Stuck Point Location

When a cable becomes stuck and will not move at the recommended maximum allowable tension, then the first step in deciding what action to take is to determine where the cable is stuck. In cased hole work it is most commonly, but not always, the tool that is stuck. In open hole operations, there is always the problem of the cable becoming key-seated in the bore hole wall. In any situation it is best to make a quick check of the depth to the stuck point before deciding on the best action to take.

The quick procedure for locating the approximate depth of the stuck point (Ds) is as follows:

- Pull on cable to remove all slack and put the cable under strain.
- Note and record the indicated depth from the measuring device (D1).
- Note and record the tension in the cable.
- Increase the tension exactly 1000 pounds (4.44 kN) and record the indicated depth (D2).
- Calculate the depth of the stuck point: Ds = (D1 - D2) / K (1000 feet).
- K is the stretch coefficient of the cable, which is listed in the Camesa Catalog, ft/Kft/Klbs.
- To convert from meters to feet: 1 foot = 0.3048 meters.

Nominal Values of Cable Stretch Coefficients:

Cable	OD-Inches	3/16	7/32	1/4	9/32	5/16	3/8	7/16	15/32	0.49
K	fT/kft/Klbs	3.0	2.2	1.9	1.6	1.2	1.0	0.70	0.77	0.60

Example

Cable type-Camesa 1N32PTZ, 5/16” Monocable; K = 1.2
Cable becomes stuck at an indicated depth of D1 = 16500 ft.
With the cable under strain the line tension is = 3,300 lbs.
The tension is then increased to 4,300 lbs and the indicated depth is D2 = 16480 ft.
Ds = (D1 - D2)/K = (16500-16480) / 1.2 (1000 ft) = 16,600 feet
In this example the stuck point depth is close to the indicated tool depth, so it is the tool that has become stuck.

Depth Corrections

If a more accurate stuck point is important, then the following factors can be considered:

- The stretch, (D2 - D1) when measured at the truck includes the stretch in the cable from the truck to the well head. A more accurate method of measuring the stretch is to mark the cable at the well head and then measure the stretch when the tension is increased.
- If the rig-up distance is known, it can be subtracted from the calculated depth based on measurements of stretch at the truck.
- For well-seasoned cables the stretch coefficient should be reduced by 5%.
- In very deep hot holes the effective value of K can increase by 10%.
- If there are reasons not to increase the tension by 1000 lbs, then just increase the tension by 500 pounds and then take the value of Ds calculated using the above formula.