WAC 296-32-22545 Capstan and cathead hoists. This section is to provide the minimum requirements for using a capstan hoist for overhead lifting or horizontal pulling during the construction and/or maintenance of communication equipment.

(1) All capstan hoist mechanisms must meet the applicable requirements for design, construction, installation, testing, inspection, maintenance and operations as prescribed by the manufacturer or the qualified person designing the system.

(2) Catheads or capstans must not be used to raise or lower personnel or to lift loads directly over personnel that are not directly involved with the lift.

(3) Training. Individuals operating a capstan hoist must be qualified through documented training and demonstrated proficiency. Training must include, but not be limited to, the following elements:

(a) Anchorage loading;
(b) Load testing;
(c) Electrical loading;
(d) Capstan load rating;
(e) Types of synthetic rope;
(f) Synthetic rope breaking strengths and safety factors;
(g) Synthetic rope inspection;
(h) Synthetic rope knots;
(i) Capstan head alignment;
(j) Inspection and maintenance;
(k) Tag line force;
(l) Solving overlap problems.

(4) The operator will be properly trained and proficient on the operation of catheads or capstans.

(a) The operator must not wear loose clothing.
(b) The operator must not stand in the bite of the pull line.

(5) Foot-operated controls must be located or guarded so that unintentional movement to the "ON" position is not possible.

(6) Inspection. The overall system must be inspected daily before each use. At a minimum, the inspection must include the drive train, drum and the anchorage.

(7) During operations, the following requirements must be met:

(a) The electrical drive motor has the proper amount of amperage to operate efficiently with the correct size of breaker;

(b) The extension cords used are the proper size and length;

(c) The hydraulic system has proper pressure to ensure all the valves are operating properly and the hydraulic hoses are in good condition;

(d) The gas engine is maintained properly and in good working order.

(8) Anchorage.

(a) There must be an appropriate anchorage for the size of the unit being used and the maximum expected load to be lifted.

(b) The anchorage must be load tested before operations start to 1.5 times the maximum anticipated hoist line pull, or the anchorage must be qualified based on engineering calculations utilizing a minimum safety factor of two.

(9) Rope.

(a) Only manufacturer approved rope or line must be used;
(b) Natural fiber rope must not be used;
(c) Polypropylene material must not be used;
(d) Frozen rope must not be used; and
(e) All ropes must be maintained and in good condition.

(f) Ropes must not be used if there is exposure to corrosive substances, chemicals or heat;

(g) A splice must not be able to contact the cathead friction service (drum);

(h) Flat mule tape or its equivalent must not be used unless approved by the manufacturer.

(10) Rope replacement on the drum. In all situations the manufacturer's recommendations must be followed and at a minimum the rope must be placed as follows:

(a) A minimum of four wraps are required on the drum;

(b) The rope wraps must be installed on the drum with the load side on the inside of the drum closest to the motor;

(c) The pull side will be on the outside furthest away from the motor;

(d) The load weight lifted is defined by the number of rope wraps on the drum, type of rope material and the diameter of the rope.

(11) Rope replacement during operations.

(a) During operations there must be a plan for excess rope so that it does not get entangled with other objects or your feet.

(b) Before lifting begins, there must be a plan on how to tie off the load to hold it in place.

(12) Load test.

(a) A load test of the gross load must be performed.

(b) A rigging plan is required when performing vertical lifts per WAC 296-32-24020.

(c) A separate load test must be performed if the system is altered or rearranged.

(13) Communications and hand signals. The means of hand signals and communication will be determined before the job starts. The operator is responsible for the load during operations. The operator must have a clear view of the load being lifted and/or the hand signals of the person controlling the load. If there is no clear view, then an alternate method of communication must be used.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, and 49.17.060. WSR 20-20-109, § 296-32-22545, filed 10/6/20, effective 11/6/20. Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, 49.17.060, and chapter 49.17 RCW. WSR 17-20-069, § 296-32-22545, filed 10/2/17, effective 1/1/18.]