

Fitting Instructions F4R-LC200-IS

Toyota Landcruiser 200 Series (Non KDSS)

91017 and 92017 F4R Shock Absorbers



Description of Shock

The F4R Formula 4x4 kit for the Toyota Landcruiser 200 Series is a 3-way adjustable remote reservoir shock in the front and a 2-way adjustable remote reservoir shock in the rear, specifically designed to suit your vehicle. The damper uses Fulcrums carefully chosen shim stacks to create the best damping characteristics for this vehicle.

The front damper is 3-way adjustable, Spring seat height, compression Low-speed bypass, compression high-speed valve and rebound bypass.

The rear damper is 2-way adjustable, compression Low-speed bypass, compression high-speed valve and rebound bypass.

The adjustment clickers allow the user to carefully control how much oil is allowed to flow and bypass the shim stacks in each direction. Opening the clickers allows more oil to bypass and flow, reducing the damping effort in either compression or rebound.

This allows tuning for different load scenarios and road conditions.

Use of adjustments

Please note that before making any adjustments you should always make a note of what settings you have and what you change them too. This will ensure you keep track of the positions and don't get lost. If you are ever unsure wind the clickers all the way clockwise and count back out to the desired position. Each clicker has direction of positive (more damping) and negative (less damping) listed on their surface.

Fulcrum recommends the following damping settings as a starting point. (Note that this number of clicks anti-clockwise from the fully closed position.)

Front and rear Compression Low: 4 clicks (1 to 8 total) – Small adjuster on reservoir

Front and rear Compression high: position 3 (1 to 6 total) – large adjuster on reservoir

Front and rear Rebound: 2 clicks (1 to 12 total) – on shaft end mount, blue adjuster or silver pin clicker depending on vehicle.



Due to the heavy-duty design of the damper, it may be required to turn the adjusters one or two more clicks anticlockwise in compression and rebound for the first couple of thousand km, to reduce the stiffness and account for a running in period. Please make is full adjustment range on clickers before install as they may be stiff from assembly.

Spring height can be adjusted using the spanners provided to raise or lower the spring seat. Raising spring seat will increase ride height and lowering will decrease. Each vehicle will differ in how much you need to adjust the spring seat as shock motion ratio differs. Motion ratio is the amount of travel the wheel moves compared to the shock.

Motion Ratio Adjustment Example:

Is you change spring seat height 25mm and gain 50mm ride height, the motion ratio is 2. Is you change spring seat height 30mm and gain 50mm ride height, the motion ratio is 1.67

How to tune the damping settings

It is important to remember whenever tuning a passive damper, every adjustment is a compromise. An improvement in one area of ride and handling will detract somewhere else. The aim is to create the best compromise for your driving style and scenario.

Problem	Damper Adjustment
Car easily bottoms out.	More high-speed compression.
Car feels lazy or unresponsive.	More low-speed compression.
Car feels too harsh over bumps.	Less low-speed compression on small bumps Less high-speed compression on large bumps
Car Kicks off bumps.	More rebound.
Car feels floaty.	More rebound.
Car is harsh over cracks or potholes.	Less rebound.
Front is too high.	Reduce front spring pre-load.
Front is too low.	Increase front spring pre-load.

Installation

Check spring preload

Initial captured spring length should be 310mm. This will be a suitable spring length for vehicle with bull bars/winchers for a 50mm lift. If your vehicle has no bull bar and or winch, adjust the captured spring length to 322mm for a 50mm lift. This vehicle has an approximate motion ratio of 1.72, so to increase the vehicle 25mm in ride height, the spring length will need to reduce 14mm. To adjust, ensure that the spring is compressed off the adjustable spring seat. Losing the clamping bolt and adjust using the provided spanner to required length. Tighten the bolt before releasing the spring. The maximum captured length of this spring is 355mm.

Please note these are suggested spring length values and still may differ depending on the set up and weight of your and vehicle and desired ride height. It is highly recommended that this be completed by your local Fulcrum workshop.

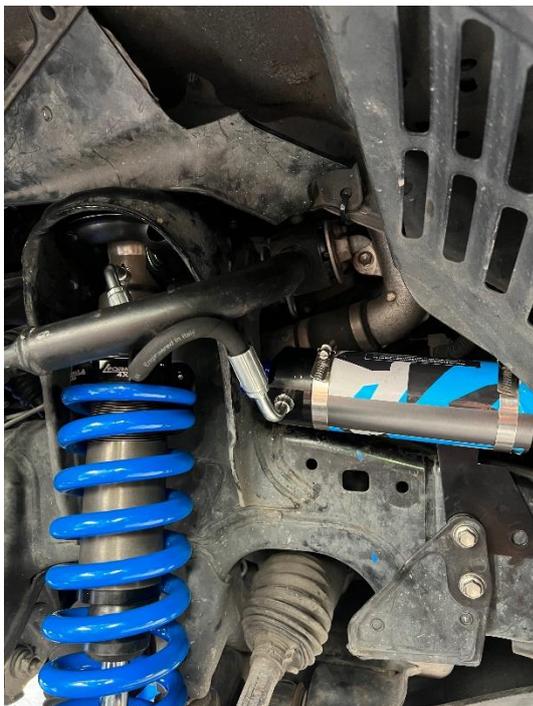
Install the strut assembly - Front

With previous shock removed and Swaybar unbolted from the links and mounting point, you will need to remove plastic trim covers from front of wheel arch, there will be a plastic protector for the

steering rack boot that will need to be removed. The reservoir bracket will be using this location to bolt to. Use hole position as seen below and use washer provided to space other mounting point for protector.



Once this is complete, the shock can be inserted into the tower and bolted in. Make sure that the hose from the the top of the shock is pointing to the front of the vehicle for reservoir positioning and that the lower mount rebound adjuster is facing the front of the vehicle. Once shock is mounted, the reservoir canister can be inserted and hose clamps tightened. Below is the recommended position of the canister



Once installed, attached all removed parts to complete front install.

Install the shock assembly - Rear

The orientation of the new shock will be fitted into the Vehicle with body on top and shaft below. The lower mount should have the rebound adjustment clicker point inwards to the vehicle making access easier.

The positioning the hose and reservoir may need to be adjusted to suit fitment in vehicle. Please see suggested images below on fitment. To realign, simply undo the bolt holding the clamp and place reservoir as needed. The reservoir is on a swivel hose, so can be inverted if necessary. It is always recommended to fit shock before spring and jack each side up to full bump to ensure no contact is made with the reservoir positioning.

Left side from rear.



Right side from front.

