

“KEEPING PACE” - #33

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DUMP TRUCK ACCIDENT:

Do you think a dump truck driver could drive four miles on city streets with the dump bed raised high in the air, after forgetting to lower it? After striking a bridge with the dump bed raised, the driver claimed the bed had suddenly raised up all by itself. But when the damaged bed (only) was replaced, all the controls and hydraulic mechanisms for the bed still functioned perfectly. Moreover, the truck had been used for weeks with no problems before I was contacted to conduct an investigation.

An examination of the control handles in the driver’s cab revealed that two separate control handles must be moved to engage the hydraulic lifting mechanism. In addition, the transmission shift lever must be in the “PARK” position before raising of the bed can occur. After realizing all this, I hypothesized that there are no lower bridges along the entire four mile path of travel between the dumping site and the bridge which was struck. A careful check of that path of travel confirmed this to be true.

220 FOOT RADIO TOWER COLLAPSE:



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The WDRK radio station in Greenville, Ohio had ceased operation and had been sold. A buyer decided to move the 220 foot radio tower, so to take it down, he rented a crane with an operator. They connected the hook to the tower about half way up, and then disconnected all the guy cables. Then they attempted to lay this very narrow tower down on its side. Then the tower had reached about a 45° angle, it suddenly bent double at the hook location. As the top half of the tower swung downward, it struck the boom of the crane, breaking it in three places. Then the folded tower fell on the roof of the radio station, as shown. The tethers for the crane hook may be observed hanging from the folded portion of the tower. This confirms that it folded at the hook location.

Narrow radio towers such as this are designed for strength in the vertical direction only. They are very weak in the horizontal direction, and so they rely for horizontal strength upon the numerous steel guy cables attached between various points on the tower and the ground. The proper way to dismantle this tower would have been to unhook only one set of guy cables at a time, starting from the top, and removing only one section of the tower at a time.

Because these towers rely on the guy cables for so much of their horizontal strength, it is a wonder to us that the tower did not immediately fall as soon as all the guy cables were loosened. If it had fallen without bending in half, it would have come down across high voltage power lines and a city street busy with traffic. Fortunately, in this case, no one was injured.

Sincerely,



Frederick F. Franklin, P.E.
Forensic Engineer