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INSTALLATION INSTRUCTIONS

88-98 C1500 Level 3 Front Suspension
P/N 52613-S550, 52613-D600

TOOLS AND SUPPLIES REQUIRED

- Floor Jack
- Two (2) Jack Stands
- Drill with 3/8" & 7/16" drill bit
- SAE Wrench Set
- Anti-seize
- Ratchet & SAE Socket Set
- Metric wrenches & socket set
- Torque Wrench
- Reciprocating Saw
- Angle Grinder

PRE-INSTALLATION NOTES:

QA1 does not recommend driving the vehicle until it has been properly aligned due to major changes in suspension geometry that will affect the handling characteristics of the vehicle. *A front end alignment to the QA1 specs at the end of page three should be performed by a qualified alignment shop after installation.*

These control arms are equipped with QA1 Low Friction Ball Joints; please refer to the ball joint instructions on page four for setting the initial preload. Preload is set from the factory, but the ball joint stud should be checked for play before installing the control arms.

To use the factory sway bar with these arms use sway bar end link kit 1681-117.

LOWER CONTROL ARM DISASSEMBLY-

1. Raise and support the vehicle by the frame with jack stands on a stable surface and remove the front wheels.
2. Remove factory style shock. If using coil-overs do not remove shock/spring until step 7.
3. Remove sway bar end links.
4. Remove the brake calipers and disconnect the tie rods from the spindle.
5. Remove the cotter pin from the lower ball joint and loosen the castle nut. **Do not remove the nut at this time.**
6. Separate the lower ball joint from the spindle using a ball joint separator.
7. Support the lower control arm using a floor jack (or use a spring compressor) to contain the remaining spring energy. **(Figure 1)**
8. For coil-over removal, lower the spring seat all the way down until there is no pressure on the spring.
9. Unbolt the lower shock mounting bolts.
10. Remove the ball joint nut and slowly lower the control arm to release all spring pressure. Do not move onto step 9 if the spring still has any load on it.
11. Remove the spring/coil-over
12. With the spring and shock removed, remove the spindle from the upper and lower control arm.
13. Remove the control arm pivot bolts from the existing arms.

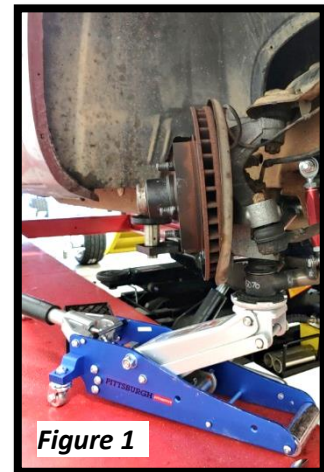
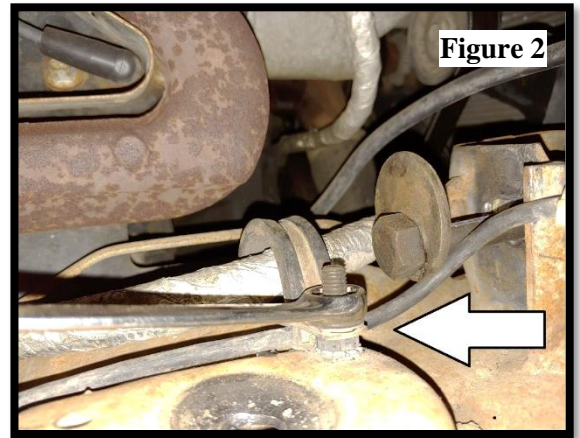


Figure 1

UPPER CONTROL ARM DISASSEMBLY-

14. Remove the brake line hose from the upper control arm.
15. Unbolt the upper control arm mounting bolts and remove the arm.
16. Remove the inner fender liners. The passenger side fender liner supports the battery and battery tray so be sure you have removed both during Step 1.
17. Remove the battery cable bracket attached to the spring cap of the frame. **(Figure 2)**

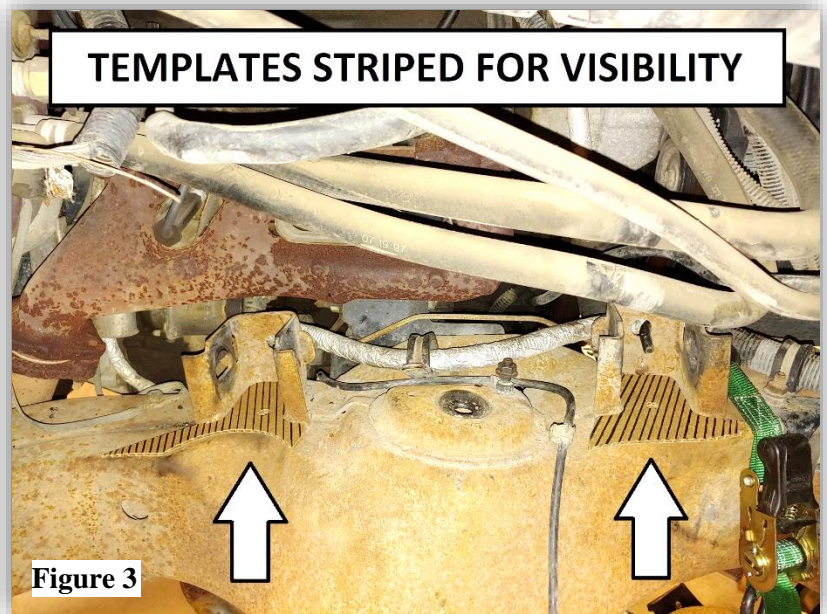


UPPER CONTROL ARM PREPARATION-

NOTE:

This suspension system includes three templates for mounting the new control arm bracket. Two templates fit into the stock control arm mounts. The templates are mirrored when flipped and will be used for both sides of the truck.

18. Place the front and rear templates into the factory control arm mounts. **(Figure 3)** The outer edge of the templates will follow the contour of the frame. The contour of the template should be at the edge of the frame contour for correct placement.
19. Mark the two holes in the template. These holes will end up positioning the new control arm bracket. **(Figure 4)**
20. Use a punch on the center of your marks, then drill the two holes using a 7/16" drill bit.



NOTE:

The hardware to mount to the bracket is 3/8", but drilling the two initial holes to 7/16" will give the bracket a little bit of play when positioning before marking/drilling the remaining holes. With variances and differences in frames, the first two slightly larger holes will allow the bracket edge to match the frames edge.

21. Ensure there are not any wires/brackets behind the factory control arm mounts before cutting them off flush with a reciprocating saw. **(Figure 5)**
22. Grind any remaining portion of the arm mounts flush with the frame **(Figures 6 & 7)**



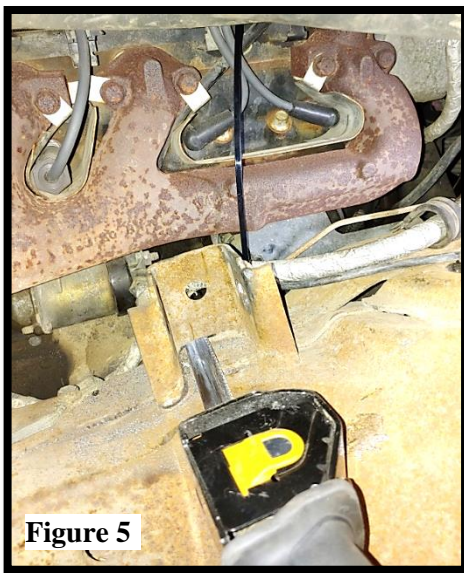


Figure 5

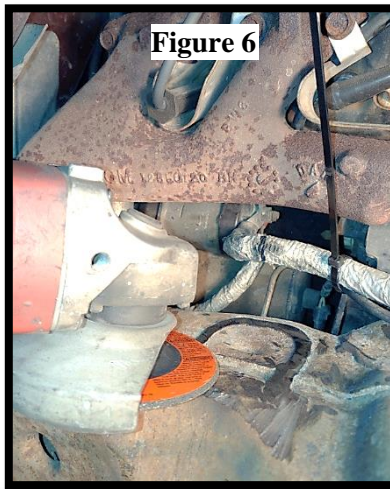


Figure 6

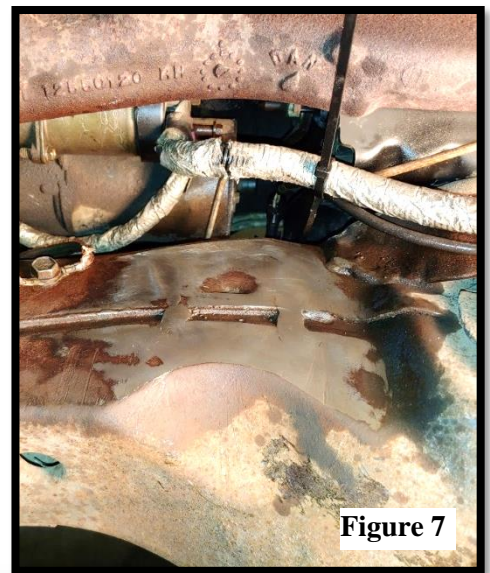


Figure 7

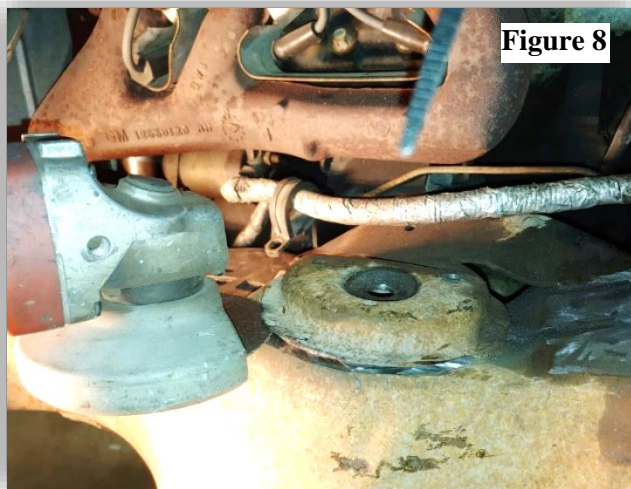


Figure 8

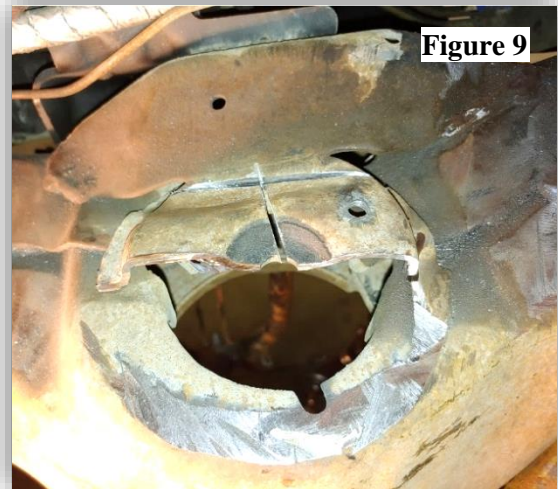


Figure 9

23. Using a cutoff wheel, cut the circular spring perch off flush with the frame. The spring perch is easier to cut off when sectioned. **(Figures 8 & 9)**
24. Grind any remaining portion of the spring perch flat with the frame.
25. Position the new control arm bracket onto the frame using 3/8" hardware in the two holes drilled with the templates. Position the bracket so the outboard edge of the bracket matches the edge of the frame rail. Tighten the two bolts once in place. **(Figure 10)**



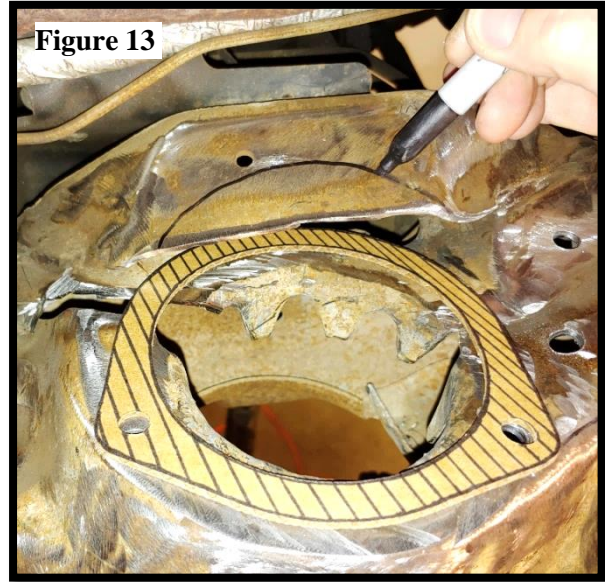
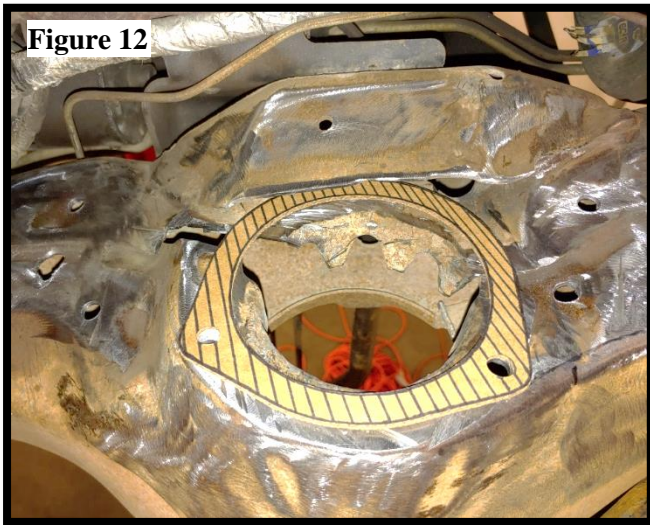
Figure 10



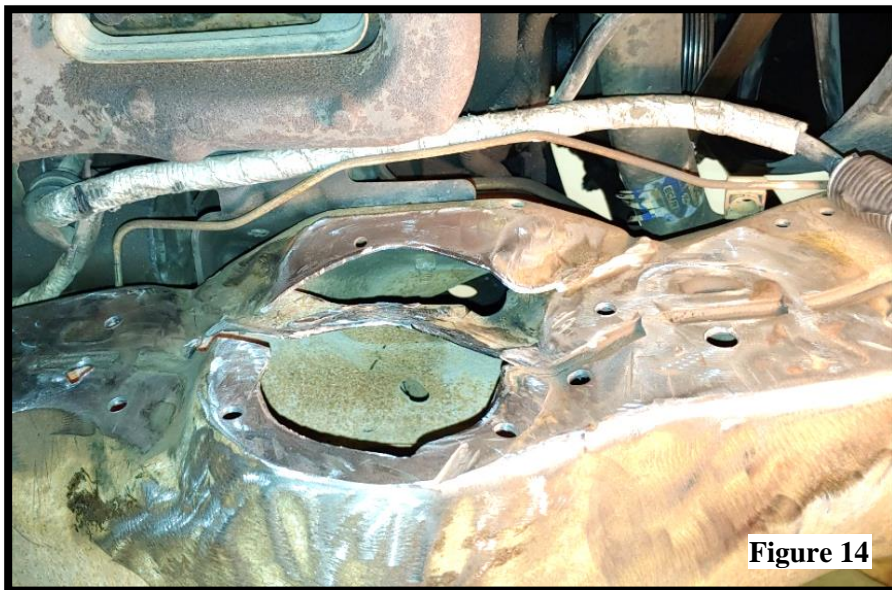
Figure 11

26. With the bracket bolted down, drill the remaining mounting holes using a 3/8" drill bit. **(Figure 11)**

27. Remove the new control arm mounting bracket from the frame.
28. Place the circular template on top of the spring perch lining up the two drilled holes. **(Figure 12)** This template will be used to remove the inner “fingers” of the factory spring perch and a small portion of frame above the spring perch.

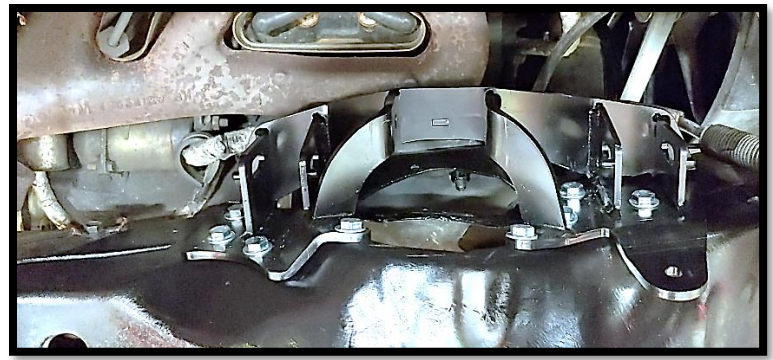


29. Mark the inner circle of the template and visually mark the template outer circle on the frame just above the template. **(Figure 13)**
30. Cut the marked portions from the frame. **(Figure 14)**
31. Temporarily place the new control arm bracket on the frame. Ensure the bracket sits flat on the frame with nothing obstructing the final install.
32. Prep and paint the frame surface as desired to prevent future corrosion.

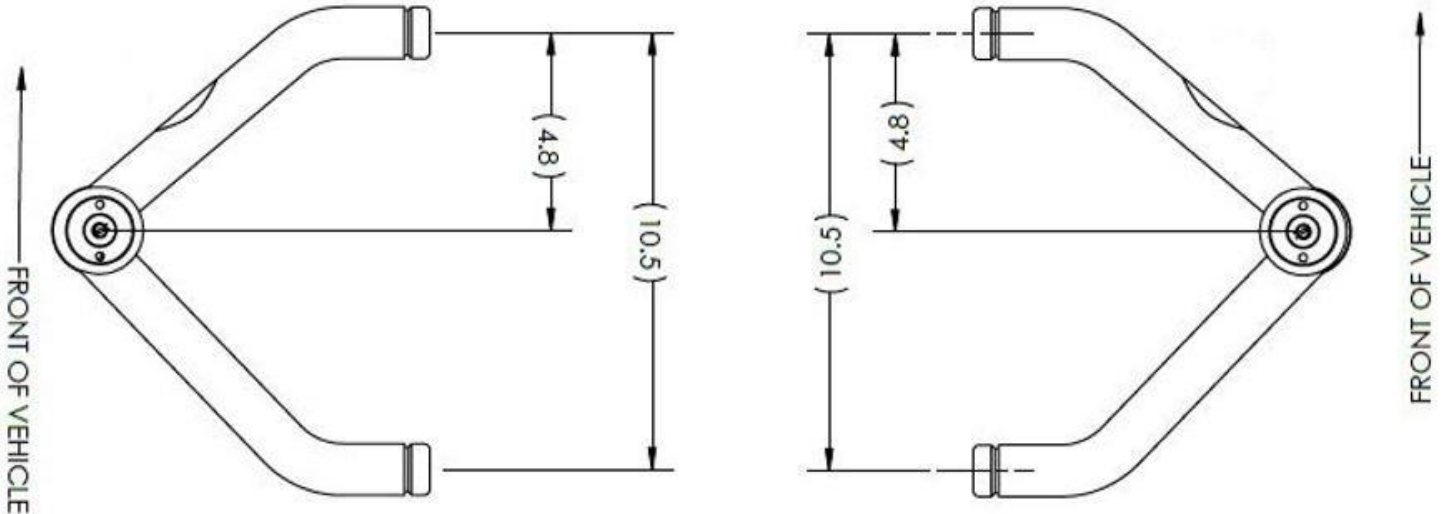


INSTALLATION-

33. Bolt the control arm bracket to the frame using 3/8" x 1.25" hardware with two washers per connection. Torque to 31 lb. ft.



34. Identify the driver and passenger side control arms using the diagram below, noting that the ball joint is biased towards the front of the truck.

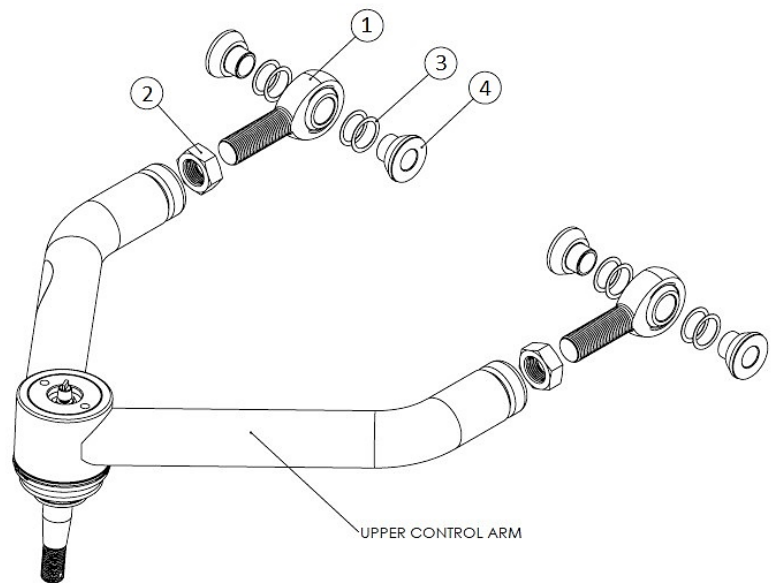


DRIVER SIDE

PASSENGER SIDE

35. Prep the upper control arms for installation by threading the 5/8" jam nuts onto the 5/8" male rod ends. Thread the jam nuts all the way to the base of the rod end. Using anti-seize, thread the rod ends into upper control arms until 2-3 threads are seen between jam nut and control arm assembly. Leave jam nuts loose until arms are installed to allow alignment with mounting bolts. The rod ends can be adjusted during alignment for caster/camber adjustment.

BALLOON #	PART #	DESCRIPTION	QTY PER ARM
1	XMR10	5/8" MALE ROD END	2
2	JNR10S	JAM NUT, 5/8" -18 RH	2
3	9005-293	SHIM FLAT, .015" THICK	8
4	9004-177	STEPPED SPACER, .345" WIDTH	4



36. Install two stepped spacers (#4) into the bore of each rod end starting with two shims (#3) per side. One spacer and two shims per side of the rod end bore. Add/adjust shims for even fit front to rear in the bracket. The arm should sit evenly into the mount.
37. Using four eccentric spacers per arm, install the upper control arms with 1/2" x 3" cam adjust bolts and nylock nuts. Turn the bolt head to adjust the eccentric near the center of the eccentrics range and tighten the nut to 55 lb. ft. Final camber adjustment should be performed during the professional alignment. **(Figures 15 & 16)**

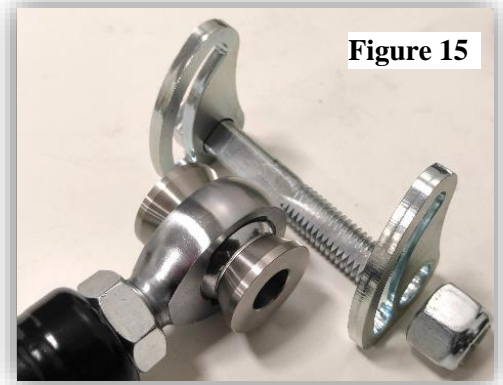


Figure 15



Figure 16

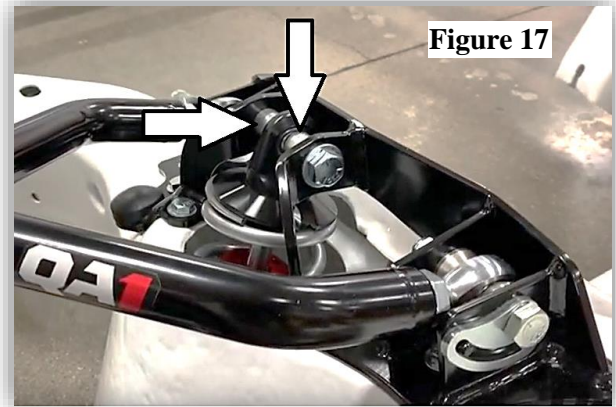


Figure 17

38. Install the upper coil-over connection to the mounting bracket using two 1/2" x 4.25" bolt with .6" long stepped spacers. One on each side of the shock bearing. The internal step of the spacer should be installed over the bearing of the shock connection. **(Figure 17)**

LOWER CONTROL ARM INSTALLATION-

39. Install the included bump stop onto the control arm. The bump stop mounting bolt will go through the bottom of the bump stop and the bump stop will be located on the arm with the locating nub and slot in the arm. **(Figure 18)** Torque to 31 lb. ft.
40. Install the included pivot sleeves into the control arm pivot points. The longer sleeve will be installed into the longer front pivot point of the control arm. The shorter sleeve will be installed into the short pivot point.
41. Install the new QA1 control arm in the frame and insert the included pivot bolts with the threads facing each other. **(Figure 19)** Torque to 90 lb. ft.
42. Install the spindle onto the upper and lower ball joint with washer, castle nut. Torque to 60 lb. ft. then tighten until cotter pin hole is visible. Install cotter pin to complete.
43. Compress the coil-over shock and connect it to the lower control arm using 1/2" hardware. Torque to 50 lb. ft.
44. Secure the brake line and ABS sensor wire to the control arms with enough slack for the spindle to turn lock to lock without tension.
45. Re-install wheels and sway bar end links (if equipped).
46. Adjust ride height as desired using the included T114W spanner wrench set.

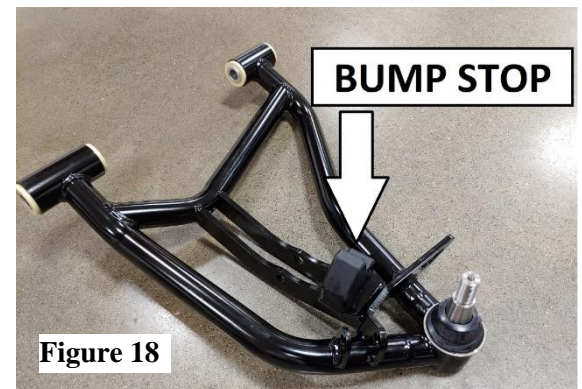


Figure 18



Figure 19

Note: A front wheel alignment should be performed by a qualified alignment shop after any changes to the suspension system.

Recommended Alignment Specs

Camber: -.5 (+/- .5degree)
Caster: 4 to 7 degrees
Cross Caster: .5 degrees
Toe .20 degrees toe in (+/- .100 degrees)
Toe: 1/16" to 1/8" toe in



READ ALL INSTRUCTIONS CAREFULLY AND THOROUGHLY PRIOR TO STARTING INSTALLATION. PRODUCTS THAT HAVE BEEN INSTALLED ARE NOT ELIGIBLE FOR RETURN. USE THE PROPER JACKING LOCATIONS. DEATH OR SERIOUS INJURY CAN RESULT IF INSTRUCTIONS ARE NOT CORRECTLY FOLLOWED. A GOOD CHASSIS MANUAL, AVAILABLE AT YOUR LOCAL PARTS STORE, MAY ALSO AID IN YOUR INSTALLATION.

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