

MEMOLUB® Lubricators Keep the Lines of Communication Open

Most people don't realize or give much thought to how heavily we rely on satellites for communications, navigation, observation, and research.

Whether it's watching the "big game" on Sunday afternoon, or communicating via video conference with a colleague halfway around the world; inflight streaming video content, crystal-clear cell service at sea, fast broadband internet in remote areas... we give little thought to how these conveniences are delivered.

Satcom companies with a fleet of satellites orbiting the earth, provide tailored network services to a wide range of customers. A key component to delivering these services is their ground infrastructure... specifically, the earth station antennas (ESA's) that communicate with those satellites.

THE PROBLEM

Antenna positioning is critical to its proper communication with an orbiting satellite. If an antenna can't track the satellite, communication disruption could result.

In this industry, downtime is measured in minutes, and even an hour of signal loss could have huge implications... from lost revenue to loss of life. So reliable, trouble-free operation of ESA's is a must for satcom companies seeking to maintain a high standard of service to its customers.

Satcom companies have earth stations all over the planet and they primarily count on their third-party site operators to handle the regular PM on the antennas.



Earth station antennas require regular lubrication to ensure uninterrupted communication with orbiting satellites.

The azimuth and elevation drives are among major mechanical components requiring regular maintenance, in addition to the azimuth bearing and pivot pins. Because some of these lubrication points are difficult to access, it is common for maintenance intervals to be missed; and the oversight not actually caught until jarring or intermittent motion or other signs of neglect are detected during operation.

In one instance, a customer recalls a time when an antenna dish abruptly dropped from

45° to 5° while in operation. It was later determined that the elevation jackscrew hadn't been lubricated for an extended period of time, which caused catastrophic gear tooth wear in the jackscrew housing.

THE SOLUTION

A Satcom operator acquired a competitor of theirs and while performing routine maintenance at one of the newly acquired earth stations in Hawaii, they saw the MEMOLUB® in action on an ESA. They reached out to Power Lube Industrial, LLC and we've been working with them ever since to implement similar lubrication solutions at all of their earth stations. This customer had several different brand antennas in operation, but the major componentry we were able to auto-lubricate was basically the same:

AZIMUTH JACKSCREW HOUSING

A MEMOLUB® Multi-Point System ("MPS") was used to lubricate the azimuth jackscrew housing at 3 points. The two upper ports push lubricant into the gear set, while the single port on the bottom targets the thrust bearing and jackscrew.



A remote-mounted 3-point MEMOLUB® Multi-Point System lubricates azimuth jackscrew housing on larger antenna.

ELEVATION JACKSCREW HOUSING

A remote-mounted MEMOLUB® single-point lubricator was used to service the elevation jackscrew housing on this antenna.



A remote-mounted MEMOLUB® single-point lubricator was used to service the elevation jackscrew housing on smaller antenna.

Challenging Lube Point Location

On another larger antenna, a 3-point system was used to lubricate the elevation jackscrew housing in a similar manner to the azimuth housing, where 2 ports targeted the gear set while the third targeted the jackscrew and thrust bearing.

This particular arrangement presented a challenge because the lube port was nestled underneath the protective boot. We were able to design a special piping assembly to clear the boot and attach the lube line to our system.

The ability to service that port without the tedious task of removing the boot every time was a game changer.



3-point system lubricating elevation jackscrew assembly on General Dynamics antenna.



Special piping assembly to reach under the protective boot.

AZIMUTH BEARING

On this General Dynamics 9.2m KA antenna, there are two sets of two lube ports each, located along the circumference of the pedestal. Not only are these lube ports high off the ground (which is typical) but because of the pedestal design, they are very difficult to get to and required some maneuvering at odd angles to reach them with a grease gun.

This arrangement lent itself perfectly to two 2-point MEMOLUB® Multi-Point systems. The lubrication systems were mounted at ground level for easy servicing, and lube lines run to each of the four lube ports. This solution saves the station operators a considerable amount of time and ensures these critical points aren't intentionally missed or overlooked.



A 2-point MEMOLUB® Multi-Point System mounted for ground level access provides lubrication to the azimuth bearing.

PIVOT PINS

There were pivot points in various areas of the different antennas, including elevation pins, azimuth jackscrew pivot pins, and elevation jackscrew pivot pins.

On a ViaSat antenna, the elevation pivot pin sits just below the dish, making it very difficult to access with a grease gun. Depending on their location, we were in some cases able to service multiple pivot pins with a single multi-point system. Otherwise, a remote-mounted single-point lubricator was used for each. In either case, lubrication of these pivots was made exponentially easier over manual lubrication methods.



Lubricant line providing grease to a pivot pin.

The MEMOLUB® automatic lubrication systems ensure consistent and reliable lubrication of these earth station antennas year-round. And the simplicity in changing out the lubricant cartridges gives satcom operators a peace of mind that their equipment will be properly maintained by their third-party site hosts.

“These lubricators are easy to use, and I feel comfortable letting third-party sites maintain them.”
- Infrastructure Engineer

The MEMOLUB® HPS is a battery-powered, electromechanical lubricator. Its constant 350psi lubricant output pressure enables it to be direct mounted, remote mounted up to 40 feet away from the lube point or it can be used with a progressive distribution block to lubricate from 2 to 8 lube points. It's self-contained with no external wiring required.

Earth Station Antennas - Critical Lube Points

- » *Azimuth Jackscrew Housing*
- » *Azimuth Bearing*
- » *Elevation Jackscrew Housing*
- » *Pivot Pins*



MEMOLUB®
Automatic
Lubrication
Products



How can your facility benefit?

Contact us today to discuss your equipment lubrication needs, and to learn how automatic lubrication can increase the operating efficiency of your facility.

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