



Wire Rope Handling & Lubrication

Schramm, Inc., like most other companies and governing bodies, such as OSHA, cannot reinforce enough the use of Personal Protection Equipment, or PPE. A lot can be said about the use of a hard hat to protect the computer mounted on your shoulders. But take a second to think about what should concern us even more. Items above that hard hat can range from a pipe lifting plug weighing just a few pounds to a drill collar that may weigh several thousand pounds. Or maybe your rig uses wire rope (cables) in the feed system that may suspend a hundred thousand pounds or more of hook load. All of this being suspended from a wire rope that we have on our preventative maintenance checklist. Don't you?

I'm pretty sure you don't want all of that weight coming down around your ears. So let us take a moment to consider the construction of wire rope and how we should handle and maintain this equipment.

All wire rope begins as a single **wire** that is typically surrounded by a minimum of six wires that are wrapped by a machine that rotates the spools and injects lubricant during the assembly process. This is referred to as a 1 by 7 **strand** and considered the most basic of wire rope patterns. In turn, several strands may be wrapped around a single strand to create the wire rope. The gauge and the count of the wire will vary dependent upon the application and load requirements of the final product. The direction of the wrapping is referred to as a **lay**. This may be referred to as a left-hand lay, or a right hand lay. By reversing the direction of the outer strands to the inner strand it will make a low rotation assembly.

When you receive a replacement cable you should observe that it is well lubricated and typically wrapped around a wooden spool. Larger feed cables are also well lubricated and shipped in cardboard containers on wooden skids. When handling these items you should always use a textile webbing sling and never use metal lifting devices such as; chain, wire rope cables, or the tongues of a forklift. Any of these items are certain to cause immediate damage to the surface of your brand new cable. If spool mounted, we recommend inserting a rod through the center hole of the spool and use a lifting device to raise the spool by this rod. Place the spool on a pair of horses or jack stands that will allow the cable to unspool with minimal torsional load. Avoid overrunning that can cause

loops that if pulled tight will cause irreparable kinks. Steel wire ropes with kinks are not safe to operate and should be discarded.

If you choose to store your wire rope, it is recommended to place it in a clean, cool, dry place indoors. They should be placed on a wooden pallet, never directly on the floor. If outdoor storage cannot be avoided the ropes must be covered in a way that moisture will not create corrosion problems. To avoid moisture from direct contact or condensation you should use breathable waterproof fabric covers that are readily available from tarpaulin manufacturers.

Lubrication Maintenance

Steel wire ropes must be serviced regularly depending upon its use, environmental conditions, and application. A regular maintenance program may considerably increase the service life. The wire rope on your rig, whether it is used on a winch or in the feed circuit, runs over one, if not multiple sheaves when moving a load. Due to its construction of many wires and strands, the inside of the turn will be in compression while the outside is being stretched. This means that all of the wires inside of your wire rope must be well lubricated to allow independent motion. If these wires become oxidized (rusted) they will bond together and will begin to break when going around the sheaves.

There are several techniques of lubricant application, the most common being painting or swabbing. Other applications have been a drip or spray applications. Whichever method you choose it should be carried out as a part of your preventative maintenance schedule from the beginning of service life and not after the first damage has been discovered.

Schramm Inc. provides a five-gallon pail of 9L01-0055 Cable Lube in the initial service kit for all Telemast models that have a cable feed system. Replacement lubricant is available by contacting Schramm Inc.