## LB-30 Diagnostics

General Machine Information:

- There were two versions of the LB-30. One version has a transistor control board, the LB-30 Express used the Siemens LOGO! PLC. Most of our calls deal with the older version with the control board.
- The head is moved by a bladder (looks like a tire).
- The LB-30 "simple" cycle is activated only with the foot pedal. The material clamping and the raising of the head are one function these are not controlled by separate cylinders/bladders.
  - The travel distance of the head is controlled by a magnetic reed switch (E10850). The switch portion is mounted on the operator's right side of the machine on a yellow bar that is adjustable changes the hole depth.
  - The magnet is mounted on the head, and triggers the switch (completes the circuit) when the head moves far enough.
- Indexing the holes allows the user to begin a new set of holes with the same distance between the first set and the second set for uniform drilling.
  - The indexing pins (cylinders with a modified rod) are located on the left and right of the machine and are active when the three position switch (located in the middle of the top yellow fence) is positioned to the left or right. The middle position is off, and the indexing pins do not read in this position.
  - There is a magnetic reed sensor positioned on each cylinder. When indexing is picked for the left indexing pin (switch positioned to the left) BOTH cylinders will activate and press against the material being cut when the foot pedal is depressed. The cycle will not happen until the left pin locates a hole – which moves the magnet in the cylinder up to the mounted magnetic reed switch.
    - The three position switch tells the control board which of the magnetic reed switches to pay attention to. If the other indexing pin locates a hole, the machine should not function.
- There are two solenoids in the machine. They are located to the right, behind the control box, when the front door is opened. Each solenoid has its own regulator and gauge.
  - One solenoid supplies the head. The air line runs to a pilot valve located below the head's air bladder.
    - The pilot valve has its own air supply direct from the regulator.
      - Pilot valves open when a small, continual, blast of air (from the solenoid) is directed into the valve. This causes the pilot valve to open another port that will allow a second air source to flow through.
      - A pilot valve is a way to supply a component with a large blast of air, while using less robust solenoids as control valves.
  - One supplies BOTH indexing pins
    - There is one line that comes out of the solenoid with a "Y" fitting that supplies both cylinders.