



Fitting Instruction for MFK20400

Toyota LandCruiser VDJ70 Series 08/2012 to 07/2019 with ABS Hydraulic Brake Booster Upgrade



Important Information

This instruction booklet can be used standalone for the above stated conversion but we would also recommend having a workshop manual for your vehicle to cover any factory Toyota torque / installation requirements to complete the Hydraulic Brake Booster installation to your Toyota VDJ LandCruiser.

The instruction booklet describes the required modifications (if any) and installation process in order for our kit to fit and work properly.

Marks 4WD Adaptors cannot and will not take responsibility for knowing everything that may impact on your conversion. Before beginning any work, thoroughly work through the sequence of changes, work and potential impact of your conversion. You must ensure you completely understand all the factors that may impact on achieving your desired results.

Step 1—Removal of Brake Master Cylinder and Vacuum Booster

Drain brake fluid from reservoir.

Undo the two solid brake lines at the master cylinder (Image 1.1). These will need to be manipulated to allow access to remove the master cylinder, brake booster and fitting the new hydraulic unit.

These solid lines need to meet back up with the master cylinder once it is reinstalled running from the master cylinder to ABS unit.



Image 1.1 Disconnect the solid brake lines

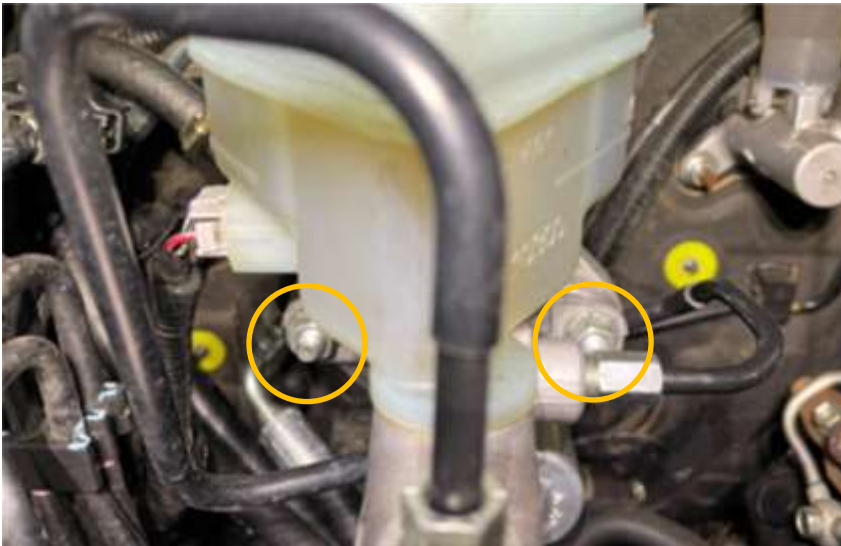


Image 1.2 Remove nuts holding master cylinder to booster

Remove the 2 nuts that are holding the master cylinder to the brake booster.

Remove the master cylinder from the vehicle.

Remove the cotter pin and main pin to disconnect the saddle from the brake pedal.

Remove the four 12mm headed nuts that secure the booster to the firewall - save these nuts, cotter pin and main pin as they are reused on the hydraulic booster



Image 1.3 Removal of the cotter pin and nuts.



Image 1.4 Booster removed

Disconnect the vacuum pipe that runs between the booster and vacuum reservoir. The booster can now be removed from the firewall.

Fit the supplied 8mm blanking plug to the vacuum reservoir (if you do not seal this port you will get a brake fault light on the dash)

Step 2—Fitting the Hydraulic Brake Booster

Make sure the push rod is fitted to the hydro booster – this is retained internally – as per image 2.1



Image 2.1 Make sure the push rod is fitted in the hydro booster



Image 2.2 Alignment of booster.

Note: A second set of hands make alignment during this process much easier

Feed the Hydro booster assembly through the firewall and get your helper to make sure the pedal saddle slips over the pedal.

Fit the M8 x 35mm bolts through the hydro boost plate, firewall and pedal bracket. This can be fiddly.

Fit the factory nuts that were removed when the vacuum booster was removed. (Image 2.2)

Fit the factory Toyota pin with the supplied FW-5/16 washers on either side and install the cotter pin as per image 2.3



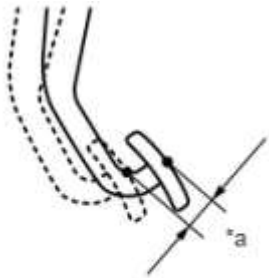
Image 2.3 Cotter pin install



Image 2.4a Adjust the pedal saddle

You will need to adjust the pedal saddle by using an 8mm spanner across the flats (as circled in the photo Image 2.4)

Adjust the saddle until it is positioned as per the photo on the left. 1mm to 6mm of pedal free play is the Toyota spec (measure as per image 2.4b) and tighten the locking nut with a 14mm spanner (Image 2.4a).



Pedal Free Play

Image 2.4b Check pedal free play

Refit the master cylinder to the hydraulic brake booster using the original nuts. Torque 12.5Nm

Gently manipulate/bend the solid lines coming from the ABS module to line back up with the new master cylinder position.

Tighten the tube nuts to 19.5Nm

Check the brake/stop switch clearance is between 0.5 to 2.4mm & confirm brake lights are working as required.



Image 2.5 Fit the master cylinder to the hydro booster

Step 3 - Remove and Replace Hydraulic Lines

Unplug the sensor and remove the factory Toyota power steering line which runs from the steering box up to the power steering pump on the engine. Remove the pressure sensor from the line and keep to be refitted later. The line can be discarded.

Note: Once you crack this line power steering fluid will drain out – have a bucket and rags ready.



Image 3.1 Power steering box adaptor fitting

Fit the power steering box adaptor fitting (Image 3.1) to the steering box and tighten to 20Nm

Note: This fitting will sit proud of the steering box face as it seals internally.

This fitting is gold in colour



Image 3.2 Power steering box —45° hose fitting



Image 3.3 Hydraulic booster—90° hose fitting

Fit the longer line in your kit between the Hydro booster (gold fitting) and the Toyota steering box (gold fitting). The 45° fitting end is at the steering box and the 90° fitting end is at the hydraulic booster.

Assemble the M16 banjo to 3/4 JIC fitting to the pump sensor adaptor (MFC20351). Image 3.4

Torque to 32Nm



Image 3.4 Power steering sensor adaptor



Image 3.5 Hydraulic booster—90° hose fitting

Run the shorter line up under the hydraulic booster and connect the 90° fitting to the lower (black) fitting.

Image 3.5



Image 3.7 Power steering pump assembly

Run the other end of the line to the power steering pump.

Assemble the double banjo bolt, copper washer, power steering line, copper washer, sensor adaptor & copper washer and fit to the power steering pump. Image 3.6

Please note orientation. It should resemble image 3.7

Torque to 50Nm



Image 3.6 Assembly



Fit the previously removed power steering pressure sensor to the adaptor on the power steering pump.

Tighten using 2 spanners to 18Nm

Image 3.8

Reconnect wiring

Image 3.8 Fit power steering pressure sensor

Once you are happy with the routing of the power steering lines —torque fittings on hydraulic booster and steering box to 20Nm

Step 4—Return hose

Route this line carefully as this line cannot be kinked or restricted in any way.

Run the line to the power steering reservoir bottle.



Image 4.0 Power steering box —45° hose fitting



The new return line needs to be tee'd into the factory return line as close to the reservoir as possible to avoid restriction. Trim the hose to length & use the supplied T piece and hose clamps.

Secure the new hydraulic lines to your vehicle making sure they will not foul on things such as the steering coupling, exhaust etc. Depending on your engine bay you may be able to use P clips and or cable ties to secure the lines.

Step 6 Fit Braided Brake Lines to Vehicle (If purchased)

Fit braided brake lines to your vehicle as per the directions provided in your factory Toyota workshop manual. Make sure the copper washers are replaced with the new ones supplied.

Step 7 Fill and bleed the Power Steering System

Note: We have found that LandCruiser's can suffer from a whine in the power steering if different grades/types or incorrect fluids are run. Flush the system and fill with the correct fluid for your vehicle.

This step is easiest when you have a helper.

The system is easiest bled with the front wheels off the ground either on axle stands or on a 2 post hoist.

Fill the power steering reservoir with the recommended fluid for your vehicle (on the LandCruiser's we use Penrite PSF001). With the front wheels off the ground move/turn the wheels side to side by hand (engine not running) adding power steering fluid as required.

Once the fluid level stops dropping start the engine, turn the wheels lock to lock and then depress the brake pedal, make sure you keep topping up the reservoir. You will need to perform the above step a few times to make sure all the air is bled from the system. If you notice there are lots of air bubbles emulsified in the fluid you will most likely need to bleed the power steering system again once the air bubbles settle.

Step 8 Bleeding the Braking System

This step is easiest when you have a helper.

Bleed the system in the order your workshop manual recommends for your vehicle.

Fill the master cylinder with the brake fluid recommended for your model.

Bleeding the system fitted with the hydro boost is only slightly different from the standard method. Once pressure is applied on the pedal you need to crack the bleeder valve, bleed the fluid through and when the pedal gets low lock the bleeder off like normal.

The pedal will come up straight away but the hydraulic cylinder will take a few seconds to return, if you wait 5+ seconds before pressing the pedal again to bleed you will have no problems. If you press the pedal straight away you will get nearly no brake fluid come out of the bleeder.

Step 9 Check for Leaks & Road Test

Check all connections to make sure there are no leaks from either hydraulic connections, hoses or brake lines.

Test drive the vehicle up to normal operating temperature.

Again check all connections to make sure there are no leaks from either hydraulic connections, hoses or brake lines.

Step 10 Get the Brake Upgrade Certified by your Engineer

Terms and Conditions

Thank you for purchasing this product manufactured by Marks 4WD Adaptors. Components supplied in this kit are designed and machined for a specific conversion only as outlined in this guide. Modifications to or substitution for any of the components without the written consent of Marks 4WD Adaptors will void any possible warranty or return privileges.

The following instructions are intended as a guide and only for Marks 4WD Adaptors kits. If you do not fully understand the steps, modifications or changes required to complete the conversion, contact our sales department for more information. We recommend that you purchase a service manual pertaining to your vehicle for specific torque values, wiring diagrams and other related information.

Contact Information

Web: <http://www.marks4wd.com/>

Email: sales@marks4wd.com

Phone: + 61 3 9552 6555

Address: 385-393 Lower Dandenong Rd
Dingley Victoria 3172
Australia