BALL JOINTS

raptorseries
OFFROAD & PERFORMANCE

General Notes:

Please read these instructions carefully before beginning installation.

The following instructions can be used to install both upper ball joints or lower ball joints. You do not have to install both. If you are just installing upper or lower and not both, simply ignore the steps for the location you are not installing

• Make sure the kit hardware matches the kit contents shown below.
• Make sure you have all the needed parts and know where they go.
• Check to ensure for adequate clearance between all components.
• Periodically check all hardware for tightness.
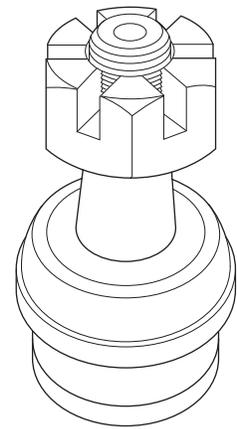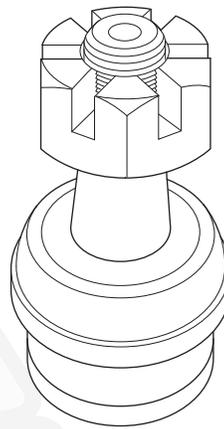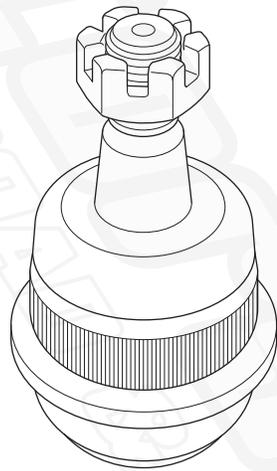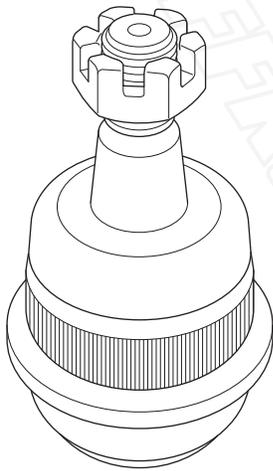
Front Axle Upper Ball Joint
Qty 2

Front Axle Lower Ball Joint
Qty 2

Tools:
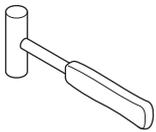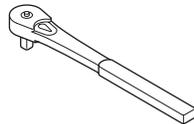
Hammer	Socket Wrench	7/8" Wrench	12 Point 13mm Socket	1 1/16 Wrench	5mm Allen Wrench
Grease Gun	Ball Joint Press	7/8" Wrench	21mm Wrench and Socket	22mm Wrench or Socket	36mm Wrench or Socket
		7mm Wrench	1-1/8" Wrench		
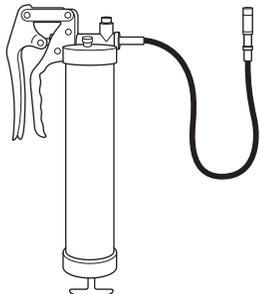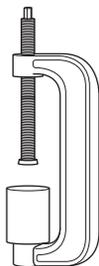
1. Begin by loosening the nut located on the tie-rod end and the nut located on the drag link using a 21mm wrench.

21MM NUT ON
DRAG LINK

21MM NUT ON
TIE-ROD END

1a

1b

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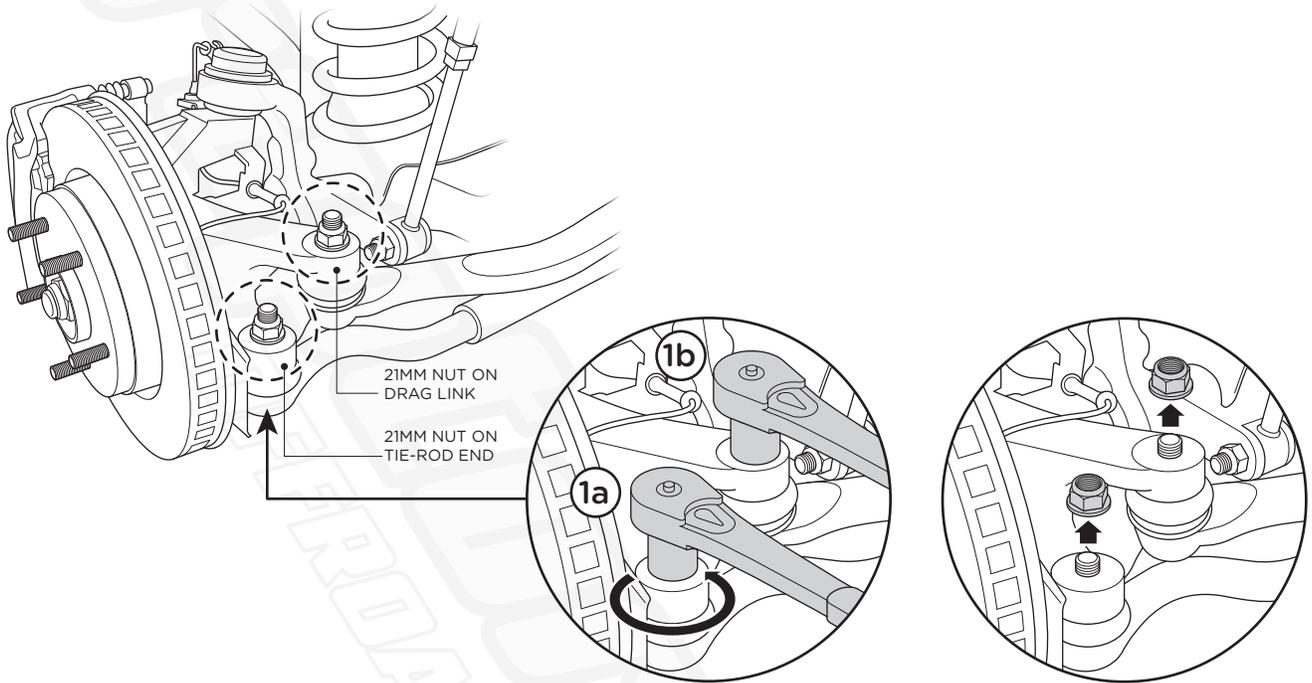
2. Using a hammer, dislodge the tie-rod and drag link ends.
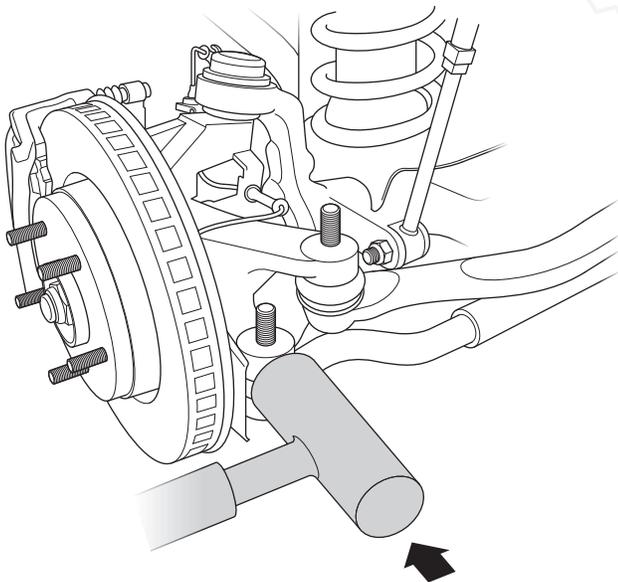
**3.** Next, remove the rod ends from the knuckle.

ROD END
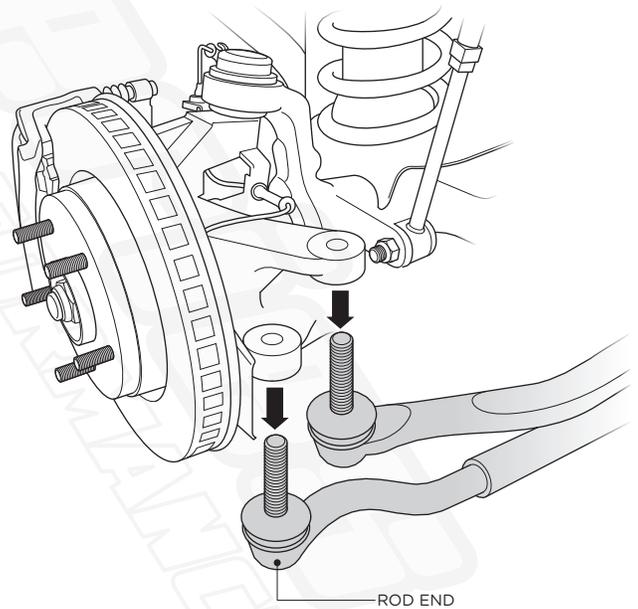
**4.** Remove the ABS line from the brake line clips.

ABS LINE

CLIP
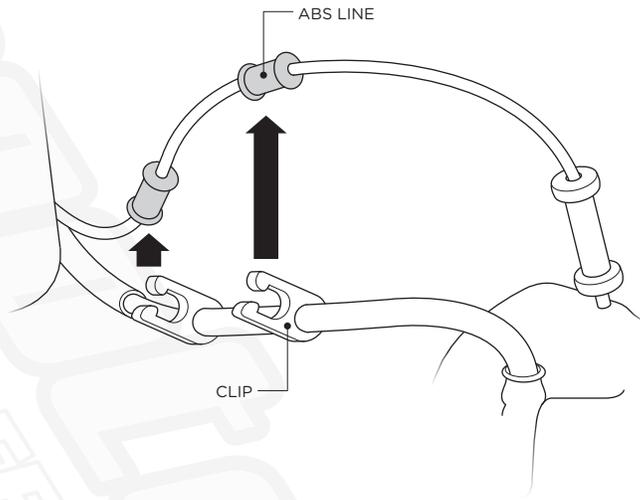
5. Loosen the two holts using a 21mm socket (5a), and remove the (2) bolts from the brake caliper mount (5b). Retain hardware. Next, remove the brake caliper and find a place to hang it aside in a safe place. Do not hang from the brake line.

(5a)

(5b)

BOLT

BRAKE CALIPER MOUNT
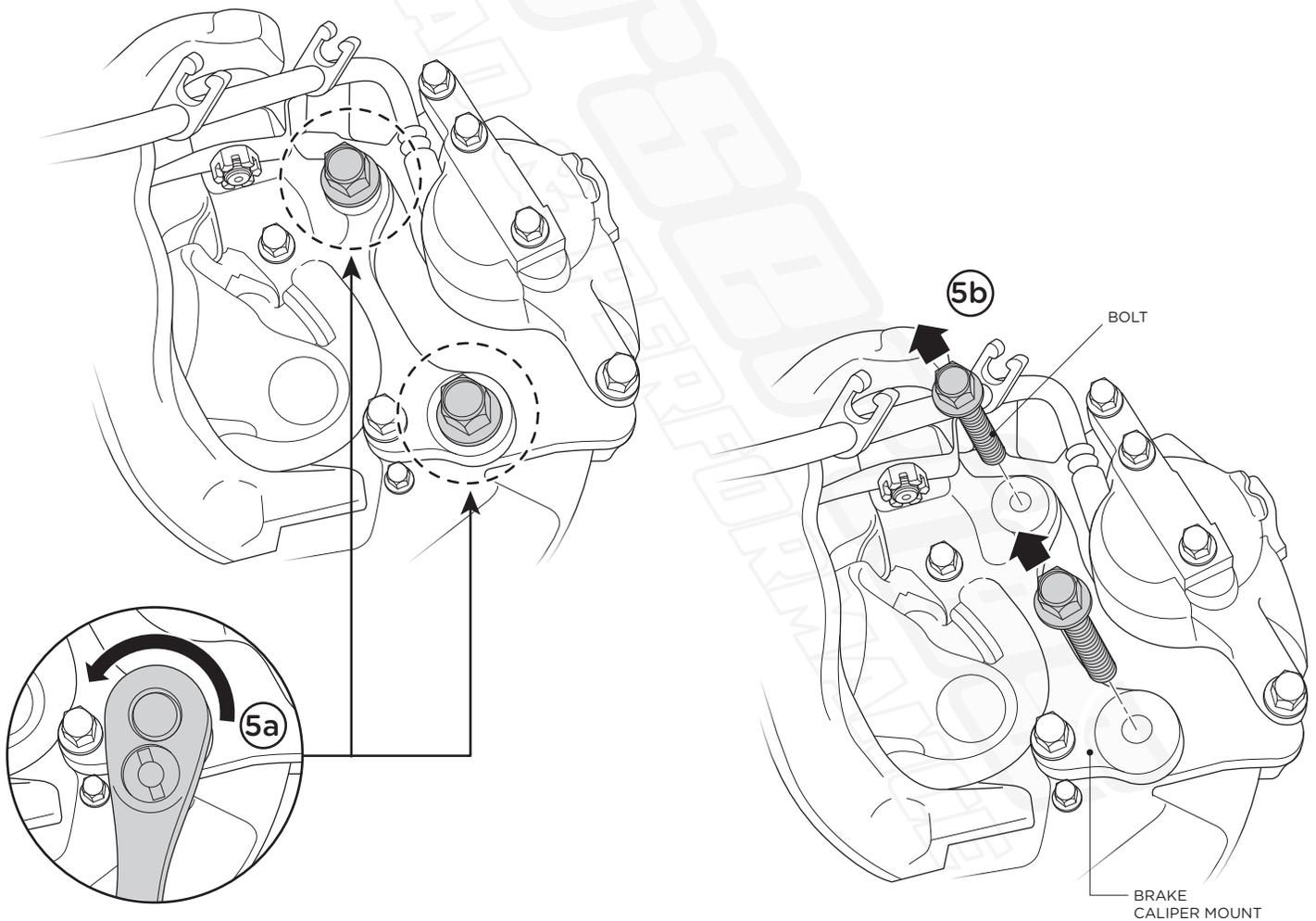
**6.** Remove the brake rotor from the hub.

BRAKE ROTOR
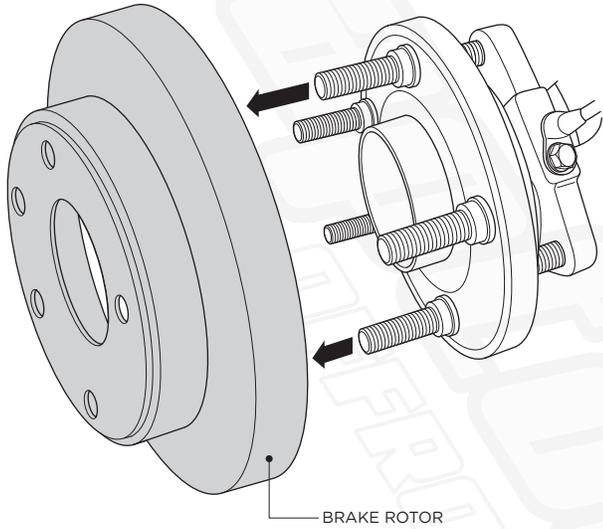
7. Remove the ABS sensor bolt from wheel bearing by using a 5mm Allen wrench. Retain hardware.

ABS SENSOR BOLT
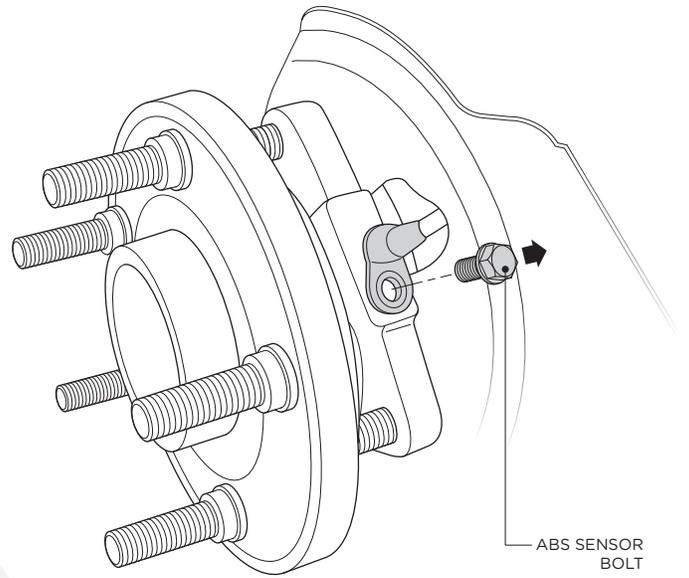
8. Remove the (3) wheel bearing bolts using a 2 point 13mm socket. Note that one of the bolts is located on the opposite side of the assembly.

BOLT

BOLT ON OPPOSITE SIDE

BOLT
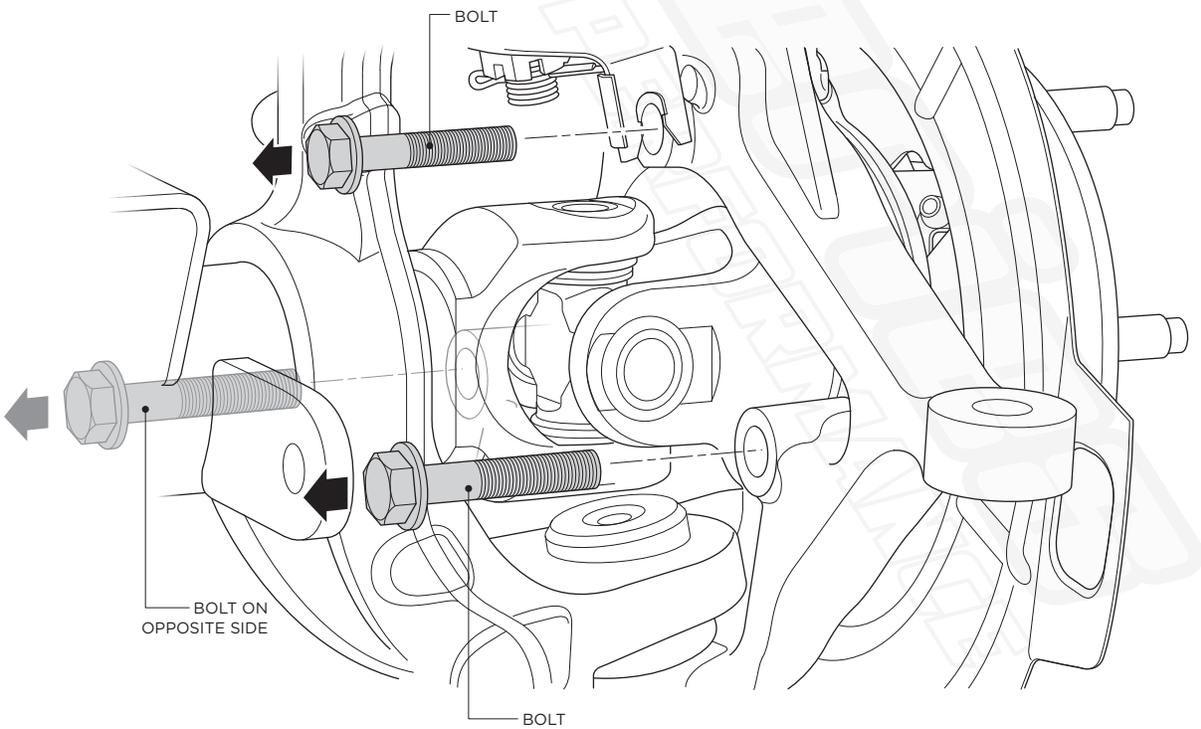
**9.** Using a 36mm socket, remove (1) axle nut from the wheel bearing. Retain hardware.

AXLE NUT
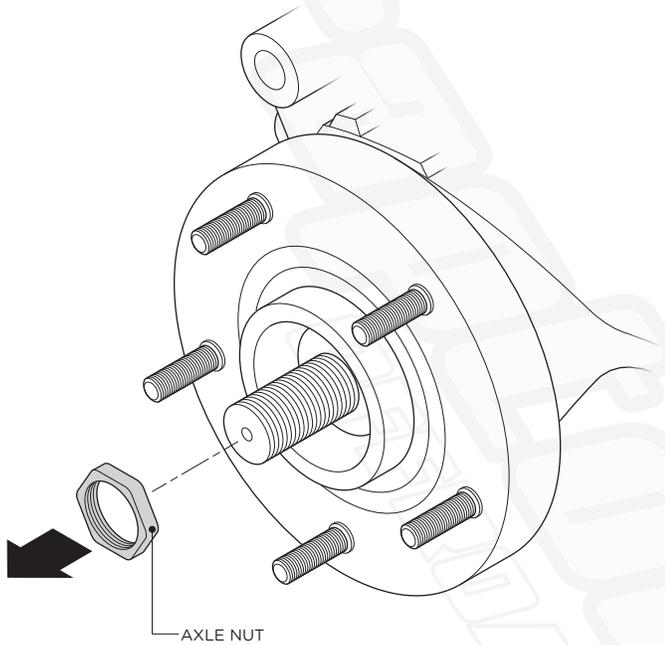
10. Remove the wheel bearing along with the dust shield from the knuckle, then remove the ABS line. Hang the ABS in a safe location.

ABS LINE
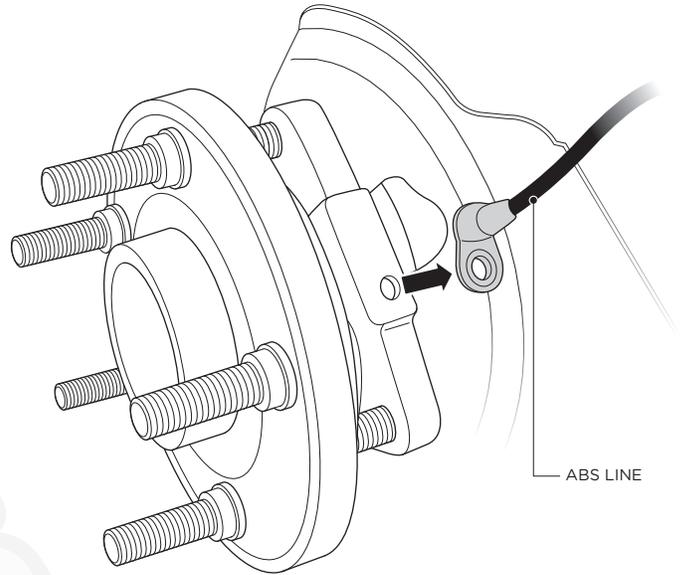
11. Remove the unit bearing and axle assembly. You must be careful not to damage the inner axle shaft during removal, so find a way to support it. Remove the dust shields.
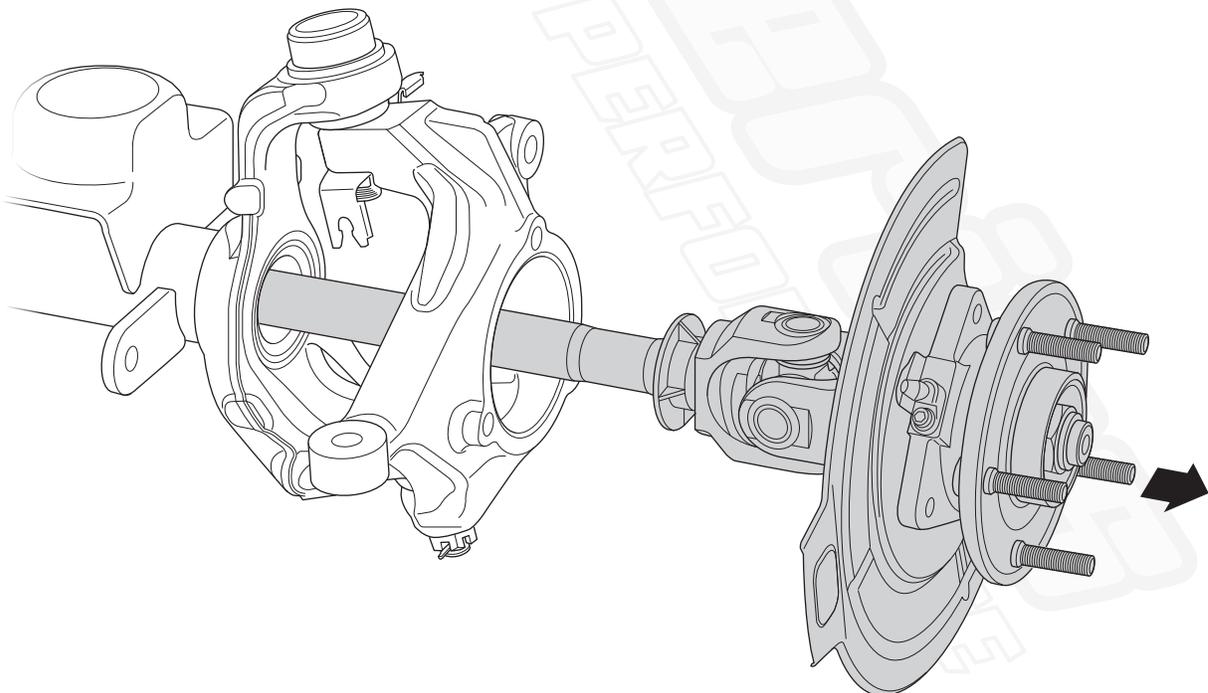
12. Remove the cotter pins enabling you to loosen the upper and lower ball joint nuts. Do not completely remove the nuts. This will prevent the knuckle from falling off when it breaks loose from the ball joints.

COTTER PIN
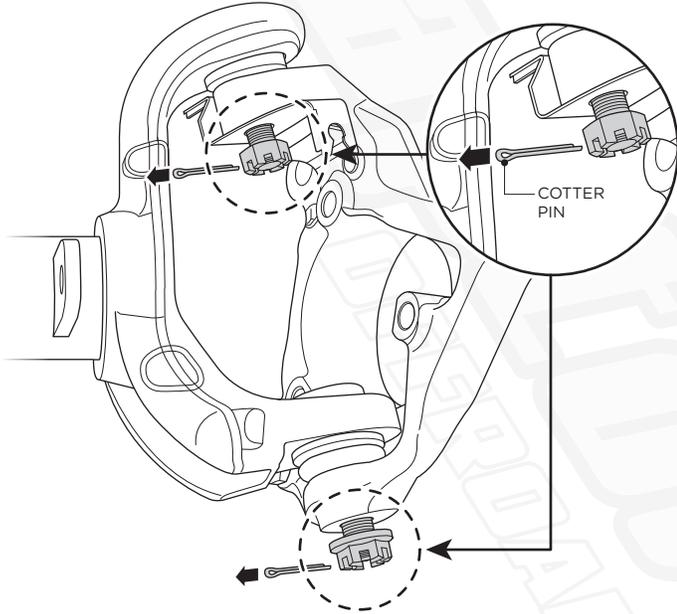
13. Use your preferred method when removing the outer knuckle. (Large hammer, pickle fork, etc.)

OUTER KNUCKLE
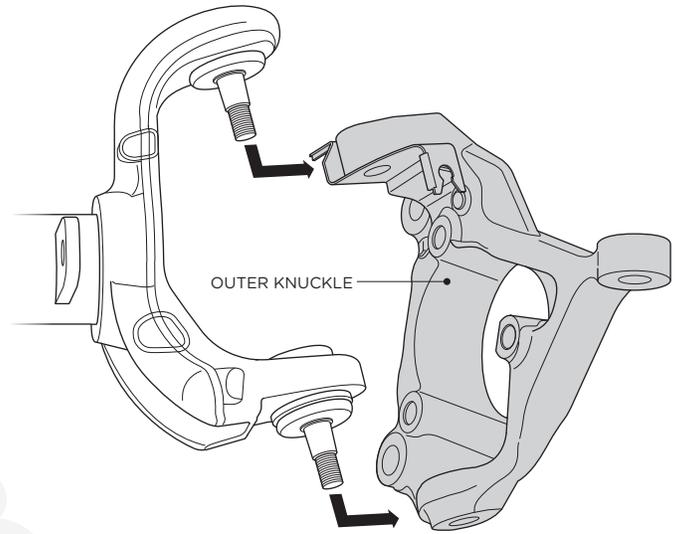
14. Remove the upper ball joints and then the lower ball joints by using a ball joint press.

Upper Ball Joint

BALL JOINT PRESS

UPPER BALL JOINT

Lower Ball Joint
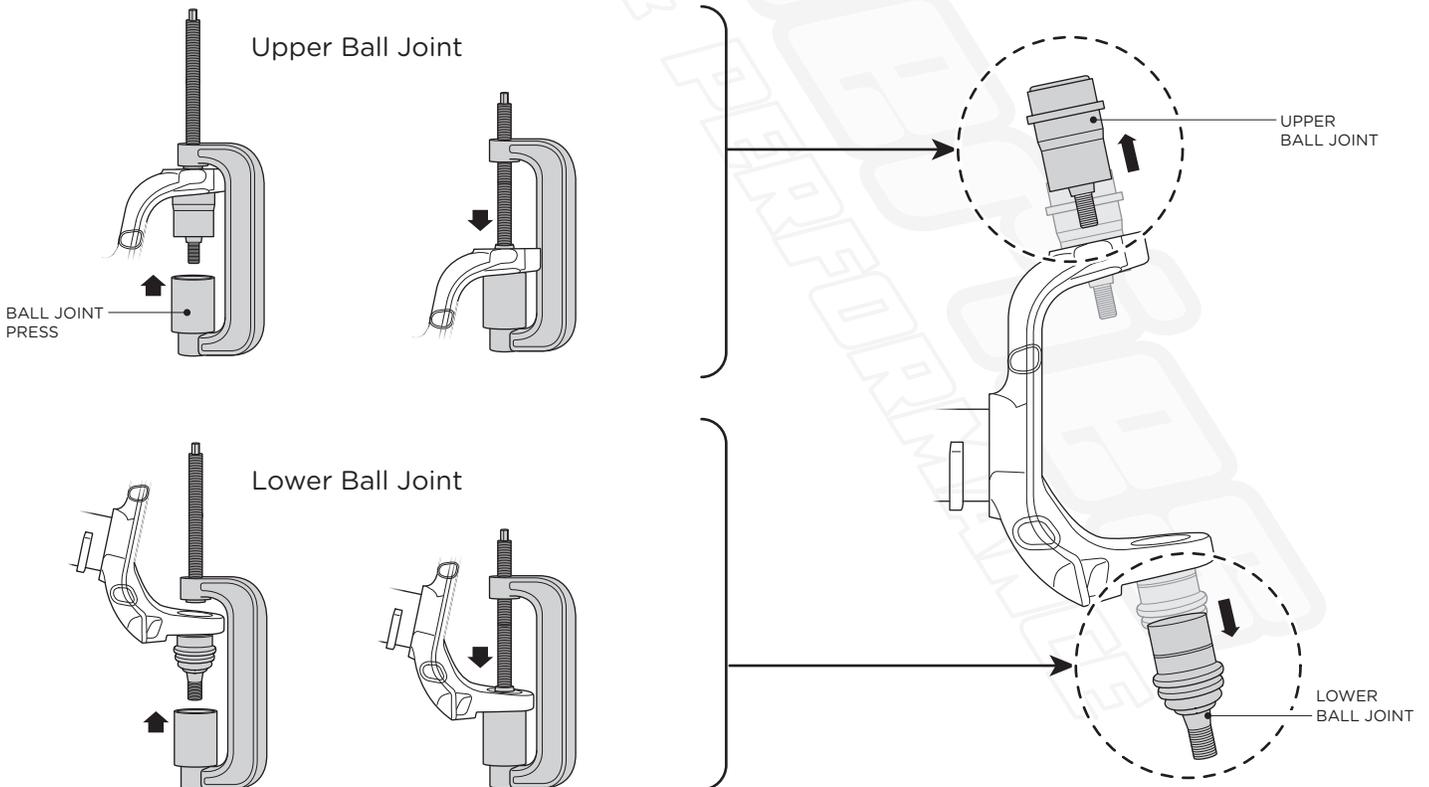
LOWER BALL JOINT

15. Thoroughly clean the ball joint bores along with the surfaces the ball joints seat against. Then apply a small amount of grease or anti-seize to the bores to aid in installation.

CLEAN

CLEAN

CLEAN

CLEAN

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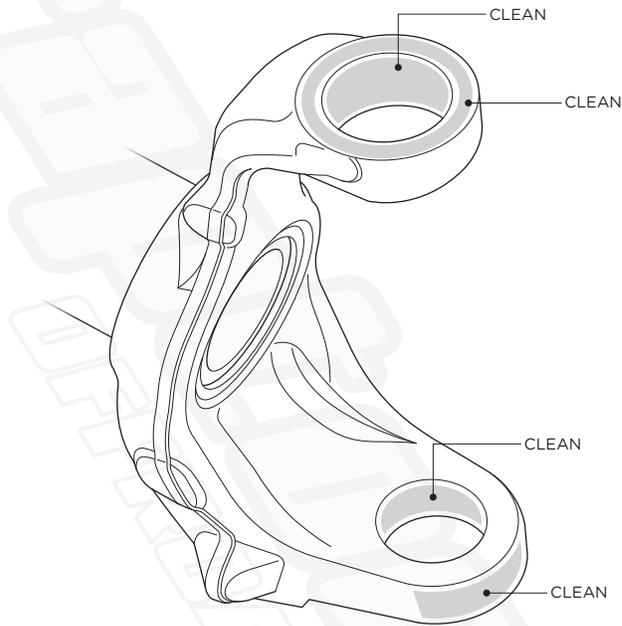
16. It is critical to orient lower ball joint correctly.

Lower Ball Joint Orientation

16a

GREASE
PASSAGE
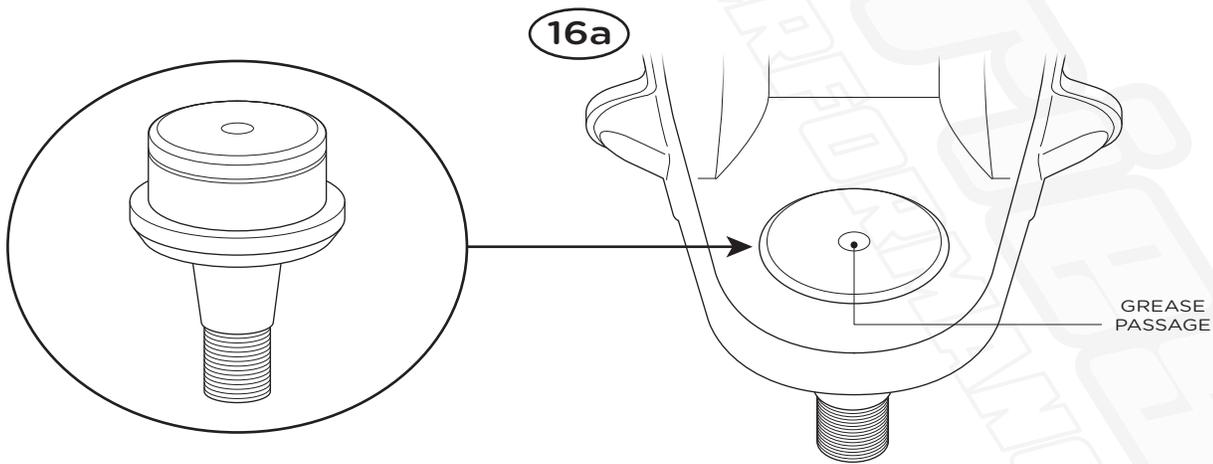
17. The orientation of the lower ball joint on the passenger side must be to installed the same as the driver side. Firmly press the lower ball joint into the inner C. Secure lower ball joint using a ball joint press.

Ensure the orientation described in step 16 is maintained for each respective side!

Remove the dust boot from the new upper ball joints. Install ball joint from the top down. Make sure the bottom cup of the ball joint press tool is centered under the ball joint.

Reinstall the dust boot by first pressing it on the outer most side, then rotate the boot around the ball joint, pushing the boot on as it comes around. Secure upper ball joint using a ball joint press.

17a

17b

BALL JOINT

17c

DUST BOOT
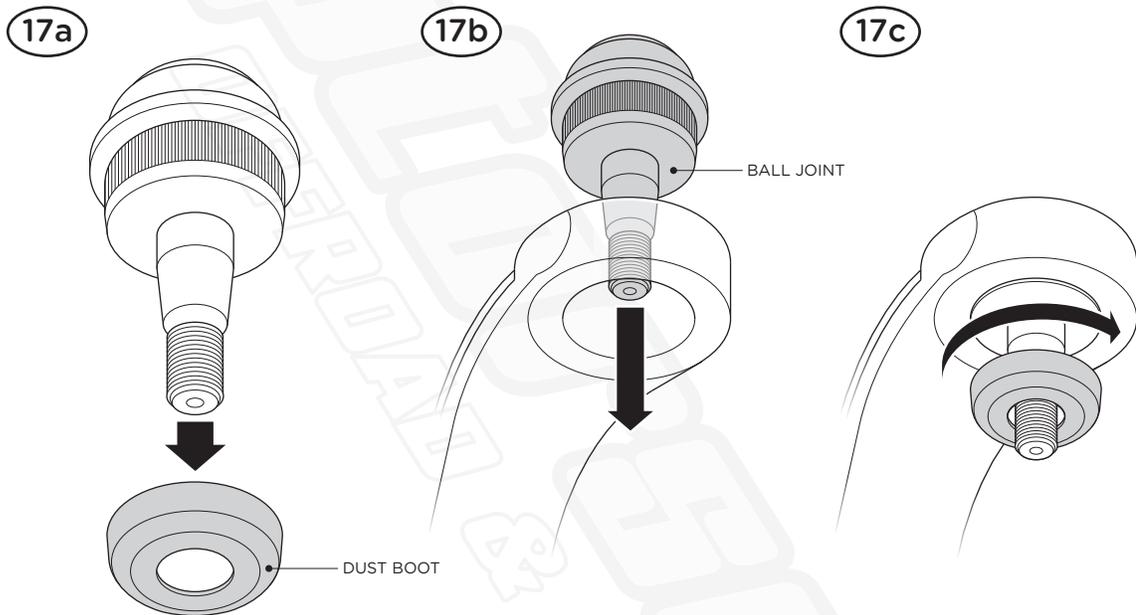
18. Install the grease fitting into the upper ball joint using a 7mm wrench.
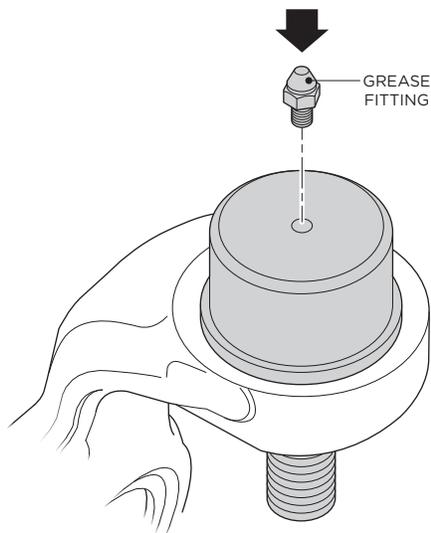
GREASE FITTING

19. Install grease fitting into new lower ball joints.

GREASE FITTING
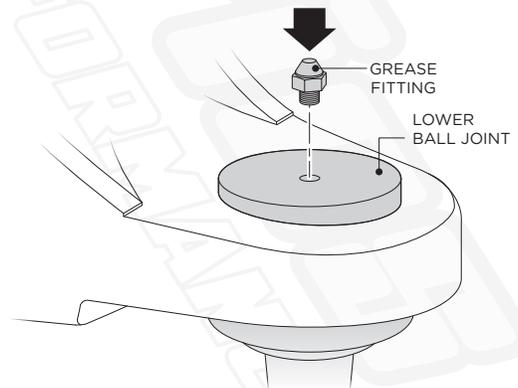
LOWER BALL JOINT

20. Install the knuckle onto the ball joints.

OUTER KNUCKLE
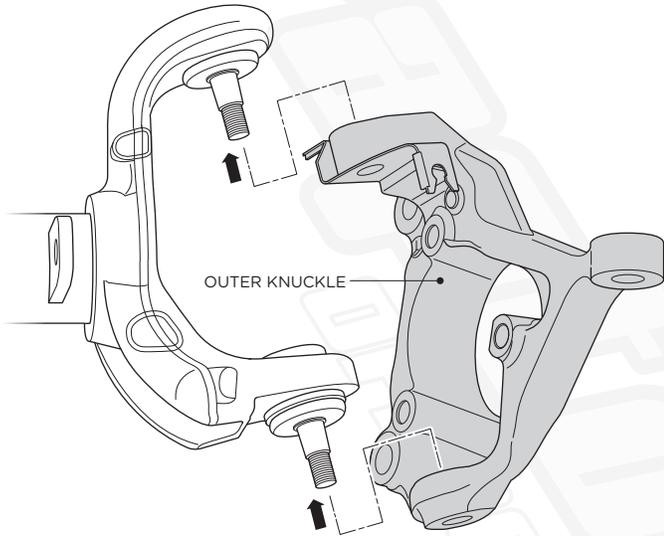
21. Secure the knuckle using the supplied nuts. Tighten the upper ball joint nut using a 22mm wrench and tighten the lower ball joint using a 1 1/16" wrench.

NUT (USE 22MM WENCH)

NUT (USE 1-1/16" WRENCH)
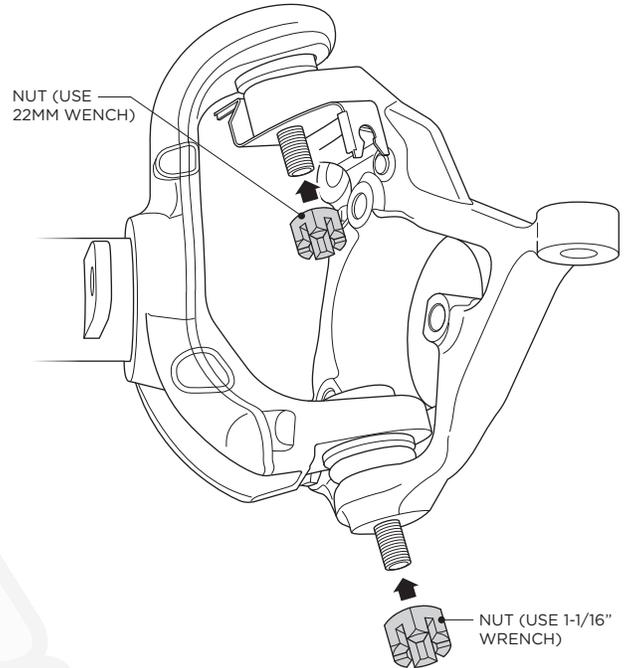
22. Install the cotter pins. Complete the assembly of the ball joint install by reversing steps 1-11.

COTTER PIN