

Caltrans Proposal Response

SUBJECT: Crane Boom Dolly Weight Limits

DATE: November 12, 2004

POLICY: WG9-111203-001

I. INCREASE CRANE BOOM DOLLY ALLOWABLE WEIGHT

Industry Proposed Revision: - This proposal seeks to: (1) change Section 305.3.6 of the Transportation Permit Manual regarding allowable weights on boom support vehicles to make it consistent with other transportation vehicles; and (2) establish the Advanced Highway Maintenance and Construction Technology Research Center Study Simulation Model as the basis for granting extra legal weights on boom support vehicles.

The specific changes to Section 305.3.6 are as follows:

“The gross weight imposed on the highway by the wheels of any one axle of a boom dolly or boom trailer shall not exceed ~~18,000~~ 20,000 pounds and the gross weight upon any one wheel or wheels supporting one end of such axle, and resting upon the roadway, shall not exceed 9,500 pounds. Caltrans should at least allow legal weight as defined in the California Vehicle Code section 35550.

The total gross weight with load imposed on the highway by any group of two or more consecutive axles of a boom dolly or boom trailer shall be in accordance with the provisions of Section 302.5.3 or the results of analysis under the Advanced Highway Maintenance and Construction Technology Research Center Study Simulation Model. ~~not exceed that given for the respective distance given below.~~

<i>Distance in feet between First and Last Axle Group</i>	<i>Allowed Load in Pounds On Group of Axles</i>
<i>4</i>	<i>32,000</i>
<i>5</i>	<i>32,000</i>
<i>6</i>	<i>32,200</i>
<i>7</i>	<i>32,900</i>
<i>8</i>	<i>33,600</i>
<i>9</i>	<i>34,300</i>
<i>10</i>	<i>35,000</i>
<i>11</i>	<i>35,700</i>
<i>12</i>	<i>36,400</i>

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13	37,100
14	43,200
15	44,000
16	44,800
17	45,600
18	46,400
19	47,200
20	48,000
21	48,800
22	49,600
23	50,400
24	51,000
25	55,250
26	56,100

The Department's Response: *All cranes that otherwise conform to permit policy may be allowed current legal weight on the boom support vehicle. The allowable axle weights will be determined from the California Vehicle Code. The boom support vehicle shall be limited to a total gross weight of 54,000 pounds. These cranes will qualify for five axle annual permits per current policy.*

All cranes that otherwise conform to permit policy will be allowed up to un-bonused green weight on the boom support vehicle with the following provisions:

- 1. The crane must conform to all other transportation permit policies.*
- 2. The boom support vehicle shall only carry the boom, attached standard working load block, and hook and cable tension ball assembly. All other components such as those commensurate with the operation or maintenance of the crane shall not be carried on the boom support vehicle.*
- 3. Boom support vehicles shall be limited to 3 axles.*
- 4. Cranes with extralegal weight boom support axles shall be routed based upon the total number of axles on the carrier and boom support vehicle.*

Work out operational details (submitting equipment plan and detail sheets stamped by a registered engineer, accompaniments, etc.).

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In response to the proposal's "Objective," it appears Industry's intent is for crane boom support vehicle axle weights to be allowed the same weights as those allowed for "other transportation vehicles." This objective lacks sufficient detail to be used to determine allowable weight policies for cranes. It is also inappropriate to apply beneficial policies from other permit vehicles to cranes and ignore the related policies that are not beneficial. For instance, if beneficial hauling equipment axle weight policies are to be applied to cranes, shouldn't beneficial weight policies allowed for cranes and not for hauling equipment (weight transfer, use of super single tires and 5 axle vehicle classification for cranes that contain up to five carrier axles and three 3 legal boom support vehicle axles) be revoked?

The meaning of to "...establish a practice of using the Advanced Highway Maintenance and Construction Technology Research Center Study Simulation Model to issue extra legal weight permits..." is unclear. The Department assumes that the intent of the statement "issue extra legal permits" is that the allowable axle weights for cranes would be established on a case-by-case basis using the simulation model. This practice would not be practical. The use of an analysis tool, such as the simulation software, to determine allowable dolly weights for individual cranes would lead to perceived inequities ("discrimination") by the Department. Any crane owner that was allowed less weight for his crane than his competitor would complain that he was being discriminated against, or that the software or input data was flawed.

If a weight increase is allowed for boom support dollies then the allowable weight should be applied as uniformly and broadly as possible. It should be noted that the Department prefers to base allowable weights and other applicable permit vehicle policies upon performance measures (e.g. grant more weight to better performing vehicles). However, owners with inferior equipment would not be allowed as much as their competitors and accusations of Department "discrimination" would be an issue.

In response to the proposal's " BENEFITS/IMPACT/JUSTIFICATION" section, the Department does not discriminate against any segment of the extra-legal industry relative to another segment. If this were even legal or per policy, what benefit would the Department gain through such a practice? The Department has made accommodations to segments of the extra-legal industry to address their particular needs. The crane industry has been one of the major beneficiaries of these accommodations.

The results obtained from the simulation model may be used to justify additional weight for boom support trailers or dollies if the study results are confirmed by actual testing.

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However, as previously stated, this should not be done on a vehicle by vehicle basis using the simulation program for reasons provided earlier.

What supporting evidence does Industry have for the statements that for "... years the truck crane industry has been forced to operate under more stringent load limit rules than other industries without sufficient scientific or engineering justification?" As a matter of record and previously noted, the crane industry has been allowed several concessions in an effort to address their particular needs. These are benefits not granted to other segments of the industry.

The engineering basis for limiting boom support weights is rational and based on accepted engineering practice. Even if resources were available, the Department is under no obligation to bear the cost of performing research to prove or disprove policies that are based upon valid engineering assumptions. Industry may create and fund any study it chooses and the Department is more than willing to consider whether or not to participate.

Finally, The Department is concerned about the stability of boom support dollies when they are negotiating curves. The large overturning forces created by the boom weight applied at a high center of gravity must be considered in the design of the vehicle and especially in the connection of the boom to boom support vehicle. Calculations will be required for boom support dollies substantiating that they will be stable and the vehicle is adequate under all expected driving conditions. Details of relevant connections should be included as part of the permit. A registered engineer should stamp calculations and drawings.