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Service Tips and Best Practices

Why Hammers are Bad for Ball Joints

Brand	All	Product	Control Arms, Ball Joints and Knuckles	Date	OCT 2020
Part Number(s)	Various				

When the bore of a knuckle is deformed, rusted, or otherwise covered with contaminants, a technician may be tempted to use a hammer to "assist" in fitting the ball joint. However, this action may damage the ball joint and lead to premature failure of the part. In some scenarios, this may bind internal ball joint subcomponents, leading to a memory steer condition.

A Tight Fit

Typically, the ball pin fits into the bore on a knuckle and is secured either by a nut or pinch bolt. When secured by a nut, the ball joint slides into a tapered hole in the knuckle and tightening the nut secures the ball joint in place. Ball joints secured with pinch bolts are pushed into a straight hole and the pinch bolt is secured with a nut once the ball joint is in place.

Drop The Hammer

Changing the vehicle geometry will change the loading dynamics in the steering and suspension systems (ball joints, control arms, stabilizer When a ball joint is hammered or otherwise forced (i.e. with a pry bar) into place, there can be a ripple effect of damage to it and surrounding components. Examples include:

- The lamination of the ball joint may deform or mushroom into the knuckle.
- The force of the lamination or housing being pushed by a hammer can crush the Belleville spring in ball joints with metal bearings.
- The back plate can become dented, deforming the threading for the grease fitting or damaging the grease fitting itself.
- Deforming the knuckle bore or knuckle ear, causing these to become "out of round"

In short, damage caused by hammers will make servicing the ball joint difficult and will likely make the component very hard to remove when it next requires replacement.

Best Practices for Protecting Ball Joint Integrity

- When removing the old ball joint, take care not to damage the knuckle. Use a pickle fork or manufacturer-specific tool to separate the ball joint from the knuckle, which may be often seized together.
- Carefully clean the knuckle bore and area using a wire brush to remove road debris and other contaminants so that there can be a clean fit between the knuckle and the new ball pin.
- Carefully inspect the condition of the knuckle. A worn or damaged knuckle will need to be replaced, in order to ensure proper fit and function of the new ball joint. Loose fitting ball joints may be subject to excessive impact loading on the ball pin, which could lead to ball pin failure.
- For pinch bolt ball joints, use a pry bar to open the pinch bolt flange on the steering knuckle. This should allow the new ball joint to slide into place without the use of a hammer (see below). Ensure to avoid excessive force, which may damage the knuckle ears.
- If assistance is needed to fit the ball pin into the knuckle, a rubber mallet is less likely than a hammer to cause deformation while providing the gentle force required get the components in place.