warning "From a safety standpoint, one factor is paramount Conduct all lifting operations in such a manner that, if there were an equipment failure, no personnel would be injured This means *keep out from under raised loads!*" (See Fig 25–2)

Selection and training of operators

Cranes should be operated only by employees who are at least 21 years of age, are physically qualified, particularly with regard to acuity of vision, depth and color perception, hearing, muscular coordination, and reaction time, and are not subject to epilepsy, heart, or similar ailments that would be detrimental to safe operation of equipment A physical examination should be required prior to employment and annually thereafter

Operators should undergo a course of training and be certified to operate cranes Equally important are training and authorization of hook-on men Some companies require both operators and hook-on men to have permits, renewable at intervals of a year or two upon reexamination

Inspection

All crane machinery, apparatus, and appliances (including ropes, chains, and slings) should be inspected daily by a qualified person assigned to this task, and the date, findings, and action taken should be recorded on a special report form The crane director also should make such daily inspections In addition, detailed weekly inspection of the entire crane is recommended

Hooks should be tested by X ray or similar means Under no circumstances should a hook be heated to reduce a permanent set, rather, the hook should be replaced Hooks that have cracks, that have more than 15 percent in excess of normal throat opening (Fig 25–8), or that have more than a 10-degree twist from the plane of the unbent hook should be discarded Repairs by welding or reshaping are generally not recommended

A crane operator never should attempt to make repairs himself, but should report to his foreman any condition that might make the crane unsafe to operate Certain faults may be so dangerous that the crane should be shut down at once and not operated until the faults are corrected

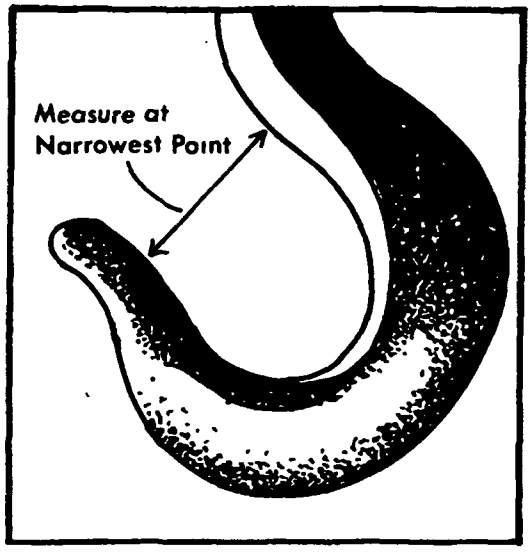


FIG 25–8 —When permanent set of hook is greater than 15 percent in excess of normal throat opening, the hook should be replaced

Following is a list of unsafe conditions to be checked mainly by operators of overhead traveling cranes (Also see next section)

Bearings loose, worn

Brakes shoe wear

Bridge alignment out of true (indicated by screeching or squealing wheels)

Bumpers on bridge loose, missing, improper placement

Collector shoes or bars worn, pitted, loose, broken

Controllers faulty operation because of electrical or mechanical defects

Couplings loose, worn

Drum rough edges on cable grooves

End stops on trolley loose, missing, improper placement

Footwalk condition

Gears lack of lubrication of foreign material in gear teeth (indicated by grinding or squealing)

Guards bent, broken, lost

Hoisting cable broken strands

Hook block chipped sheave wheels

Hooks straightening