solenoid.

Dimensions and Specifications



Model	Impact in lbs.	Impact Force lbs.		Stroke	Spindle to Base		Throat Depth	Spindle Tool Hole	Tool Weight	Weight lbs.
		STD.	Power Pak Option		Min.	Max.				
C	234	n/a	15,000	2.00	3.00	10.50	4.50	.624/.627 x 1.00	7 lbs.	90



Bill of Material for Model C Head Assembly Only			
Detail #	Part #	Part Name	Qty.
1	200204	Core w/ Spacer and Bearing	1
2	200211	Spool Guide w/ Bearing	1
3	200226	Coil w/ Term Board	1
4	200231	Yoke	1
5	200232	Tool Holding Clamp	1
6	200234	Shock Pad	1
7	200235	Spindle	1
8	200237	Spindle Return Spring	1
9	200241	Armature	1
10	200242	Guide Plate	1
11	200245	Guide Pin	1
12	200247	Coil Insulator w/ Slot	1
13	200248	Coil Insulator	1
14	200251	Coil Hold-down Spring	1
15	200302	Yoke Clamp	1
16	36263	Locking Hex Nut	1
17	23918	Soc Hd. Cap Scr. 5/8-18 x 2½ long	2
18	33016	5/8 Flat Washer	1
19	64077	Roll Pin 1/8 dia. x 5/8 long	1
20	23205	Soc Hd. Cap Scr. ¼-20 x 1 long	1
21	25502	Soc Hd. Set Scr. 5/16-24 x 1 long	2
22	36364	Hex Nut 5/8-18	1
23	26750	Dowel ¼ dia. x 5/8 long	1
24	200233	External Ring	1

Optional Items			
8	200238	Spindle Return Spring-Heavy Duty	1

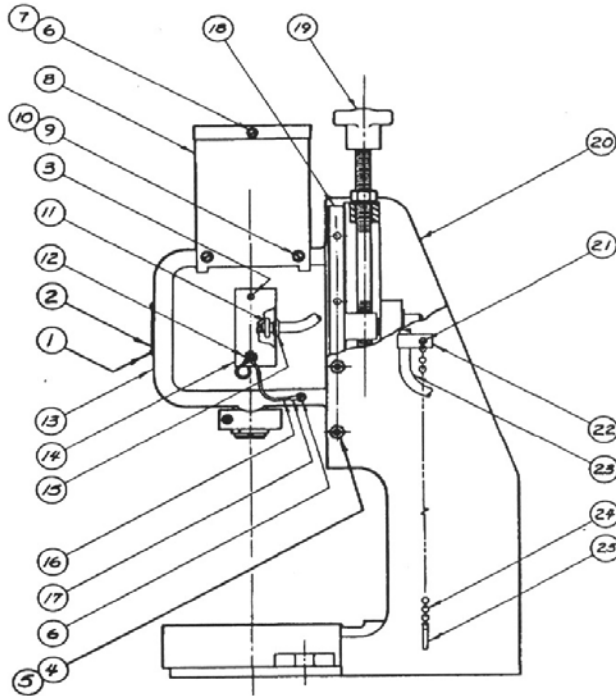


Figure 3.

Bill of Material For Model "C" Electropunch Assembly			
Detail. #	Part #	Name	Qty.
1	32212	RD HD Drive Screw #2x3/16	4
2	200125	Name plate-115V 50/60 Hz	1
	200126	-Other	
3	27282	RD HD Screw #6-32x 1/4 LG	4
4	25403	Soc HD Set Screw 1/4 -28x1" LG	4
5	36252	Hex Nut 1/4 -28	4
6	27357	RD HD Screw #8-32x 1/4 LG	
7	33708	Lock Washer #8	2
8	200297	Guard	1
9	27530	RD HD Screw #10-32x 1/4 LG	4
10	33708	Lock Washer #10	4
11	200317	Strain Relief	1
12	33707	Internal Tooth Lock Washer #6	1
13	C-HEAD	Model "C" Head Assembly	1
14	200299	Connection Box	1
15	200314	Grommet	1
16	76512-18-06	Wire #16 AWG X 3" LG	1
17	0704741	Terminal Ring	2
18	200309	Gib	1
19	200266	Elevating Screw Assembly	1
20	200308	Frame	1
21	27378	RD HD Screw #8-32x 1/2 LG	1
22	200129	Cable Clamp	1
23	20008120	Coil Cable	1
24	45131	Single Steel Jack Chain #18x12"	1

25	101406	Taper Pin #2x1"	1
26	PPK-5-1	Model PK Power Pak Assembly	1

B&W ELECTROPUNCH FAQ:

1. I'M GETTING A DOUBLE HIT OR GHOST HIT, WHICH IS LEAVING A DOUBLE IMPRESSION WHEN WE'RE MARKING PARTS.

ANSWER: THERE ARE TWO REASONS WHY THIS MAY OCCUR; 1ST, THE RETURN SPRING MAYBE WEAK OR FATIGUED, 2ND, THE RUBBER STOPPER ATTACHED TO THE TOP OF THE HEAD MAYBE WORN. REMOVE & REPLACE BOTH PARTS

2. I AM USING A POWER PAK WITH MY ELECTROPUNCH AND A FOOT SWITCH OR SINGLE SWITCH TO CYCLE THE PUNCH, BUT IT WON'T FIRE. THE MAINTENANCE PEOPLE MAY OR MAY NOT HAVE BEEN WORKING ON IT.

A

ANSWER: THE FOOT SWITCH - DUAL PALM (DIP) SWITCH, LOCATED ON BOTTOM WAS MORE THAN LIKELY SWITCHED TO DUAL PALM SETTING. MAKE SURE POSITION OF SWITCH IS SET FOR SINGLE OR FOOTSWITCH ACTIVATION

3. BS/FJS/SMS/JS ELECTROPUNCH SPINDLE IS STICKING AND WON'T SLIDE EASILY DOWN OR UP, THEREFORE NOT CONSISTENTLY CYCLING OR DOESN'T SEEM TO HAVE THE FULL IMPACT FORCE.

ANSWER: THE ELECTROPUNCH HAS BEEN "DRY FIRED/CYCLED" TOO MANY TIMES WHICH HAS CAUSED THE BOTTOM BRASS BUSHING TO DEFORM, COMPRESSING THE BUSHING AGAINST THE SPINDLE, ACTING LIKE A BRAKE. REMOVE & REPLACE BUSHING AND AVOID CYCLING THE ELECTROPUNCH WITHOUT BOTTOMING OUT. HAVE THE SPINDLE AND TOOL IMPACT AGAINST MATERIAL PRIOR TO SPINDLE COLLAR STRIKING AGAINST BRASS BUSHING.

4. WHAT SHOULD THE DIP SWITCH SETTING BE FOR MY POWER PAK PPK-2/4?

ANSWER: IF USING A M/D: BS, FJS, JS, SMS THE DIP SWITCH SETTING ARE NORMALLY: SWITCH (SW) 1 = OFF, SW 2 = OFF, SW 3 = ON, SW 4 = ON

IF USING A M/D: "C", THE SWITCH SETTING ARE NORMALLY; SW 1 = OFF, SW 2 = ON, SW 3 = ON, SW 4 = ON

5. CAN I USE MY POWER PAK, PPK-2/4, CONTROL UNIT ON OTHER ELECTROPUNCH UNITS?

ANSWER: YES, BUT THE POWER PAK USED WITH A FOOT SWITCH ACTIVATED ELECTROPUNCH CAN NOT BE USED WITH ELECTROPUNCHES ACTIVATED WITH DUAL PALM BUTTONS, AND VICE VERSA. YOU CAN USE A POWER PAK FROM A M/D: BS, FJS, JS, AND SMS ON A M/D: "C" ELECTROPUNCH, AND VICE VERSA, BUT YOU MUST FIRST CHANGE THE DIP SWITCH SETTING, SEE MANUAL. AGAIN, THE ACTIVATING SYSTEMS MUST BE THE SAME.

6. WHAT SHOULD THE OHMS MEASURE ACROSS THE LEADS ON A BS-230 VOLT COIL?

Answer: APPROX. 1.5 OHMS

MOD-C DOES NOT FIRE EVEN THOUGH THE PPK 2/4 INPUT LIGHT TURNS ON- WHAT CAN I CHECK?

- 1) REMOVE THE COVER ON THE SIDE OF THE MODEL-C & CHECK THE WIRE CONNECTIONS & VERIFY THAT THEY ARE TIGHT.
- 2) AT THE SAME LOCATION, WITH A VOLT/OHM METER, VERIFY THAT THE OHM READING OVER THE COIL IS 1.2-2.4 OHMS.

- 3) WITH A VOLT/OHM METER, CHECK CONTINUITY FROM THE PPK OUTPUT PLUG END TO THE COIL CONNECTIONS ON THE SIDE OF THE MODEL-C ELECTROPUNCH.
- 4) PPK 2/4 DIP SWITCH SETTINGS UNDER THE CAP COVER ON THE BOTTOM OF THE UNIT SHOULD BE SW 1=OFF, SW 2=ON, SW 3=ON, SW 4=ON.