



BLACKHAWK

ULTIMATE

**NEW ADJUSTABLE
UPPER CONTROL ARM**

**FITTING
INSTRUCTIONS**



**ENGINEERED TO PERFORM
OFF ROAD READY**

STREET LEGAL





FITTING INSTRUCTIONS

- VEHICLE** Toyota Prado 120 / Prado 150 / FJ Cruiser
- PRODUCT** Blackhawk ULTIMATE Adjustable Upper Control Arms
- PN#** BHU3841P
- NOTE** Ensure vehicle has a wheel alignment immediately after installation. Failure to do so may result in poor drivability and/or uneven tyre wear.

NEW ULTIMATE UPPER CONTROL ARM

IMPORTANT NOTE BEFORE INSTALLATION

The H/D Ball joints fitted to Blackhawk 4x4 Ultimate UCA's have been manufactured in the Hard-to-Hard style and require regular greasing, PLEASE ENSURE YOU GREASE THE BALLJOINTS PRIOR TO FITMENT & AT REGULAR SERVICE INTERVALS

DO NOT APPLY any lubricants to the threads or surfaces of the adjuster. It is coated and designed to work with no lubricant.

TOOLS REQUIRED

- General hand tools
- Torque wrench

TOOLS SUPPLIED

- 2x Blackhawk Ultimate Spanners
- 1x 16mm ø Bushing Alignment Rod

PRE ASSEMBLED

- 1x Blackhawk Ultimate LH Upper Control Arm Forging
- 1x Blackhawk Ultimate RH Upper Control Arm Forging
- 2x Blackhawk Ultimate Elliptical Bal Joint
- 2x Turnbuckle Adjuster
- 4x Final Lock Nut LH Thread
- 4x Final Lock Nut RH Thread
- 4x Intermediate Lock Nut LH Thread
- 4x Intermediate Lock Nut RH Thread
- 4x Bush Apertures w/ Bushes
- 2x ABS Lead Clamp

HARDWARE

- 4x M6x1mm – 20mm Socket Head Cap Screw
- 4x M5x0.8mm – 10mm Socket Button Head Cap Screw

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Only suitably qualified and accredited mechanics, with specialist 4WD Suspension knowledge should attempt fitment of these upper control arms. Ensure vehicle has a wheel alignment immediately after installation. Failure to do so may result in poor drivability and/or uneven tyre wear.



blackhawk4x4.com

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NEW ULTIMATE UPPER CONTROL ARM

1. Remove Upper control arms from Vehicle

- Lift vehicle using hoist or jacks and support appropriately.
- Remove wheels.
- Disconnect the ABS line from the factory UCA.
- Remove the upper ball joint locking pin and undo the nut securing the upper ball joint to the steering knuckle. Leave the nut on the last few threads and do not remove yet. FAILURE TO DO SO MAY DAMAGE THREAD.
- Remove the upper control arm inner retaining bolt/s and remove the factory upper control arm from vehicle.

For touring alignment measurements providing increased castor over factory and neutral camber settings, please follow the TOURING SETUP instructions below. For more advanced alignments where user specific alignment values are preferred, please go to page 5 and follow the PERFORMANCE SETUP instructions.



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NEW ULTIMATE UPPER CONTROL ARM

Set-Up: Touring

2. Set up Blackhawk 4x4 ULTIMATE Adjustable Upper Control Arms

- Scan the QR code or visit www.roadsafe.com.au for the adjuster settings required for your vehicle and suspension lift.
- Set out the Blackhawk 4x4 UCA on a bench and ensure all components have been supplied.
- Remove the ball joint cap on both UCA's and ensure ball joints are properly greased. If ball joint does not accept grease, articulate ball joint until grease is accepted. 5 - 10 pumps of a grease gun or until grease can be felt inside the grease boot is sufficient.
- Align the bush holes, making sure the bush flange is on the outside, feed the supplied steel rod through the bush centres and secure the steel rod to a stable work bench.
- Adjust the assembly to the recommended settings for your suspension lift. Measuring from the inner face of both the bush aperture and the insert in the main forging. **See Figure 1.**
See appendix for application specific base line adjustments.

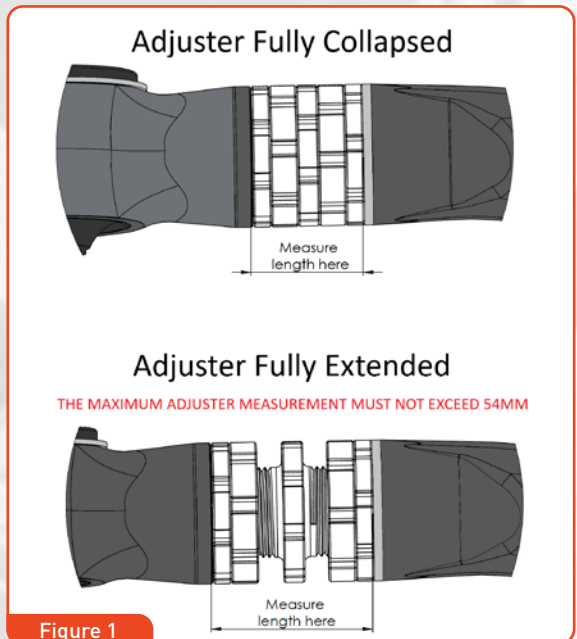


Figure 1

3. Using the supplied Blackhawk ULTIMATE spanners, tighten the locking nuts to the correct initial torques in the following order. To achieve the required final torques, secure the steel rod to a stable work bench or similar.

- Tighten the Intermediate locknut (Left hand thread) against the arm to approximately 40 Nm.
- Tighten the Intermediate locknut (Right hand thread) against the bush aperture to approximately 40 Nm.
- Tighten the final locknut (Left hand thread) against the arm to approximately 40 Nm.

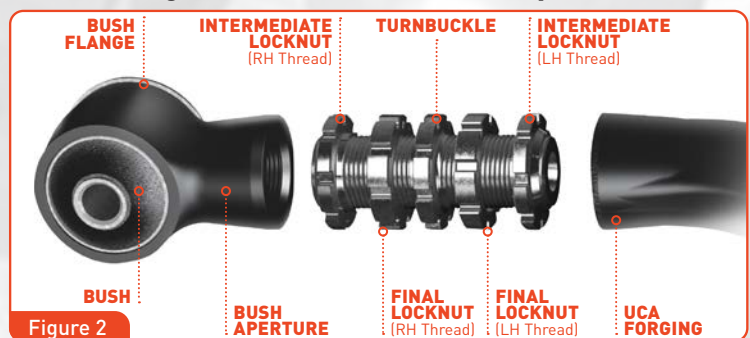


Figure 2

Only suitably qualified and accredited mechanics, with specialist 4WD Suspension knowledge should attempt fitment of these upper control arms. Ensure vehicle has a wheel alignment immediately after installation. Failure to do so may result in poor drivability and/or uneven tyre wear.

FITTING INSTRUCTIONS

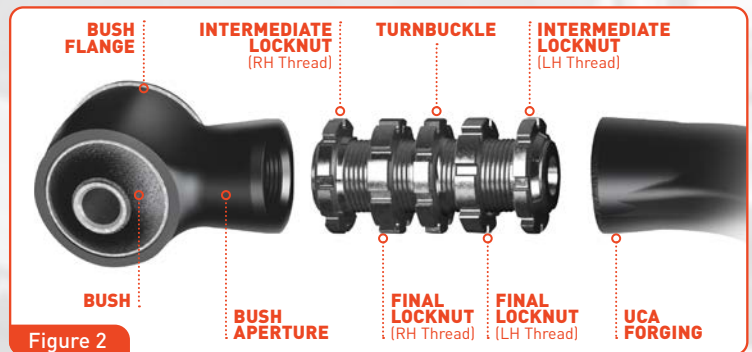
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NEW ULTIMATE UPPER CONTROL ARM

3. Using the supplied Blackhawk ULTIMATE spanners, tighten the locking nuts to the correct initial torques in the following order. To achieve the required final torques, secure the steel rod to a stable work bench or similar - cont.

- d. Tighten the final locknut (Right hand thread) against the arm to approximately 40 Nm.
- e. Once both adjusters have tightened to their initial specification:
 - i. **TIGHTEN THE FINAL LOCKNUT (LEFT HAND THREAD) AGAINST THE ARM TO 100Nm.**
 - ii. **TIGHTEN THE FINAL LOCKNUT (LEFT HAND THREAD) AGAINST THE ARM TO 100Nm.**

See Figure 2.



4. Fit Blackhawk 4x4 ULTIMATE Adjustable Upper Control Arms to vehicle

- a. With the arms now set to the required alignment setting, and the adjusters locked off to the required torque setting, the Blackhawk 4x4 Ultimate arms are now ready for fitment to vehicle. *Installer must ensure the final lock nuts on the UCA have been torqued to 100Nm.*
- b. Offer the UCA to the vehicle and loosely secure the inner arm bolt(s) (DO NOT TIGHTEN AT THIS STAGE)
- c. Fitment is the reverse of the removal.
- d. Remove the factory bracket from ABS line. Secure the ABS line to the upper control arm using the clamp provided, ensuring there is enough slack in the line to allow for articulation.
- e. Once the arm is refitted to the suspension, refit the wheels, and lower the vehicle to the ground and torque the wheel nuts to the correct specification.
- f. Now tighten the inner upper control arm bolts to the factory torque settings.

Note: This step is to ensure there is no preload on the inner bushes when the vehicle suspension is at ride height.

5. Wheel Alignment

- a. Carry out wheel alignment using factory adjusters to desired specifications.
- b. Finish alignment and test drive.
- c. Please note that the adjuster measurements specific in the attached appendix are designed to achieve 0 camber with the lower eccentrics centralised. More specialised applications can utilise further adjustments.

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NEW ULTIMATE UPPER CONTROL ARM

Set-Up: Performance

2. Set up Blackhawk 4x4 ULTIMATE Adjustable Upper Control Arms

- Set out the Blackhawk 4x4 UCA on a bench and ensure all components have been supplied.
- Remove the ball joint cap on both UCA's and ensure ball joints are properly greased. If ball joint does not accept grease, articulate ball joint until grease is accepted. 5 - 10 pumps of a grease gun or until grease can be felt inside the grease boot is sufficient.
- Make sure the adjustment assembly is compressed all the way in and both sets of locknuts are loosely against the centre of the turnbuckle.
- Align the bush holes, making sure the bush flange is on the outside.
- Adjust the assembly to the recommended settings for your suspension lift. Measuring from the inner face of both the bush aperture and the insert in the main forging. The preset measurements can be used as a base line starting point.

See Figure 1.

See appendix for application specific base line adjustments

3. Fit Blackhawk 4x4 ULTIMATE Adjustable Upper Control Arms to vehicle

- With the arms now set to the baseline alignment setting, The Blackhawk 4x4 Ultimate arms are now ready for fitment to vehicle.
- Offer the UCA to the vehicle and loosely secure the inner arm bolt(s) (DO NOT TIGHTEN AT THIS STAGE)
- Fitment is the reverse of the removal.
- Once the arm is refitted to the suspension, refit the wheels, and lower the vehicle to the ground and torque the wheel nuts to the correct specification.
- Now tighten the inner upper control arm bolts to the factory torque settings.

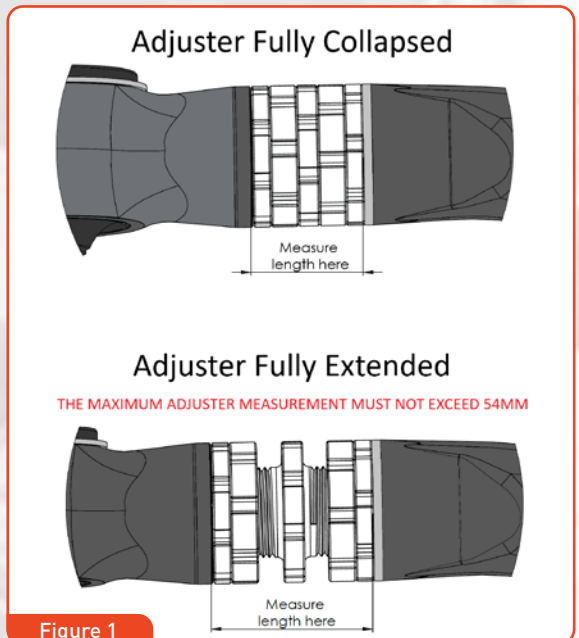


Figure 1

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4. Wheel Alignment

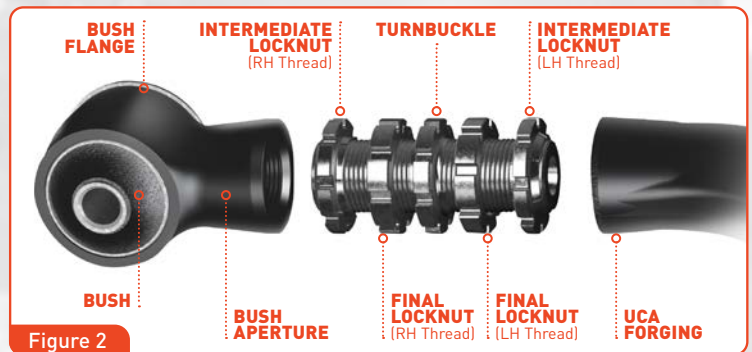
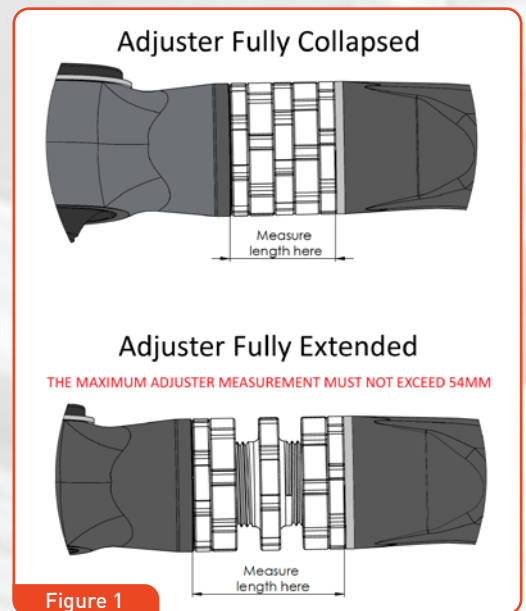
- a. For a maximum performance alignment, we will be setting the lower eccentrics to the maximum outboard setting and using the Blackhawk ULTIMATE UCA to adjust the camber and castor. This maximizes wheel track and wheel travel capability.

Special care must be taken by the installer to ensure there is adequate clearance between all the suspension components, wheel and inner guard at all points in the suspension travel and steering lock with the customer's specific suspension, wheel and tyre combination.

- b. After setting lower eccentrics to maximum outboard position and locking off, use the UCA adjusters to set the alignment to the desired camber and castor settings.

The adjuster measurement must not exceed 54mm
See Figure 1.

- c. Tighten the Intermediate locknut (Left hand thread) against the arm to approximately 40 Nm.
- d. Tighten the Intermediate locknut (Right hand thread) against the bush aperture to approximately 40 Nm.
- e. Tighten the final locknut (Left hand thread) against the arm to approximately 40 Nm.
- f. Tighten the final locknut (Right hand thread) against the arm to approximately 40 Nm. **See Figure 2.**
- g. Tighten the locknuts to the final torque setting. You may need to remove the wheel or UCA to achieve the final torque rating.
- i. TIGHTEN THE FINAL LOCKNUT (LEFT HAND THREAD) AGAINST THE ARM TO 100 Nm.**
- ii. TIGHTEN THE FINAL LOCKNUT (RIGHT HAND THREAD) AGAINST THE ARM TO 100 Nm.**
- h. Finish alignment and test drive.



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APPENDIX

- At each set vehicle lift, the following adjuster measurements will provide OE camber specs with centered lower eccentrics and an additional 1 degree of caster over OE. Further increases in castor or preferred camber adjustments can be achieved via the adjustment of the lower eccentrics.
- Further performance alignments may vary beyond these adjuster measurements.

Note: the maximum adjuster measurement must never exceed 54mm.

Vehicle Lift (mm)	Adjuster Measurement (mm)
0	54
30	53
50	50
70	47.5
100	47.5

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