

03/05/06



FITTING INSTRUCTIONS FOR

MFK1180U & MFK1180/80

Electronic Ratio Box (Speedo Match Box)

For

Speedometer Correction

In

Toyota Land Cruiser, Hilux/4Runner, Land Rover, Range Rover, Jeep, Suzuki and all other Vehicles fitted with HALL EFFECT Electronic Speedometers

Thank you for purchasing a product manufactured by Marks 4WD Adaptors. The following instructions are intended as a guide. We recommend purchasing a Toyota workshop manual for your vehicle to verify wiring details.

1. Remove the cover from the back of the interface box.
2. Remove the link (marked LK1) on the printed circuit board located next to the power in/out plug. **NOTE:** The link must be removed during the entire set up stage, this is to protect the output from over load should you accidentally, incorrectly, connect the unit. See diagram below.
3. The Ratio Box is factory programmed for 1:1 ratio (program A and B) as seen below.
4. Find a suitable location under the dash to mount the Ratio Box.



5. Mount the ratio box to the transmission tunnel or up high under the dash, secure it using the self-tapping screws supplied. A 3mm drill is required to fit the self tappers.

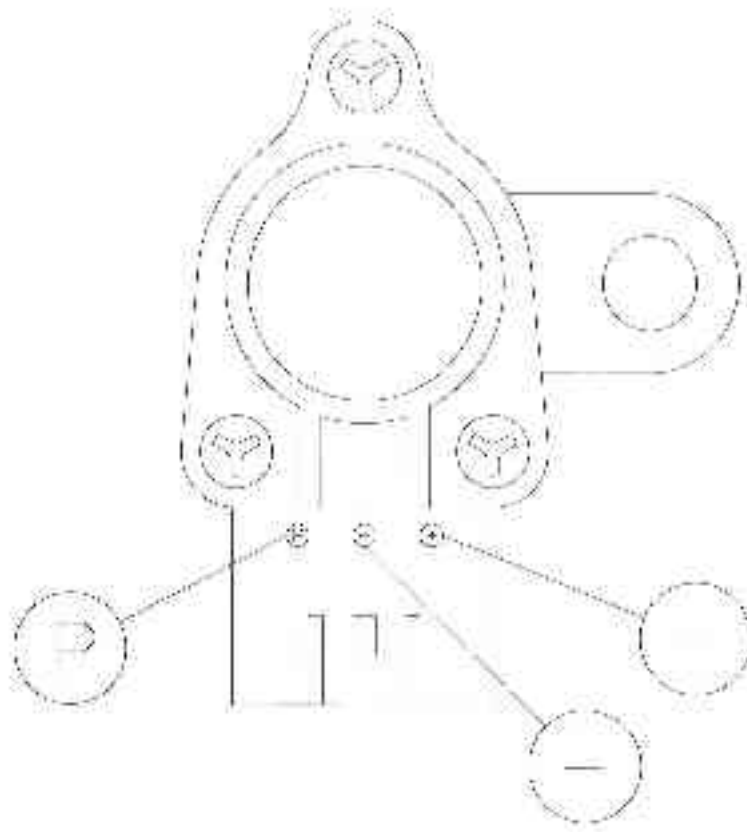
Universal Match Box Wiring Instructions

6. Connect the **BLACK** wire to a reliable earth.
7. Connect the **RED** wire to ignition B+.
8. Cut the pulse wire leading from the VSS to the speedo.
9. Connect the **BROWN** wire to the pulse wire on the VSS, previously cut.
10. Connect the **BLUE** wire to the pulse wire leading to the speedo, previously cut.
11. Road test the vehicle to make sure that the speedo is working properly.
12. If all is OK re-fit the output protection jumper.
13. If not rectify the problem.

How to Identify VSS Pinouts

14. Remove the plug from the VSS. Using a digital multi meter, probe the three terminals with the ignition switched on, you should be able to pick the (earth B-) and the (ignition B+), you may find that the pulse wire also has ignition B+ on it. This can happen if the speedo head has a pull up resistor fitted.
15. If this is the case, plug the VSS back in, jack up the rear wheels and chock the front ones. Put the gearbox in neutral and the hand brake off. Turn the ignition on and then re-probe the wires on the VSS. **NOTE:** The VSS must be plugged in for you to get the correct readings. If you slowly turn the wheels by hand the pulse wire will switch from ignition B+ to Ground. Once you have identified the pulse wire you are then only left with the ignition B+ and the earth wires.

The following diagram shows the Hilux/4Runner and Surf VSS pin connections.

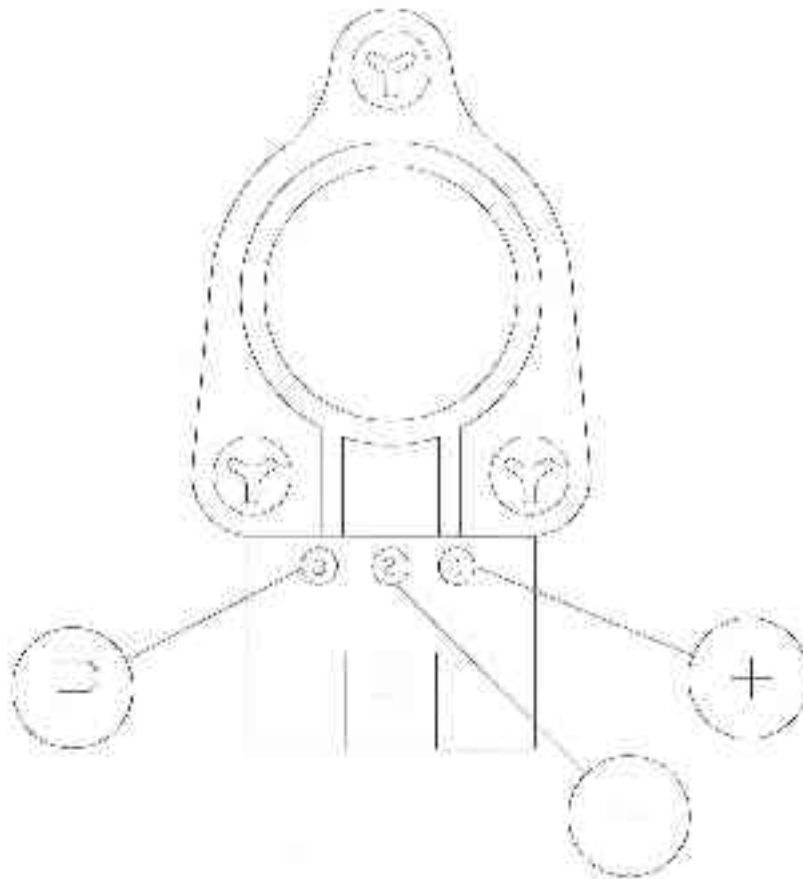


The following diagram shows the LAND CRUISER 100 Series VSS pin connections.

PIN 1 = B+ (RED/BLUE OR VIOLET TRACE)

PIN 2 = B- (BROWN)

PIN 3 = PULSE OUT (RED/GREEN TRACE)



MFK1180/80 Land Cruiser 80 Series.

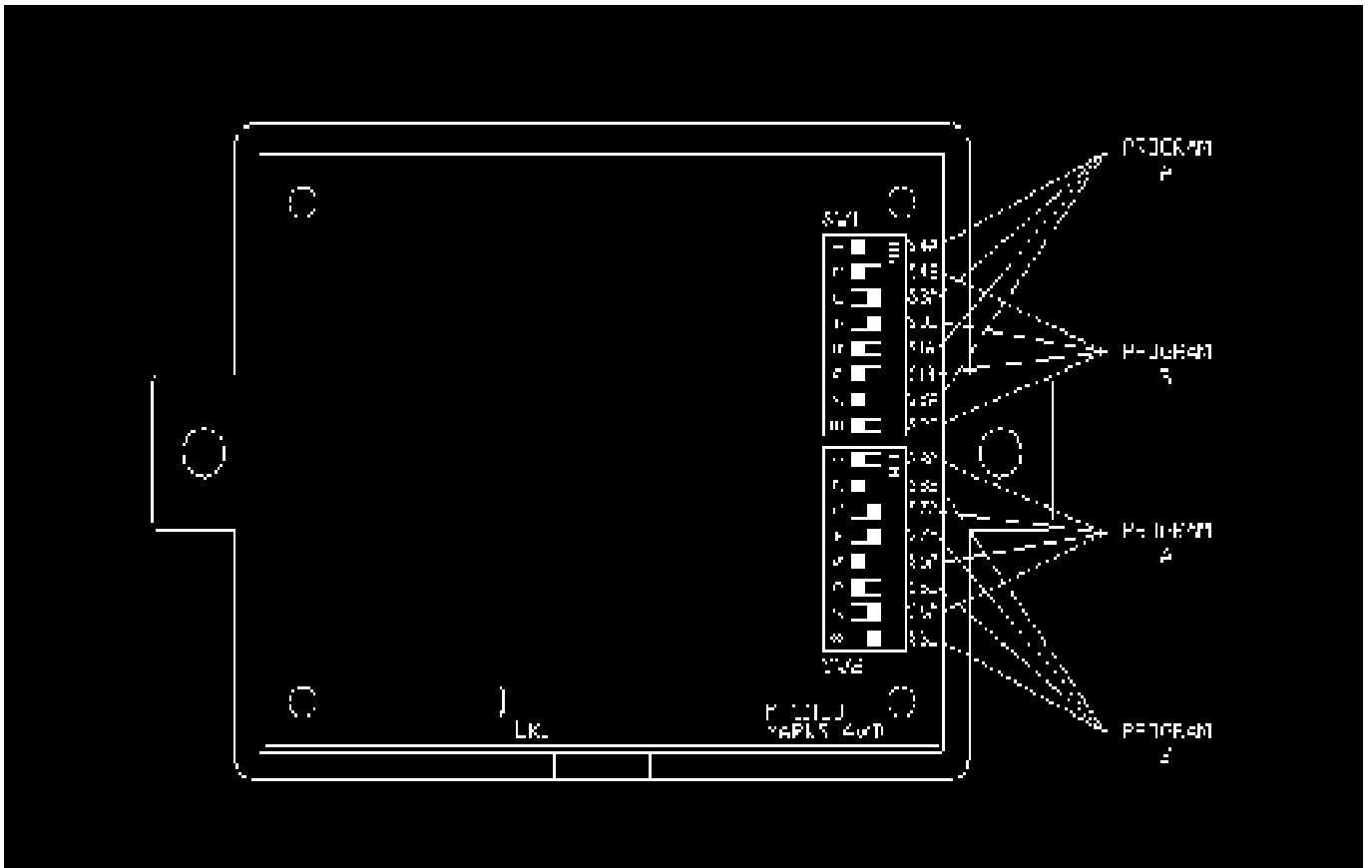
If you have purchased an MFK1180/80 you will have a loom with two plugs fitted and the following installation notes apply.

1. Pull back the carpet above the drivers footrest to expose the transmission tunnel. See photo above.
2. Using a 22mm hole saw drill a hole through the transmission tunnel to allow the loom to exit. **NOTE:** Remove any burrs around the hole.
3. Mount the ratio box to the transmission tunnel or up high under the dash, secure it using the self-tapping screws supplied. A 3mm drill is required to fit the self tappers.
4. Feed the loom through the 22mm hole and fit the grommet to prevent any water leaks.
5. Locate the VSS plug. It's directly above the transfer case, front output flange. Unplug them and plug in the corresponding plugs in the MATCH BOX loom.
6. Use cable ties to secure the wiring over the top of the transmission.

7. Cable tie the loom to the transmission loom to ensure that it won't get caught in the front drive or any linkages.

Programming

8



1. First, calculate the ratio change required to correctly calibrate your speed.
2. To program the ratio box to suit your new tyre size refer to the attached program sheet. Here you will find some of the most common ratio changes using a 31" tyre as a reference.
3. Program A is not normally re-programmed however if you run oversize tyres for every day use you will need to make some adjustments.
4. When programming the dipswitches **ignore the numbers marked on the switches**. Refer only to the side of the switches labelled, **ON**, in conjunction with the labelling located on the printed circuit board.
5. Re-install the link (marked LK1) on the printed circuit board located next to the power in/out plug.

Legend

1=ON

For your reference:

After programming, place your selection in the column labelled (A or B)

NOTE: The tyre size examples are referenced to a 31" tyre. Not all vehicles are fitted with this size

tyre some are smaller and some larger.

Output Ratio	S1	S2	S3	S4	S5	S6	S7	S8	A or B
64	1								
32		1							
21.333	1	1							
16			1						
12.8	1		1						
10.666		1	1						
9.1428	1	1	1						
8				1					
7.1111	1			1					
6.4					1				
5.8181	1				1				
5.3333		1			1				
4.9230	1	1			1				
4.5714			1		1				
4.2666	1		1		1				
4		1	1		1				
3.7647	1	1	1		1				
3.56				1	1				
3.3684	1			1	1				
3.2						1			
3.0476	1					1			
2.9090		1				1			
2.7826	1	1				1			
2.6666			1			1			
2.56	1		1			1			
2.4615		1	1			1			
2.3703	1	1	1			1			
2.2857				1		1			
2.2068	1			1		1			
2.1333					1	1			
2.0645	1				1	1			

2		1			1	1			
1.9393	1	1			1	1			
1.8823			1		1	1			
Output Ratio	S1	S2	S3	S4	S5	S6	S7	S8	A or B
1.8285	1		1		1	1			
1.7777		1	1		1	1			
1.7297	1	1	1		1	1			
1.6842				1	1	1			
1.6410	1			1	1	1			
1.6							1		
1.5609	1						1		
1.5238		1					1		
1.4883	1	1					1		
1.4545			1				1		
1.4222	1		1				1		
1.3913		1	1				1		
1.3617	1	1	1				1		
1.3333				1			1		
1.3061	1			1			1		
1.28					1		1		
1.2549	1				1		1		
1.2307		1			1		1		38" TYRE
1.2075	1	1			1		1		37.5" TYRE
1.1851			1		1		1		37" TYRE
1.1636	1		1		1		1		36" TYRE
1.1428		1	1		1		1		35.3" TYRE
1.1228	1	1	1		1		1		34.7" TYRE
1.1034				1	1		1		
1.0847	1			1	1		1		
1.0666						1	1		33" TYRE
1.0491	1					1	1		
1.0322		1				1	1		
1.0158	1	1				1	1		
1			1			1	1		STD (31"

Output Ratio	S1	S2	S3	S4	S5	S6	S7	S8	A or B	
0.9846	1		1			1	1			
0.9696		1	1			1	1			
0.9552	1	1	1			1	1			
0.9411				1		1	1			
0.9275	1			1		1	1			
0.9142					1	1	1			
0.9014	1				1	1	1			
0.8888		1			1	1	1			
0.8767	1	1			1	1	1			
0.8648			1		1	1	1			
0.8533	1		1		1	1	1			
0.8421		1	1		1	1	1			
0.8311	1	1	1		1	1	1			
0.8205				1	1	1	1			
0.8101	1			1	1	1	1			
0.8								1		
0.7901	1							1		
0.7804		1						1		
0.7710	1	1						1		
0.7619			1					1		
0.7529	1		1					1		
0.7441		1	1					1		
0.7356	1	1	1					1		
0.7272				1				1		
0.7191	1			1				1		
0.7111					1			1		
0.7032	1				1			1		
0.6956		1			1			1		
0.6881	1	1			1			1		
0.6808			1		1			1		
0.6736	1		1		1			1		
0.6666		1	1		1			1		
0.6597	1	1	1		1			1		

Output Ratio	S1	S2	S3	S4	S5	S6	S7	S8	A or B	
0.6530				1	1			1		
0.6464	1			1	1			1		
0.64						1		1		

Remember an inexpensive phone call can save a costly mistake!

Proudly Manufactured by:

Marks 4WD Adaptors

1-3 Ventura Place, Dandenong South, Vic. 3175

Tel: (03) 9702 7366, Fax: (03) 97027566

E-Mail: marks4wd@ozemail.com.au

Catalogue: <http://www.marks4wd.com/>