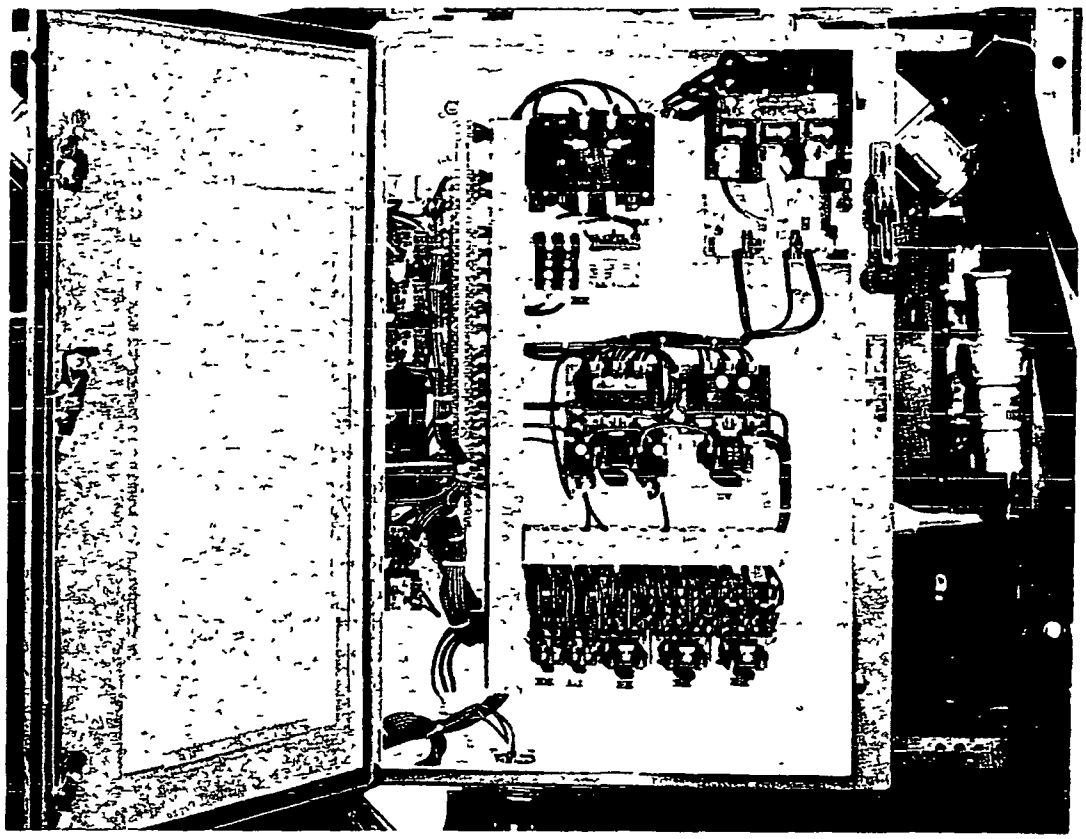

FIG 32–9 —Presses must also be made safe for electricians, millwrights, pipe fitters, and others who must maintain them in a safe condition Automotive companies have requirements similar to the following for electrical installations on equipment

1 All motor starters, relays, etc, required for each machine must be built into a single oil-tight (NEMA Type XII) control panel, with externally operated main power disconnect mechanically interlocked with the enclosure doors so that no door can be opened until after the disconnect has been opened

2 The disconnect operating handle must be permanently attached to the disconnecting device and must be located not more than 6½ ft and not less than 3 ft above the floor The handle must be arranged so that it can be locked only in the off position with a minimum of three locks

3 Enclosure doors must be hinged vertically, be not more than 36 in wide, and be painted "safety orange" on the inside so that an open door will be readily seen

4 The inside of the enclosure should be painted with white enamel to increase visibility for maintenance and large panels must have interior lights that are turned on by door switches

5 The control circuit voltage must be 115 or 120, obtained from a transformer with isolated primary and secondary windings

6 Equipment on the control panel must be located at least 18 in above the floor and not more than 84 in above the floor Devices carrying line voltage must be grouped above or to the side and be segregated from devices such as relays and timers carrying only the control voltage Nothing may be mounted above the main disconnect

7 All wires must be color coded as follows for easy identification of their voltage level

a) AC and DC power circuits (line voltage)—Black,
b) AC 115/120 v control circuits—Red,
c) DC control circuits—Blue,
d) 115/120 v circuits still energized when main disconnect is open, such as enclosure lighting circuit—Yellow,
e) Equipment grounding conductors—Green,
f) Current-carrying grounded conductors—White

Courtesy Clark Control Div , A O Smith Corp