FRICTION BRAKE INSPECTION

From the desk of
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A recent article in a crane magazine was "Aging Cranes, are They a Safety Hazard". Well in a nutshell, that is what our job as: Crane Certifier's" is all about. The standards simply tell us what to do, and not how it is done or when to use our judgment as to what is deficient. Our knowledge is an understanding of the information that comes to us through many sources. When we apply this to crane inspections, we make cranes safer to operate. Let me tell you about a crane we inspected about seven months before it dropped a steel truss into the work place, because the brake band on the auxiliary hoist broke about 1" from the pined anchor connection mounting bracket. Drum band brakes have more torque in the downward direction, i.e. fixed on one end and spring buffered on the other to allow for smooth setting and operations.

At the anchor end a pined connection allows the band to pivot as the brake is set and released during operations. Some cranes have greased fittings to allow for lubrication and moving. Some cranes do not and rely upon periodic spray lubrication to keep these pivot points freed-up. If the pivot doesn't move the band brake steel "flexes" just above the pinned connection. Constant flexing during use fatigues the material causing the band to fail as it did in this case. Luckily no one was hurt in this incident.

For many years; I have taken brake measurements for lining thickness, adjustment clearances and contamination. Often during the load test we have had to adjust or tighten brakes so that they would hold their loads. I would observed that pins and keepers were in place and if they were missing, would report them as a deficient – but did not watch their action, why not? First of all, it is very difficult to see in some cases. On some cranes, especially Link Belt's and P&H, it is almost impossible without removing sheet metal. If you can see this area, you have your face inches from the machinery – a very unsafe place if anything is moving. Therefore, inspection is done with the engine stopped. Tell the operator to set the brake and let off the brake and observe free pivoting. You won't see much, but starting and stopping seven or eight times you will see if the pin is free. Again, some cranes are hard to get a look at unless you use a mirror and light. Some of you might have examples of how you go about inspecting this area, let us know and we will print it in our next Newsletter.

I contacted three locations, which specialized in replacing band brakes for "aging cranes". One company in particular impressed me (not hard to do sometimes) with certain elements of their work. First, the actual circumference of the old drum is obtained. One method of accomplishing this is a string marked and then measured. The fittings are properly welded on to the correct band material. The bands are held at the exact circumference when the linings are attached by riveting. I would most likely recommend buying bands from your crane manufacturer, this way they are responsible. However, in some cases this is not possible for various reasons. In such cases, remember, parts are to be the same quality as originally equipped and manufactured. What do we do now when inspecting friction cranes? You guessed it? We've changed our inspection forms. We added "condition of pivot and anchor points" to go along with lining thickness, contamination, and clearances. If we cannot see or make a judgment about this area, tell the owner, that such is the case. Remember, "failure to warn" is the inspector's "Achilles heel". Use judgment about the crane.