



## Nord-Lock 'Wedge' Washers

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**I PREDICT WE'LL BE** seeing more and more of the ingenious Nord-Lock "wedge" washer on our amateur-built aircraft. These washers were new to me, but in just the past six months I've worked with them on both a Sensenich propeller and Matco brakes. The reason I'm so confident you'll be using these in the near future is that the Nord-Lock washer is designed to positively lock the fastener in a joint that is subjected to extreme vibration or dynamic loads, which

pretty much makes it a perfect fit for aviation. Plus they are really easy to work with, are not affected by lubrication, and eliminate time-consuming safety wiring.

Each Nord-Lock washer is actually a pair of lock washers that has cams (or wedges) on one side and radial teeth on the opposite side. The wedges face each other and ramp up more than the pitch of the threads, locking the fastener in place with tension. The bolt/nut is stopped from rotating loose by the wedge effect of the cams. Nord-Lock washers cannot be used in combination with any other washer so your bolts have to be the correct length. The Nord-Lock washers are reusable but do wear out after several cycles.

When you loosen the nut, don't be surprised to hear a loud click or pop. This is completely normal since the washer has to jump the wedge. The loud click is an indication that the washers are still good. If the click isn't as pronounced, it is one sign that they may be wearing out. Inspect them and replace if the peaks on the cam surface are worn and the corners are rounded. Also, make sure they seat properly against each other (wedges to the inside, radial teeth on the outside). When reinstalling, adding a drop of lubricant (engine oil) will extend the life of the wedge washer by reducing wear.

I think once you've worked with the Nord-Lock washer, you'll see why Sensenich and Matco have adopted it, and I expect more suppliers will follow. I was surprised to find out that Sensenich has been using these on its marine, unmanned, and experimental aircraft propellers for about 15 years!

### GOT A HINT?

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