



## Fitting Instructions for MFK20390

# Toyota Hilux KUN26R 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 KUN26 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>
• MFG20390	1	Pre-assembled hydraulic brake booster
• MFC20370	1	Hydro booster to power steering pump hose
• MFC20371	1	Hydro booster to steering rack hose
• MFC20372	1	Brake reservoir to clutch master hose
• MFC20373	1	Toyota KUN26R brake master to T-Block extension
• MFC20374	1	Toyota KUN26R brake master to hard line extension
• MFC20330	1	Steering rack M16 Fitting
• PFE400R-06BK	1	Low pressure return line
• BT-2010	1	Bolt - M6 x 1 x 12mm Captured Spring Washer
• BT-2015	3	Bolt - M6 x 1 x 16mm S/S
• BT-2070	2	Bolt - M8 x 1.25 x 35mm – H/T – Z/P
• NT-2005	3	Nut - M6 x 1 Captured Anti-Vibration Washer
• SW-2065	2	Spring washer – M8 – S/S
• FW-2015	2	Flat washer – M10 x 25 – S/S
• FW-2050	2	Flat washer – M8 x 19 x 2L – H/T – Z/P
• TFP14-06	1	3/8 barbed Tee piece
• HS005	6	Hose clamp – 11 to 18mm
• SPX035	1	Cable clamp
• CAI1610P	6	Vinyl coated 16mm cable clamp
• BC8	1	8mm blanking cap
• MFI20330	1	Fitting instructions
• WARR	1	Warranty

## **Step 1 Removal of Vacuum Brake Booster**

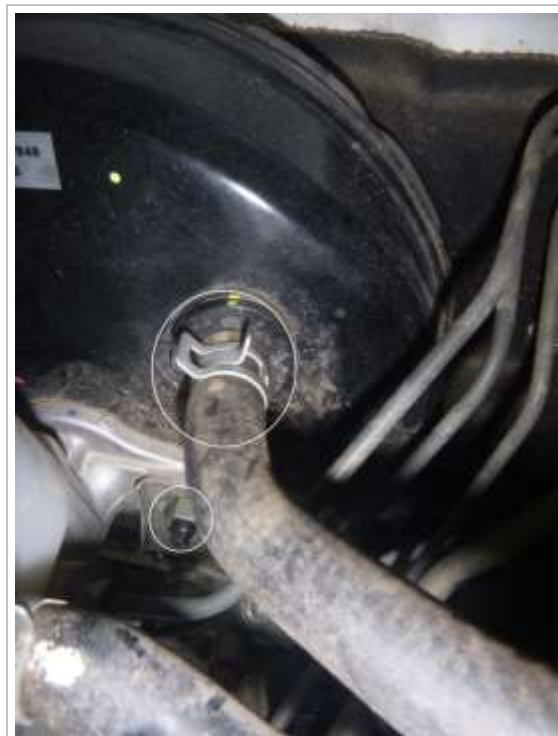
You will need to first remove the factory Toyota vacuum brake booster assembly and vacuum line. Once removed fit the blanking plug (BC8) on the vacuum tank to blank off the vacuum supply.

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*

*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.

Remove vacuum sensor plug from booster as well as the level sensor plug on the master cylinder.

See **image 1.3** for the removal of the sensor plugs



**Image 1.3** Removal of sensor plugs.



**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.

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 factory nuts that were removed when the vacuum booster was removed. (Image 3.1)



**Image 3.2** Cotter pin install

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

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 Rack 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 shorter line in your kit between the Hydro booster and the Toyota steering rack.

Image 4.1 for hydro boost location

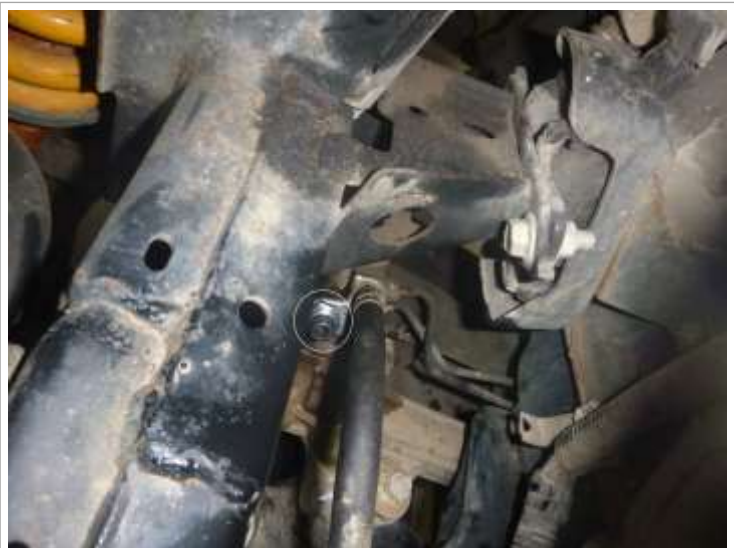
Image 4.2 for steering rack location



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



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



**Image 4.2** Fitting on steering rack

The fitting above needs to be fitted to the steering rack before the hydraulic line is fitted. Image 4.2

The male - male fitting will sit slightly proud of the steering box face – it is designed to do so.

Note: We recommend hydraulic sealant on threads.

Note: This fitting can be hard to install and is found to be done best through the wheel arch



**Image 4.3** *Booster to power steering pump*

Run the longer line up under the Hydro booster and secure loosely. (Image 4.3)

Attach the supplied fitting already fitted on hose to the power steering pump. Rotate to desired angle and fasten using hydraulic sealant. Then re-fit hose to fitting and tighten using two spanners. One spanner on pump fitting and one on hose. This will insure that the fitting on the pump is not broken off while fastening hose (Image 4.4)



**Image 4.4** *Fitment to pump*

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



**Image 4.5** *Low pressure hose to barb*

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. (image 4.6)



**Image 4.6** *Fitment to power steering resivior bottle*

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. (Image 4.7, 4.8, 4.9, 4.10)

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



**Image 4.7**



**Image 4.8**



**Image 4.9**



**Image 4.10**



## Step 5 Extend Sensor Wiring

Due to the master being moved forward the level sensor plug will not be long enough to be plugged back in. the wires will need to be cut and extended. (Image 5.1)

Note: Soldering the joins is always preferred to insure good contact between wires and avoid any future complications

Note: The booster vacuum sensor is no longer required and does not need to be refitted to Hydraulic Booster setup.



*Image 5.1 Extending sensor wiring*



*Image 5.2 Extending sensor wiring*

Using heat shrink over joined wires will prevent shorts and makes for a nicer looking install (Image 5.2)

Finish the extended wiring with a piece of corrugated tubing (image 5.3)



*Image 5.3 Extending sensor wiring*

## Step 6 Brake Line Extensions & Reservoir Bottle to Clutch Master Extension



**Image 6.1**

Due to the master being moved further forward with the hydro boost setup up, an extended brake master to clutch master hose has to be used (supplied in kit).

Manual vehicles only

(Image 6.1)

### NON ABS VEHICLES

There will be two extension lines supplied in the kit to connect the hard lines to the master. The line shown in image 5.2 will need a slight bend towards front of car. After line is bent slightly fit the shortest line supplied and manipulate further so that line can be connected to master without it being under tension. Once in position tighten both ends.



**Image 6.2**

See image 6.3 for finished installation of this line.



**Image 6.3**



**Image 6.4**

The second hard line will be replaced entirely with the new line ADR approved braided brake line supplied in kit. Remove factory line and fit new braided line supplied in the kit. This will be a direct fit. Ensure fittings are tight after fitting the line.

### **ABS EQUIPPED VEHICLES**

You will only require the longer of the 2 extension lines supplied for this model, fit it as per image 6.4 above.

The rear brake line marked in yellow on image 6.5 needs to be re-bent slightly to move to the new position



**Image 6.5**

The air box to turbo hose may foul on the master cylinder, you will need to rotate the air box lid reusing the existing clips. Please see image 6.6 below



**Image 6.6** Standard vs rotated



**Image 6.7** Non ABS - ABS

Once the air box lid is rotated the turbo inlet hose will need to be modified, fabricated or replaced with a non ABS model hose (Toyota part number: 17881-0L110)

Please see image 6.7

### ***Step 7 Fit Braided Brake Lines to Vehicle (If lines are being replaced)***

Fit the supplied 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 8 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 9 Fill the System with Fluid***

Note: We have found that Hilux's 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. 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 10 Check for Leaks & Road Test***

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

### ***Step 11 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.

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