

## **14 - USE WITHOUT NUMERICAL CONTROL**

### **14 - 1 PRELIMINARY OPERATIONS**

Before carrying out any bending operations, it is necessary to define:

The bending technique:

- air bending
- or
- coining (see section 13)

### **14 - 2 IMPORTANT RECOMMENDATIONS**

In order to avoid any accident during bending operations, it is imperative that the instructions below be followed:

- a. Never run the pump when there is no oil in the tank.
- b. Never use the pressure regulator on the bending depth setting.
- c. Do not exceed the maximum permissible force for tools.
- d. After usage, completely loosen the pressure regulator and the hydraulic gauge control.

### **14 - 3 TURNING ON AND OFF**

See section 11.2.

### **14 - 4 MUTE LEVEL SETTING (SEE SECTION 13.4.6)**

## 14 - 5 PRESSURE REGULATOR SETTING

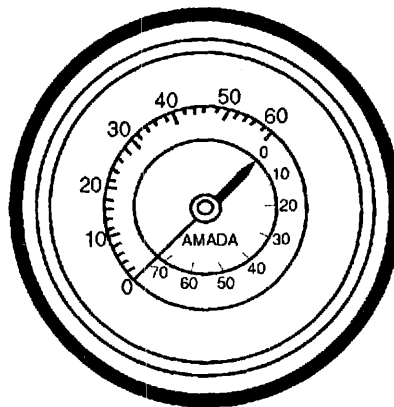
The regulator control makes it possible to set the required force.

This operation is carried out by actuating the regulator control.

The force is checked on the pressure gauge.

The pressure gauge has two graduated scales, continuously giving the following information:

- The force in tonnes, given by the small side of the needle, on the black scale,
- The minimum bending length in order to not damage the tool, given by the large side of the needle, on the red scale.



### CAUTION

**NEVER USE THIS CONTROL TO SET THE AIR BENDING DEPTH (NO ACCURACY SETTING FOR END-OF-BENDING DIMENSION)**

### Adjusting Force as a Function of Bending Length

This setting consists in limiting the force of the press in relation to the permissible unit load of 1.2 tons per centimetre of bending length.

This setting must be made before carrying out any bending operation (no matter what technique is used), with a view to preventing any deterioration of bending tools or of their supporting forces.

- Completely loosen the pressure regulator control; put into contact with tool (die bottom); use pressure gauge to check that the pressure is not rising.
- Tighten regulator control to the force required for bending (clockwise direction).
- Press pedal and turn hydraulic gauge control in clockwise direction until the tools come into contact.

When using vees larger than 40 mm, insert a worksheet between the tools (to protect tool).

- Tighten pressure regulator control (in clockwise direction) until the length corresponding to the part to be bent is displayed on the red scale of the pressure gauge.

The bending force is therefore limited to the condition of 1.2 t/cm.

**NOTE:**

- For short bending lengths, the pressure regulator must be set below 20% of the nominal force of the press brake.
- Likely to make approach and working speeds drop.
- When the setting has been made, the pressure regulator must not be used during bending operations, except to compensate for the spring back of the material when setting the bending angle.

## **14 - 6 HYDRAULIC GAUGE BLOCK CONTROL SETTING**

This control is used to set the bending depth (or penetration height of the punch into the die), by stopping the moving beam from rising at the selected point of stoppage.

This stoppage point is set by turning the moving vernier.

This is accurate to a few hundredths of a millimeter, even during bending.

To increase the height of the stoppage point, turn the vernier in the clockwise direction.

To decrease this height, turn the vernier in the counter-clockwise direction (see section 9.3).

After making the final setting, tighten the locking screw to lock the assembly in place.

**NOTE 1:** If too closed of a bend is obtained during settings, release the control pedal and turn the hydraulic gauge block control in the clockwise direction.

**NOTE 2:** In the case of blow bending, if the bend is too closed, turn the hydraulic gauge assembly control in the clockwise direction. In this case a bend that is more closed than the angle of the tool indicates that the force is too low.

**NOTE 3:** If there are several variations in angles over the entire length of the bend, check that the tools (the die and the punch) are in good condition. Adjust the intermediate sets.