



CP 450EA Hot Dimpling Machine Nomenclature & Unit Function

Operating Instructions

With heaters & tooling installed, 'in' air connected and turned 'on', 1/2" I.D. hose @ 90 p.s.i. (6.21 bar)

1. Place 'standby-run' switch in 'standby' position, (S-1).
2. Place 'hot-off-cold' switch in 'hot' position.
3. Set temperature controllers to desired temperature (max. 990°F). Controllers will not allow operation of the dimple phase of machine until temperature reaches set point.
4. Set 'standby-run' switch to 'run' position.
5. Set dwell timer for desired heat-up time.
6. Place drilled hole in workpiece on male portion of die. Then, with hands clear of anvil section, actuate foot switch to cycle machine. After cycle completes, lift foot from switch. **Note:** Check quality of resulting dimple. When satisfactory, proceed. When doing so, continue with quality performance awareness per specifications.
7. When machine is in temporary disuse, always place in 'standby' mode. Do not leave machine unattended in run mode.

Operational Hints

- A. Always ascertain that proper tooling is used.
- B. To determine that temperature and dwell timing is set correctly relative to material being dimpled, use scrap material (same as material to be dimpled) prior to production run.
- C. Dwell time must be set relative to type and thickness of material being dimpled.

Condensed Operating Instructions for CP 450EA Dimpling Machine

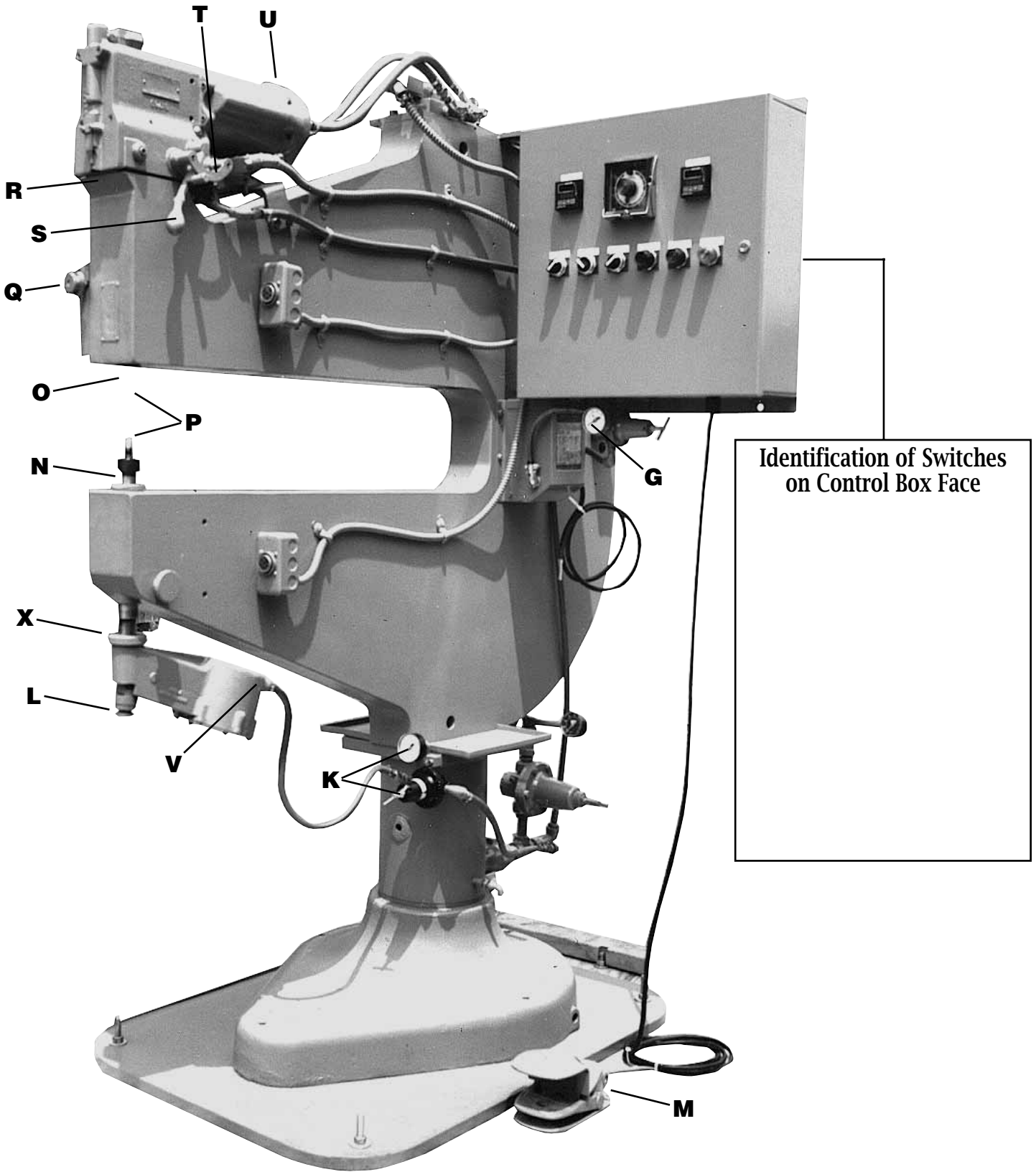
1. Turn on power and air.
2. Place 'standby-run' switch on 'standby'.
3. Place 'high-low' switch on 'high'.
4. Adjust 'up-down' arrows on controllers to set desired temperature.
5. When temperature arrives at set point, place 'standby-run' switch to 'run'.
6. Place work (hole) on male die.
7. Holding workpiece with hands away from anvil section, operate dimple machine.

Note: Do not leave unattended in 'run' mode. Shut down for safety reasons.

Toll Free Nationwide & Canada: **800-645-8180**

USATCO\U.S. AIR TOOL COMPANY, INC. www.USATCO.COM NEW YORK • CALIFORNIA

Nomenclature & Unit Function



USATCO\U.S. Air Tool Company, Inc.

Eastern Division60 Fleetwood Ct., Ronkonkoma, NY 11779-6951 tel: (631) 471-3300 fax: (631) 471-3308

Western Division1219 W. Mahalo Place, Rancho Dominguez, CA 90220-5446 tel: (310) 632-5400 fax: (310) 632-3900

2 CP 450EA Hot Dimpling Machine

Legend

A-	Speed Control Valve	Controls amount of air entering main cylinder. Should be wide open except for deep draws in thin metal.
7 & 8-	Upper & Lower Temp. Control Units	Controls the amount of heat present in heater blocks during dimpling operations.
9-	Dwell Timer	Determines the length of time that heat is transferred to the metal before dimpling.
7 & 8-	Temperature Indicators	Show the true heat that is present in the heater blocks.
7 & 8-	Minimum Temp. Indication Lights	During hot dimpling, these lights will remain 'ON' until heater blocks reach the minimum acceptable temperature.
7 & 8-	Maximum Temp. Indication Lights	During hot dimpling, these lights will remain 'ON' until heater blocks reach the maximum acceptable temperature.
G-	Low Pressure Air Pressure Gage & Regulator	Indicates air pressure being delivered to approach cylinder.
1-	Main Switch & Pilot Light	This switch completes the electrical circuit from the plant source to the machine. When the circuit is complete, the pilot light is 'ON'.
4-	Dimpling Control Switch	This switch completes the circuit for hot dimpling temperature control.
7 & 8-	Temperature Adjustment Controls	These controls, one on each capacitrol unit are used to set minimum & maximum temperatures on the control units.
K-	Air Coin Gage & Regulator	Indicates & regulates air pressure admitted to air coin post.
L-	Coin Ram Adjustment Knob	Used to set the coining ram flush with the die body.
M-	Foot Pedal Switch	Depressing this switch cycles the machine. It must be released in order to recycle.
N-	Die Holder	Supports die & coining ram.
O-	Punch Holder Collet Cap	Supports male portion of die set.
P-	Heater Rings (not shown)	The heater rings supply the dies with heat for hot dimpling operations.
Q-	Dimpling Pressure Adjustment Knob	This adjusts the machine to go into the reverse half of its cycle when the desired pressure has been reached.
R-	Stroke Indicator	When edge of cover of stroke indicator is between the two lines, the machine has delivered its maximum force. Adjustment of air coin post is necessary to compensate for thicker or thinner materials.
S-	Manual Adjustment Lever	Used to raise & lower punch manually. Can be adjusted to limit the return stroke of the punch so as to clear work & allow for quick operation.
T-	Low Pressure Cylinder	Provides initial force to hold dies against the work during heating period.
U-	Main Cylinder	Provides the final pressure needed to form the dimple.
V-	Air Coin Post Bleed Valve (for units w/non-relieving regulators)	Used to bleed air pressure in coining post, necessary when adjusting to a lower pressure.
W-	Locking Knob	For locking coining ram adjustment.
X-	Adjusting Knob	For adjusting coining ram.

General Instructions

Air Supply

Blow out air supply line before connecting to tool. For satisfactory performance 90 PSIG of clean, dry air is required at the tool, with the tool operating. Supply hose should be a minimum of 1/2" hose size, used with couplings of a minimum of 1/2" hose size, used with couplings of a minimum 7/16" I.D..

Electrical Supply

Power required is 110 volt AC, 50/60 cycle, single phase current. If this is not available, a transformer with the following specifications is acceptable:

110 Volt AC Secondary, 50/60 Cycle, 1.5 KVA

Lubrication

Daily fill oil reservoir with recommended air tool oil and frequently inspect to be sure lubricator is delivering a constant and adequate supply of oil to the power unit.

Recommended Lubricants

Chicago Pneumatic Airoilene Oil, which contains moisture absorbent, rust inhibiting additives and will not separate while the tool is idle, is recommended for use with this pneumatic tool and may be purchased under the following symbols:

P-089507 - 1 Gallon Can **P-0895085** - Gallon Can

If recommended oil is not available, use a turbine or spindle grade oil with a viscosity of 100-150 SUS at 100° F which contains a rust inhibitor.

Lubricate yoke and wedge mechanism with a good grade of grease such as Texaco Novatex #1 or equivalent.

Lubricate roller bearings with a good grade of grease such as Non Fluid Oil Company's S-59 grease or equivalent.

Installation

1. Attach air supply hose to tool air inlet which leads into a separator and filter and a lubricator which are attached to the riveter base. The base also forms as an air reservoir or surge tank for compressed air which is delivered to the power unit.
2. Connect to a 110 volt, 50/60 cycle, single phase, AC power supply.
3. Fully open air supply valve and set air regulator (342) at 90 PSIG.

Adjustments (hot & cold dimpling)

1. Select and install proper dies as determined by the application requirements. Heater and dimpling dies should be secured from USATCO.
2. Position the coining ram flush with the top surface of the die by turning the adjusting knob (L) on the air coin post.
3. Set low pressure air regulator (G) at 40 PSIG.
4. Turn the main switch on the control panel to 'on'.
5. Open speed control valve (A). Turn fully counterclockwise.
6. With a test strip of the material, drilled with the proper size pilot hole, depress the pedal of foot switch (M) and make a dimple. Check the stroke indicator (R), the edge of the spring (7) should be between the top two lines on the indicator. Adjust by loosening locking knob (W) on yoke and moving coining post up or down as required by turning die adjusting knob (X). Relock post.

Maintenance

The CP 450EA Hot Dimpler is a precision built instrument designed to work at close tolerances and in perfect alignment. Proper care, frequent inspection and immediate repair of malfunctions will keep repairs at a minimum and maintain the machine at its highest efficiency.

1. Keep air line lubricator filled with recommended oil. Inspect oil flow daily.
2. Provide a reliable source of clean, dry air at 90 PSIG pressure.
3. Use hose and connections of adequate size and in good condition.
4. Set up and maintain a repair and replacement program scheduled regularly.

For Additional Information, Please Contact USATCO

DIMPLING SET UP CHARTS FOR MATERIAL: 75S-T6

Fastener Size	Material Gage (inches)	Coining Ram Gage Pressure PSI	Dimpling Pressure Dial	Dwell Timer Setting (seconds)	Indicated Temp. (deg. F)
3/32" Rivet	0.020	10	40	1/4	500
	0.025	10	55	1/4	"
	0.032	10	60	1/4	"
	0.040	10	70	1/2	"
	0.051	10	80	1/2	"
	0.064	10	90	3/4	"
1/8" Rivet	0.020	10	50	1/4	500
	0.025	10	60	1/4	"
	0.032	10	70	1/4	"
	0.040	10	80	1/2	"
	0.051	10	90	1/2	"
	0.064	10	100	3/4	"
5/32" Rivet	0.020	15	60	1/4	500
	0.025	15	80	1/4	"
	0.032	15	90	1/2	"
	0.040	15	100	1/2	"
	0.051	15	120	1/2	"
	0.064	15	140	3/4	"
3/16" Rivet	0.020	15	160	3/4	"
	0.020	10	70	1/4	500
	0.025	10	75	1/2	"
	0.032	15	90	1/2	"
	0.040	15	140	3/4	"
	0.051	15	160	3/4	"
1/4" Rivet	0.064	15	180	3/4	"
	0.072	15	230	1	"
	0.081	20	260	1	"
	0.091	20	280	1-1/4	"
	0.020	25	80	1/2	500
	0.025	25	90	1/2	"
	0.032	25	110	3/4	"
	0.040	25	120	3/4	"
	0.051	20	150	3/4	"
	0.064	20	180	1	"
3/16" Rivet (Hi-Shear)	0.072	20	230	1	"
	0.081	20	260	1-1/4	"
	0.091	20	270	1-1/4	"
	0.102	20	270	1-1/2	"
	0.020	15	60	1/2	500
	0.025	15	70	1/2	"
	0.032	15	90	3/4	"
	0.040	15	100	3/4	"
1/4" Rivet (Hi-Shear)	0.051	15	110	3/4	"
	0.064	15	130	1	"
	0.072	15	150	1	"
	0.081	15	170	1-1/4	"
	0.025	15	70	1/2	500
	0.032	15	90	1/2	"
	0.040	15	100	3/4	"
	0.051	15	130	3/4	"
No. 8 Screw	0.064	15	150	1	"
	0.072	15	170	1	"
	0.081	15	200	1-1/4	"
	0.091	20	230	1-1/2	"
	0.032	15	70	1/2	500
	0.040	15	80	1/2	"
No. 10 Screw	0.051	15	120	3/4	"
	0.064	15	140	3/4	"
	0.072	15	160	1	"
	0.081	15	200	1-1/4	"
	0.091	25	270	1-1/2	"
	0.032	25	130	1/2	500
	0.040	25	150	1/2	"
1/4" Screw	0.051	25	170	3/4	"
	0.064	25	210	3/4	"
	0.072	25	250	1	"
	0.081	25	260	1-1/4	"
	0.091	25	270	1-1/2	"
	0.032	20	130	1/2	500
	0.040	20	140	3/4	"
5/16" Screw	0.051	20	160	3/4	"
	0.064	20	190	1	"
	0.072	20	220	1-1/4	"
	0.081	20	230	1-1/2	"
	0.091	20	250	1-3/4	"
	0.040	30	100	3/4	500
5/16" Screw	0.051	30	160	3/4	"
	0.064	30	260	1	"
	0.072	30	290	1-1/4	"
	0.081	30	Maximum	1-1/2	"
	0.091	30	Maximum	1-3/4	"

4 CP 450EA Hot Dimpling Machine