

MANUAL HANDLING AND STORAGE OF MATERIALS

Machines and other heavy objects

Manual handling of heavy machinery and like objects requires special skill and knowledge. Sometimes machines or castings weighing 100 tons or more must be moved from freight cars to the ground level and into permanent position without use of heavy duty cranes or similar equipment.

Only general principles of safety for such jobs can be suggested. Each one presents its own problems and requires careful study and thorough planning. Some companies build scale models of the machines and the blocking, jacks, rollers, and other equipment to be used and then work out the procedure in miniature.

In all cases, the safe floor load limits for areas over which the machine or part will move, as well as for the place at which it is to be installed or stored, should be determined.

Blocking and timbers should be selected with great care. They should be of hardwood, preferably oak, and of the proper sizes to allow the machine to be safely blocked or cribbed as it is raised or lowered. Blocking that has rounded corners or evidence of dry rot should be rejected.

One company has found through many years of experience that the best sizes for cribbing timber are as follows:

8 in. x 12 in. x 10 ft
8 in. x 12 in. x 8 ft

Smaller blocking may be as follows:

8 in. x 12 in. x 24 in.
6 in. x 12 in. x 24 in.
3 in. x 12 in. x 24 in.
4 in. x 4 in. x 18 in.
2 in. x 10 in. x 18 in.

For sufficient strength, cribbing should have a safety factor of at least 4. The natural tendency to underrate the load should be guarded against.

Cribbing must be placed on a foundation so that it can be removed readily as the machine is lowered.

Accessories for Manual Handling

In the handling of materials, a variety of hand or hand-operated accessories can be used. Each tool, jig or other device should be kept in good repair and used only for the job for which it is designed.

Hand tools

Hooks. The worker should be trained to use hand or packing hooks so that they will not glance off hard objects, with possible injury to himself or others. If the hook is to be carried in the belt, the point should be covered.

Hooks for handling logs, lumber, crates, boxes, and barrels should be kept sharp and inspected daily.

Bars. The principal hazard in the use of a crowbar is that it may slip. A dull, broken crowbar is more likely to cause trouble than a sharp one. The point or edge should have a good "bite." The workman should position himself to avoid falls or pinched hands if the bar slips or the object moves suddenly. His hands or gloves should be dry and free of grease or oil. He should never work astride a bar.

Crowbars not in use should be stored so that they will not fall or cause a tripping hazard.

Ordinary crowbars should not be used to move cars on steel rails. Car movers which do not readily slip are available. When two men are needed to move a car, two car movers should be used, as two men should not try to work with the same mover.

Rollers. Heavy, bulky objects must often be moved by means of rollers. The principal hazard is that the fingers or toes may be pinched or crushed between the roller and the floor, and when the direction of the roller is changed. Rollers under a load should be moved with a sledge or bar, not the hand or foot.

Jacks

When using a jack, a man should check the capacity plate or other marking on the jack to make sure the device is heavy enough to support the load. Where there is no plate, capacity should be determined and painted on the side of the jack. If a properly rated jack is used, it will not collapse under load.

A heavy jack is best moved from one location to another on a dolly or special hand truck. If it has to be manually transported, it should have carrying handles, and at least two workmen should form a team to move it. The operating handle should never be left in the socket while a jack is being carried because it may strike other workers.