



For the latest installation of Camesa's Cost Saving Series, we sat down for a brief Q&A session with several EM Cable Service Centers across the U.S. to see what advice they would offer about extending cable life and maintaining the best possible cable performance for your Wireline operations.

These service centers provide useful knowledge and insight, as they have unparalleled first-hand experience trouble-shooting and servicing a variety of cable issues. While environmental conditions and cable applications may vary from region to region, one thing each service center seemed to wholeheartedly agree upon is **the importance of having your cable serviced.**



# Getting the most from your Camesa cable

## Part 2: Service Centers

*"Servicing cables is very important," explains James Naquin of Dura-Splice in New Iberia, LA. "Each region faces different problems but here in the gulf cables need to be cleaned and oiled regularly to prevent corrosion and add life and wear to the cable. Cables also need to be tightened, sometimes after every job depending on running conditions and well conditions. Loose cables may wear unevenly and have the potential of jamming in pressure control equipment. The best wireline operators in the gulf know that maintaining their cable provides a lower risk of problems on location."*

Robert and Ryan Young of the Permian Basin's Horizon Cable in Odessa, TX add, *"The majority of problems we see with wireline involves loose armor. Servicing a cable can help maintain the friction necessary between armor layers to improve weight distribution when the cable is under tension. The Permian is full of horizontal work and putting high tensions on cables is normal, however this 'norm' is still hard on a cable."*

**The #1 cause of cable failure is loose armor, or un-normalized cable.** The amount of looseness in a cable is generally controlled by well geometry and how the wireline operator adapts his running procedures to the conditions of the well.

*"Wireline is about accuracy, being on depth consistently," explained Cullen Falgout of The Line Shop in Oklahoma City. "Servicing a cable is paramount to keeping a line normalized and providing the highest level of downhole accuracy. Consistent inspection, oiling, tightening and re-installation can minimize in-field problems and improve cable life. Good district managers know that having a service center inspect a line and give updates on that line can be priceless on a high profile job."*

Now that we've established the best thing you can do to properly maintain your cable and continue the best wireline practice is to have it serviced, you might be wondering exactly when the best time to do this is.

### **How often should a cable be serviced?**

Camesa is often asked how frequently a line should be serviced, and there is no simple answer. The frequency with which your cable requires servicing depends on multiple different variables.

Roy Fehse, owner of EM Cable Service Center in Fort Worth, TX helps to shed some light on the factors that affect the frequency with which you should service your lines. *"Servicing a cable has to do with runs on the line and usage of that line. I recommend following a service plan predicated on the type of work a cable is seeing. Horizontal cables need to be serviced more often due to the unnatural environment the cable is exposed to. Large tension differences, pressure control equipment, downhole fluids etc., can be hard on a line and loosen the armors very quickly. I would say every 15-25 runs depending on the cable's condition and the operating company's risk tolerance. Vertical lines may not have to be serviced as often. Our customers typically will wait until 60-70 runs before servicing a line, depending again on line condition and risk tolerance."*



Keith Nutt, owner of C.S.R. Inc., in Rosenberg, TX explains, “*Servicing a cable is dependent entirely on the operations being conducted. Pump down versus vertical work will differ in servicing requirements and frequency. We would recommend a customer has a discussion that involves their local service center and [cable] manufacturer. As a group, look at the conditions being faced in the region and on the work that line will see. Then make a plan together, adjust the plan as necessary to get the best possible life out of the line and minimize operational risk.*” These sentiments were echoed by nearly every service center owner we spoke with.

“*Servicing a line depends on the running environment. Horizontal work can require servicing as often as every 30 runs. Vertical work may be as high as 50 runs. Companies need to look at triggers that would indicate servicing needs to be completed. Conditions involving caustic downhole environments, over pulling, spooling issues or high wires would be good indicators to see a line shop.*” —Mike Matthews, President of Matex Wire Rope, Kilgore, TX

Brian Doiron, owner of WRS in Williamsport, PA and Lafayette, LA had more to add to the list of factors that might influence how often you should be getting your cables serviced, “*Some small companies rarely have their line serviced while some service their lines constantly. Larger companies will have lines serviced on a regular basis, usually in line with some procedure. Ideally a line should be serviced often to ensure accuracy of depth and even armor load support. Companies that care about the risk they expose their customer to will have their lines serviced regularly.*”

In summary, our service centers believe that the frequency with which a line needs servicing depends on a variety of factors, the type of work the cable is doing—horizontal or vertical, the well conditions, your company’s preferences, and the operating company’s risk tolerance, in addition to many other factors. Your line may need servicing after every 20 runs, or could allow for 60-70 runs before requiring some routine maintenance. It is important to take every factor into consideration when assessing the maintenance requirements of your cable. Our service centers have emphasized the importance of servicing your line by having it tightened, with frequent mention of loose cables. We know that the looseness of a cable is often influenced by the well geometry and varying tensions on cables, as well as many other factors, but how do we know which sections of our cable are most susceptible to loose armors? Service centers are accustomed to inspecting cables and can usually pinpoint areas of the cable that may be problematic by simply reviewing a well-kept line record book. To better assess which sections of the line may require extra attention and field inspection, **we asked our service centers to share with us where they most commonly detect concentrated sections of loose armors.**

As with most wireline operations, the answer was not so black and white—the section in which loose armor most commonly occurs can depend on multiple factors, and pinpointing the loose section may not be such a simple task.

Robert Sample of Horizon Cable Service in Oklahoma said, “*Looseness typically will concentrate near the maximum run depth. With horizontal operations, tractor work and everything else that is currently taking place in the industry, looseness can be intermittent throughout a cable.*”

You might be curious how looseness can be intermittent throughout a cable, and the truth is, a section of loose cable can often spread throughout much longer lengths of your line depending on where it originates in the line, and whether or not it is run through flow tubes to be milked up a longer length of the cable.

Roy Fehse at EM Cable in Fort Worth, TX had more to say about this milking effect: “*Looseness can creep up a cable, or be milked up due to the use of pressure control equipment. This can cause a concentration of looseness near the maximum exposed depth of the cable. Sometimes the looseness can extend beyond the maximum exposed depth. Looseness that is milked up the line can also lead to contaminates traveling up the line, in some cases up to 2000 ft. beyond the total working depth of a line.*”

Cullen Falgout of Oklahoma City’s Line Shop had even more to add to the phenomenon of loose armors spreading throughout the length of a cable. Cullen explains, “*Most commonly looseness will concentrate within 3000 ft. to just beyond the total depth of a cable. However, horizontal work can cause looseness throughout a cable, losses of tension can also cause a cable to loosen rapidly and intermittently throughout the exposed portion of the line. Trucks that work at different depths regularly can see pockets of looseness due to the milking effect of pressure control equipment.*”



If loose cable is milked throughout too much of the cable, or a high strand occurs, it can permanently damage a cable. The best way to avoid the spread of loose armors, or the permanent damaging of a cable through the milking effect is to inspect your line and check for looseness in the field frequently.

When you can't take your cable into a service center for inspection, **what are the best ways for operators and engineers to check their line for looseness in the field?**

Mike Matthews of Matex Wire Rope in Kilgore, TX had some tricks of the trade to share. *"In field operations the cable should always be under tension; that's Wireline 101. Under tension it is not really possible to tell if a cable is loose. The only way would be to flag the cable or place a chalk mark on the cable and watch the rotation of that mark. If the mark is rotating then the cable is loose; the more rotation, the more looseness in the cable. Ideally the mark would stay fairly steady."*

Camesa also suggests the pick test, which is done by trying to insert a flathead screw driver between the armors of your cable. If your cable is loose, you'll be able to raise a few of the outer armor wires with very little effort by simply placing the screw driver between them and lifting gently, as pictured below.



While speaking to our service centers, we had similar answers across the country about the best practices for field inspection of loose cable, chalking the line and completion of a pick test when the cable is under tension but not in motion. We have established various ways to check for loose cable in the field, but now we want to know what we can do to address the issue of loose armor in the field. We asked our service centers about tightening cable in the field, **Is it possible to tighten a cable in the field or through field operations?**

The resounding answer was "No." Not a single one of the service centers, with a combined experience of over 160 years, had heard of an effective way to tighten cable through operations. All agreed that hanging a cable in a vertical well, with no rotational restrictions can help to normalize it, but there is no way, without special machinery, to tighten a cable—emphasizing the importance of taking your cable into a service center for proper maintenance. We know from experience that our cables last longer and perform better when they are well run and well cared for. Every cable manufacturer and service center alike recommend regular servicing and maintenance to prolong the life of your line.

*"When the oilfield is slow, the biggest and most important thing for a manager to remember is keeping up with cable maintenance and cable length. Accurate record books that include cable testing, maintenance and servicing, job details and cable cutting should be kept at all times. There is never a need to indiscriminately cut off cable or waste the product without first testing it and making sure it should, in fact, be cut. Pre- and post-job resistance readings to determine cable length should be a priority, accompanied with an accurate record book; this practice could save you money. Knowing, exactly how long your cable is lets you determine when you need a new one. Don't guess at the length of your line, know it."*

— Keith Nutt: CSR Inc Rosenberg, TX

For additional information regarding operational best practices, cable maintenance and getting the most out of your line ask your local Camesa Rep about our Cable School. Offered in-person or via WebEx, it is a proven way to improve your team's knowledge about Camesa cable and the best maintenance practices for your wireline.