INSTALLATION GUIDE

TOYOTA HILUX

2015+

Suspension Installation Instructions

NOTE: Occupational Health & Safety procedures must be observed at all times.

IMPORTANT: *Installations should only be done by a qualified person and it is the responsibility of this person to ensure correct fitment.*

191017

HILUX
Revo
2015+

TOYOTA

Product			Part No.	Qty Req
FRONT SUSPENSION				
SHOCK ABSORBER				
Nitro Gas Strut			**12730GR**	2
Foam Cell Strut			**24730FE**	2
Foam Cell Pro Strut			**45730FE**	2
• Height adjustable with Ironman 4x4 Strut Trim Packers				
• Operating clearance to sway bar can be increased by loosening sway bar / chassis bolts and pushing sway bar fully forward				
COIL SPRINGS	Est. Lift	Additional Load		
Standard	0mm	0 - 50kg	**TOY055A**	1
Comfort	20mm	0 - 50kg	**TOY055B**	1
Performance	35mm	0 - 50kg	**TOY055C**	1
Performance with Accessories	40mm	0 - 50kg	**TOY065B**	1
Constant Load	45mm	50 - 110kg	**TOY065C**	1
STRUT MOUNTS				
Steel Strut Top			**ISST001**	2
TRIM PACKERS				
5mm Strut Trim Packer	(Nitro Gas / Foam Cell)		**HILFR05 / HILFR05F**	2
10mm Strut Trim Packer	(Nitro Gas / Foam Cell)		**HILFR10 / HILFR10F**	2
15mm Strut Trim Packer	(Nitro Gas / Foam Cell)		**HILFR15 / HILFR15F**	2
• ONLY Compatible with Ironman 4x4 Struts (except Pro), lift height subject to 1:2 motion ratio. Unnecessary fitment may lift vehicle too high				
REAR SUSPENSION				
SHOCK ABSORBER				
Nitro Gas Comfort			**12081GRC**	2
Nitro Gas			**12081GR**	2
Foam Cell Comfort			**24081FEC**	2
Foam Cell			**24081FE**	2
Foam Cell Pro Comfort			**45081FEC**	2
Foam Cell Pro			**45081FE**	2
LEAF SPRINGS	Est. Lift	Additional Load		
Comfort	40mm	0 -100kg	**TOY077A**	2
Performance	45mm	0 -200kg	**TOY077B**	2
Constant Load	45mm	200 - 400kg	**TOY077C**	2
Extra Constant Load	45mm	400kg - GVM	**TOY077D**	2
• New spring pins 387-1 may be required, as OEM orientation may require cutting for removal				
U-BOLTS				
U-Bolt Kit			**437UBKL**	2
POLYURETHANE SPRING BUSHES				
Bush Kit			**767UK**	1
SPACER KIT				
Centre Bearing Spacer Kit			**1192K**	1
GREASABLE SHACKLES AND PINS				
Greasable Shackle			**1155**	2
Non-Greasable Pin			**387-1**	2
HELPER SPRINGS				
Load Plus Helper Springs			**LP2**	1
Add-A-Leaf			**ISL6010**	1

Listing continued on following page

Product	Part No.	Qty Req

TOYOTA

SUSPENSION KIT

Comfort w/ Gas Shocks	**TOY077AKG**
Comfort w/ Foam Cell Shocks	**TOY077AKF**
Comfort w/ Foam Cell Pro Shocks	**TOY077AKP**
Performance w/ Gas Shocks	**TOY077BKG**
Performance w/ Foam Cell Shocks	**TOY077BKF**
Performance w/ Foam Cell Pro Shocks	**TOY077BKP**
Constant Load w/ Gas Shocks	**TOY077CKG**
Constant Load w/ Foam Cell Shocks	**TOY077CKF**
Constant Load w/ Foam Cell Pro Shocks	**TOY077CKP**
Extra Constant Load w/ Gas Shocks	**TOY077DKG**
Extra Constant Load w/ Foam Cell Shocks	**TOY077DKF**
Extra Constant Load w/ Foam Cell Pro Shocks	**TOY077DKP**

- *Specify Front Coil Springs when ordering*

GVM UPGRADE

3510kg Temporary Load Foam Cell Shocks	Pre-Registration	**TOY077CKFGVM**
3510kg Temporary Load Foam Cell Shocks	Post Registration	**TOY077CKFGVM1**
3510kg Temporary Load Foam Cell Pro Shocks	Pre-Registration	**TOY077CKPGVM**
3510kg Temporary Load Foam Cell Pro Shocks	Post Registration	**TOY077CKPGVM1**
3510kg Permanent Load Foam Cell Shocks	Pre-Registration	**TOY077DKFGVM**
3510kg Permanent Load Foam Cell Shocks	Post Registration	**TOY077DKFGVM1**
3510kg Permanent Load Foam Cell Pro Shocks	Pre-Registration	**TOY077DKPGVM**
3510kg Permanent Load Foam Cell Pro Shocks	Post Registration	**TOY077DKPGVM1**

- *Australian Customers Only*
- *Only available through authorised Ironman 4x4 GVM upgrade installers*
- *Plus engineering fee - Post Registration Only*

SUSPENSION KIT CONTENTS

- Shock Absorbers
- Strut Shock Absorbers
- Coil Springs
- Leaf Springs
- U-Bolts
- Polyurethane Spring Bushes
- Non-Greasable Pins

GVM UPGRADE KIT CONTENTS

- Shock Absorbers
- Strut Shock Absorbers
- Coil Springs
- Leaf Springs
- U-Bolts
- Polyurethane Spring Bushes
- Greasable Shackles
- Non-Greasable Pins
- Compliance Plate
- Tyre Placard

INSTALLATION FORM

Always ensure you have all the correct parts before beginning installation.
Installing suspension often requires special tools and expert knowledge. All fitment should be performed by a qualified and experienced fitter.
Always tighten bushed components after the vehicle is let down onto the ground at normal ride height, otherwise damage from torsional stresses can occur.
Brake proportioning valves should only be adjusted by a qualified brake specialist if necessary.
Ironman recommends a wheel alignment after fitment of new suspension, consideration to natural spring settling should be taken into account before alignment is done.
Always adhere to vehicle manufacturers torque specification when tightening fasteners.
Always grease polyurethane bushes prior to fitment, Ironman 4x4 recommends a molybdenum based grease or grease specified for polyurethane.

OWNER DETAILS

NAME: ..... PHONE: .....

ADDRESS: .....

VEHICLE DETAILS

MAKE: .....MODEL: .....REG / VIN:..... MILEAGE: .....

ENGINE TYPE: ..... BODY TYPE: .....

PRE EXISTING MODIFICATIONS OR WEIGHTED ACCESSORIES: .....

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PART NUMBERS TO BE INSTALLED

PART # ..... TYPE: ..... PART # ..... TYPE: .....

PART # ..... TYPE: ..... PART # ..... TYPE: .....

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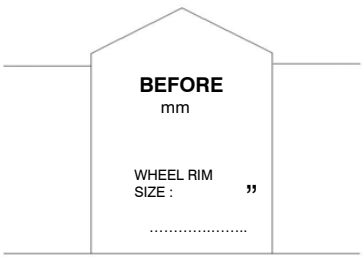
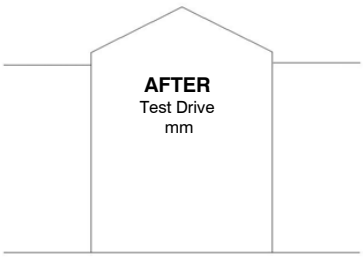
SUSPENSION MEASUREMENTS

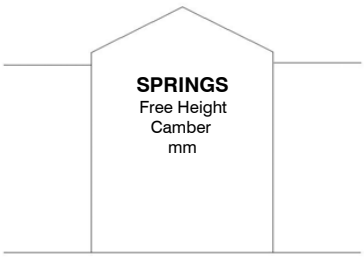
VEHICLE HEIGHT
LOWER OF WHEEL RIM TO GUARD





SUSPENSION MEASUREMENTS

ACTUAL MEASUREMENT OF NEW SPRINGS
PRIOR TO INSTALLATION



NOTES AND COMMENTS

NOTES: .....

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All measurements to be taken prior to installation, immediately after initial test drive and again at 500km check.
All vehicle height measurements to be taken from lower of wheel rim to guard unless otherwise stated. Up to 10 mm height reduction in springs can be considered normal setting over time. All measurements are metric except wheel rim size. Warranty period is 3 years or 60,000 km unless otherwise stated.

Front Suspension – Removing components

1. Raise the vehicle on the hoist.
2. Remove the wheels

- Ensure all new components received are correct before removal of existing parts
- Coil Springs store massive amounts of energy when compressed, extreme care must be used when handling.
- Retain all OE hardware.
- Perform the following procedures one side at a time, unless otherwise shown.

STRUT REMOVAL

(See Page 6 for strut component detail)

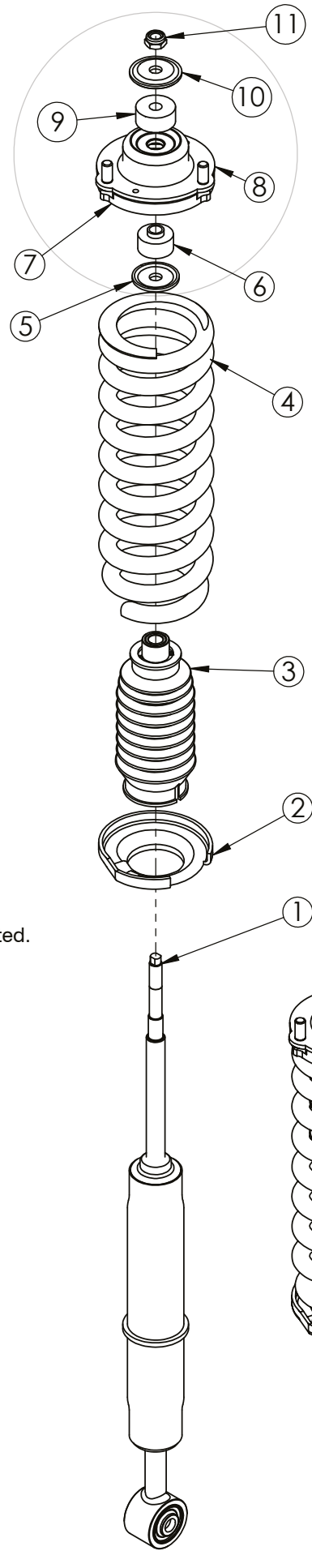
3. Remove the radiator protection plate, disconnect the sway bar link rod and remove the sway bar "D" brackets from both sides of the vehicle. Move the sway bar up and out of the way.
4. Undo the castellated nut and release the steering arm, on both sides.
5. Remove 3 nuts from top strut plate. (DO NOT remove centre rod nut at this time)

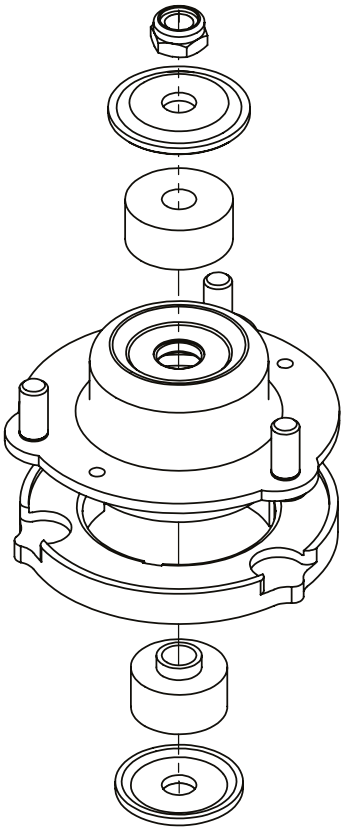
5.b Mark one of the 3 studs and its corresponding hole on the chassis with a paint pen or similar, this will aid in the orientation upon re-installation.

6. Remove lower shock absorber bolt.
7. Remove strut from vehicle.
8. Place strut in high quality strut spring compressor. Ironman 4X4 recommends a wall mounted or free standing compressor system, NOT hand held screw type. Compress spring in strut compressor until the strut assembly is loose with all pressure contained by the compressor.
9. Remove centre rod nut, top plate and strut away from coil. Carefully and gradually release pressure from spring.

IRONMAN 4X4 STRUT
SUIT TOYOTA
24730FE

Assembly Instructions





Detail View, Upper Assembly

Refer to vehicle manufacturers workshop manual for detailed removal and installation instructions.

Expert knowledge and special tools will be required

These instructions provide additional specific information relevant to the Ironman 4x4 strut.

WARNING:
DO NOT LOOSTEN OR REMOVE CENTRE TOP NUT UNTIL ALL SPRING TENSION HAS BEEN CONTAINED USING A HIGH QUALITY STRUT SPRING COMPRESSOR.

Follow assembly order, as indicated (Right).

Trim packers should NOT be fitted.

Use newly supplied bushes and washers during re-assembly. Assemble in the order shown above.

Align cutout in spring plate toward front of vehicle to provide clearance to sway bar,

Align coil to match helix in lower spring plate.

Carefully align the top plate and lower strut bush to suit vehicle mount before releasing from strut spring compressor.

Ensure top nut is tightened fully with coil still compressed by a strut spring compressor.

Lower bush must only be tightened after vehicle is lowered to the ground at final ride height. Failure to do so can prematurely damage the bush.

Strut Mount Installation Guidelines

Part No. ISST001

Suitable for Toyota: Hilux, Prado 120, Prado 150, FJ Cruiser, Fortuner, 4Runner, Tacoma

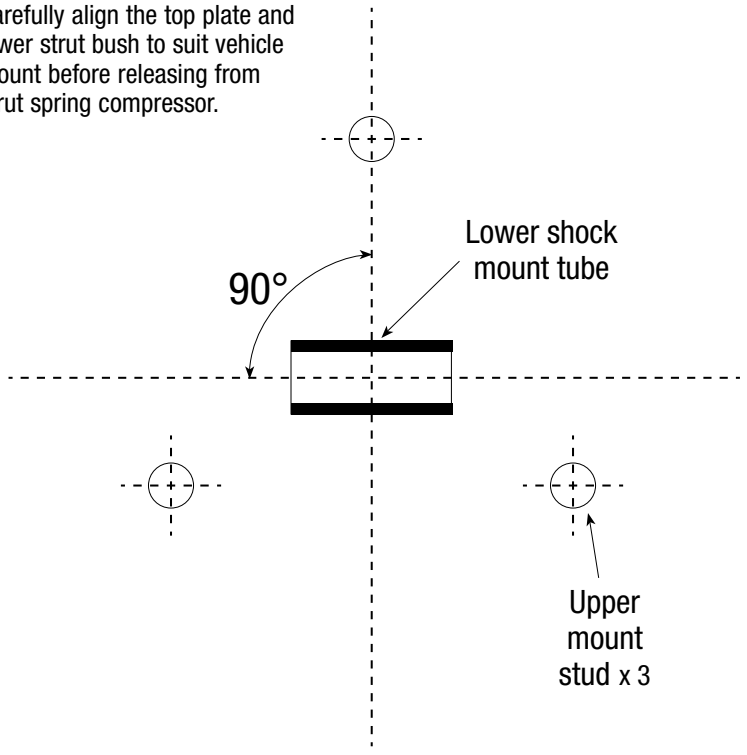
Struts:
12710GR, 24710FE, 45710FE
12730GR, 24730FE, 45730FE
12750GR, 24750FE, 45750FE

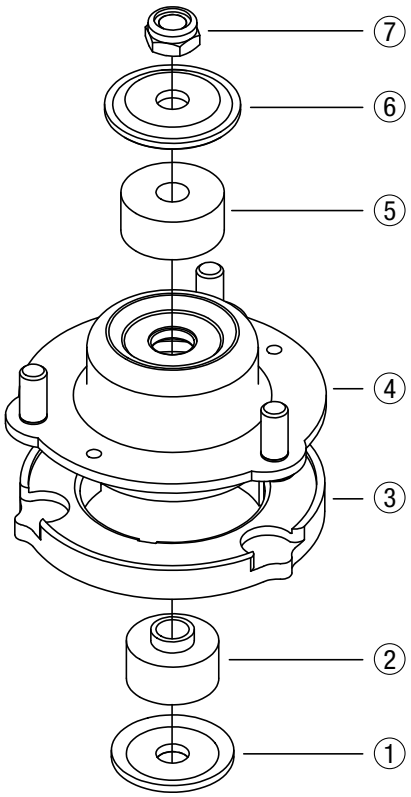
Springs:
TOY038B, TOY038C,
TOY055A, TOY055B, TOY055C,
TOY065A, TOY065B, TOY065C

WARNING:
DO NOT LOOSEN OR REMOVE CENTRE TOP NUT UNTIL ALL SPRING TENSION HAS BEEN CONTAINED USING A HIGH QUALITY STRUT SPRING COMPRESSOR.

- Refer to vehicle manufacturers workshop manual for detailed removal and installation instructions.
- Expert knowledge and special tools will be required
- Follow assembly illustration as a guide only.
- Use newly supplied bushes and washers during re-assembly. Assemble in the order shown below.
- Ensure top nut is tightened fully with coil still compressed by a strut spring compressor.

Carefully align the top plate and lower strut bush to suit vehicle mount before releasing from strut spring compressor.





Warranty will be voided by damage or failure caused by incorrect procedure.
Before proceeding to install strut mounts please fully read guidelines above and ensure that necessary tools are on hand.

Always wear personal safety protection ie. Safety glasses and gloves to prevent injury.

Front Suspension – Installing components

STRUT INSTALLATION

(See Page 6 for strut component detail)

10. Place TOY055/TOY065 spring in compressor and compress to approximately the same length required to remove the OE coil.

    Assemble 12730GR, 24730FE or 45730FE strut and top plate into the new coil spring. Using new Ironman 4x4 hardware supplied, fit centre rod nut finger tight. Rotate strut and top plate relationship so lower mount and 3 top studs are positioned correctly for installation into vehicle, take care to position your paint marked stud in the right location (See Page 6).

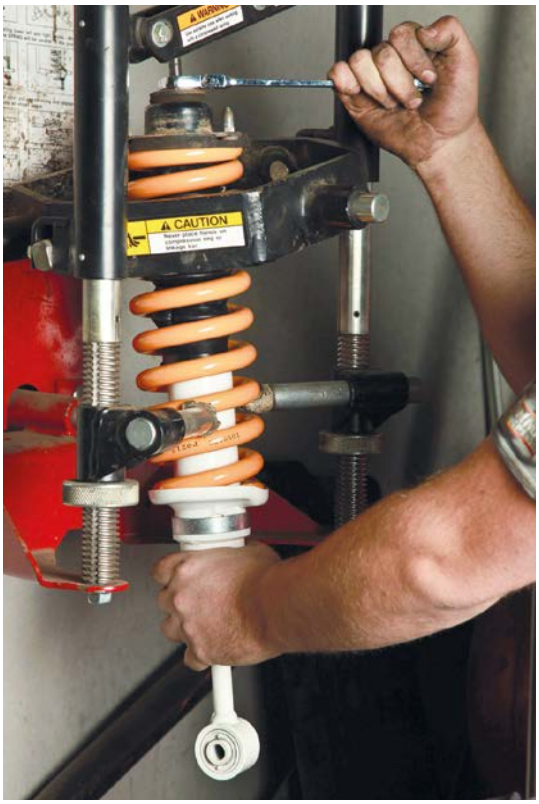
    This relationship must be accurate to within 2mm for successful installation. Tighten centre top nut until it bottoms out, then torque to 30Nm, using a torque wrench, NOT an impact gun.

11. Install the new strut assembly into the vehicle, reverse of removal. Repeat Step 10. for other side of vehicle. Re-attach all previously removed hardware. Tighten top studs (40Nm), sway bar Links (70Nm) and D Brackets (48Nm) and steering arm using a new split pin. Refit radiator protection plate (28Nm).

    DO NOT Tighten lower strut bolts at this time. Leave only finger tight until the vehicle is lowered to the ground and at ride height.

    Note: If extra clearance is required, between front sway bar and strut spring seat refer sway bar adjustment procedure on the following page.

    Perform same operation to both sides of vehicle.



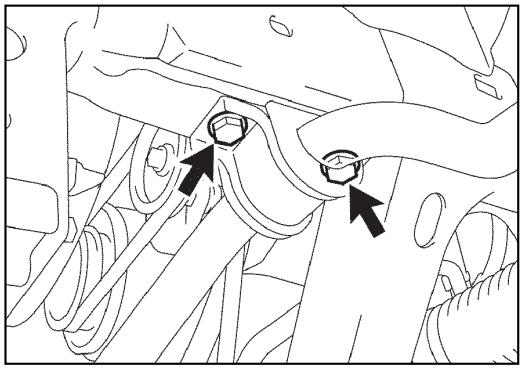
Toyota Hilux / Fortuner 2015+
Front Sway Bar Adjustment Instructions

Tools

- 14mm Socket with Ratchet
- Prybar
- Tension Wrench

The front sway bar may foul the strut spring seat once vehicle is raised. The mounting brackets for the front sway bar have oversized bolt holes which allows the sway bar to be positioned further forward to clear the strut.

1. Loosen the bolts securing the sway bar to the chassis



2. Using a prybar, lever the sway bar as far forward as possible.

With sway bar in forward position - gap

3. Whist levering the sway bar forward, re-tighten the bolts to 40Nm and check for clearance.

Repeat for other side of vehicle.

Before proceeding please fully read instructions and ensure that necessary tools are on hand.

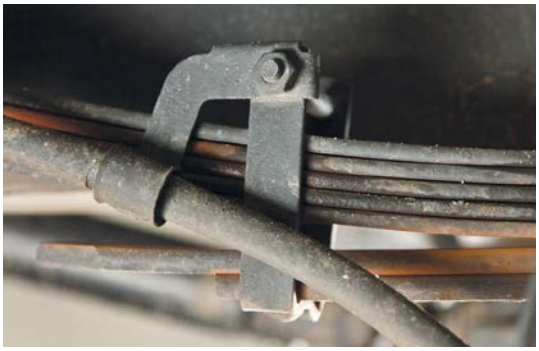
Always wear personal safety protection ie. Safety glasses and gloves to prevent injury.

Rear Suspension – Removing Components

1. With the vehicle on the hoist and support rear differential with floor stand/s to prevent damage to brake hoses from over stretching.

2. Undo the bolt clip on the leaf spring and release the brake line support bracket.

3. Remove the OE Shock Absorber.



4. Disconnect headlight sensor bracket from shackle.

5. Disconnect headlight sensor adjuster arm from leaf spring clip.

   Note: shown with protective cover removed.

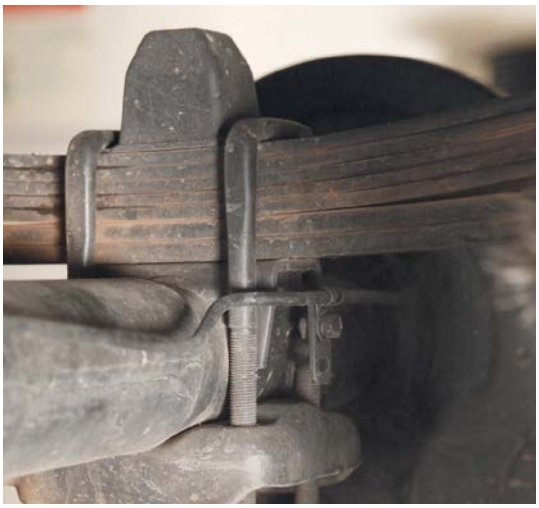
6. Remove the leaf spring U-bolts.

7. Remove the fixed end pin and the spring shackle.

   It may be necessary to cut original bolt from vehicle due to fuel tank obstruction

8. Remove the spring from the vehicle.

9. Remove the OE frame shackle bushings.



Rear Suspension – Installing Components

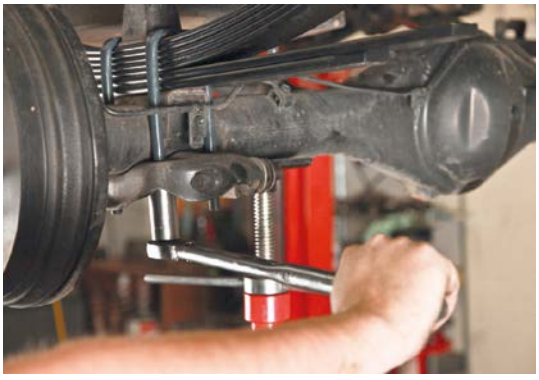
10. Install the new bushings (P/N 767UK) in the spring eyes and frame. Use a thin coat of grease (molybdenum disulphide) on the inside of the bush and the outer face of the flange.

    DO NOT grease the outside diameter of the bush.

11. Check new spring centre bolt is tight (45Nm).

12. Install new leaf spring (P/N TOY077), fixed end pin and greasable shackle (P/N 1155 + 387-1) on the vehicle, reverse of removal. Only finger tighten at this time, to prevent shackle lock.

13. Raise the axle up to the spring, making sure to align the spring centre bolt with the hole in the spring perch. Install new U-bolts, nuts and washers (P/N 678UBK). Torque U-bolts to 120Nm.



14. Re-fit the brake line support bracket onto the new leaf spring bolt clip (14Nm).

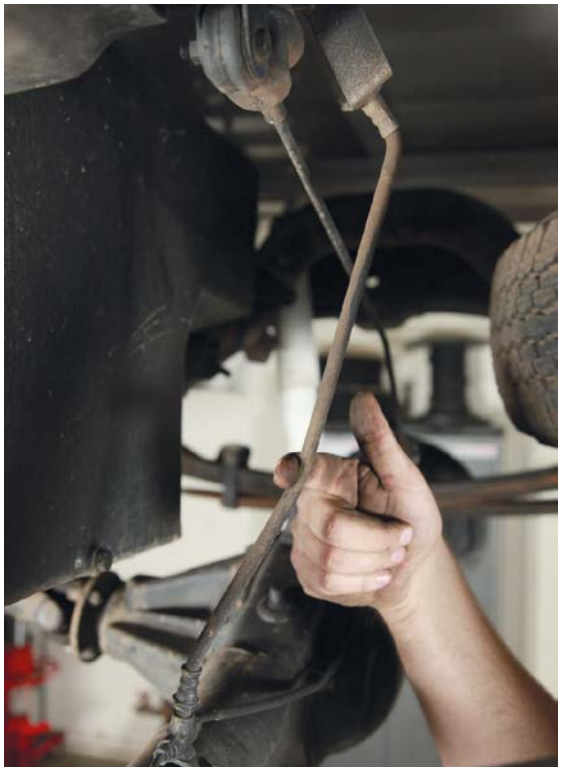
15. Re-attach headlight sensor to shackle and sensor arm to leaf spring as shown. Reverse of removal.

16. Install new Ironman 4x4 shock absorber, using supplied hardware and leave finger tight until vehicle is at ride height.

NOTE:
Due to the large body diameter of Foam Cell Pro Shock Absorbers, the mounting eyes are offset and packing washers are supplied. This is allows for clearance adjustment from the diff housing, handbrake cable, sway bar etc.

It is the installer's responsibility to make sure that the shock absorber has adequate clearance.

17. Check all brake lines and diff breather hose to ensure that no binding has occurred and that full extension does not stretch the lines. If necessary, bend the brake hose support bracket, to prevent stretching of brake hose.



18. Refit all wheels. Tension wheel nuts to 90Nm. Lower the vehicle to the ground and bounce the vehicle to settle the suspension. Re-tension wheel nuts to 110Nm.

    Tighten leaf spring fixed end pin (120Nm) and shackle pins (90Nm)

19. Torque the rear shock absorber mounts (105Nm)

    Torque the front shock absorber lower mount to (95Nm) with the vehicle on flat level ground.

    Re-check all fasteners for correct torque.

20. Measure and record ride height after initial test drive using installation form (Page 3).

21. A wheel alignment should be carried out within 2 weeks or 500km after fitment of suspension.

22. Check headlight alignment.

23. Check all fasteners after 2 weeks or 500km.

Greasable Shackle

1) Screw grease nipples into shackle pins and tension to 4-5ft/lb.
2) Screw shackle pins into head plate by hand until firm.

Press bushes into leaf spring eyes.
Grease inside of bushes and the head flange only if polyurethane bushes are being used. (Do not apply grease to outside of bush).

Also apply an even coverage of grease to shackle pin surface.

Insert shackle assembly through bushes, ensure mounting direction allows future access to grease nipples.

3) Place remaining shackle plate over pin ends.
4) Place spring washers and nuts over pin ends.

(Do not tighten at this stage, firm finger tight will be sufficiant).
Lower vehicle to ground and bounce to neutralise. Ensure shackles are operating freely and have settled into correct position. (See fig 2)

5) After vehicle is lowered to ground, now you can tighten the short nuts to 90ft/lb.

6) Fit and tighten head plate deep nuts to 85ft/lb

Check all fasteners after 500km, re-grease periodically if polyurethane bushes have been fitted.

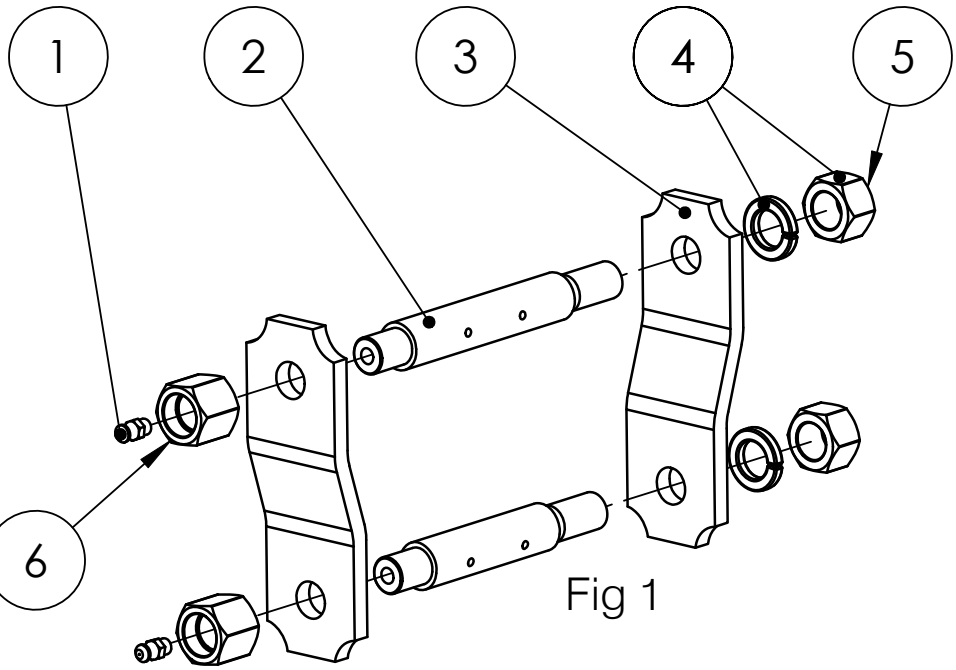


Fig 1

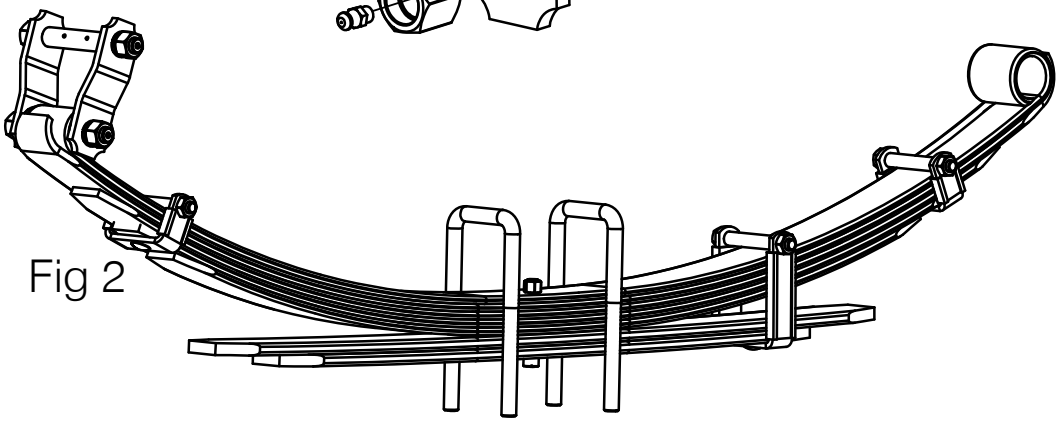


Fig 2

A small amount of thread locking compund is acceptable, however not essential.

Ironman 4x4 recommends Molybdenum Disulfide based grease for use with polyurethane bushes.

Actual components may vary depending on model.
Some image detail ommitted for clarity.