



## **Fitting Instructions for MFK20330-MFK20355 Toyota LandCruiser VDJ70 Series 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 settings to complete the Hydraulic Brake Booster installation to your VDJ70 series.

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.



# Kit Contents

This kit contains the following parts. Before beginning any work ensure that you have all parts.

<b>Part No.</b>	<b>Quantity</b>	<b>Description</b>
• MFG20330	1	Pre-assembled hydraulic brake booster
• MFC20335	1	Hydro booster to power steering pump hose
• MFC20336	1	Hydro booster to steering box hose
• MFC20334	1	Power steering pump banjo with Toyota sensor
• MFC20326	1	Power steering pump banjo bolt
• 611-6	1	Low pressure return line
• BT-2070	4	Bolt - M8 x 1.25 x 35mm H/T Z/P
• BT-2065	2	Bolt - M8 x 1.25 x 25mm H/T Z/P
• SW-2065	2	Spring washer – M8 – S/S
• FW-2015	2	Flat washer – M10 x 25 – S/S
• 8M16F87OMXS	1	Power steering box - Male M16 Connector
• TFP14-06	1	3/8 barbed Tee piece
• 8 C6X-3	1	Swivel nut elbow
• CWC51	2	M16 Copper washer
• HS005	4	Hose clamp – 11 to 18mm
• SPX035	1	Cable clamp
• BC8	1	8mm blanking cap
• MFI20330	1	Fitting instructions
• WARR	1	Warranty

## Step 1 Removal of Vacuum Brake Booster

You will need to first remove the factory Toyota vacuum brake booster assembly and vacuum line. Once removed fit the blanking plug (BC8) on the vacuum tank to blank off the vacuum supply.

We recommend replacing the flexible brake lines with braided items – also available from Marks 4wd.

If you are not replacing the calliper lines you do not need to disconnect the brake lines from the master cylinder.



**Image 1.1** Hydraulic booster setup with new master fitted



**Image 1.2** Removal of 4 nuts & vacuum pipe.

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

Remove the vacuum pipe from brake booster and also disconnect this pipe from the fitting lower down the firewall. Fit the supplied 8mm blanking plug to the fitting (if you do not seal the vacuum port you will get a brake check light on the dash)

See **image 1.2** for the location of the nuts

Move the master cylinder forwards towards the front of the vehicle.

Make sure the master cylinder is in good condition – if the fluid is dirty or has high moisture content now is a good time to flush the system.



**Image 1.4** Removal of the cotter pin and nuts.

Remove the cotter pin and main pin to disconnect the bracket 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 hydro booster install below

The booster can now be removed from the firewall



**Image 1.5** Booster removed – good time to remove debris!

## Step 2 Assembly of New Hydro Booster



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

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



### Step 3 Fitting the Hydro Booster



**Image 3.1** Alignment of booster.

Fit the factory Toyota pin with one of the supplied FW-5/16 washers on either side and install the cotter pin as per image 3.2.



**Image 3.3** Adjust the pedal saddle

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 BT-M8-35 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 3.1)



**Image 3.2** Cotter pin install

You will need to adjust the pedal saddle by using an 8mm spanner across the flats (as circled in the photo Image 3.3)

Adjust the saddle until it is positioned as per the photo on the left and tighten the locking nut with a 14mm spanner (Image 3.3).

## Step 4 Remove and Replace Hydraulic Lines

You need to remove the factory Toyota power steering line which runs from the steering box up to the power steering pump on the engine. Remove the line completely – it is not reused.

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

Note: On all hydraulic fittings use hydraulic sealant or Loctite thread sealant.

Fit the longer line in your kit between the Hydro booster and the Toyota steering box.

Image 4.1 for hydro boost location

Image 4.2 for steering box location



**Image 4.1** Fit the master cylinder to the hydro booster



**Image 4.2** Hydro boost to steering box line

The 2 fittings on the left need to be fitted to the steering box before the hydraulic line is fitted.

The male - male fitting will sit slightly proud of the steering box face – it is designed to do so. (It seals internally not on o-ring)

**Note:** We would recommend some hydraulic sealant on threads.

**Note:** Keeping the orientation on the 90° fitting can be painful without a second set of hands.







**Image 4.3** Booster to power steering pump

Run the shorter line up under the Hydro booster and secure loosely as seen highlighted in image 4.3.

**NOTE: 08/2019 Onwards Vehicles**

If you are fitting the booster to a vehicle built 08/2019 onwards it will not have a sensor on the power steering pump. Skip steps 4.4 – 4.8.

Apply hydraulic sealant to thread of JIC banjo fitting. Use two spanners and tighten the two parts together. (Image 4.4)



**Image 4.4** Fitment to pump



**Image 4.5** Assembly

Assemble parts in the correct order (see image 4.5). The sensor must be fitted closest to the power steering pump. Apply hydraulic sealant to thread.



Screw onto power steering pump with fitting orientated correctly (see image 4.6)

**Image 4.6** Fitment to pump

Apply hydraulic sealant to the thread of the sensor and tighten using two spanners. (Image 4.7)



**Image 4.7** Assembly



**Image 4.8** Assembly





**Image 4.9** Hose fitting to JIC banjo

**08/2019 onwards vehicles** – reuse the original banjo bolt with new copper washers to install the M16 banjo to JIC fitting to the power steering pump.

Apply hydraulic sealant (image 4.9) to the thread between hose fitting and JIC banjo and tighten using two spanners (image 5.0).



**Image 5.0** Hose fitting to JIC banjo



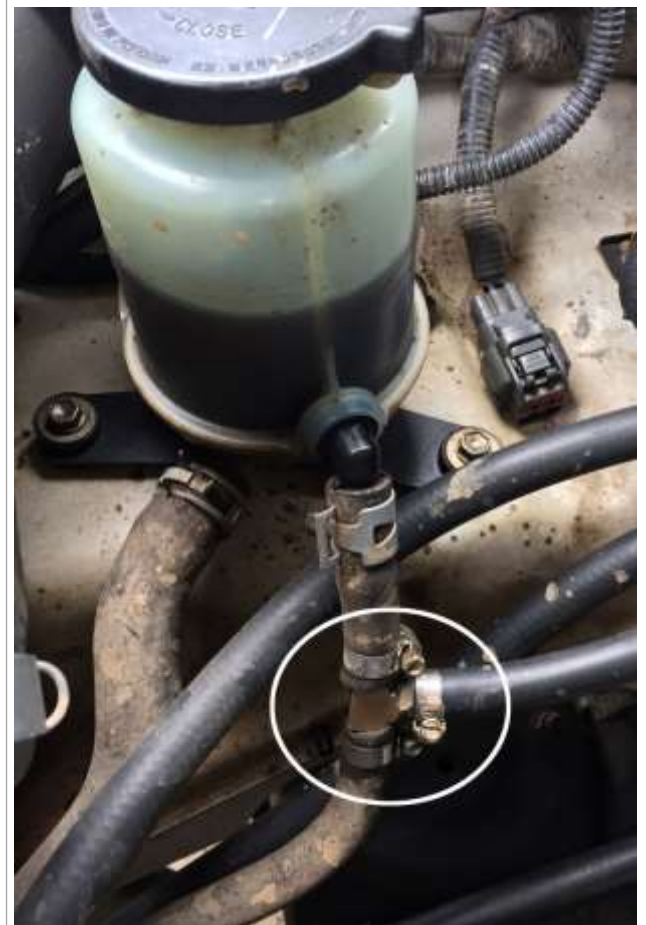
**Image 5.1** Final assembly

When finished assembly should be as shown in image 5.1, left.



**Image 4.5** Low pressure hose to barb

Fit the supplied low pressure hose to the barb on the hydro booster and secure with a hose clamp. See Image 4.5



**Image 4.5** Fitment to pump

Run the hose to the power steering reservoir bottle. The new return line needs to be teed 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 etc. Depending on your engine bay you may be able to use P clips and or cable ties to secure the lines.

Once the lines are in place tighten all fittings on the hydro boost, power steering pump and steering box.

### **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 Bleeding the Braking System (If lines were replaced)**

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 8 Fill the System with Fluid***

Note: We have found that LandCruisers 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 LandCruisers we use Penrite PSF001). With the front wheels off the ground start your vehicle, you will need to add fluid almost straight away. Keep adding fluid until the level stops dropping.

You will need to 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 system again once the air bubbles settle.

## ***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](mailto:sales@marks4wd.com)

**Phone:** + 61 3 9552 6555

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