

WAC 296-155-53412 Operational aids. (1) The devices listed in this section (listed operational aids) are required on all cranes/equipment, unless otherwise specified.

(a) The requirements in subsection (5)(a), (b) and (c) of this section do not apply to articulating cranes.

(b) The requirements in subsection (4)(c), (5)(a) and (d) of this section only apply to those digger derricks manufactured after February 1, 2012.

(2) Operations must not begin unless the listed operational aids are in proper working order, except where an operational aid is being repaired the employer uses the specified temporary alternative measures. The time periods permitted for repairing defective operational aids are specified in subsections (4) and (5) of this section. More protective alternative measures specified by the crane/equipment manufacturer, if any, must be followed.

(3) When operational aids are inoperative or malfunctioning, the crane and/or device manufacturer's recommendations for continued operation or shutdown of the crane must be followed until the temporary alternative measures are implemented or the device is again working properly. If a replacement part is no longer available, the use of a substitute device that performs the same type of function is permitted and is not considered a modification under WAC 296-155-53400 (57) and (58) (crane/equipment modifications). Without such recommendations and any prohibitions from the manufacturer against further operation, the following requirements apply:

(4) Category I operational aids and alternative measures. Operational aids listed in this subsection that are not working properly must be repaired no later than seven calendar days after the deficiency occurs. Exception: If the employer documents that it has ordered the necessary parts within seven calendar days of the occurrence of the deficiency, the repair must be completed within seven calendar days of receipt of the parts. See WAC 296-155-53400(68) for additional requirements.

(a) Boom hoist limiting device (except for derricks with base mounted drums).

(i) For cranes manufactured after December 16, 1969, a boom hoist limiting device is required. Temporary alternative measures: One or more of the following methods must be used:

(A) Use a boom angle indicator.

(B) Clearly mark the boom hoist rope (so that it can easily be seen by the operator) at a point that will give the operator sufficient time to stop the hoist to keep the boom within the minimum allowable radius. In addition, install mirrors or remote video cameras and displays if necessary for the operator to see the mark.

(C) Clearly mark the boom hoist rope (so that it can easily be seen by a spotter) at a point that will give the spotter sufficient time to signal the operator and have the operator stop the hoist to keep the boom within the minimum allowable radius.

(ii) If the crane was manufactured on or before December 16, 1969, and is not equipped with a boom hoist limiting device, at least one of the measures in (a)(i)(A) through (C) of this subsection must be used.

(b) Luffing jib limiting device. Cranes with a luffing jib must have a luffing jib limiting device. Temporary alternative measures are the same as in (a)(i) of this subsection, except to limit the movement of the luffing jib rather than the boom hoist.

(c) Anti two-blocking device. (This does not apply to dedicated pile drivers.)

(i) Telescopic boom cranes manufactured after February 28, 1992, must be equipped with a device which automatically prevents damage from contact between the load block, overhaul ball, or similar component, and the boom tip (or fixed upper block or similar component). The device(s) must prevent such damage at all points where two-blocking could occur.

Temporary alternative measures (when allowed by the manufacturer): Clearly mark the hoist rope (so that it can easily be seen by the operator) at a point that will give the operator sufficient time to stop the hoist to prevent two-blocking and use a spotter when extending the boom.

(ii) Lattice boom cranes.

(A) Lattice boom cranes manufactured after February 28, 1992, must be equipped with a device that either automatically prevents damage and load failure from contact between the load block, overhaul ball, or similar component, and the boom tip (or fixed upper block or similar component), or warns the operator in time for the operator to prevent two-blocking. The device(s) must prevent such damage/failure or provide adequate warning for all points where two-blocking could occur.

(B) Lattice boom cranes, and derricks, manufactured after February 1, 2012, must be equipped with a device which automatically prevents damage and load failure from contact between the load block, overhaul ball, or similar component, and the boom tip (or fixed upper block or similar component). The device(s) must prevent such damage/failure at all points where two-blocking could occur. Exception: The requirements in subsection (4)(c)(ii)(A) and (B) of this section do not apply to cranes when used for dragline, clamshell (grapple), magnet, drop ball (wrecking ball), container handling, concrete bucket, marine operations that do not involve hoisting personnel, and pile driving work.

(C) Temporary alternative measures (when allowed by the manufacturer): Clearly mark the hoist rope (so that it can easily be seen by the operator) at a point that will give the operator sufficient time to stop the hoist to prevent two-blocking, or use a spotter.

(iii) Articulating cranes manufactured after December 31, 1999, that are equipped with a load hoist, must be equipped with a device that automatically prevents damage from contact between the load block, overhaul ball, or similar component, and the boom tip (or fixed upper block or similar component). The device must prevent such damage at all points where two-blocking could occur. Temporary alternative measures: When two-blocking could only occur with movement of the load hoist, clearly mark the hoist rope (so that it can easily be seen by the operator) at a point that will give the operator sufficient time to stop the hoist to prevent two-blocking, or use a spotter. When two-blocking could occur without movement of the load hoist, clearly mark the hoist rope (so that it can easily be seen by the operator) at a point that will give the operator sufficient time to stop the hoist to prevent two-blocking, and use a spotter when extending the boom.

(5) Category II operational aids and alternative measures. Operational aids listed in this subsection that are not working properly must be repaired no later than 30 calendar days after the deficiency occurs. Exception: If the employer documents that it has ordered the necessary parts within seven calendar days of the occurrence of the deficiency, and the part is not received in time to complete the re-

pair in 30 calendar days, the repair must be completed within seven calendar days of receipt of the parts. See WAC 296-155-53400(68) for additional requirements.

(a) Boom angle or radius indicator. The crane/equipment must have a boom angle or radius indicator readable from the operator's station. Temporary alternative measures (when allowed by the manufacturer): Radiuses or boom angle must be determined by measuring the radiuses or boom angle with a measuring device.

(b) Jib angle indicator if the crane has a luffing jib. Temporary alternative measures: Radiuses or jib angle must be determined by ascertaining the main boom angle and then measuring the radiuses or jib angle with a measuring device.

(c) Boom length indicator if the crane has a telescopic boom, except where the rated capacity is independent of the boom length. One or more of the following temporary alternative measures methods must be used (when allowed by the manufacturer):

(i) Mark the boom with measured marks to calculate boom length; or

(ii) Calculate boom length from boom angle and radius measurements; or

(iii) Measure the boom with a measuring device.

(d) Load weighing and similar devices (this also applies to dedicated pile drivers manufactured February 1, 2013).

(i) Cranes/equipment (other than derricks and articulating cranes) manufactured after March 29, 2003, with a rated capacity over 6,000 pounds, must have at least one of the following: Load weighing device, load moment (or rated capacity) indicator, or load moment (or rated capacity) limiter.

Temporary alternative measures (when allowed by the manufacturer): The weight of the load must be determined from a reliable source (such as the load's manufacturer), by a reliable calculation method (such as calculating a steel beam from measured dimensions and a known per foot weight), or by other equally reliable means. This information must be provided to the operator prior to the lift.

(ii) Articulating cranes manufactured after February 1, 2012, must have at least one of the following: Automatic overload prevention device, load weighing device, load moment (or rated capacity) indicator, or load moment (rated capacity) limiter. Temporary alternative measures (when allowed by the manufacturer): The weight of the load must be determined from a source recognized by the industry (such as the load's manufacturer) or by a calculation method recognized by the industry (such as calculating a steel beam from measured dimensions and a known per foot weight). This information must be provided to the operator prior to the lift.

(e) The following devices are required on cranes manufactured after February 1, 2012:

(i) Outrigger/stabilizer position (horizontal beam extension) sensor/monitor if the crane has outriggers or stabilizers. Temporary alternative measures (when allowed by the manufacturer): The operator must verify that the position of the outriggers or stabilizers is correct (in accordance with manufacturer procedures) before beginning operations requiring outrigger or stabilizer deployment.

(ii) Hoist drum rotation indicator if the crane/equipment has a hoist drum that is not visible from the operator's station. Temporary alternative measures (when allowed by the manufacturer): Mark the drum to indicate the rotation of the drum. In addition, install mirrors or

remote video cameras and displays if necessary for the operator to see the mark.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, 49.17.060, and chapter 49.17 RCW. WSR 25-16-089, s 296-155-53412, filed 8/5/25, effective 9/5/25. Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, 49.17.060. WSR 16-09-085, § 296-155-53412, filed 4/19/16, effective 5/20/16. Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, 49.17.440, 49.17.060, and 29 C.F.R. 1926, Subpart CC. WSR 12-01-086, § 296-155-53412, filed 12/20/11, effective 2/1/12.]