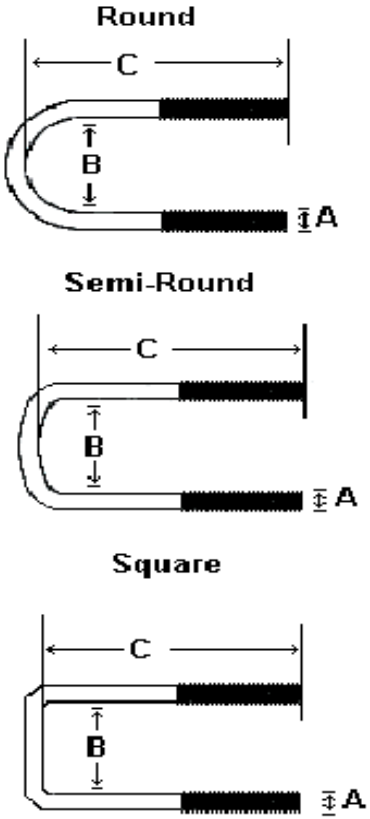
How to measure a U-Bolt



A. Diameter of the rod at the threaded ends.
(Note: the diameter of the rod in the non-threaded on is smaller, due to the fact that u-bolts have formed, rather than cut threads)

B. Inside dimension between the legs.
(*note that this measure is between and not center to center on the legs.*
It is the size of the die which we form the u-bolt on)

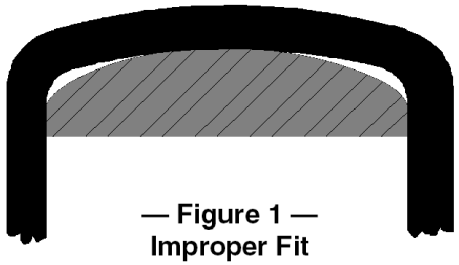
C. Length of the leg (measured to bottom of the inside of the u-bolt)

D. Style of the top (Round, square, or semi-round)

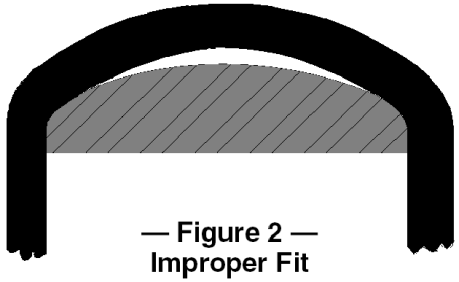
E. Year, Make, Model, and Position of the application

Semi-Round U-bolt Fit

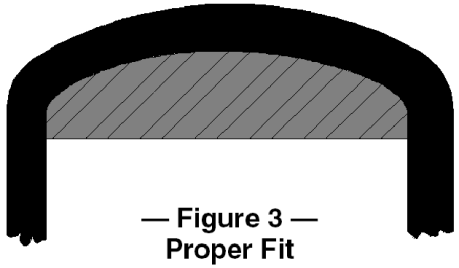
An often overlooked cause of failure to maintain proper U-bolt clamping force is the potential for mismatch between the shape of the semi-round U-bolt and its mating part, the top plate. Unlike either square or round bend U-bolts where the shapes from one manufacturer to another usually do not vary significantly, semi-round bend shapes are usually unique to a particular vehicle or suspension manufacturer.
The following three figures show what can happen when using semi-round U-bolts.



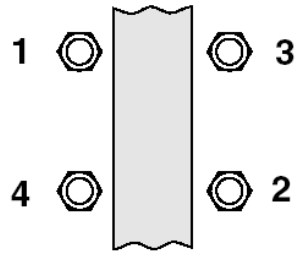
— Figure 1 —
Improper Fit
U-bolt contacting center only



— Figure 2 —
Improper Fit
U-bolt contacting corners only



— Figure 3 —
Proper Fit
U-bolt is in uniform contact



It is critical, when installing u-bolts to alternate from one leg to the other in criss cross fashion so that the torque is evenly applied to all four legs on each set of u-bolts. Tighten each nut only a small amount before switching to the leg diagonally across. Continue alternating until all four legs on each set reach the specified torque.

U-bolts should be re-torqued after 20 kilometres of use after installation. If they are found to be far under the specified torque, they should be checked a second time after driving 20 more kilometres. This is critical because initial settling in of the spring leaves may cause a loss of torque values. If not properly re-torqued, flexing in the center section of the spring may result in spring breakage or in some cases the center bolt may shear or bend with axle shifting being the result.
U-bolt torque should be checked after 500 ,1,000, & then at 20,000 kilometres intervals

Removed U-Bolts should NEVER be placed back onto the vehicle, they should be thrown away. Suspension U-Bolts are manufactured with a smooth rolled thread, while the mating Hi-Nuts are manufactured with sharp cut threads. When a U-Bolt is tightened to it's recommended torque level, the U-Bolt threads stretch as they mate with the Hi-Nuts. Although, not always visible to the naked eye, this damages the threads. Removing the Hi-Nuts from the U-Bolt will cause a cross-threading that will not allow the U-Bolt to be adequately re-torqued. A common practice in most maintenance facilities is to use a impact wrench to tighten U-Bolts. Consistent, accurate torque is next to impossible to obtain with a impact wrench, and in most cases an over-torqued fastener is the result.

U-Bolt Torque Chart

This page contains a reference chart of torque values for tightening u-bolts nuts on vehicle axles.
It assumes a light coating on machine oil on the threads and washers has been applied.

RECOMMENDED U-BOLT TORQUE FOR COLD-FORMED U-BOLTS

Bolt Size and Thread	Grade	Torque (foot-pounds)
3/8" - 24	5	25
7/16" - 20	5	45
1/2" - 20	5	70
9/16" - 18	5	100
5/8" - 18	8	175
3/4" - 16	8	320
7/8" - 14	8	500
1" - 14	8	900
1-1/8" - 12	8	1100
1-1/4" - 12	8	1550

Actual torque applied to u-bolt nuts is also dependent on the ability of the anchor plates to take the pressure without deforming. A lot depends on proper tightening as the leg of the u-bolt must be stretched to do its job, but as in many mechanical systems final judgement falls to the technician and his knowledge. An example would be on a light truck suspension using a 5/8" diameter u-bolts passing through a 1/4" thick anchor plate. The plate may deform long before the recommended torque values are reached.

All the above values are general guidelines.

THE OEM SERVICE SPECS. ON SPECIFIC MODELS ALWAYS TAKES PRECEDENCE OVER VALUES SHOWN.

A impact wrench is not recommended for tightening u-bolts.

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U-Bolts

At the Edson Branch We bend U-Bolts to YOUR specifications.

Most popular sizes and bends from 3/8" to 1" available.