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MAXIMUM CAPACITY LIFT
AMERICAN 9310 LIFT CRANE

Very seldom is a crawler lift crane used to make a lift at maximum capacity, ie, with minimum boom and minimum radius. The load has to be almost up in the crane operators lap to make this happen.

In 1988, Jake's contracted to move a 405,000 lbs. autoclave from a rail siding near Winnemucca, NV to the Getchell mine, a distance of about 20 miles. With the weight of the load block, the rigging and the saddles, the lift weight was 425,000 lbs. With a vessel shell weight variation of +/- 1/2 %, the total weight could have been close to 450,000 lbs. The maximum capacity of an American 9310 crawler crane with minimum boom of 70' and minimum radius of 17' is 450,000 lbs. See the photo of the autoclave being loaded on the transporter.

There are two reasons for this presentation, one to show a maximum capacity lift and second to point out what happens when the rigging superintendent does not follow or pay attention to the rigging drawings.

In 1987, Jake's bare rented one of their American 11320 cranes to Fluor Daniel. Dick was the crane operator that FD assigned to operate the crane. Jake's was very impressed with Dick, so when the crane was returned to them in Las Vegas, he was hired as the permanent operator. About the time I started with Jake's, the Operations Department decided to also make Dick their rigging superintendent.

The first job assigned to him was the Autoclave move. I had finished the rigging drawings and had contracted with an excavation contractor in Winnemucca to go out to the rail siding and construct a lift pad for the AM 9310 right up next to the rail road ties. This wasn't a big job as the ground was a sandy gravel formation and only needed leveling and compacting. The plan then called for laying the ends of 7 ea. 1'x4'x24' crane mats up against the rail road ties so the crane tracks would be perpendicular to them when the crane was positioned for lifting. This meant that the autoclave would be lifted over the side of the tracks, swung 180° and set on the transporter. Again, see the photo to see how the crane mats were laid out perpendicular to the tracks.

When the autoclave was scheduled to come in on the rail cars, Dick had the crane, all of the rigging gear and two crane mats moved to the rail siding. He disregarded my crane setup drawing and instructed his riggers to lay down one crane mat on the lift pad next to the rail road ties and another crane mat near the outside edge of the lift pad. The rigging foreman pointed out that he was not going by the rigging drawing and was told that the extra mats were not needed and only one mat under each track would be sufficient. Dick didn't realize that he was not providing as much support area under each track as the track its self would provide.

When the crane was in place and the rigging hooked up, Dick instructed the signalman to start the lift. Instead, of the autoclave lifting off the railcars, the crane mat under the track on the load side started to sink. Dick called the excavation contractor and had him come back and excavate down 2', then backfill and compact it with a limestone base material. This took two days and $5,000 to accomplish. The rigging crew then laid the two crane mats as before, walked the crane back up on them, hooked up the rigging and started lifting. They had the same results, ie, the crane mat on the load side started sinking.

Now, I had a death in my family and had been gone when the lift was being setup, but got back to the office when the excavation contractor was redoing the lift pad. Jake's owner couldn't figure out why it was taking so long to off load the autoclave and why it was necessary to spend $5,000 more on the lift pad plus two extra days of equipment rental, wages, room & board and demurrage on the rail cars. I drove to the rail siding and got there just as they were lifting the autoclave the second time. I noticed two things, 1) that the crane mat on the load side was sinking and 2) that only one mat was used under each track. I got Dick off to the side and asked him what the problem was. He said either the autoclave weighed more than we thought or the excavation contractor didn't do his backfill right. I pointed out that the problem was that he didn't follow the setup drawing. I asked him if he had brought more crane mats and he said yes, they were at the mine site. I told him that I was taking charge of the project and he was to return to the office immediately. I asked the rigging foreman to send a float and crew of riggers to bring back 5 crane mats. And then to walk the crane off the lift pad and to start laying the two crane mats we had per the drawing. As soon as the other mats arrived, they were laid into place. The crane was then walked back up on the mats as you see in the photo and the autoclave was easily lifted and swung 180° and set on the transporter without any settlement or problem.

As a side note, I didn't like the way that Dick had hooked up the spreader bar out of level, but it didn't affect its strength, it just looked bad. Dick just did not pay attention to details.

That was Dick's last job as a rigging superintendent, but he did stay on as a crane operator.