MAGNALUBE®-G

CASE STUDY

"Magnalube had the best results; it was the best lubricant we found, by far."

- Henry Miller, Supervisor of Mast Assembly

The Will-Burt Company has been providing innovative mechanical solutions to companies and militaries worldwide since 1915. Will-Burt's largest division designs and manufactures a complete line of standardand custom built telescopic masts. Their pneumatic and mechanical telescopic mast and tower systems provide intelligent solutions to everything from lighting, to broadcast communications, to surveillance systems. Only the finest materials, most advanced engineering and highest quality testing methods are incorporated in their mast manufacturing process.

The masts are constructed with either carbon fiber or aluminum. They range anywhere from two feet to164 feet in height and can weigh up to 1,500 pounds. Each mast consists of a series of telescoping tubes that are held together by seals made of rubber or leather. The individual tubes can be as high as 12 feet long, range anywhere from two inches to 11.25 inches in diameter and are raised either pneumatically or mechanically.

The problem that Will-Burt faced concerned their aluminum, pneumatic masts. According to Henry Miller, supervisor of Mast Assembly, "we noticed that after a short period of time, the masts would go up and down in a jerky motion." Rex Mast, an engineer at Will-Burt Company elaborated, "it is known as the 'slip-stick phenomenon', in which air pressure builds up while the tubes are stuck; once enough pressure exists, it causes the tube to jump." The problem was not caused by the design or engineering of the masts, but rather the choice of lubricant used. The seals were not properly lubricated, causing the tubes to stick to one another, which in turn led to the jerky, erratic motion.

The lubricant Will-Burt used was a proprietary oil, similar to vegetable oil. The problem with using an oil is that it tends to migrate away from critical areas that require lubrication, especially in vertical applications such as Will-Burt's masts. Oil can also evaporate under certain conditions, such as high temperature environments, causing parts to be un-lubricated and unprotected. The engineers realized that the only way to solve their problem was to explore new lubrication options.

"Magnalube outlasted all the other lubricants that we tried."

- Rex Mast, Engineer

They conducted extensive research on the different types of lubricants available and narrowed down their options to the ones that fit best. They then performed compatibility tests to ensure that the lubricant would be compatible with all the materials Will-Burt used, including their seals. Finally, the engineers conducted life tests on each of the remaining lubricants. This consisted of cycling the masts up and down thousands of times to see which lubricant lasted the longest while still maintaining its consistency.

"Magnalube outlasted all the other lubricants that we tried," attested Mast. Magnalube-G is highly mechanically and chemically stable, allowing it to perform over an extended period of time without any loss in its consistency. It also has excellent film strength and is resistant to migration, so it stays where you put it and will not squeeze out of critical areas due to pressure. Miller added, "Magnalube had the best results; it was the best lubricant we found, by far." As evidence of that statement, Will-Burt Company has been using Magnalube-G in their pneumatic masts for over three years now without a single breakdown.

Special thanks:

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