Electric wires. The boom and cables of a crane should be kept away from all electric wires, regardless of their voltage. OSHA requires that, except where the electrical distribution and transmission lines have been deenergized and visibly grounded at the point of work, or where insulating barriers, not a part of or an attachment to the crane, have been erected to prevent physical contact with the lines, cranes should be operated near power lines only in accordance with the following

- For lines rated 50 kv or below, minimum clearance between the lines and any part of the crane must be 10 feet
- For lines rated over 50 kv, minimum clearance between the lines and any part of the crane must be either 10 feet plus 0 4 inch for each 1 kv over 50 kv, or twice the length of the line insulator but never less than 10 feet.
- In transit and with no load and boom lowered, the clearance should be a minimum of 4 feet.

Cage-type boom guards, insulating links, or proximity warning devices may be used on cranes, but the use of such devices should not operate to alter the requirements as spelled out above

Any overhead wire should be considered an energized line until either the person who owns the line, or the electric utility authorities indicate that it is not energized

If a crane boom contacts a conductor, the hazard is greatest to the hook-on man and others who may touch the load or the sling To protect these men, a commercially available load hook with an insulated link can be used

If the boom or cables accidentally come into contact with a wire, the operator should swing the crane to get clear If the wire has been broken and the boom cannot be cleared from it, the operator should stay on the crane and remain calm

A crawler crane, if the ground is wet or damp, will be electrically grounded and, when the boom touches a power line, the wire will, in turn, be grounded and the power company circuit breaker will open Some arcing may occur After a few seconds, however, the circuit breaker will automatically close and reenergize the wire Again the circuit breaker may open, and again it will close Thus the wire may be "dead" at one instant, but live a few seconds later

On the other hand, if the boom of an automotive crane on rubber tires should become tangled with a "hot" electric wire, the entire crane will be energized, for the rubber tires will insulate the crane and truck from the ground Hence, the circuit breaker may not open, and the wire *and* the crane may remain energized

Stepping from the crane to the ground is often fatal, for one hand and one foot may be in contact with the crane when the other foot touches the ground Therefore, the operator should remain on the crane until the emergency crew from the electric company arrives and frees the crane from the live wire

If the gasoline tank should become ignited, or if for any other reason it is impossible for the operator to remain on the crane, he should *jump,* after making sure that all parts of his body are clear of the crane before his feet touch the ground

Crawler and truck cranes are frequently used in structural steel erection for buildings less than 100 ft high Extension sections may be inserted to lengthen the booms of these cranes When the boom is reassembled, all the lattice bars or braces must be installed properly In one documented case, a lattice bar was accidentally omitted Later, when a heavy load was picked up, the boom buckled at this point and several men were killed

Locomotive cranes. In the cab of a locomotive crane (Fig 25–20), a clear passageway should be provided from the operator's platform to an exit door on the nearer side of

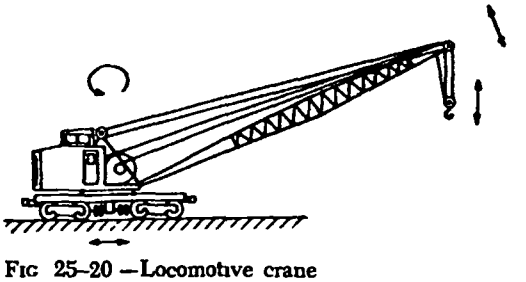

FIG 25–20 —Locomotive crane