

Off-Road Safety Academy Newsletter – 04 January 2018

Off-Road Safety Academy [bob.wohlers@discoveroffroading.com]

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To: bob.wohlers@discoveroffroading.com



Happy New Year to All!

Shackles Smackles – What's in a Name?

Okay, so it's the New Year - 2018. Time to release our little pet peeves before we get too deep into the New Year. Time for a fresh start. Time to

get little annoyances off our chest. I have one that has bugged me for years. Let me explain.

You hear off-roaders call them by many names – Clevis, D-Ring, D-Ring Shackle, Dee Shackle, and Bow Shackle. The names for these simple devices are all over the map. So, which name is technically correct?



Technically, the term *clevis* can mean any type of connector used in crane, hoisting, maritime, and off-road rigging. Strictly speaking, a clevis fastener is defined as a “U-shaped piece of metal that is secured by a pin or bolt and nut across an opening.” Sound familiar? To take this a step further, the clevis and pin together are called a *shackle*. Knowing this information, it’s not entirely incorrect to call the shackles we use for off-roading as a *clevis*. The term *clevis*, however, isn’t wholly correct, as there are many shapes and types of clevis fasteners (read on). All the shackles described in this sidebar can be called a “clevis.” However, that doesn’t tell you which style of clevis you should use as an off-roader or overlander. It’s like saying, “Let’s talk on the radio.” What type of radio? Ham radio? Citizen Band (CB)? Family Home Service (FSR)? General Mobile Radio Service (GMRS)? See the confusion? Sorry off-road industry, proper lexicon is important. As seasoned off-roaders, we may not be confused, but beginners that can Google names will be stumped.

According to history dating back to the mid-1800s, US Cargo Control, and other rigging and maritime experts, the proper name for the shackles we use off-road with recovery rigging is **Anchor Shackles**. Actually, their complete name is Screw-Pin Anchor Shackle. Contrast a Screw-Pin Anchor Shackle with a Bolt-Pin Anchor Shackle that uses a nut or cotter pin to hold the shackle pin in place. You may see a few of these around, but generally they are not used in off-roading. Too many pieces to get lost.

Experts and those in the know use the name *Anchor Shackle* for the type of shackle we use in off-roading. The other names used are simply incorrect or partially correct. The term *D-Ring* is probably the most incorrect but one of the most used. If you don’t want to say the complete correct name, just call them a

Shackle or Anchor Shackle.



Bolt-Pin Anchor Shackle



Screw-Pin Anchor Shackle

Off-roaders use these shackles because their shape is ideal for situations where there are more than two directions of a load – not simply a load pulling on the top of the shackle arch (“crown”), and one load pulling on the pin itself. With some reduction in

working load limit, the geometry of these shackles basically allows them to handle loads pulling in many directions – pulling from the crown, pin AND sides. Pulling on a shackle from many directions is typical in off-road recovery operations. The best anchor shackles are forged from steel, hot-dipped galvanized, and stamped with a working load limit (WLL). Avoid cast shackles made by pouring molten metal into a mold and then allowing it to cool. This process produces micro air pockets within the finished shackle, severely decreasing its breaking load strength. Smart 4X4 drivers stay away from unreliably manufactured Chinese anchor shackles, instead relying on superior types made by WARN, Crosby, Van Beest, CM, etc.

Screw-Pin Bow Shackle

If you pronounced, “Bow” as in bow and arrow, you are correct. If you pronounced “Bow” as in the bow of a boat (the pointy, front end of a boat) – this is incorrect. Although very similar to Anchor Shackles, Bow Shackles are shaped differently. Bow Shackles have a proportionately larger space between pin openings. The “bow” (arch) opening at its widest point is larger than anchor shackles. This larger space accommodates webbing-style rigging better than anchor shackles. Unlike anchor shackles, bow shackles are commonly made from cast stainless steel or titanium. Because of their larger mouth opening, lower WLL for a comparably sized anchor shackle, and the higher cost of stainless or titanium; they aren’t really used for off-road recovery rigging.



Screw-Pin Chain Shackle (AKA Dee Shackle)

Chain or Dee Shackles are shaped with straight legs on each side of the pin. Some call these D-Shackles (because they look like the letter “D”). The dee shackle shape is optimized for pulling a load in just two directions – a load pulling perpendicular on the shackle arch (“crown”), and the pin. Unlike the anchor shackle,

the dee shackle is not designed for loads pulling on their sides. This type of shackle geometry cannot handle loads pulling in many directions. If you pull hard enough on a dee shackle's side it can bend and deform, or even break the shackle. For this reason, the dee shackle is not used for off-road recovery rigging.

Screw-Pin Sling Saver Shackle

Off-roaders occasionally use the Crosby S-281 Sling Saver Shackle. The wider, flattened shackle arch ("crown") creates greater surface area contact for your web sling. This means greater efficiency, higher capacity, and less wear on your sling.



Synthetic Rope Shackle

Synthetic Rope Shackles (AKA Soft Shackles) are the future for off-roaders and overlanders. Soft shackles are made of varying sizes of the same Dyneema or plasma line used for synthetic rope winch line.

Like all synthetic rope, these shackles must not be placed on anchor points with sharp edges – they can be cut and damaged. Regardless, these shackles have a lot of positive features. For a given size and weight, they are actually stronger than steel. Also, they float, are flexible (conforming to anchor points), and if they break they don't fly through the air with a large amount of kinetic energy because their mass is lower. Looking to save weight in your vehicle? These shackles are for you.

Kind regards,

Off-Road Safety Academy - Bob Wohlers, Owner

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