

TECHNICAL BULLETIN ON MILITEC GREASE LUBRICATION IN FAN BEARINGS

May 10, 1995

This report comes from the Maintenance Reliability Technician at a large food processing plant in the South. The plant has 80 vertical shaft fans for which the shafts range in size from 1 1/4" to 1 1/2" diameter and the rotors are 36" diameter. The motors are mainly 10 and 20 hp but some are 30 hp. These are of an unusual design and were custom built by a contractor for the plant. The vertical shaft has a top and a bottom Timken tapered roller bearing. The shaft and bearings are housed in a load adapter. Grease is injected every 1 to 2 weeks into the top of the load adapter through the top bearing. The grease flows downward from the top bearing to the bottom bearing.

HISTORY

The load adapters had together required 50 lbs. of grease per month and the cavity had to be completely filled to be able to cover the top bearing. However, the heated grease would expand and work its way out through the bottom seals which deteriorated from contact with the hot grease. The grease became very hot from the extra resistance caused by the full load of grease the load adapters required. The leakage of grease caused the top bearing area to lose its grease lubrication protection. Failures historically averaged 3 per month.

WITH MILITEC

MILITEC grease was first installed in July, 1994. Because the Militec oil in the grease bonds with the bearing and shaft surfaces, loss of grease at the top bearing was no longer a problem. Instead of needing to fill the load adapter cavity with grease, only a small amount of grease was needed; about one-tenth the former requirement. Eight to ten shots of the grease gun per week is all that is needed (there are about 35 shots per ounce). The grease passes through the top bearing and falls to the bottom bearing before a slight leakage will allow it to pass from the load adapter.

THE BOTTOM LINE

There have been no failures of the bearings and shafts since July, 1994, versus an average of 3 per month before that time. Approximately twenty-seven failures have been avoided. The cost per failure was \$1,000 for the parts alone to repair the damaged motor and damaged load adapters. Downtime was not an issue as there were usually enough fans operating that production was not affected. Maintenance time for each repair averaged about 10 hours (5 hrs. times 2 persons) @ \$30/hr. The total savings came to \$1,300 per month times 9 months equaling \$35,100. The cost of the MILITEC grease was \$471 for all nine months combined. The savings equaled almost 75 times the cost of the grease.