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Technical Support Line: (952) 985-5675 Email: sales@QA1.net

### INSTALLATION INSTRUCTIONS

QA1 Circle Track Carbon Fiber Driveshafts  
QA1 P/N JJ-112xx and JJ-122xx

**WARNING:** Be sure to inspect all components regularly, especially following a crash. Do not use any components which may have been damaged.

**WARNING:** Composite driveshafts are fragile and if dropped or damaged will be considered scrap and should be replaced.

### Installation of a Carbon Fiber Driveshaft

Ensure all components are clean and free of contaminants and debris.

1. Check the slip yoke fit and travel in transmission.
  - a) Install the slip yoke into the transmission. Apply the transmission manufacturer's recommended lubricant to the slip yoke before installation.
  - b) Verify that the slip yoke will fully engage into the transmission tail housing by sliding the slip yoke in until it stops.
  - c) Make note of where the slip yoke stops, either against the transmission seal or if it bottoms out internally against the transmission output shaft and record this for future reference. If the slip yoke bottoms out internally, use a permanent marker to draw a line where the slip yoke stops. (See **Figure 1**) It is important to reference this point when making chassis adjustments, such as wheelbase or vehicle ride height, in order to verify the driveshaft does not bottom out in the transmission as the suspension moves through its full range of travel. If the driveshaft ever fully bottoms out on the transmission, it will damage the transmission or the driveshaft.
  - d) Verify the slip yoke movement in transmission. The yoke should be a slip fit and be able to slide smoothly in and out of the transmission.
  - e) Check the fit between the slip yoke and the transmission tail housing bushing. Position the slip yoke in the transmission to the approximate racing location. Hold on to the universal joint end of the slip yoke and move it up and down ensuring there is not an excessive amount of slip yoke movement. If the amount of movement is excessive, the bushing in the transmission tail housing may need to be replaced.
2. With the front of the driveshaft installed, verify the fit of the rear driveshaft universal joint to the pinion yoke.

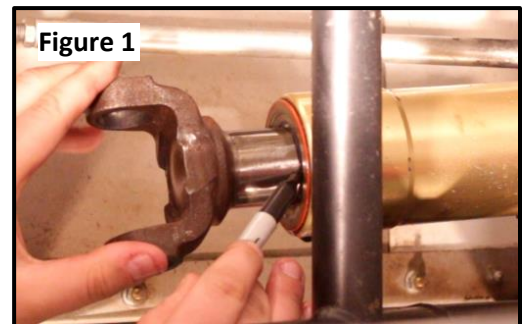
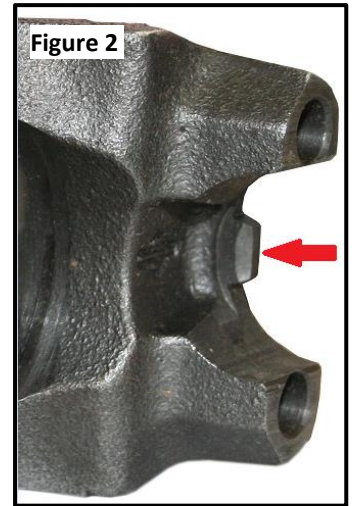


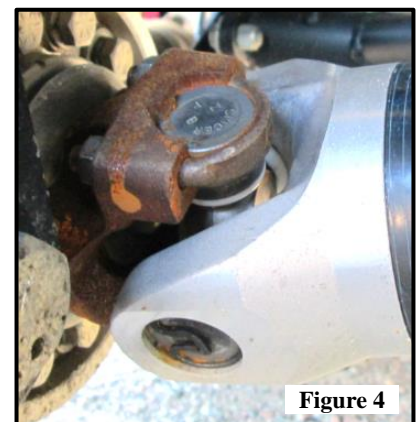
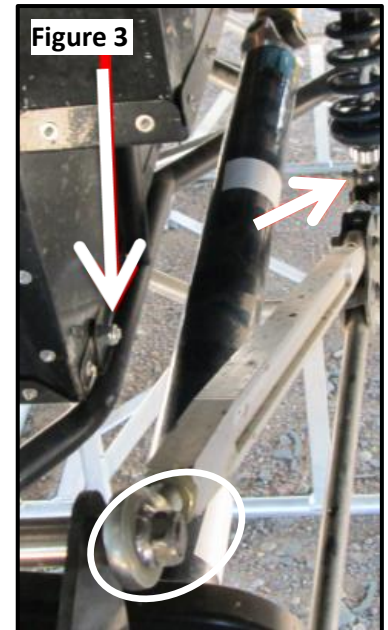
Figure 1

- a) Ensure the rear suspension is at the full droop position. If the rear droop limiters are the shocks, disconnecting the shocks to allow the rear suspension to rest on the droop limiters/chains is recommended.
- b) Ensure the pinion yoke universal cap area is clean and free of dirt or debris. Pay close attention to the area next to the locating tab, which can be seen in **Figure 2**.
- c) Install the driveshaft universal joint into the pinion yoke.
- d) Verify that the universal joint fits snugly between the locating tabs on the pinion yoke. (**Figure 2**)
- e) Ensure the universal joint cap diameter matches that of the pinion yoke.
- f) Check the clearance between the driveshaft and pinion yokes. Put the transmission in neutral and spin driveshaft to look for any points of contact between the driveshaft and pinion yoke. Now is also a good time to ensure that there is no contact between the slip yoke/ball spline yoke and the front of the driveshaft.
- g) Examine the U-bolts and nuts to ensure that they are long enough for full thread engagement and are in good condition.
- h) Install and torque the U-bolts to 14-17 lb. ft. Be careful not to over-tighten the U-bolts as this can deform the universal joint cap and cause premature wear or failure.



### 3. Traveling the Rear Suspension

- a) Always travel the suspension through its full range of motion to ensure that the driveshaft is able to handle the misalignment. Also verify that the drive shaft does not come into contact with anything such as frame members, suspension components, or exhaust. Pay close attention to any seat belt bolts or 5<sup>th</sup> coil bolts to make sure they do not touch the driveshaft. (See **Figure 3**) Be sure to use good shop practices and always use jack stands.
- b) Using a floor jack, raise the rear end housing to its maximum travel. If equipped with a torque arm, be sure to simulate the movement that would be seen in racing conditions. The 5<sup>th</sup> coil shock may need to disconnect to simulate torque wrap-up. Verify that the slip yoke does not come out of or plunge into the transmission too far throughout the entire range of suspension motion. Also, check that the driveshaft will rotate around the universal joints without binding or hitting any other components.
- c) Note in **Figure 4** where the U-bolts can crash under extreme deceleration or acceleration conditions. This is where to watch for interference between the U-bolt and tube yoke.



# Additional Driveshaft Information

## Washing Recommendations

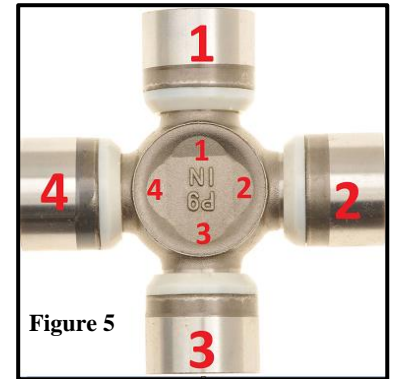
It is recommended to wash the composite driveshaft with soap and water only. Avoid contact with chemicals.

## Proper Universal Joint Installation Procedure

It is recommended to cold press the universal joints in and out of the driveshaft for replacement as the addition of heat to the tube yoke will cause the bond between the yoke and tube to fail. Do not mix bearing cups and bearing journals, see note below. Ensure retaining clips are fully seated by tapping them into place with a hammer and punch. Each cap has a small removable thrust washer inside it - take care not to lose these.

## Spicer Sealed Universal Joints

Do not mix bearing cups on bearing journals. Due to the exact amount of lubrication required for each cup, cups must remain matched with cross journals. Mismatching of cups on cross journals will result in improper quantities of lubrication in cups, causing premature joint failure. Addition of lubrication may damage bearing cup seals, leading to premature joint failure. Numbering the bearing cups and journals is recommended to prevent mixing them up. Please refer to Dana Spicer document J311-21 and **Figure 5**.



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