Fitting Instructions for
MFK41220
70 Series Air Actuator Conversion Kit

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 air actuator conversion installation to your 70 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.

Part No.	*Quantity*	*Description*
• MFG41212	1	Air Actuator Diff Lock Front Toyota 70 Series
• MFC41222	1	Air Actuator Diff Lock Rear Toyota 70 Series
• MFC41223	1	70 Series Rear Air Actuator Stone Guard Bracket
• MFC41213	1	70 Series Front Air Actuator Blanking Plate
• MFC41215	1	70 Series Front Air Actuator Sway Bar Grind Jig
• MFC41216	1	70 Series Air Actuator Cap Spanner
• ARB180103	2	Air Solenoid
• 14-NM1105-020	8m	5mm Nylon Air Line
• SHCS-2155	2	SHCS - M8 x 25mm - S/S
• SW-2065	2	Spring Washer - M8 - S/S

(Only one actuator will be supplied with related components if purchasing either a front or rear setup on its own)

You will need to fit the solenoid to a suitable air compressor (we use the ARB CKMA12 compressor and mounting bracket 3512080) The compressor will need to have a pressure cut of switch.

You can wire the solenoid (to control the diff lock) to be run by a Carling style switch as used with the ARB compressor or wire it to the original Toyota rotary diff lock switch. If you use the Toyota switch then the factory diff lock dash lights will work.

Image 1 *Factory diff lock switch*

Pop the panel off under the steering wheel with the diff lock switch fitted.

On the rear of the switch should be 3 wires – green/red, green/white and black/yellow

The green/red wire is the rear diff lock – this will supply +12v – connect this wire to one side of the rear diff lock solenoid (ground (-12v) the other side)

The green/white wire is the front diff lock – this will supply +12v – connect this wire to one side of the front diff lock solenoid (ground (-12v) the other side)

The black/yellow wire is not used

On the last page of the instructions we have included the ARB compressor and switch wiring diagram. To trigger the solenoid it needs a ground (B-) to one wire and 12v + (B+) to the other wire.

FRONT DIFF

NOTE: The front diff centre will need to be removed to carry out this conversion. The roll pin in shaft when knocked out will sit in bottom of diff unless removed.

Step 1 Remove Actuator Bolts

First remove bolt holding actuator to front diff centre

See image 1

Image 1 *Remove Actuator Bolts*

Step 2 Remove Actuator

When the two bolts have been removed, the actuator can then be removed.

See image 2

Image 2 *Remove Actuator*

Step 3 Remove Shaft Support Cap

Remove the 2 Bolts that hold the shaft support cap to diff centre, then remove cap.

See image 3

Image 3 *Remove Shaft Support Cap*

Step 4 Remove Sensor Plug

Remove the sensor plug from diff centre

See image 4

Image 4 *Remove Sensor Plug*

Step 5 Remove Shaft Locator Cap & Pin Assembly

Remove allen key head bolt located next to sensor plug. Once removed, pull out all internal in this chamber. There will be a ball bearing, spring and a cylinder. These 3 parts are not used in conversion, but the allen key head bolt will be reused.

See image 5a & 5b

Image 5a *Remove Shaft Locator Assembly*

Image 5b *Parts Circuled Not Used In Conversion.*

Step 6 Remove Roll Pin

Remove the allen key head bolt exposing the internal roll pin. Using a hammer and pin punch, knock the roll pin out.

See image 6a, 6b, 6c

Image 6a *Remove Roll Pin Cover Bolt*

Image 6b *Remove Roll Pin*

Imaae 6c *Roll Pin*

Step 7 Remove Shaft

After roll pin has been knocked out, the shaft can then be removed.

See image 7

Image 7 *Remove Shaft*

Image 8a *Grind Template*

Step 8 Grind Sway Bar Mount

Using supplied template, mark area to be grinded back on sway bar bracket. This is to allow room for the new air operated actuator.

See image 8a, 8b

Step 9 Bend Brake Line Bracket

Using a shifter, bend brake line bracket up towards the diff housing. Do this with the brake line still attached so the line can be manipulated with the bracket. This is required to create clearance for the new actuator.

See image 9a, 9b

Image 8a *Grounded Sway Bar Btacket*

Image 9a *Brake Line Bracket to be Bent*

Image 9a *Bent up Towards Diff Housing*

Step 10 Installing Air Actuator

At this stage the diff centre will have to be put back into diff housing. If the actuator is installed to diff centre before being put back into housing, the actuator will foul on the sway bar mount not allowing the diff centre to slide forward on the studs.

It's best to unscrew the actuator cap allowing the piston to slide freely out of the cylinder. With the cap still on the shaft is to long past the mounting face and can't be inserted into diff centre. With the cap off, the shaft length is shorter thus allowing the actuator assembly to be guided into position much easier.

See image 10

Image 10 *Installing Diff Actuator*

Image 11 *Guiding Shaft*

Step 11 Guiding Shat Into Position

To guide new shaft into diff centre, put a finger through the hole shown in image 11 and move the mechanism up and down slightly until the shaft slides forwards freely into position.

NOTE: THIS IS THE BEST TIME TO APPLY SOME SILICON GASKET MACKER BETWEEN MOUNTING FACES

See image 11

Step 12 Knocking Roll Pin Back in New Shaft

With the shaft in position and cylinder moved forward onto mounting faces, rotate the shaft until the hole for the roll pin appears, then put roll pin into position and use hammer and pin punch to seat it properly into shaft.

See image 12

Image 12 *Roll Pin*

Step 13 Actuator Bolts & Cap

Use original bolts and torque to factory specification. Wipe away any excess gasket maker that is squeezed out when cap is torqued up. Fit cylinder cap back on with supplied spanner.

See image 13

Image 13 *Actuator Bolts & Cap*

Image 14 *Sensor Plug & Allan Head Bolt*

Step 14 Sensor Plug & Allan Head Bolt

Refit sensor plug and allen head bolt removed earlier. Apply a small amount of silicon gasket maker to threads before screwing in.

See image 14

Step 15 Fit Blanking Plate

Apply silicon gasket maker to mounting surfaces between diff centre and blanking plate. Use original nuts and torque to factory specifications. Wipe away any excess gasket maker that is squeezed out when torqued up.

See image 15

Image 14 *Blanking Plate*

Step 7 Run Air Line

Run the supplied 5mm air line to your compressor. Fit the supplied solenoid and fitting to plug into the compressor. We would suggest running some split tubing over the air line to protect it from damage.

REAR DIFF

NOTE: The rear diff centre will need to be removed to carry out this conversion. The actuator can't slide past the sway bar mount when removing.

Step 1 Remove Stone Guard

See image 1

Image 1 *Stone Guard*

Step 2 Remover Actuator Bolts, Inspection/Sensor Plate

Undo the 3 bolts on sensor plate then remove. Inside there will be a bolt that connects the shaft to the locker. This will need to be removed also so that the actuator can be removed from diff centre. Remove the bolts that hold actuator to diff centre.

See image 2a, 2b

Image 2a *Actuator Inspection/Sensor Plate*

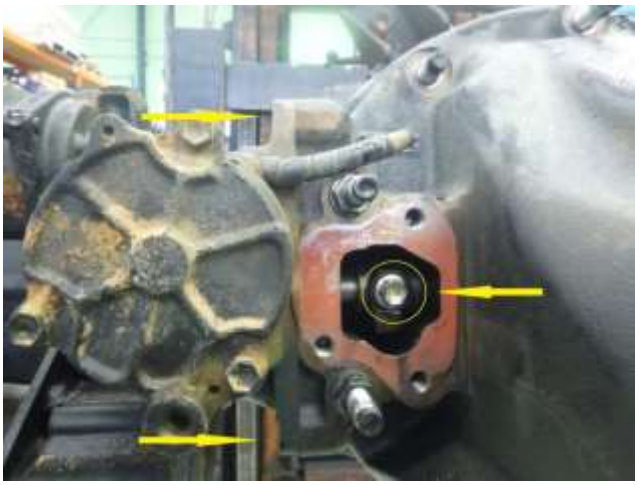

Image 2b *Shaft Bolt To Be Removed & Actuator Bolts*

Step 3 Remove Actuator

With actuator bolts and shaft bolt removed the actuator will slide freely away from the diff centre.

See image 3

Image 3 *Remove Actuator*

Step 4 Install Actuator & Shaft Bolt

Apply silicon gasket maker to mounting surfaces between diff centre actuator. Use the 2 original bolts for the bottom of the actuator and the 2 socket head cap bolts supplied in kit and torque to factory specifications. In the kit there is a stone guard bracket supplied. This will need to be fitted to the top of the actuator. Wipe away any excess gasket maker that is squeezed out when torqued up.

Refit the shaft bolt.

See image 4

Image 4 *Install Actuator & Shaft Bolt*

Image 5 *Refit Inspection/Sensor Plate*

Step 5 Refit Inspection/Sensor Plate

Apply silicon gasket maker to mounting surfaces between diff centre and sensor plate. Reuse factory bolts and torque to factory specifications. Wipe away any excess gasket maker that is squeezed out when torqued up.

See image 5

Step 6 Refit Stone Guard

Refit stone guard reusing all original bolts.

See image 6

Image 6 *Refit Stone Guard*

Step 7 Run Air Line

Run the supplied 5mm air line to your compressor. Fit the supplied solenoid and fitting to plug into the compressor. We would suggest running some split tubing over the air line to protect it from damage.

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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