

There are basically four different types of resistance that you will encounter while off roading that affect the load on the winch. These include:

1. Surface Resistance.
2. Slope Resistance.
3. Bog Resistance.
4. Damage Resistance.

For an Incline, or Up Hill, the following extra weight should be added to the loaded weight of your vehicle as a guide:

- 15degree Slope == add +25% of the loaded weight
- 30degree Slope == add +50% of the loaded weight
- 45degree Slope == add +75% of the loaded weight

For a Decline, or Downhill, the following weight can be deducted from the loaded weight of your vehicle as a guide:

- 15degree Slope == subtract -25% of the loaded weight
- 30degree Slope == subtract -50% of the loaded weight
- 45degree Slope == subtract -75% of the loaded weight

For the record - 1lb equals 0.454kgs, or 1kg equals 2.2lbs.

8000lbs = 3632kgs

9000lbs = 4086kgs

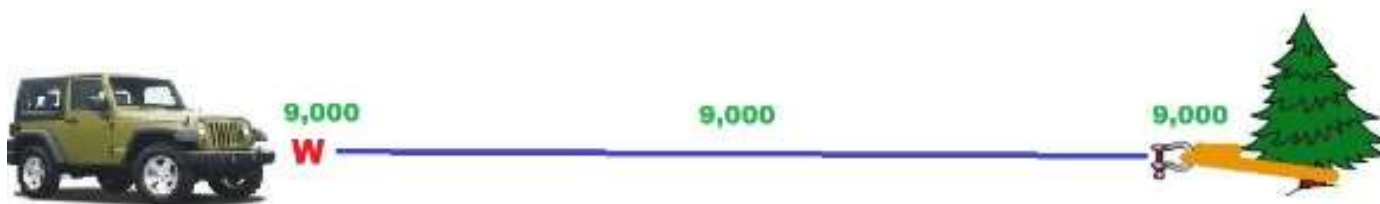
10,000lbs = 4540kgs

12,000lbs = 5448kgs

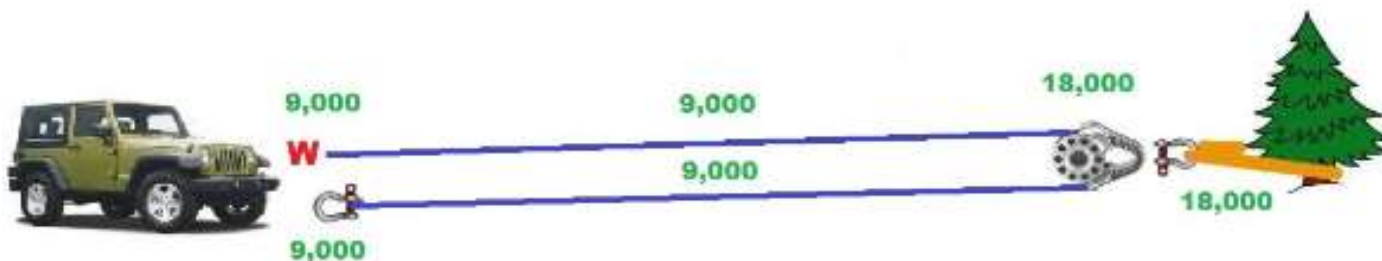
The awesome power of the Snatch Block is that as soon as you introduce a pulley within the line you HALVE the weight on the line. Add 2 Snatch Blocks and you reduce the weight to 25% of the line weight at the hook. Remember, every time you add a Snatch Block you halve the weight, but also halve the speed of the winch. Ensure all gear is rated to hold intended weight, the block will still hold the full load.

SNATCH BLOCKS, SOFT SHACKLES, TREE SAVERS AND WINCH LINE EXTENSIONS SHOULD BE RATED FOR AT LEAST DOUBLE THE PULLING POWER OF YOUR WINCH. USING SNATCH BLOCKS REDUCE WEIGHT ON HOOK, BUT PUTS EXTREME STRESS ON RECOVERY GEAR. (SEE FIGURE BELOW)

9,000 lbs with single-line pull



18,000 lbs with double-line pull (2:1) and snatch block



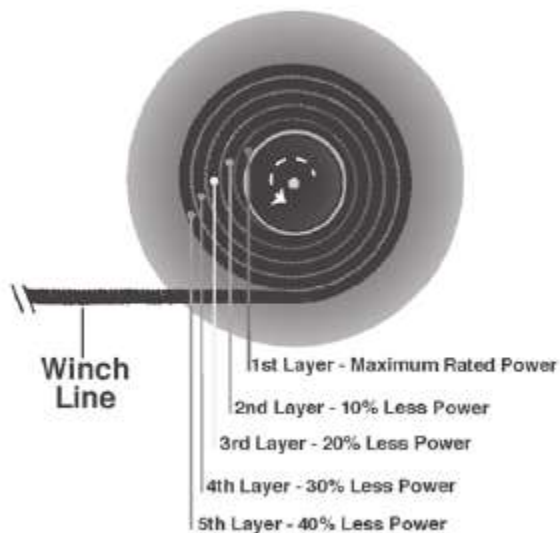
Know Before You Go:

1) what are the max. load and working load limits of **EVERY PIECE** of your recovery gear (vehicle anchor points, winch, winch line, pulleys, shackles, anchor straps, etc.)



2) where is the "weakest link" in YOUR system?

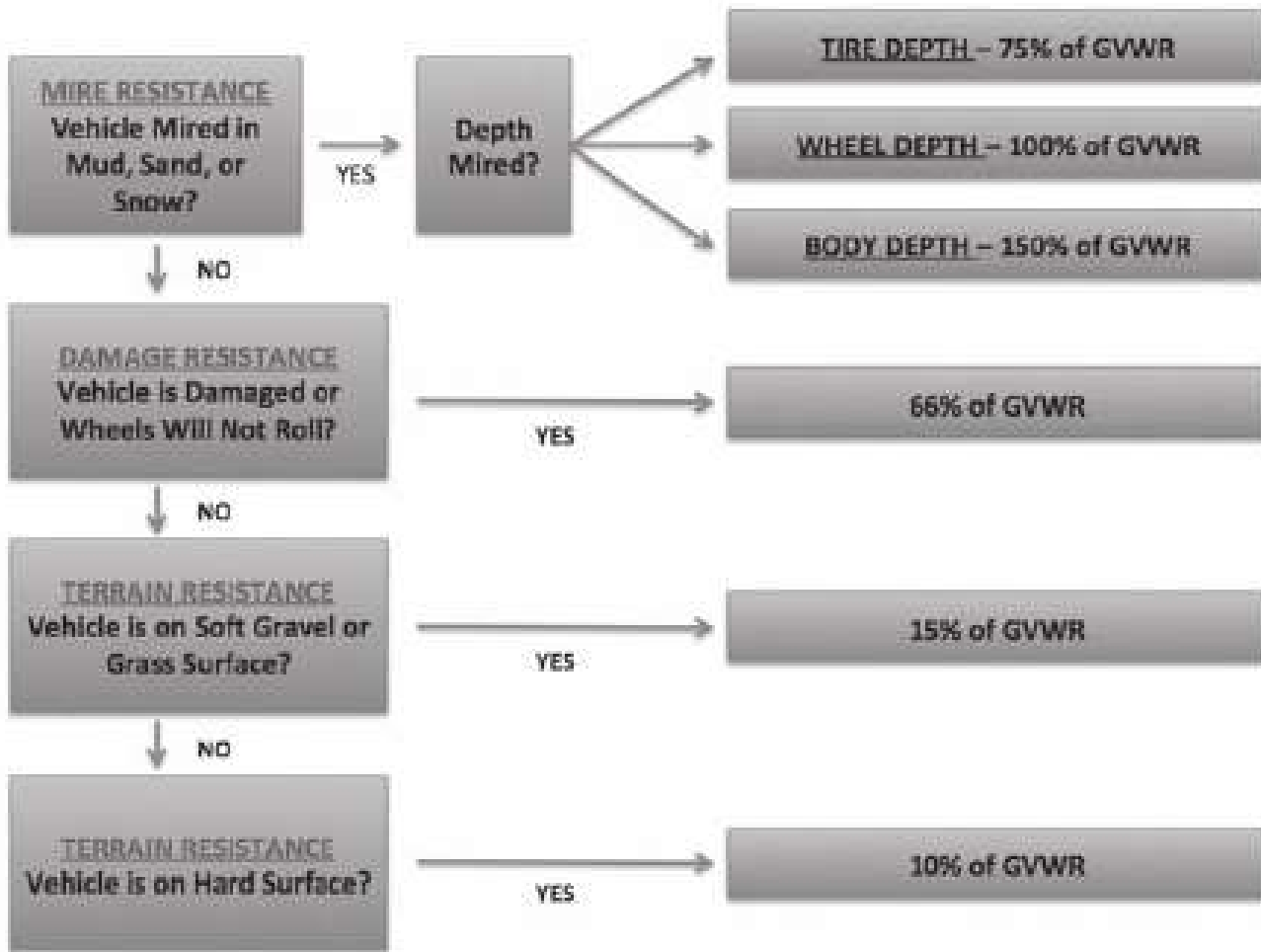
SIDE VIEW OF WINCH DRUM



Winch – Actual Pulling Capacity*

Number Layers on Winch Drum	Percent of Maximum Winch Rated Capacity	Percent of Loss Winch Capacity**
1 st Layer of Drum	100%	0%
2 nd Layer of Drum	90%	10% (.1)
3 rd Layer of Drum	80%	20% (.2)
4 th Layer of Drum	70%	30% (.3)
5 th Layer of Drum	60%	40% (.4)

CHART 1 Approximate Surface Resistance Values*

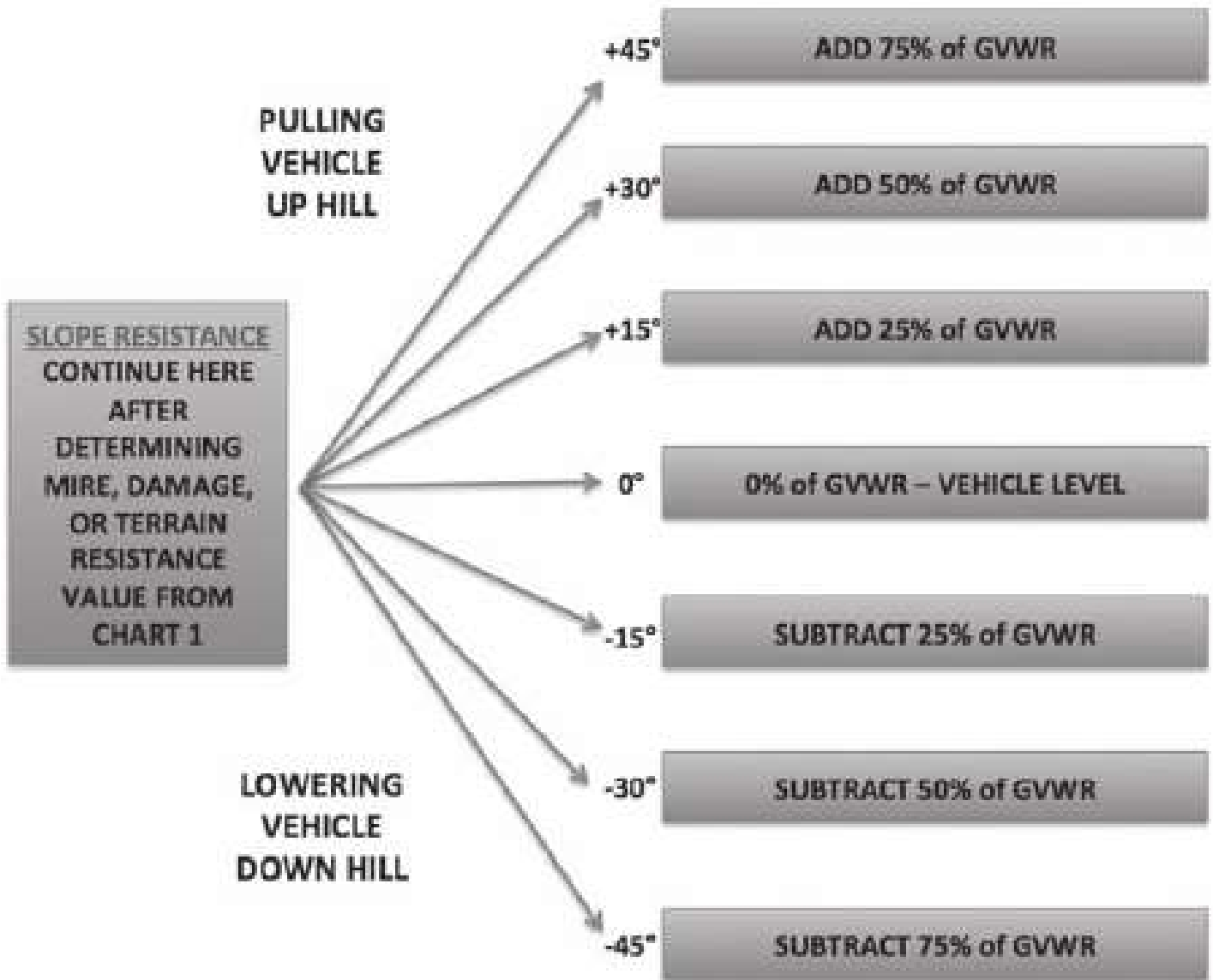


USE ONLY ONE SURFACE RESISTANCE VALUE ON THIS CHART

Mire Depth

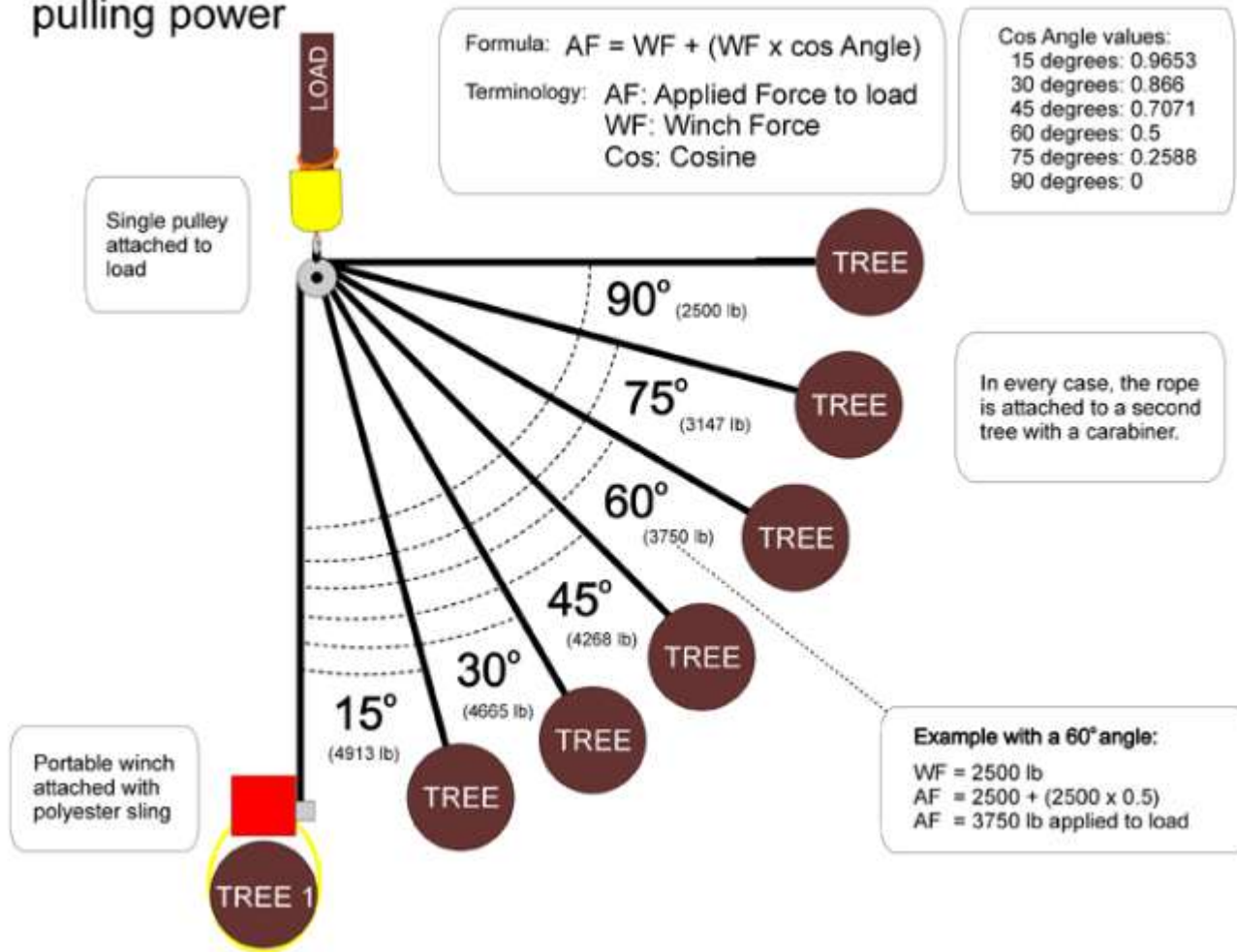


CHART 2 Approximate Slope Resistance Values*



*Chart 1 and 2 Resistance Values come directly from WreckMaster, the pre-eminent North American tow truck training company. Their resistance values have been scientifically determined by quantitative methodology and validated by years of in-field experience.

How does an angle given to the rope through a pulley affects the pulling power



Snatch Block Off Road Recovery Uses

