

the hydraulic and the pneumatic-powered presses. Each is driven by a gear train which can be started or stopped by simply cutting the power supply.

All that has been said so far about mechanical power presses (except for the source of power) applies to hydraulic or pneumatic powered presses. These are used for the same kind of work and have similar hazards, such as sudden dropping of the slide because of power failure or breaking of a pressure line, defective dual controls, unexpected energizing of one or more electric circuits because of oil or dirt, defects in wiring which cause the press to close, leaking valves, residual or back pressure, and air pressure built up between dual controls.

Where air or hydraulic power is used either alone or in combination, there is the hazard of residual or back pressure. Even though the control valve be turned off and locked in place, some pressure may be locked in the system past the valve point.

This residual pressure has produced accidental cycling of equipment even though persons involved had thought all the necessary precautions had been taken by shutting off the power source valve. As a result, when the tripping device for the machine was next touched or when the power source valve was again turned on, the equipment accidentally cycled, producing a dangerous situation. Figs 32-2 and -3 show methods used to prevent this.

Press brakes

The press brake is classed as a power press because it utilizes the same construction and operational features that characterize the mechanical and hydraulic power presses. It has a bed and a descending slide, called the ram, and can be powered either mechanically or hydraulically—but there the similarity ends. The ram and bed are long and narrow, matched to each other, and usually set in front of the gapped frame (Fig 32-4). In some cases the bed and ram are located between uprights, but this arrangement limits the length of material that can be processed.

In operation, both types of press brakes utilize the part revolution clutch type of drive, and thus can be started and stopped at will. Most press brakes operate only in what

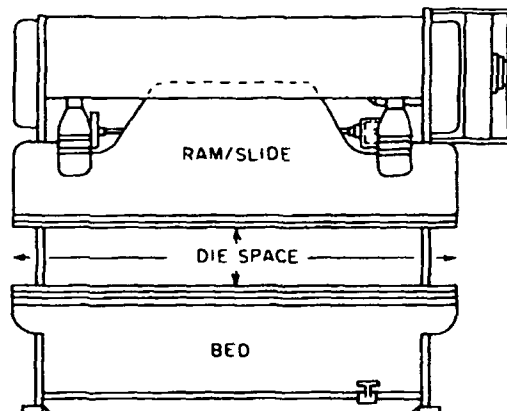


FIG. 32-4a — Typical mechanical press brake

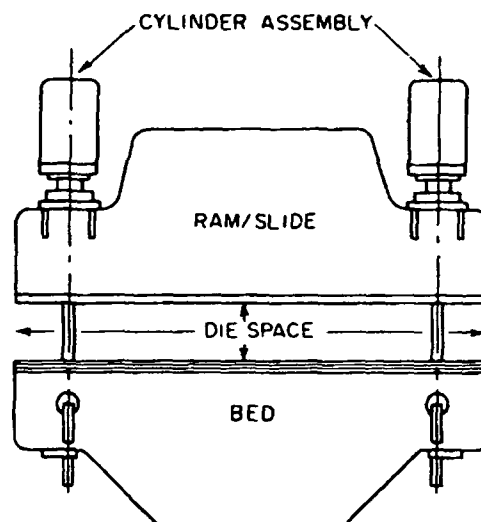


FIG. 32-4b — Typical hydraulic press brake

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would be termed "low gear," but some special purpose brakes are equipped with two speeds which can be used either individually or in combination.

Most press brakes are used to form or bend large or small pieces of sheet metal to a desired shape. The open end construction of the ram and bed even permits the continuous forming or bending of pieces that are much longer than the bed and ram, when appropriate accessories are used.