

## Out with the Old, In with the New Adapter Fitting

The image to the right shows a crack in the swivel nut of a JIC-style air line fitting. However, these cracks are not due to a defect in the manufacturer's build but rather missteps made during the install process. These cracks can result from over-tightening trying to obtain a complete seal if an air leak is detected. So, what went wrong? To understand that, we must understand how these fittings are designed to perform.

### Fittings 101

Tractor-side fittings on an air line typically consist of three to four pieces that make up the entire fitting. The three most important components are the adapter fitting, the swivel nut in the middle, and a permanently fitted piece on the air line with a beveled cone-shaped edge.

The adapter fitting is removable with one side that is threaded into the tractor protection valve. The other side of the adapter fitting is beveled around the rim and designed to perfectly mate with the cone's reversed beveled edge on the piece permanently installed on the air line. The swivel fitting in between these two pieces tightens the adapter fitting and cone together to create a tight seal.

When the swivel nut is tightened, the two beveled surfaces on the adapter fitting and internal cone are mated together for a one-off, metal-to-metal, perfect seal.

### Out with the Old, In with the New

Cutting corners during installation can lead to an improperly seated fitting, which leads to air leaks. When replacing air lines, it should never be a common practice to install the new air line with the old adapter fitting that may still be installed on the tractor from the previous air line.

Revisiting the first image above, it appears the adapter fitting is new and unused since the thread sealant looks untouched. This is an indicator that the new air line was installed using the old adapter fitting from the prior air line. When the new and old were mated, the old adapter fitting's previously crushed beveled edge did not mate perfectly with the new beveled edge of the cone fitting. This led to air escaping, which led to over-tightening, and resulted in a cracked fitting.



Cracked swivel nut



With adapter fitting attached



With adapter fitting detached



Beveled edges

## TIPS

Have technical questions? Get the latest tips from a skilled Phillips engineer!  
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