



Fitting Instruction for MFK20130

Nissan GU Patrol 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 Nissan torque / installation settings to complete the Hydraulic Brake Booster installation to your Nissan GU Patrol.

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.

Please Note

This Hydraulic Brake Booster Upgrade kit comes with a provisional engineers report covering all the required testing of the unit to comply with VSB14 standards, the report states your VIN number which has been logged both with us and our engineers.

You will need to take your vehicle and this report to your local engineer who will check the installation is as per our fitting instructions – additional brake tests should not be required.

The expected cost for this inspection at Enkelman Engineers is around \$450.00 AUD

Kit Contents

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

Part No.	Quantity	Description
• MFC20130	1	Pre-assembled hydraulic brake booster <ul style="list-style-type: none">▪ Includes pushrod, banjo bolts and copper washers
• MFC2032#	1	Hydro booster to power steering pump hose
• MFC20324	1	Hydro booster to steering box hose
• 611-6	#	Low pressure return line (length depends on application)
• BT-M8-20	1	Bolt - M8 x 1.25 x 20mm H/T Z/P
• BT-M8-25	3	Bolt - M8 x 1.25 x 25mm H/T Z/P
• BT-M8-50	4	Bolt - M8 x 1.25 x 50mm H/T Z/P
• SW-M8	4	Spring washer – M8 – S/S
• FW-5/16	6	Flat washer – 5/16 – S/S
• FW-M8	4	Flat washer – M8 – H/T Z/P
• TFP14-06	6	3/8 barbed Tee piece
• HS005	4	Hose clamp – 11 to 18mm
• MFI20130	1	Fitting instructions
• WARR	1	Warranty



Step 1 Removal of Vacuum Brake Booster

You will need to first remove the factory Nissan brake booster assembly.

If your fuse box is located in the factory position you will have to disconnect the brake lines from the master cylinder to give you room to remove the vacuum booster.



Image 1.1 Nissan factory brake booster and master cylinder setup.



Image 1.2 Removal of 4 nuts & vacuum pipe.

Remove the 4 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 and vacuum pipe*

Remove the master cylinder from the vehicle.

If you are reusing the master cylinder now is a good time to clean the unit ready for reinstallation.



Image 1.3 Removal of 4 nuts & vacuum pipe.



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 with the tapered end facing towards the master cylinder – as per image 2.1

Use the following bolts and washers to bolt the master cylinder to the hydro booster

- BT-M8-20 x 1
- BT-M8-25 x 3
- SW-M8 x 4
- FW-5/16 x 4

Note: Make sure the BT-M8-20 is used on the top left master cylinder bolt location.

Tighten bolts when all is aligned.



Image 2.2 Fit the master cylinder to the hydro booster

Step 3 Fitting the Hydro Booster

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



Image 3.1 Alignment of booster.

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-M8-50 bolts with a FW-M8 and fit through the pedal bracket and hydro booster. This can be fiddly.

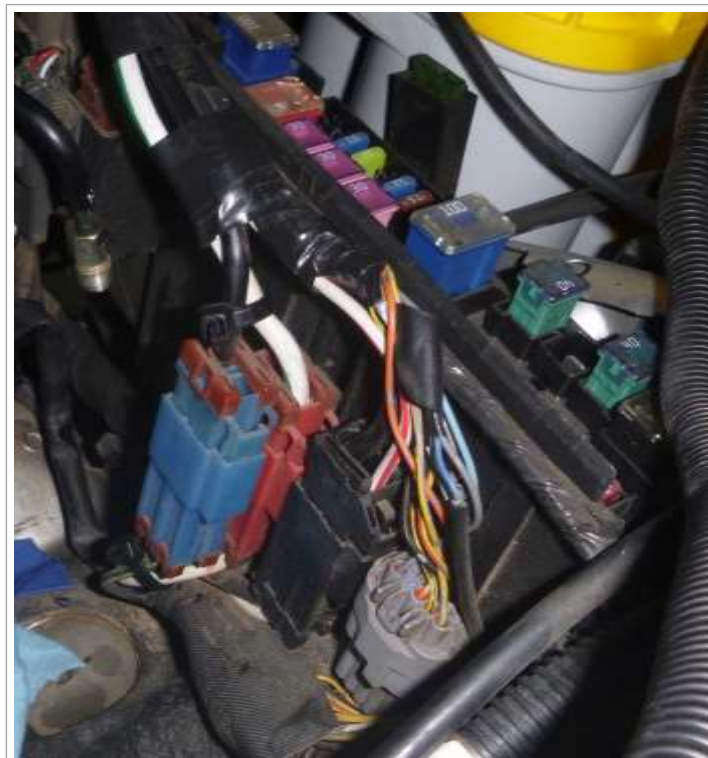


Image 3.2 Fuse box

When fitting the new setup check to see clearance on the fusebox and associated connectors.

Depending on model some of the connectors may need to be moved to the side.

Use the M8 nuts you removed from the factory booster to secure the booster to the firewall. (Image 3.3)

Tighten the nuts once all is aligned.



Image 3.3 Fit the factory M8 nuts to the bolts



Image 3.4 Cotter pin install

Fit the factory Nissan pin with one of the supplied FW-5/16 washers on either side and install the cotter pin as per image 3.4.

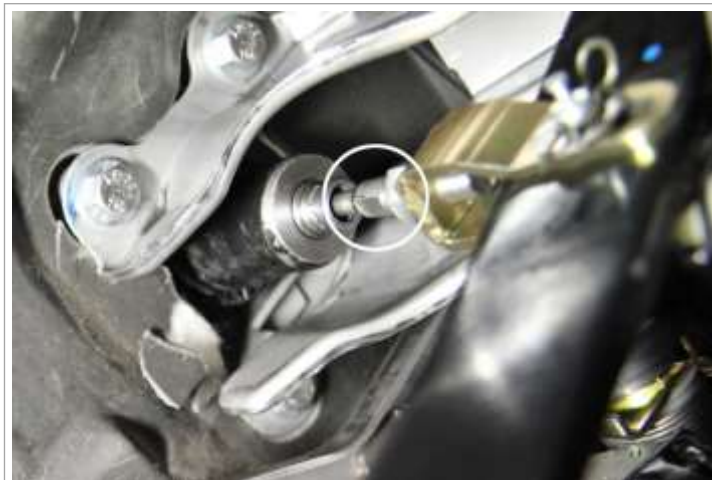


Image 3.5 Adjust the pedal saddle

You will need to adjust the pedal saddle by using a spanner across the flats (as circled in the photo Image 3.5)

Adjust the saddle until it is positioned as per the photo on the left and tighten the locking nut (Image 3.5).

Step 4 Remove and Replace Hydraulic Lines

You need to remove the factory Nissan 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.

Fit the short line in your kit between the Hydro booster and the Nissan steering box.

Image 4.1 for hydro boost location

Image 4.2 for steering box location

Use the supplied copper washers and banjo bolts.



Image 4.1 Fit the master cylinder to the hydro booster



Image 4.2 Hydro boost to steering box line



Run the longer line up under the Hydro booster and secure loosely with the banjo bolt and copper washers. (Image 4.3)

Image 4.3 Booster to power steering pump



Image 4.4 Fitment to pump

Run the longer line to the power steering pump on the engine. Secure with banjo bolt fitted with copper washers.

Image 4.4 shows the connection to a standard ZD30 power steering pump. The location is the same on TD42 engines.

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

See Image 4.6

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. Use the supplied T piece and hose clamps.



Image 4.5 Fitment to pump



Image 4.6 Low pressure hose to barb

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

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



Image 4.7 Secure hydraulic lines

Step 5 Fit Brake Lines to Master Cylinder

Non ABS models – Connect the factory Nissan hard lines to the master cylinder. As the master cylinder is slightly closer to the front of the vehicle you may need to manipulate the lines so the fittings reach – this modification (bend) is only very minor.



Image 5.1 Connect the factory Nissan hard line to the master



Image 5.2 Connect the factory Nissan hard line to the master

ABS models – Connect the factory Nissan hard line to the end fitting on the master cylinder. As the master cylinder is slightly closer to the front of the vehicle you may need to manipulate this line so the fittings reach – this modification (bend) is only very minor. (Image 5.3)



Image 5.3 Connect the factory Nissan hard line to the master



Image 5.4 Connect the factory Nissan hard line to the master

The solid line that runs from the side port on the master cylinder to the block on the guard will need to be replaced with the supplied ADR approved braided line, banjo bolts & copper washers.

(Image 5.4)

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 Nissan workshop manual. Make sure the copper washers are replaced with the new ones supplied.

Step 7 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 8 Fill the System with Fluid

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 (usually ATF). 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 depressing 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.

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.

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