INSTALLATION GUIDE

FORD RANGER

2011+

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

RANGER

(Not USA Model) T6 PX and PX Mk II
2011+

FORD

Product			Part No.	Qty Req
FRONT SUSPENSION				
SHOCK ABSORBER				
Nitro Gas Strut			**12727GR**	2
Foam Cell Strut			**24727FE**	2
Foam Cell Pro Strut			**45727FE**	2
• Height adjustable with Ironman 4x4 Strut Trim Packers				
COIL SPRINGS	Est. Lift	Additional Load		
Standard	0mm	0 - 50kg	**FOR001S**	1
Comfort	35mm	0 - 50kg	**FOR001A**	1
Performance	40mm	0 - 50kg	**FOR001B**	1
Constant Load	45mm	50 - 110kg	**FOR001C**	1
STRUT MOUNTS				
Steel Strut Top			**ISST014**	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				
SPACER KIT				
Sway Bar Relocation Kit			**1203K**	1
REAR SUSPENSION				
SHOCK ABSORBER				
Nitro Gas Comfort			**12095GRC**	2
Nitro Gas			**12095GR**	2
Foam Cell Comfort			**24095FEC**	2
Foam Cell			**24095FE**	2
Foam Cell Pro Comfort			**45095FEC**	2
Foam Cell Pro			**45095FE**	2
LEAF SPRINGS	Est. Lift	Additional Load		
Comfort	40mm	0 - 200kg	**FOR002A**	2
Performance	45mm	0 - 300kg	**FOR002B**	2
Constant Load	45mm	300kg - GVM	**FOR002C**	2
• Possible driveline vibration may occur due to increased ride height, use 1194K to reduce vibration to satisfactory level				
U-BOLTS				
U-Bolt Kit			**417UBK**	2
POLYURETHANE SPRING BUSHES				
Bush Kit			**1193UK**	1
DRIVELINE SPACERS				
Centre Bearing Spacer Kit			**1194K**	1
GREASABLE SHACKLES AND PINS				
Greasable Shackle			**1147**	2
Non-Greasable Pin			**387-1**	2
HELPER SPRINGS				
Load Plus Helper Springs			**LP3**	1
Add-A-Leaf			**ISL6010**	1

Listing continued on following page

Product	Part No.	Qty Req

FORD

SUSPENSION KIT

Comfort w/ Gas Shocks	**FOR001AKG**
Comfort w/ Foam Cell Shocks	**FOR001AKF**
Comfort w/ Foam Cell Pro Shocks	**FOR001AKP**
Performance w/ Gas Shocks	**FOR001BKG**
Performance w/ Foam Cell Shocks	**FOR001BKF**
Performance w/ Foam Cell Pro Shocks	**FOR001BKP**
Constant Load w/ Gas Shocks	**FOR001CKG**
Constant Load w/ Foam Cell Shocks	**FOR001CKF**
Constant Load w/ Foam Cell Pro Shocks	**FOR001CKP**

- *Specify front Coil Springs when ordering*
- *Possible driveline vibration may occur due to increased ride height, use 1194K to reduce vibration to satisfactory level*

GVM UPGRADE

3330kg Temporary Load Foam Cell Shocks	Pre-Registration	**FOR001BKFGVM**
3330kg Temporary Load Foam Cell Shocks	Post Registration	**FOR001BKFGVM1**
3330kg Temporary Load Foam Cell Pro Shocks	Pre-Registration	**FOR001BKPGVM**
3330kg Temporary Load Foam Cell Pro Shocks	Post Registration	**FOR001BKPGVM1**
3330kg Permanent Load Foam Cell Shocks	Pre-Registration	**FOR001CKFGVM**
3330kg Permanent Load Foam Cell Shocks	Post Registration	**FOR001CKFGVM1**
3330kg Permanent Load Foam Cell Pro Shocks	Pre-Registration	**FOR001CKPGVM**
3330kg Permanent Load Foam Cell Pro Shocks	Post Registration	**FOR001CKPGVM1**

- *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
- Centre Bearing Spacer Kit

GVM UPGRADE KIT CONTENTS

- Shock Absorbers
- Strut Shock Absorbers
- Coil Springs
- Leaf Springs
- U-Bolts
- Polyurethane Spring Bushes
- Centre Bearing Spacer Kit
- Greasable Shackles
- Compliance Plate

INSTALLATION FORM

Please copy and complete this form at the time of installation. Keep in a safe place for future reference.

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: .....

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

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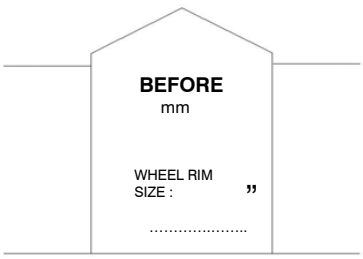
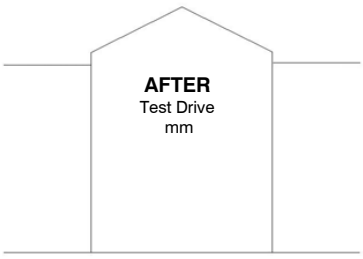
SUSPENSION MEASUREMENTS

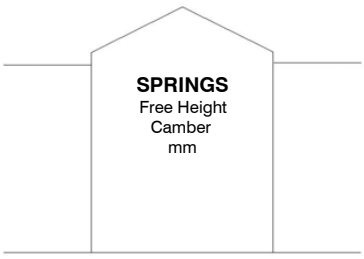
VEHICLE HEIGHT
LOWER OF WHEEL RIM TO GUARD





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

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.

Strut Mount Installation Guidelines

Part No. ISST014

Suitable for Ford: Ranger, Everest, and Mazda: BT-50

Struts:
12727GR, 24727FE, 45727FE

Springs:
FOR001S, FOR001A, FOR001B, FOR001C

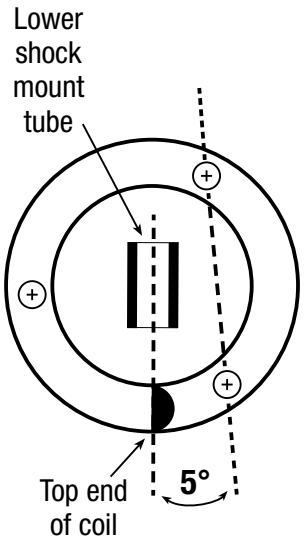
WARNING:
DO NOT LOOSEN OR REMOVE CENTRE TOP NUT UNTIL ALL SPRING TENSION HAS BEEN CONTAINED USING A HIGH QUALITY STRUT SPRING COMPRESSOR.

- 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.

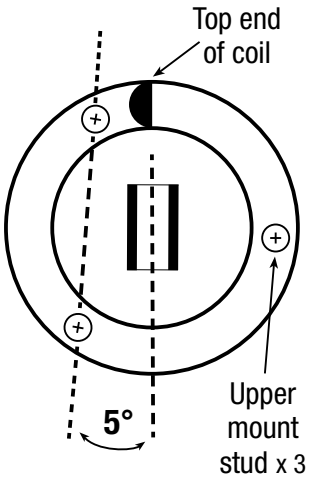
Carefully align the top plate and lower strut bush to suit vehicle mount before releasing from strut spring compressor.

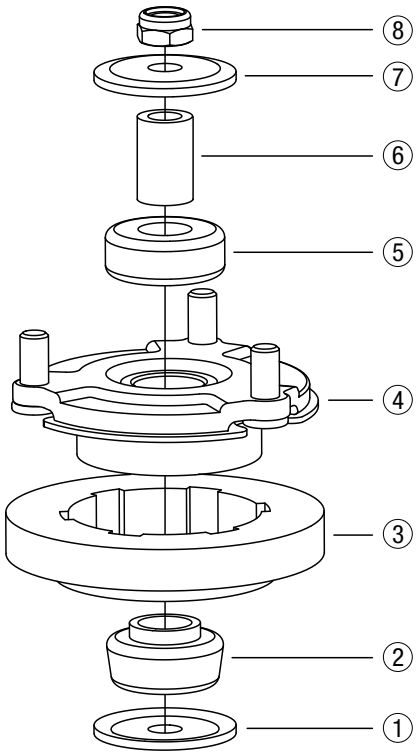
Front of Vehicle

LEFT SIDE OF VEHICLE



RIGHT SIDE OF VEHICLE





NOTE: Completed assembly must be labelled LEFT and RIGHT.

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 FOR001 spring in compressor and compress to approximately the same length required to remove the OE coil.

    Assemble 24727FE or 45727FE 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).

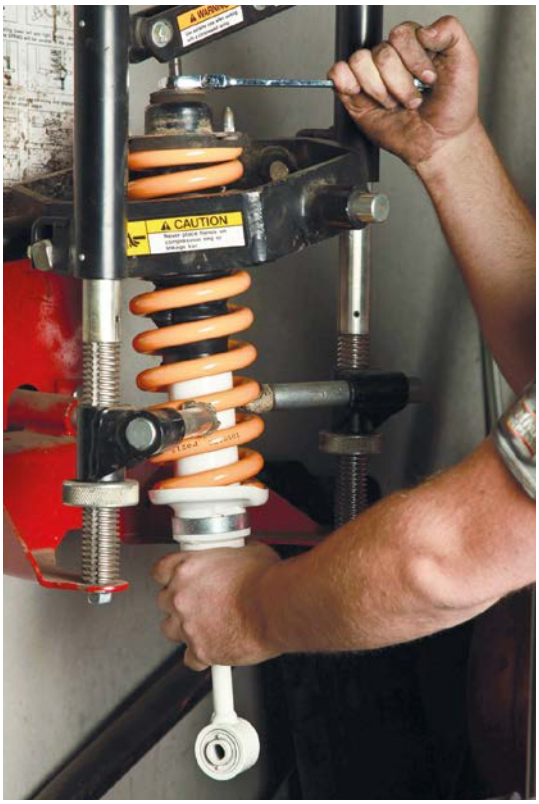
    This relationship must be accurate to within 2mm for successful installation. Tighten centre top nut until it bottoms out, then torque to 30Nm, using a torque wrench, NOT an impact gun.

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 use Front Sway Bar Relocation Kit P/N: 1203K as instructed on the following page.

    Perform same operation to both sides of vehicle.



Ford Ranger / Mazda BT50 MY17+ PART NUMBER: 1203K
Front Sway Bar Relocation Kit

It will be necessary to remove the front under body plate in order to install this kit.

1. Remove the 2 bolts and 2 nuts that secure the sway bar mounts to the front of the chassis crossmember.

2. Install the relocation plates to the original position of the sway bar mounts and reinstall the factory bolts and nuts.

NOTE: *THE TALLER SIDE OF THE PLATE SHOULD BE TOWARD THE CENTRE OF THE VEHICLE. Refer Fig 1.*

3. Reposition sway bar mounting rubbers and brackets in alignment with remaining holes in the plates.

4. Re-install mounts using the new hardware provided. *Refer Fig 2.*

5. Tension all fasteners to 145Nm.

Fig 1.

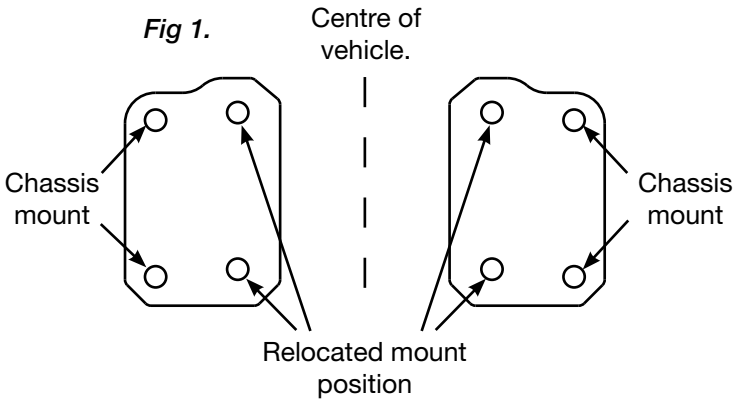
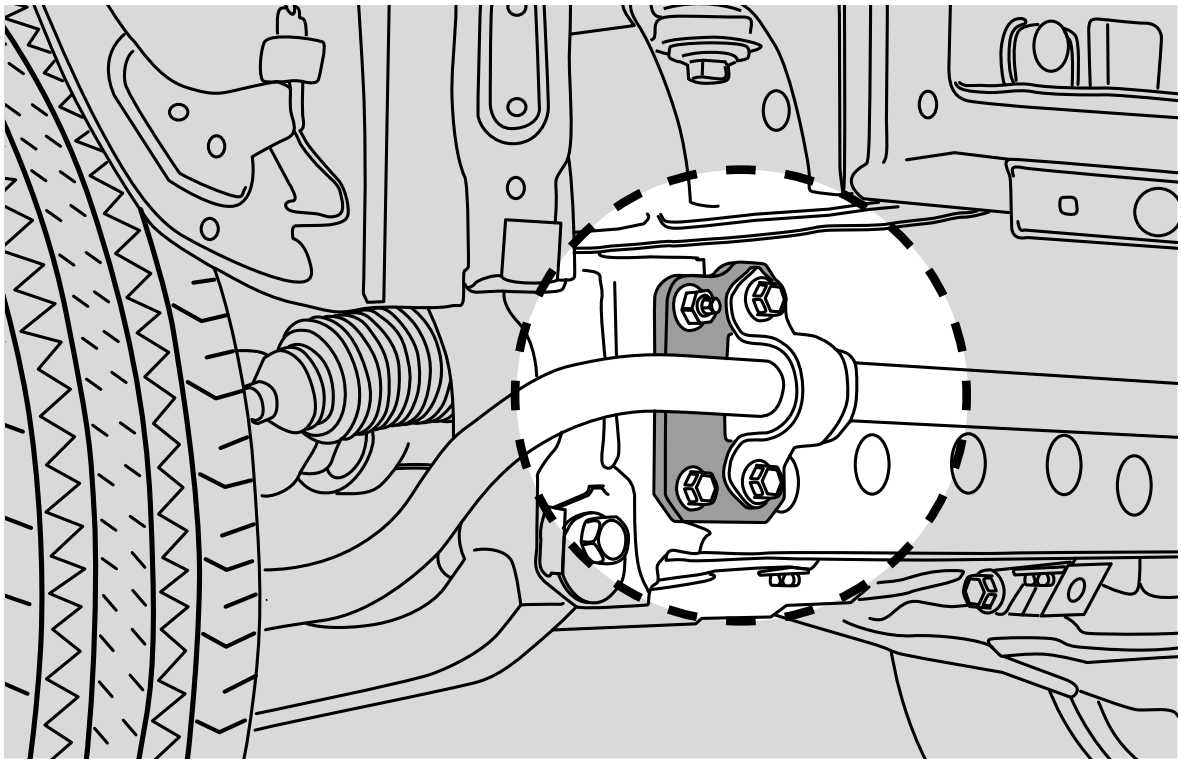
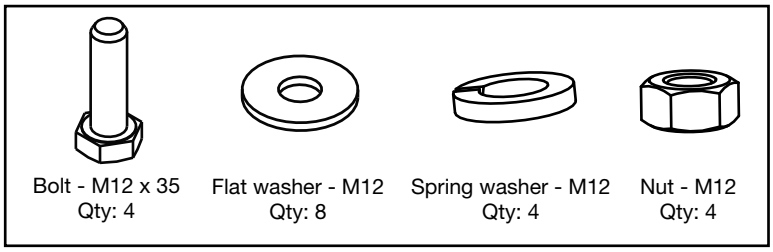


Fig 2.





Thread:	M12 x 1.25
Tightening Torque:	145Nm

Rear Suspension – Removing Components

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

2. Remove the leaf spring U-bolts.

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

4. Remove the spring from the vehicle.

5. Remove the OE frame shackle bushings.

Rear Suspension – Installing Components

6. Install the new bushings (P/N 1193UK) 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.

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

8. Install new leaf spring (P/N FOR002), fixed end pin and greasable shackle (P/N 1147 + 387-1) on the vehicle, reverse of removal. Only finger tighten at this time, to prevent shackle lock.

9. Place the spring on top of the axle, making sure to align the spring centre bolt with the hole in the spring perch. Install new U-bolts (P/N 417UBK), nuts and washers. Torque U-bolts to 120Nm.

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.

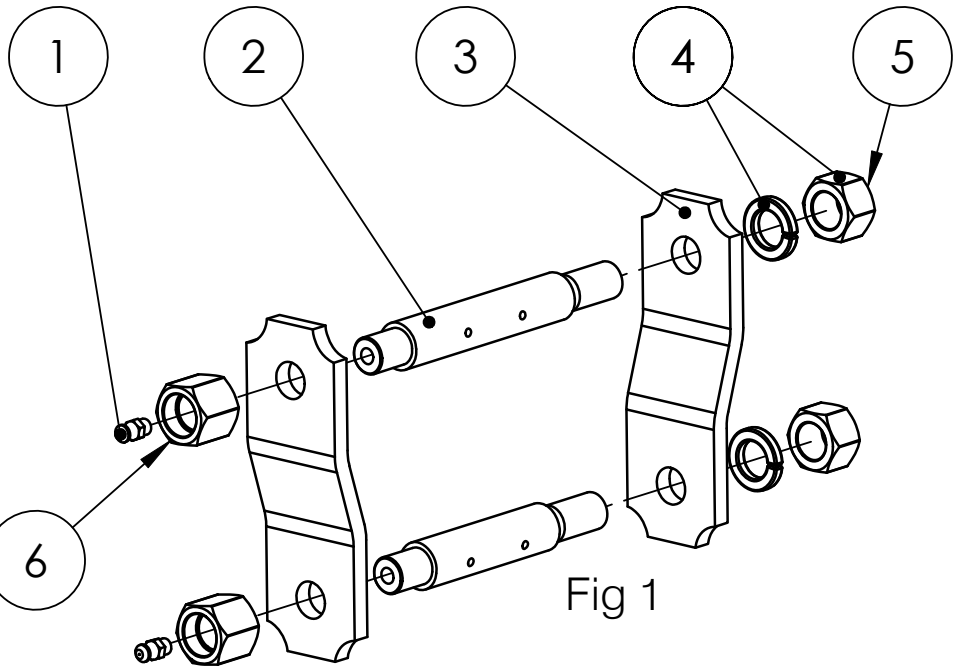


Fig 1

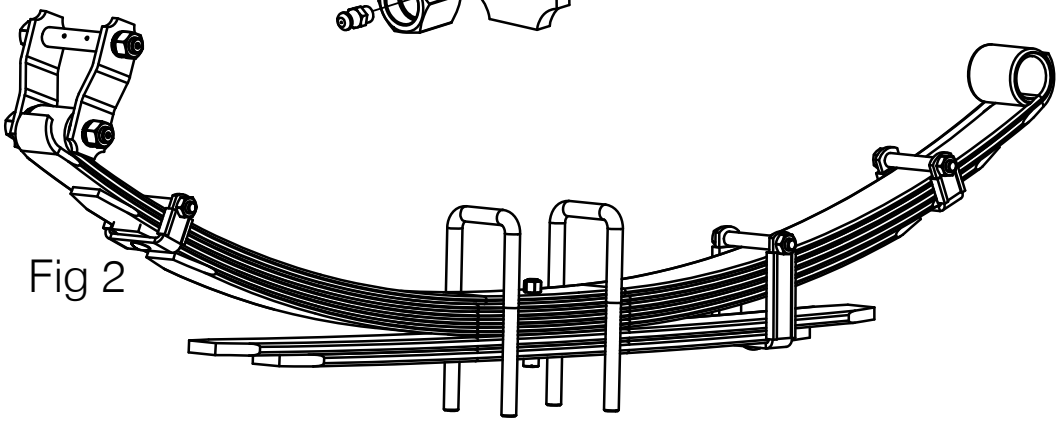


Fig 2

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

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

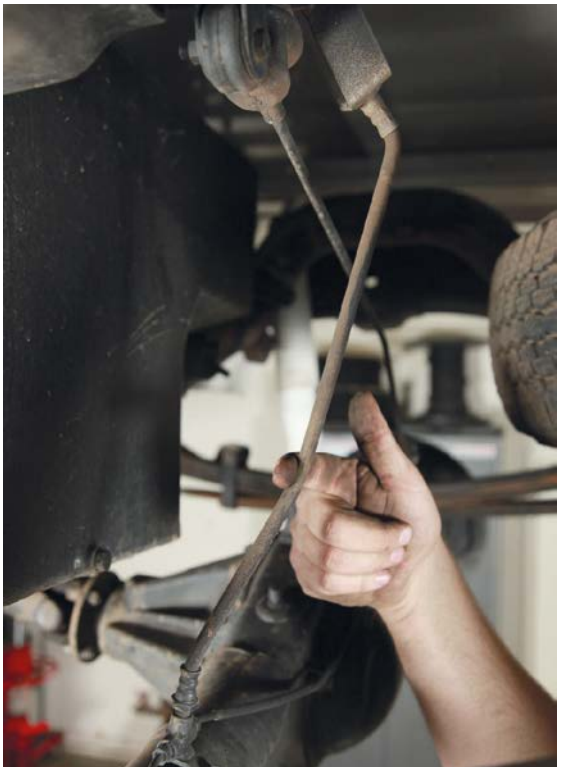
Actual components may vary depending on model.
Some image detail ommitted for clarity.

10. 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.

11. 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.



12. Refit all wheels. Tension wheel nuts to 110Nm. Lower the vehicle to the ground and bounce the vehicle to settle the suspension. Re-tension wheel nuts to 130Nm.

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

13. 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.

14. Measure and record ride height after initial test drive using installation form (Page 4).
15. A wheel alignment should be carried out within 2 weeks or 500km after fitment of suspension.
16. Check headlight alignment.
17. Check all fasteners after 2 weeks or 500km.
18. If required due to driveline vibration, install Centre Bearing Spacer Kit (PN 1194K). Refer to instructions on next page.

INSTALLATION GUIDE

Part Number 1194K

Driveshaft Centre Bearing Spacer Kit

Up to 20mm Spacing with 5mm Increments

Ford Ranger PX / T6, Mazda BT50
10/2011+

Allow 20 - 30 Mins Installation Time.

This kit is intended to reduce vibration as much as possible to achieve a satisfactory result. Vibration may not be eliminated completely.

1. Operation may be performed on ground, or if raised, ensure the vehicle is supported with suitable jacks / hoist and vehicle stands.

   Carefully support driveshaft to prevent injury or damage from a falling shaft.

   Perform the following operations to both sides of the bearing.
2. Remove both original nuts from the centre bearing mount and make sure the shaft is adequately supported.
3. Add first spacer plate over stud (See Fig 1).

   **Must use the plate with the smaller 10mm hole first.*

   Add any additional plates as required. It is advisable to start with fewer plates and increase as necessary after test drives (See Fig 2).

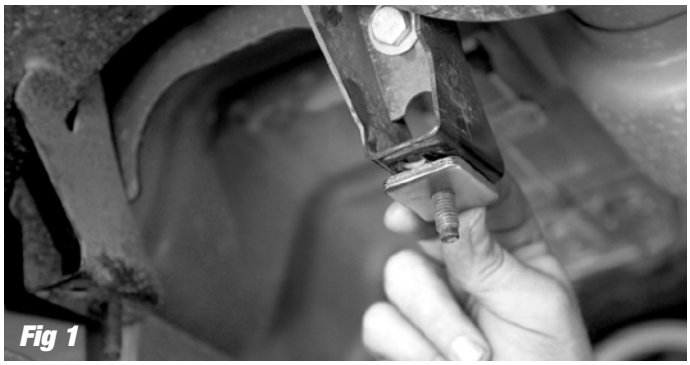
   All plates must always be used to maintain intended stack height. Any plates not used for spacing must be installed underneath bearing support “Bolt head side” (See Fig A).
4. Install newly supplied bolts with spring washers.

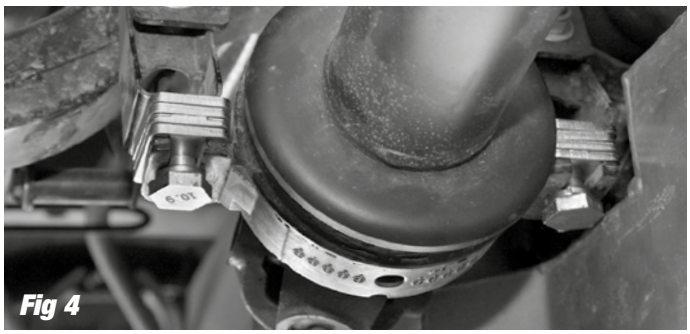
   Ensure centre bearing is located square and straight to driveshaft and mounts.

   Using a 21mm socket, tension nuts to 40.5ft/lb / 55Nm (See Fig 3).

   DO NOT OVERTIGHTEN
5. Test drive vehicle and assess vibration, if the vibration persists try different configurations using more or less plates.

   If all plates are used, there is no further possibility for more.





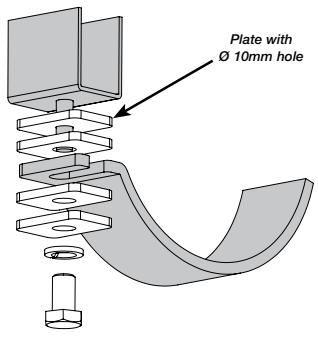


Fig A: 10mm Spacing
(All spacers MUST be used)

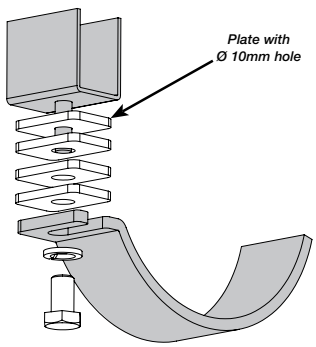


Fig B: Full 20mm Spacing