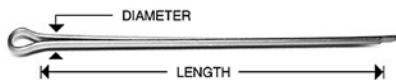


## Cotter Pins

Michael Adams

Cotter Pins – Part Number MS24665 - are used to secure bolts, screws, nuts, and pins. Some cotter pins are made of low-carbon steel (Formerly AN380), while others consist of stainless steel (Formerly AN381), and thus are more resistant to corrosion or where heat-resisting qualities are desired, such as forward of firewall. Use stainless steel cotter pins in locations where nonmagnetic material is required. Regardless of shape or material, use all cotter pins for the same general purpose - safetying.

Most Cotter Pins have uneven-prongs; the length measurement is to the end of the shorter prong.



Cotter pin installation is shown in Figure 1. Castellated nuts are used with bolts that have been drilled for cotter pins. The cotter pin should fit neatly into the hole, with very little side play.

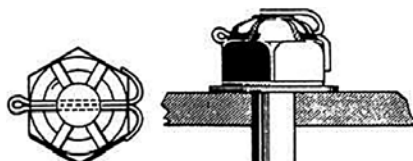


Fig. 1

(Alternate method) (Preferred method)

The following general rules apply to cotter pin safetying.

Do not bend the prong over the bolt end beyond the bolt diameter. (Cut it off if necessary as this end may interfere with other structure – Reference Fig. 5. This will also save excessive lacerations and scaring

on your hands!)

Do not bend the prong down against the surface of the washer. (Again, cut it off if necessary. Reference Fig. 3)

Do not extend the prongs outward from the sides of the nut if you use the optional wraparound method.

Bend all prongs over a reasonable radius. Sharp angled bends invite breakage.

Tap the prongs lightly with a mallet to bend them.

Install cotter pins in rotating parts such as propellers, rotor heads, and the like, with head in direction of rotation.

Install cotter pins in stationary bolts with heads up or facing forward whenever possible. When installing a cotter pin in a stationary bolt in a moving control (such as elevator control push rod end to elevator, carburetor mixture control rod end to carburetor mixture arm, etc.) the head of the cotter pin should be up or facing forward throughout the range of that control as much as possible.



Fig. 2 (Correct Cotter Pin Installation)



Fig 3

When safetying a clevis pin, install the cotter pin with the axis

of the eye parallel to the shank of the clevis pin or rod end. Bend the prongs around the shank of the clevis pin or rod end, as shown in figure 4.

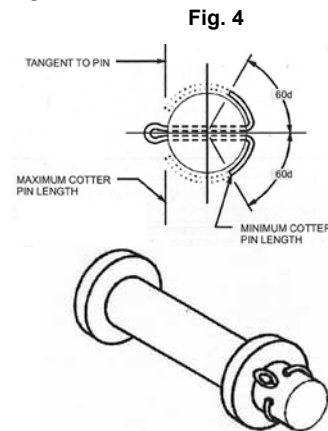


Fig. 4

The cotter pin installation shown in Figure 5 is a photo of an aileron trim tab pushrod attach bolt. This is incorrect, as the bent prongs were not cut to the proper length and due to this had caused holes to be worn through the leading edge of the trim tab.



Fig. 5

Related References:  
FAA Advisory Circular – AC 43.13-1B (Section 6)  
Standard Aircraft Handbook – Sixth Edition.