Lokka Installation - Toyota

Read the instructions completely before starting this part of the procedure.

Take note of the backlash between the ring gear and pinion gears by holding the pinion flange steady and rocking the ring gear back and forth. Rotate 90degrees and try again. Repeat 4 times. The amount of movement should be approximately even in all 4 positions and be between 0.008 and 0.016".

Undo the carrier bearing retainer bolts, remove each retainer and bolt combination being careful to keep the different assemblies separate.

Lift the carrier assembly from the differential housing. Mark the 2 parts of the carrier so they can be reassembled to the exact same location.

Undo the 2 parts of the carrier assembly. Remove the ring gear, the cross spider, gears, washers and spring.

Remove some of the LSD plates, retain the outer most LSD plate and NOTE which side it is fitted. They are commonly different thicknesses on each side and it is important they remain in their original side. Also note that the large cross hatch pattern fits against the hemisphere not the next washer.

Choose the best condition shiny LSD plate from each side of the LSD plate assemblies. It MUST be one of shiny chrome plates – NOT one of the 'cross hatched clutch plates'. The least amount of scoring and other wear possible.

These plates will be used as the 'Thrust Washers' for the new Axle gears, referred to below. It will fit to the inner surface of the outer most LSD plate.

Examine the spider. If there is any sign of wear, particularly where the pinion gears spin, then replace the spider. It is essential for the correct operation of the locker that this shaft is in perfect condition. Wear of only 0.002" is unacceptable. Sub standard replacement cross shafts are characterised by soft case hardening and are therefore not suitable for this application.

The Lokka must be 1: symmetrical about the cross shafts and 2: within operating tolerance.

1: Check for Symmetry
Fit an axle gear and thrust washer into the ring gear side of the carrier, spin to make sure it has settled.
Position the spacer 'ring' over the centre of the axle gear.
Locate the cross spider into position.
With a feeler gauge measure the gap between the cross spider centre block and the top of the spacer ring.
This gap should be between 0.006 and 0.020".

Now repeat for the second axle gear in the other part of the carrier assembly.
Record the measurements.

If they are within the variation then the Lokka is symmetrical about the cross shaft. If the clearances are not uniform then one or other of the thrust washers will need to be changed to make it symmetrical. Maximum variation allowed is 0.010".
The result must be the cam gears are symmetrical about the spider.

Do not alter the thrust washers yet.

2: Check for Operating Tolerance
Put a little grease into all the holes and teeth of each Lokka cam gear. Fit a spring into each of the deeper slotted holes in each cam gear. (2 per gear). Fit a pin into each of the round holes in each cam gear (2 per gear) with the step or nipple exposed. The step locates the pin into the end of the spring.

Locate one cam gear onto an axle gear already in one half of the carrier. Do not fit the spider.
Position the second cam gear onto the first, aligning pins with springs. Push down a couple of times to make sure the gears move freely and the pins and springs are aligned.

Position the second axle gear (and thrust washers) onto the second cam gear, gently seat the carrier end onto this gear and bolt the carrier together using 2 or 3 bolts only. Make sure the Lokka gears are meshed.

Rotate the Lokka assembly so that the gap between the 2 cam gears can be measured. Gain access through the casting cavities in the carrier or through the cross shaft holes in the carrier. Lever the gears apart with 2 opposing screw drivers (or similar) so the maximum measurement can be taken.

Withdraw the levers to take measurement and record. Use 2 feeler gauges simultaneously so 'cocking or tilting' of the cam gears is very limited. Average the 2 feeler gauge measurements.

This measurement should be from 0.140 to 0.165". If not, then both thrust washers will need to be changed or machined to compensate.

Do not alter the thrust washers yet.

Now consider the check for symmetry and overall tolerance. If the Lokka is not symmetrical then a thrust washer will need to altered and if the tolerance gap is too great or too small then possibly both washers will need to be altered.

Alter the thickness of the thrust washers if required.

The end result must be that the Lokka is symmetrical about the cross spider (greater accuracy results in improved driving behaviour) and certainly within the operating tolerance of 0.140 to 0.165".

3: Continue

Disassemble so the spider can be fitted for final assembly.

Reassemble the carrier as before with the spider located between the cam gears. Ascertain the pins and springs are aligned before final tightening of the assembly bolts.

Place the carrier bearing cups and retainers on the carrier bearings and lift carrier assembly into the differential housing. Be sure to reposition to the exact location as prior to disassembly. Locate the retainer bolts into the housing loosely. Tighten in sequence.

Check ring gear to pinion backlash as the bolts are tightened. When tight the backlash will be the same as before disassembly.