

PJ's Off Road

HD Axles & Custom Components

ADAPTOR KIT

Falcon/Territory ZF 6HP26 **2WD** 6 Speed Auto Gearbox
(Turbo or NA)

And

Territory ZF 6HP26 **AWD** 6 Speed Auto Gearbox
(Turbo or NA)

To

LandCruiser 80/105 Transfer Cases

Hello,

Thank you for enquiring about/choosing our adaptor kit for your conversion.

This document is lengthy, but it covers all aspects of the kit from pre-purchase enquiries to installation.

IMPORTANT NOTICE

If you are NOT a qualified mechanic and you do NOT have the relevant knowledge, skills and experience to install this kit, you should engage the services of a qualified mechanic who does have the relevant knowledge, skills and experience to install the kit on your behalf.

Prior to installation, you or your mechanic must read this entire document to ensure you understand what is required, and so that you can arrange to have the relevant tools, accessories and consumables on hand to successfully complete the installation.

KIT SELECTION AND PRICING

2WD to H150/H151 (Falcon/Territory ZF6 2WD to 80 Series petrol/diesel and 105 Series petrol only)
\$2,085.00 including GST. Freight and insurance are additional.

2WD to R151 (Falcon/Territory ZF6 2WD to 105 Series diesel only)
\$2,165.00 including GST. Freight and insurance are additional.

AWD to H150/H151 (Territory ZF6 AWD to 80 Series petrol/diesel and 105 Series petrol only)
\$2,245.00 including GST. Freight and insurance are additional.

Please note - the AWD to R151 kit (Territory ZF6 AWD to 105 Series diesel only) is no longer available.

Please note - whether you have manual, automatic, full-time, or part-time LandCruiser is irrelevant. All of these options will work with the adaptor kits.

Please note - the kits do NOT suit the Chinese-made ZF 6HP21 gearbox with 4 bolt holes on the back. Please ensure you have the German-made ZF 6HP26 gearbox with 9 bolt holes on the back. Images of both gearboxes have been included on the last page of this document.

To give you an idea on freight pricing, following are the approximate costs for the **Falcon/Territory 2WD** kit to be shipped via Australia Post from Toowoomba, Queensland to each capital City. Please note that Insurance, Tracking, and Signature On Delivery are included in these prices.

Brisbane City, postcode 4000	\$90.00	Adelaide City, postcode 5000	\$107.00
Sydney City, postcode 2000	\$96.00	Darwin City, postcode 0800	\$125.00
Canberra City, postcode 2600	\$101.00	Hobart City, postcode 7000	\$125.00
Melbourne City, postcode 3000	\$105.00	Perth City, postcode 6000	\$125.00

The **Territory AWD** kit is bigger, heavier and dearer, therefore the freight and insurance costs will be slightly dearer. Requests for Express Post will incur additional costs. Both the kit prices and the freight and insurance costs are subject to change.

Please note - we cannot advise you of the mechanical pros and cons between the 2WD gearbox and the AWD gearbox, and between a full-time transfer and a part-time transfer. You will need to speak to a qualified mechanic or 4WD specialist if you require this information; however, there is a physical difference between the two transmissions...the AWD gearbox has two dowels on the back of the box. These assist with alignment, and are utilised via dowel holes which are machined into the AWD adaptor plate. We have updated the 2WD kit to assist in minimising any possible misalignment. This is mentioned in more detail in the installation instructions on Page 4. Our kits physically marry up to the auto/manual, petrol/diesel, and full-time/part-time transfers. Note - neither gearbox affects 4WD as this comes from your existing transfer case.

Please note - for those of you with constant 4wd, please be aware that a noise/rattle in the transfer case is a very common and well-known issue within the 4wd/LandCruiser industries. The rattle can commence or increase when lift kits and bigger tyres are installed. Installing the much lighter Barra engine can make the noise appear, or increase it if it already exists. Many articles are available on the internet, with the recommendation that a part-time kit be installed to stop/limit the rattle in 4wd.

KIT CONTENTS

The kits contain a 6061 Aluminium adaptor plate, an adaptor shaft, SHCS (socket head cap screws) and spring washers.

WHEN YOU RECEIVE YOUR ADAPTOR KIT

All of the contents in your kit will be inspected prior to being packed to ensure they have no dents or damage. Each item is individually wrapped to protect it from damage during transit, but nothing will stop the damage if the box is dropped or thrown, which unfortunately can happen.

If the box appears damaged, please take detailed photos prior to opening it. **Inspect the contents of your kit within 24 hours of receiving it, and report any damage to us immediately.** If there is damage to the contents, please take detailed photos. You will need to lodge a claim with the freight company...we will assist you with this.

There are time limits for insurance claims, which is why we ask you to inspect the contents within 24 hours of receipt. All of the packaging, both external and internal, must be submitted to the insurance assessor, along with the damaged contents, so they can assess whether or not the items were sufficiently wrapped. A lot of time and effort is spent on wrapping the components to eliminate damage in the event that the box is dropped.

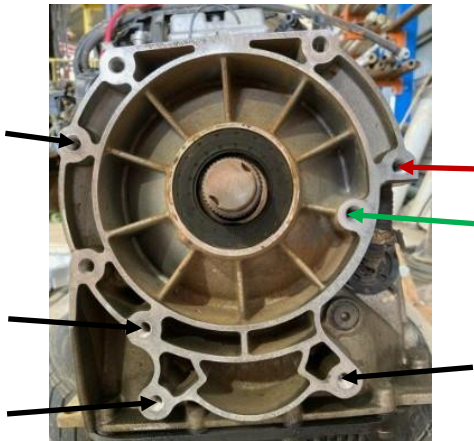
GEARBOX MODIFICATIONS (ALL FALCON/TERRITORY 2WDs, and SOME TERRITORY AWDs)

There are two modifications required to the ZF6 gearbox and output shaft.

1. **This should be done with the gearbox standing vertical.** The back of the gearbox has 5 x pilot holes. 4 of these holes are indicated with a **black** arrow in the photo below. **These 4 x holes need to be drilled and tapped to M10 x 1.5 pitch.** To ensure you drill the holes to the correct depth, **measure the pre-drilled holes first** so that you know what depth is required. The 5th hole, indicated with a **red** arrow, is not utilised with our kit, and does not need to be drilled and tapped as it fouls on a bolt hole on the transfer case.

Please note - the hole indicated with a green arrow, may or may not be drilled and tapped on the Territory AWD gearboxes. If not, you will need to include this hole when you drill and tap the others.

Using the tools shown below will ensure the best results - (L to R) 8.5mm drill, M10 taper tap, and M10 bottoming tap. **You MUST ensure that you drill and tap square to the back of the gearbox.**



2. **Remove the double-hex nut off the gearbox output shaft with a socket or a ring spanner, and then cut off the spigot with a cutting disc on a grinder.** The photos on the following page show the spigot prior to removal, and the gearbox output shaft after the spigot has been removed.



Please note - it is recommended that you replace all the relevant seals while you are doing your conversion. We have been advised that aftermarket Ford transmission seals work well, but the aftermarket Nissan transfer seals have a tendency to fail. Therefore, we highly recommend you buy genuine Nissan transfer seals.

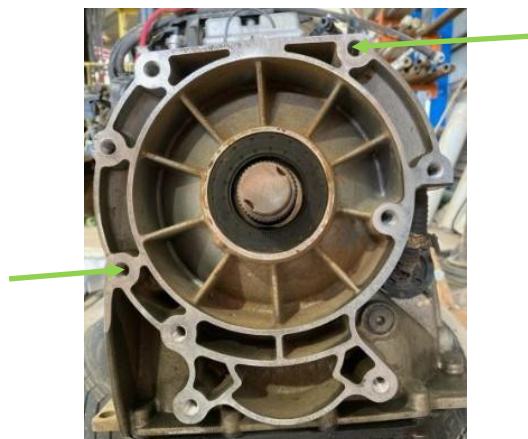
BOLTING THE ADAPTOR PLATE TO THE GEARBOX and TRANSFER CASE

This process needs to be done in the following order, still with the gearbox in the vertical position.

- 1. The gearbox output shaft must be lubricated. Black Tak Molyplex Grease by Gulf Western is the only grease we currently recommend.** It is available direct from Gulf Western (located in most States), and can often be found in automotive stores. The product code for the cartridge for a pistol grip grease gun is #40452, and the product code for the cartridge for the Milwaukee and DeWalt battery operated grease guns is #44452. The cost varies from store to store, but is usually under \$15.
- 2. Sit the adaptor plate on the gearbox, with the flat side of the adaptor plate meeting the face of the gearbox.**

AWD - Line up and utilise the 2 x dowels on the gearbox with the 2 x corresponding dowel holes in your adaptor plate.

2WD - Line up the 2 x holes on the gearbox, indicated in the following diagram, with the 2 x corresponding bolt holes in your adaptor plate.



Please note - the torque specification for these 2 x special SHCS is 45 Nm = 33.19 Ft lbs.

3. The **2WD** kit has 2 x special SHCS because, unlike the AWD gearbox, the 2WD gearbox does NOT have dowels. These SHCS are specifically for the 2 x holes in the previous diagram. **Do NOT use spring washers with these**, or the thread will NOT engage deep enough into the ZF6. **Please only use Loctite - Blue Medium Strength. Do NOT use Loctite - Red Full Strength.**

Apply 2 x drops only, of Blue Medium Strength Loctite, to the thread of the 2 x SHCS.

Place the 2 x SHCS into the 2 x holes indicated in the above diagram, through the adaptor plate and into the gearbox.

Do NOT fully tighten the SHCS one at a time. Work between the 2 x SHCS, and tighten each one a little bit at a time until you reach the recommended torque specification of 45 Nm.

Please note - the torque specification for the following M10 SHCS is 48 Nm = 35.4 Ft-lbs.

4. **2WD Kit** - The remaining SHCS in the 2WD kit, for securing the adaptor plate to the gearbox, are as follows -

5 x 50mm long SHCS and spring washers, indicated with **orange** arrows in the following diagram (M10 1.5, standard, zinc plated).

Apply 2 x drops only, of Blue Medium Strength Loctite, to the thread of the 5 x SHCS.

Do NOT fully tighten the SHCS one at a time. Work your way around the 5 x SHCS, and tighten each one a little bit at a time until you reach the above recommended torque specification.

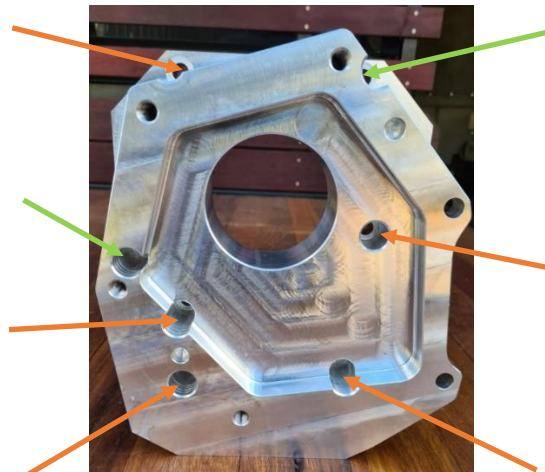
AWD Kit - The SHCS in the AWD kit, for securing the adaptor plate to the gearbox, are as follows -

7 x 50mm long SHCS and spring washers, indicated with 5 x **orange** arrows and 2 x **lime** arrows in the following diagram (M10 1.5, standard, zinc plated).

Apply 2 x drops only, of Blue Medium Strength Loctite, to the thread of the 7 x SHCS.

Do NOT fully tighten the SHCS one at a time. Work your way around the 7 x SHCS, and tighten each one a little bit at a time until you reach the above recommended torque specification.

(The 2 x holes indicated with **lime** arrows for the AWD kit, are the same holes which are utilised in the 2WD kit with the 2 x special SHCS.)



5. Install the adaptor shaft onto the greased gearbox output shaft.

With regards to greasing the external spline on the adaptor shaft, we have been advised that this is not necessary because it was never applied from factory; however, if you would like to grease the adaptor shaft's external spline, it is certainly okay for you to do this.

Please note - the torque specification for the following M12 SHCS is 69 Nm = 50.89 Ft-lbs.

6. Attach the transfer case to the other side of the adaptor plate.

Line up and utilise the 2 x dowels on the transfer case with the 2 x corresponding dowel holes in your adaptor plate, indicated with **purple** arrows in the following diagram.

7. The transfer case is secured to the adaptor plate with 6 x 50mm long SHCS (M12 1.25, fine, zinc plated). These are identical for both the **2WD and AWD** kits.

Some SHCS are bolted from the transfer case into the adaptor plate, and some are bolted from the gearbox, through the adaptor plate and into the transfer case.

4 x 50mm long SHCS and spring washers - indicated with **blue** arrows.

These are bolted from the transfer case into the adaptor plate.

Apply 2 x drops only, of Blue Medium Strength Loctite, to the thread of the 4 x SHCS.

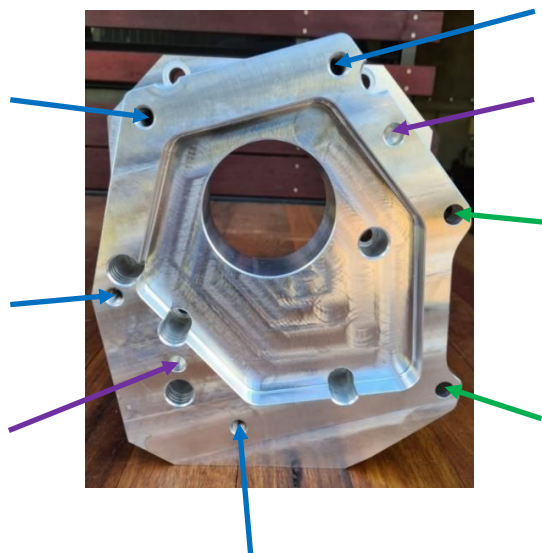
Do NOT fully tighten the SHCS one at a time. Work your way around the 4 x SHCS, and tighten each one a little bit at a time until you reach the above recommended torque specification.

2 x 50mm long SHCS and spring washers - indicated with **green** arrows.

These are bolted from the gearbox, through the adaptor plate and into the transfer case.

Apply 2 x drops only, of Blue Medium Strength Loctite, to the thread of the 2 x SHCS.

Do NOT fully tighten the SHCS one at a time. Work between the 2 x SHCS, and tighten each one a little bit at a time until you reach the above recommended torque specification.



ORDERING YOUR KIT

We endeavour to have kits in stock at all times, but this is not always possible. **To place your order, please email the following information - 1. Which kit you require (as per the description on Page 1); 2. The name you would like your invoice made out to; and 3. Your shipping address and mobile phone number.** I will obtain a freight and insurance quote, and will email you the invoice. Please note that payment options are by funds transfer or cash deposit at the bank.

WE ARE HERE TO HELP

If you have any additional questions, please do not hesitate to call me on mobile **0490 852 658**. We are generally available from 10am to 10pm, Sunday to Thursday, and 10am to 3pm on Friday. We are unavailable from 3pm Friday to 10am Sunday.

Thank you for your support.

Pamela

Owner/Manager

PJ's Off Road Pty Ltd - contact@pjsoffroad.com.au - PO Box 370, Gatton QLD 4343.

ADDITIONAL INFORMATION - We were advised by an ex-Ford Engineer that the Chinese-made ZF 6HP21 gearboxes were installed in some Falcon/Territory 2WDs from 2014 onwards. However, Wikipedia (if you can trust it) states that the 6HP21 was installed in some vehicles as early as 2011. Regardless of the year of manufacture, we recommend you confirm 100% that you have/are buying the German-made ZF 6HP26 gearbox with 9 bolt holes on the back, **NOT** 4 bolt holes as shown in the below photo on the right.

If you cannot inspect the back of the gearbox, the body should be stamped with either "Germany" and/or "6HP26" OR "China" and/or "6HP21".



Please note - **our kits do NOT suit the ZF6 or ZF8 from the BMW M57.**

If you feel that this document is not clear or complete, can you please provide your feedback as I am more than happy to make adjustments.