American Iron

Ford Dana 60 Installation Instructions

1. For weld-in systems use a flapwheel/grinder to prep the surface of the outer knuckle for welding. Remove any debris, rust, ect so you have a clean surface to weld to.
2. Each uni-ball cup will be inserted from the top side of each hole and will have a machined surface to ensure the correct depth.
    a. For weld-in systems, remove the bearings prior to welding.
    b. For press-in systems, place the entire bearing assembly in a freezer for 1-2 hours or overnight to allow easier installation. It is important to press the assembly into the knuckle with the bearing installed to avoid distortion of the cup as it's being pressed. When pressing, the force should be applied to the cup itself and NOT the bearing.
3. For weld-in applications the cup should be tacked initially so it doesn't move during welding. Weld in a 12-3, 6-9, 3-6, and 9-12 o'clock pattern allowing time to cool between the first set of welds, (this will limit cup distortion from heat). Pre-heating the knuckle will ensure proper weld penetration. Inserting a socket or aluminum foil into the inside of the bearing cup will assist in absorbing heat and ensuring no weld splatter lands inside the cup. Once the cup is cool, insert bearings by GENTLY tapping into place using a socket on the race of the bearing, and install c-clips.
4. Upper bearings are F2 fit (moveable by hand), lower bearings are F1 fit (not moveable by hand), since the lower assembly sees more load.
5. For press-in versions you will have another set of snap rings that will install on the OD of cups into snap ring grooves located on the bottom of each cup. Note: the snap rings for upper assemblies have a flat edge machined to avoid contact with the 7075 bushings.
6. If your 7075 bushings are not pre milled with a flat, See Appendix A for instructions on calculating the required caster/camber adjustment and Appendix B for instructions on trimming the bushing for correct caster/camber.
7. Install the bushings and insert cone washer into upper bushing and align holes for assembly using 7/8" bolt and locknuts. If the bushings cannot be tapped in, **STOP** and **DO NOT** pound them into the hole with a hammer…..aluminum is soft so obviously things don't fit well afterwards. (They will not be warrantied if they've been smashed with a hammer.)
8. Place longer machined cone into bottom of inner C and slide 7/8" bolt from bottom through the bearing/cone/inner C and use corresponding 7/8" locknut.
9. Lower torque specs: **100 ft/lbs** and upper torque specs: **80 ft/lbs** should be torqued in sequence every 20 ft/lbs (with rotation of knuckle in between) beginning at the lower assembly. Due to the F1 fit lower bearings and the fact there is no weight on the vehicle

Thank you for choosing Balljoint Delete Systems by American Iron!

For offroad use only, email help@americanironoffroad.com for any questions

the knuckles will be hard to rotate once torqued. You may experience less “return to center” after install with more responsive steering which will lessen within 100-500 miles (break-in period).

Appendix A: Calculating adjustment of caster/camber:

If you have a driveshaft with a double-cardan at the transfer case the pinion angle at the differential should be in a straight line (or 0 degrees). This must be done first to get a handle on what caster/camber you have. Next, using an angle finder on the flat portion of the inner C, measure the degree of positive caster (top of the inner C angled toward the rear of the vehicle. This number should be in the 6-8* range for optimal driving characteristics. Minimal caster results in wandering.

American Iron

Appendix B: Trimming 7075 bushing for correct caster/camber

Now what you know what caster number you're shooting for its time to look at camber. Racing or rock crawling applications benefit greatly from –3* camber to reduce scrub radius, but this isn't desirable outside of that application due to tire wear.

The start position is with the bushing slit pointed directly in the center of the flat portion of the inner C. On 92-04 Ford D60's that flat portion is located on the outer edge of the inner C, on the 05-current Ford D60's the flat portion is located on the inner portion of the inner C. **This start position is –3* camber for the 3* bushing set and –1.5* for the 1.5 sets.** Read carefully as settings below will be for 3* and 1.5* bushings with corresponding degrees of rotation. To achieve settings listed the driver's side will be rotated clockwise and passenger side rotated counter-clockwise.

Camber (for 3* sets)	Caster (for 3* sets)	Degree of Rotation
-3*	0*	0* (start position)
-2*	+1*	30*
-1.5*	+1.5*	45*
-1*	+2*	60*
-.5*	+2.5*	75*
-.25*	+2.75*	82.5*
0*	+3*	90*

**Above table is based on 3* bushing set. For every 15* of rotation, there will be .5* of change. Adding to one subtracts from the other due to the hole offset moving in an arc.

Camber (for 1.5* sets)	Caster (for 1.5* sets)	Degree of Rotation
-1.5	0*	0* (start position)
-.75*	+.75*	45*
-.5*	+1*	75*
-.25*	+1.25*	82.5*
0*	+1.5*	90*

**Above table is based on 1.5* bushing set. For every 15* of rotation there will be .25* of change. Adding to one subtracts from the other due to the hold offset moving in an arc, but with less overall change due to a less drastic offset. These sets are for more of a "stock" caster/camber adjustment.

Trimming should be performed with a flapwheel and the corresponding flats should match closely to avoid bushing movement.

Thank you for choosing Balljoint Delete Systems by American Iron!
For offroad use only, email help@americanironoffroad.com for any questions