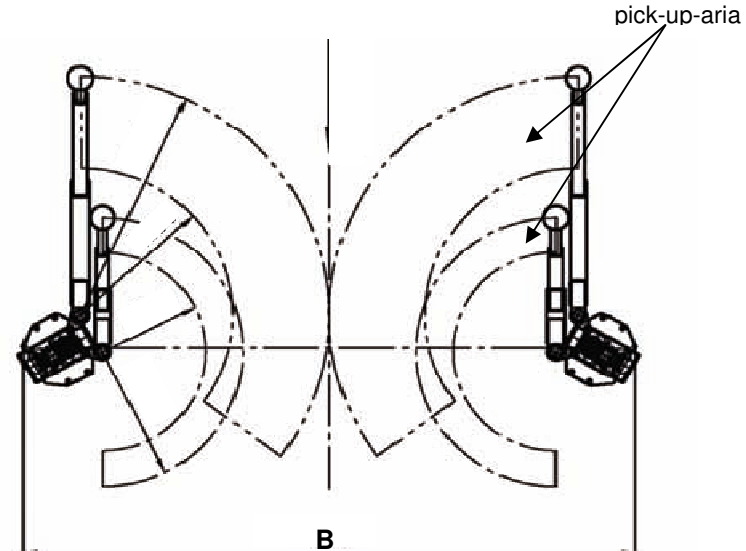
	CO-ORDINATION OF NOTIFIED BODIES Machinery Directive 2006/42/EC + Amendment RECOMMENDATION FOR USE (DRAFT)	CNB/M/08.018 Revision 02 Language: E
Date of first stage: 06/12/2011	To be approved by:	Approved on: dd/mm/yyyy
Origin: VG8 Vehicles servicing lifts	<input checked="" type="checkbox"/> Vertical Group <input type="checkbox"/> Horizontal Committee To be endorsed by: <input type="checkbox"/> Machinery Working Group....	06/06/2012 dd/mm/yyyy Endorsed on: dd/mm/yyyy
Question related to: Directive 2006/42/EC Article: Annex: ESR (1):	EN: 1493 Clause: 5.4.7.3 CEN TC concerned: CEN TC 98	Other: Other clause:
Key words: Load distribution on two post lifts with load-bearing arms, requirements of clause 5.4.7.3 a) and b) of EN 1493:2010		
Question: Is it necessary for two post lifts, where both arms of one column could swing in the same direction, to consider this position for the stability and strengths calculation? Has the manufacture take into account such a manner of use as normal use ore as foreseeable misuse in accordance with the machinery directive section 1.1.2 annex 1.		
Situation: The standard requires that the long arms must be in the maximum telescoped position with a width of 1 m of the pick-up points. The short arms should be "in the position which gives the worst condition". Normally, vehicles are raised so that the center of gravity is close to the connecting line between the two lifting columns. But there are many vehicle servicing lifts where it is possible to raise a vehicle with all four arms pivoted in the same direction (see figure 1). Especially at asymmetric two post lifts or lifts with double swing arms, it is possible, to reach such a position and to lift vehicles.		
 <p>The diagram illustrates an asymmetric two-post lift. It shows two vertical columns with telescopic arms. The arms are shown in various positions, with dashed lines indicating their range of motion. A horizontal line at the top of the columns is labeled 'pick-up-aria'. A dimension line at the bottom indicates the width 'B' between the two columns.</p>		

Figure 1 asymmetric two post lift

(1) Essential safety requirement

Note: According to point 6.6 of the Guide of the implementation of directives based on the New Approach and the Global Approach, the notified bodies apply as general guidance this recommendation for use.

Do to the position centre of gravity of the load the bending moment is significantly larger than during pick up a vehicle in a central position where the arms of the post are pivoted in different directions. Due to the very different design of the mounting points of the various vehicles and the differences in design of the lifts, it is very difficult to assess which vehicles can be lifted in detail. The practice shows, that especially smaller cars can be lifted in such a position.

Answer:

The answer is yes. Since it is possible to lift cars in this position and the standard requires in 5.74.3 a) and b):

"On vehicle lifts with carrying arms the rated load shall be distributed on the four corners of a rectangle with the dimensions of 100 cm (width) with the maximum load at the maximum length of the longest arm and the short arm in the position which gives the worst condition."

The manufacturer has to consider this position in the safety design of its vehicle lift.

VG 8 sees two basic approaches:

- prevention of lifting in such a position (for example, by limiting the swiveling range of the arms, a safety device prevents a lifting movement in this position or a load moment limiting device)
- sufficient stability and attachment of the vehicle lift, so that the rated load can be lifted safely also in this position

In view of the situation, that in this position usually only smaller vehicles can be lifted, which do not reach the rated load of the lift, it is acceptable in that case to reduce the safety factors for the calculation of stability and strength. The resulting stress could be higher than the normal value of permissible stresses given in Annex A of EN 1493. (See also the requirements of 5.7.1 of EN 1493: "In case of exceptional situation the yield stress divided by a safety factor of 1,1 is acceptable")

If the safety factor is in the range between 1,1 and 1,5 as the regular value for the load combination A according table 3 of EN 1493 the Vehicle servicing lift must have a clear sign. The warning label on the lift and a appropriate note in the user manual shall include the prohibition of the use in this position ore, if the use is allowed, show the reduced load capacity.

The minimum safety factor of 1,1 at rated load must be achieved in each case so that the vehicle lift is sufficiently strong and stable

In accordance with the requirements of 5.7.1 and 5.15 EN 1493 during type test with rated load the maximum sloop in longitudinal direction shall not exceed an angle of 1°.