MM4X4
VEHICLE ELECTRONICS
www.mm4x4.com.au

lockup-mate® MX

Isuzu D-MAX, M-UX

Mazda BT-50

3.0L Diesel (2016+)

Operation & Installation Instructions

Rev C: 19 Nov 2025 (v3.3+)

Technical Support (08) 8164 6907

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lockup-mate® MX - FEATURES & BENEFITS

KEY FEATURE	BENEFIT
Improved Vehicle Performance	*Fuel savings* *Less gear flaring* *Reduce transmission heat build up* *Direct drive performance (like a MANUAL GEARBOX)* *Maximum engine braking*
Set and forget operation	*No buttons to push.*
Fully automatic operation with transmission and driveline protection	*Features like SafeLock® which automatically unlocks to prevent potential damage and undesirable effects. No clunks.* *Won't cause LIMP mode or error codes.*
3 x Adjustable Load Settings	*Adjustable for special, high power engines at low RPM to avoid potential engine labouring.*
Fully plug'n play design	*Simple installation. Easily removable without trace. No factory switch blanks are used.*
PWM Solenoid Control	*Mimics factory ECU electrical signals for performance and to avoid solenoid burnout.*
Advanced digital micro-processor using CANBus interface to ECUs	*Digital interface to the vehicle computers to provide advanced control and features*
In MANUAL, lockup from 35 KPH, in 3rd – 6th gears	*Automatically locks when conditions are suitable and unlocks when not.*
In DRIVE, lockup from 63kph, but normally at about 80kph if in 5th gear	*Automatically locks when conditions are suitable and unlocks when not.*
Emergency Brake Mode	*Immediately hands back lockup control under emergency braking conditions to ensure there is no potential interference with safety systems (eg stability control or ABS)*
Avoids lockup in 1st and 2nd gears, and in 4L	*Avoids transmission LIMP mode and nasty clunks*
LED indication of lockup status	*Driver is aware when transmission is locked, and can adjust driving behaviour to maximise lockup conditions.*
LED Slip Alert	*When in MANUAL it will alert the driver after 5 seconds of high slip to downshift to regain lockup.*

KEY FEATURE	BENEFIT
Fault tolerant design	*In the unlikely event of a problem, unplugging the OBD2 connector will return the vehicle to normal. If there is a relay fault in the control unit, a link plug onto the controller's 6-pin cable returns solenoid control wiring back to factory.* *For a plug'n play wiring harness fault, unplug the harness and re-insert the original plug.*
OBD2 reader interface*	*Use your existing compatible OBD2 reader to display internal status parameters (lockup status, transmission temp, TC slip, gear, pedal % and steering wheel angle).* ** OBD2 reader not supplied with the kit and must have the capability to program custom PIDs.*
Can be switched ON and OFF	*Can be easily switched off if desired*
Doesn't modify the factory ECU	*No re-maps or error code deletes of the ECU are required.*
Error code reset (MIL reset)	*Reset the engine, transmission and maintenance error lamp, and reset codes.*
Adjustable LED/Switch	*Discrete and simple installation which is adjustable to suit your driving position.*
LED auto-dim: visible in daylight, then automatically dims when headlights are on at night.	*Avoids a glaring LED at night.* *Automatic headlight dimming can be over-ridden by the driver so the LED will be visible during the daytime and when driving with the headlights on.*
Compatible with other vehicle modifications	*ie, pedal re-mapping devices, engine re-tune, and exhaust upgrades etc.*

- ✓ **Technical Support**
- ✓ **Designed & Made in Australia**
- ✓ **12 Month Warranty**
- ✓ **30 Day Satisfaction Guarantee**

OPERATING INSTRUCTIONS

lockup-mate®MX will automatically monitor the vehicle and lockup the torque converter when it is safe for the driveline and transmission.

The transmission ECU has an inbuilt gear shift strategy and a lockup strategy. lockup-mate®MX will override the transmission's lockup strategy with one which maximises transmission lockup. It does not change the transmissions gear shift strategy.

Flex lockup mode (a fuel saving mode) of the torque converter is supported and the lockup kit exchanges control of the solenoid back and forth with the transmission ECU for maximum performance.

lockup-mate®MX will automatically change its lockup strategy according to the transmission mode:

DRIVE: In DRIVE and under 63 KPH the factory ECU controls lockup. Above this speed lockup-mate®MX will only override lockup when suitable. So, when in 5th gear lockup normally occurs above 80+ KPH, and 6th gear when above 90 KPH

MANUAL: lockup-mate®MX will lockup at 35 KPH+ in 3rd to 6th gears, but only when conditions are suitable. The driver has more control over the selected gear and can ensure lockup conditions are met by selecting the appropriate gear.

It automatically unlocks in 4L, 1st and 2nd gears to avoid LIMP modes which cause nasty clunks.

When locked, the key benefits* are:

- ✓ **Better fuel economy**
- ✓ **Less transmission heat build-up**
- ✓ **Less gear change flaring**
- ✓ **Direct drive performance (manual gearbox like feel)**
- ✓ **Maximum engine braking**

* Improvements occur when the kit has the torque converter locked when the factory ECU would otherwise have it unlocked.

The key to getting the best performance using the lockup kit is to monitor the LED and adjust your driving to ensure lockup can be maintained.

Turning lockup-mate®MX ON and OFF

The kit can be toggled ON and OFF by tapping the LED/switch on the A-Pillar.

The kit responses with an LED flash:

Shorter flash is OFF

Longer flash is ON

Normally the kit is left ON, and is designed to operate with OBD2 readers, eg ScanGauge.

Recommended Use

Normally the kit is left on. It remembers its ON/OFF state between ignition cycles. There is no need to interact with the button except for special features such as toggling LED auto-dim. The kit is fully automatic and the driver controls lockup using normal driving methods and gear choice, not via buttons.

The kit fully supports the use of Cruise Control when in DRIVE. Cruise Control disables in MANUAL as per factory operation.

Highway Driving (80 KPH+)

On the highway above 80 KPH use DRIVE or MANUAL. In DRIVE, if the transmission needs to be unlocked the LED will go OFF. The driver can regain lockup by either momentarily tapping the accelerator pedal to initiate a downshift, or move to MANUAL mode and select a lower gear.

City Driving (0-60 KPH)

City involves a lot of stops and starts. Use of DRIVE is recommended unless using MANUAL is your preferred style of driving.

Country Road / Hills Driving (35-80 KPH) / Towing

When driving below 80 KPH best results are obtained using MANUAL mode of the transmission. The driver selects the correct gear according to the conditions. Imagine you are driving a car with a manual gearbox. Select the gear appropriate to your speed and load conditions.

The kit is fully automatic and will unlock if the speed is too low for the selected gear, such as when slowing down, or if you upshift at too low a speed to remain locked.

When the speed falls below 35 KPH the kit will always unlock.

Slow Speed Driving (<35 KPH) / Towing

Under 35 KPH the kit will unlock. So, at lower speeds (or in 4L) and under strenuous conditions such as towing up a steep winding hill, it is better to use MANUAL mode and rev the engine higher in a lower gear than rely on the torque converter slipping in 3rd gear. This reduces torque converter slip and reduces the transmission and engine heat buildup. Drop to 2nd or 1st gear and keep the engine above 2800 RPM during high load for best results. In 3rd gear the slip alert feature will advise you when it's better to drop into 2nd gear. Slip alert does not activate in 1st and 2nd gears.

Transmission Warmup (LED pulsing)

lockup-mate®MX will not activate until the transmission has warmed up. It uses the same lockup activation temperature as the factory ECU of 20°C.

During the warmup phase, the LED will pulse (bright, dim, bright, dim etc).

Once warm, lockup-mate®MX will activate and the LED will then indicate the lockup status.

Slip Alert (LED Flashes)

When in MANUAL mode, lockup-mate®MX will flash the LED if the torque converter is unlocked and under high load. Slip alert activates after 5 seconds of high slip to advise the driver that downshifting is recommended to achieve lockup again, or to minimize torque converter slip.

Engine Braking

lockup-mate®MX will keep the torque converter locked when coasting, but only if the transmission is able to maintain lockup. This provides direct drive performance and maximum engine braking.

In MANUAL, downshifting (while already locked) will retain lockup and provide maximum engine braking.

If engine braking (say in 3rd or 4th) and the torque converter is not locked, it is due to the transmission's hydraulic conditions. In this situation, to lockup the driver can momentarily apply a little accelerator pedal to create some positive slip and it will then lockup and provide maximum engine braking.

A typical scenario where it may be unlocked during engine braking is after rolling downhill in 5th (at 80 KPH, 800 RPM) and then downshifting to, say 4th or 3rd, for braking. Just momentarily apply a little pedal to achieve lockup for maximum engine braking.

Transmission Protection - SafeLock®

Even with the lockup kit ON, it is normal for the torque converter to lock and unlock.

A key feature of our kit is SafeLock® which provides automatic transmission protection. The kit will only allow lockup of the torque converter if it is safe to do so.

The kit is constantly monitoring speed, engine load, gear, TC slip, RPM, temperature, and more. It will constantly adjust to the driving conditions and may automatically lock and unlock at any speed.

For example, SafeLock® will unlock the torque converter:

- to avoid error/LIMP modes
- to avoid damaging torque converter clutch slip under certain conditions (high loads)
- if the RPM is too low
- speed is too low for the selected gear
- if abnormal slip is detected
- when coasting (engine braking) and the transmission is unable to lockup due to the hydraulic conditions
- under emergency braking to avoid potential interference with vehicle safety systems (eg. stability control, ABS)
- in 1st or 2nd gear and 4L to avoid error/LIMP modes and nasty clunks
- the transmission has not reached the operating temperature
- to improve drivability at low RPM given the requested engine power %
- avoid surging at low RPM
- there is too much slip and activating lockup would excessively wear the clutch
- when there is any engine error code (ie, MIL lamp is on) the kit automatically deactivates.

LED Auto-Dim

When the headlights turn on, the kit will automatically dim the LED.

This feature can be toggled ON and OFF by holding the LED/SWITCH down for 5 seconds.

Typically, auto-dim is turned OFF when driving in daylight conditions on the highway with the headlights ON. For convenience when touring, the auto-dim mode is remembered between engine start cycles.

The LED/Switch barrel is adjustable and can be positioned to suit the drivers' line-of-sight. The LED is directional, so angling the barrel slightly off-centre (upwards) will also reduce its brightness if required.

MIL Lamp Reset (Reset codes)

The kit includes a feature to reset the Engine, Transmission and Maintenance error lamps. This clears all codes.

Double tap the LED/Switch to clear codes. The LED responds with 2 flashes.

The lockup kit will not cause codes. This feature is provided to self-recover from an installation mistake, however, it is very useful if the vehicle has a fault and you just want to clear the code. For example, a retuned engine which causes a turbo over-boost code occasionally. Just like the vehicle's safety systems, if there is an ECU error code active, the kit automatically deactivates.

Reset Factory Defaults

To reset the internal non-volatile memory setting back to factory default:

1. Turn Ignition ON, but don't start the engine.

2. Place shift lever into MANUAL position.

3. Press and hold the LED switch for 10 seconds, then release. The LED will respond with 5 flashes to acknowledge the command.

LED/Switch

The LED/Switch has a blue LED in the centre. This is also a momentary switch which can be tapped/pressed.

The switch is used to:

- Turn the kit ON and OFF
- Toggle LED auto-dim feature ON or OFF
- Reset error codes
- Enter self-diagnostic mode (see Installation section)
- Reset to factory defaults

LED Status Summary

LED ON	When the LED is ON, the torque converter is fully LOCKED.
LED OFF (unlocked)	Status of torque converter is UNLOCKED. If the unit is turned OFF, the LED is always OFF, and it doesn't display the torque converter lockup status.
LED Flashing (slip alert)	MANUAL mode only. If unlocked and slipping a lot, after 5 seconds it will flash the LED to remind the driver to downshift to regain lockup, or minimize torque converter slip.
LED Pulsing (warmup)	Transmission is warming up. Lockup control is deactivated.

LED/Switch Commands

REQUIREMENT	*LED/SWITCH ACTION*	*DESCRIPTION*
Toggle the lockup kit ON and OFF	**Momentary tap**	The LED will flash in response: Shorter Flash is OFF Longer Flash is ON The last setting is remembered between ignition cycles.
Toggle LED auto-dim mode	**Hold 5 seconds**	When driving with your headlights on in the day-time, you can override LED auto-dim feature. With auto-dim ON, Night-time/Day-time LED intensity is linked to the headlights being on or off. The last setting is remembered between ignition cycles
Reset the Error lamps – Malfunction Indicator Lamp, Transmission, and Maintenance lamps.	**Double tap**	A handy feature available in our kits if you don't own an OBD2 reader. NOTE: lockup-mate®MX will not cause error codes
Reset the kit to factory defaults	**Ignition ON** **Engine OFF** **Shift lever to MANUAL** **Hold LED/Switch 10 seconds**	Return kit to original settings.
Self Diagnostics	**Ignition ON** **Engine OFF** **Shift lever to MANUAL** **Hold LED/Switch 5 seconds**	See Installation section.

OBD2 Interface

lockup-mate®MX includes a Vehicle Communication Interface (VCI) to translate internal vehicle data and lockup kit data into a format your OBD2 reader can read and display. The VCI includes the following parameters:

- Lockup clutch status (OFF = 0, ON = 1), which is the same as the LED status.
- Lockup kit ON/OFF status.
- Transmission temperature sensors (both pan and torque converter sensors)
- Engine Coolant Temperature (4JJ1 only 2016-2020)
- Pedal %. The kit also displays the equivalent pedal % when the car is in cruise control. This is handy to see the power demand when driving with cruise control.
- Current gear
- Torque Converter Slip
- Steering Wheel Angle, which is handy when reversing, sand driving or rock crawling.

  Options are:

  - Actual front wheel angle (in degrees +/-30º)
  - Steering wheel sensor (raw degrees +/-600º)
  - Steering wheel rotations (in 90 degree increments +/-6)

***** An OBD2 reader is not supplied with the lockup kit. It must have the ability to program custom PIDs to query the parameters above.

Refer to website for instructions on OBD2 reader setup. See Support->Helpful Documents and Links

Adjustable Load Settings

lockup-mate® MX allows the choice of lockup algorithm for each of DRIVE and MANUAL modes. We understand vehicles can be different and may have unique needs.

There are 3 choices, and which best suits your vehicle may depend on individual engine power enhancements and/or tyre size. Highly modified vehicles may require a lower setting, which unlocks earlier to avoid labouring the engine at low RPM. All settings are ok for the transmission. The setting adjustments are about the engine and driveline's health, and not the transmission.

NOTE: For all settings, the SafeLock® protections are still enabled so it will unlock when required, eg, if the RPM is too low or too much applied torque will cause clutch slip.

The load setting choices are:

Level 1	Under low RPM and when power is required the kit will unlock. This is the most conservative mode. It holds lockup more than the factory TCU, but not significantly more, eg, when touring, it will unlock at 100kph in 6th first rather than downshifting. When this setting is used you'll get best results using MANUAL and downshift gears when (or before) it unlocks (before the slip alert LED activates).
Level 2	In this mode the kit will hold the torque converter locked except when the RPM is very low, such as below 1400RPM. In practice this means 5th locks up at about 82kph and 6th at 96kph. Once locked and above this speed, it will stay locked and then rely on the TCU to downshift gears to increase the RPM and provide the required power. Below these speeds the TCU will first unlock the torque converter when more power is required. For example, in DRIVE at 100kph, the transmission will stay locked and simply switch between 5th and 6th gears as required. At 90kph, it will unlock in 6th when more power is needed, rather than relying on the TCU to downshift to 5th. This mode may be selected if you find your engine labours at low RPM in the Level 3 setting.
Level 3 (default)	This mode will hold the torque converter locked as much as possible and at a lower RPM (~1300). Once locked, the kit relies on the TCU downshifting gears when more torque is required. SafeLock® is still enabled. This mode provides the best results. Below 1300 the kit will hand back lockup control to the factory ECU so it can use the fuel-saving FLEX lockup mode of the torque converter. **In DRIVE, this mode provides optimum fuel economy, reduces RPM flaring when touring, and gives maximum temperature reduction**. **In MANUAL, the driver is still responsible for downshifting to avoid the engine labouring.**

The kit has 5 settings to operate to your preference.

SETTING	DRIVE	MANUAL
1	Level 1	Level 1
2	Level 1	Level 3
3	Level 2	Level 1
4	Level 2	Level 3
5 (default)	Level 3	Level 3

Configuration Setting Procedure

1. Turn ignition ON, but don't start the engine (ie, two START BUTTON pushes with your foot off the brake).
2. Move shift lever to MANUAL position.
3. Hold the shift lever in the minus (-) position for at least 10 seconds, until the LED starts flashing.

The LED now flashes according to the current setting value, ie if in default setting it will flash 5 times, pause, then flash 5 times again ….and keep repeating.

4. Use the shift lever PLUS (+) and MINUS (-) to change the value, eg, 4 flashes for Setting 4. IGNORE ANY BEEPS as the shift lever is moved.
5. Move shift lever back to DRIVE position to exit Configuration Settings Mode.

Why the choices? In Manual Mode, the driver is controlling the gears and can avoid labouring the engine by simply changing down a gear.

In DRIVE, the transmission computer is in control of gear choices and may choose too high a gear for your setup.

Why would you choose Level 1 or 2 (instead of 3) as the DRIVE mode setting?

We sell many kits to customers with special engine power upgrades. Depending on the % engine power upgrade there is a possibility of engine labouring. Larger tyres also put more load on the driveline. The DRIVE mode gear shift pattern in the TCU is setup for a stock engine and standard tyres. The Setting adjustment capability is to cater for special circumstances.

For highly modified vehicles, we recommend making your own assessment. Try driving in Setting 5, at 90kph in 6th (~1300RPM). As you apply more power, check it doesn't labour too much in 6th gear before the transmission downshifts into 5th. Similarly, assess the other gear downshift points (such as 80kph 5^{th,} and at 100kph 6th).

Why would you choose Setting 3, with Level 1 as the MANUAL mode setting?

In MANUAL, the driver is responsible for changing gears when necessary to avoid excessive loads on the engine (just like with a manual gearbox). Depending on your ability (if you are unsure about labouring), use the Level 1 setting and downshift if the slip alert LED feature (LED flashing) advises you to.

INSTALLATION INSTRUCTIONS

INSTALLATION VIDEO

An Installation Video is available for this product on our YouTube Channel. Scan the QR code below to view on your device.

KIT CONTENTS

• **lockup-mate®MX control unit** 	• **CANBus cable (4-pin connector)** 
• **LED/Switch harnesses (8-pin connector)** 	• **OBD2 Y splitter cable (16-pin connectors)** 
• **Plug'n play Transmission ECU harness and heatsink (6-pin connector)** 	• **Cable ties** • **Instructions (this booklet)**

INSTALLATION OVERVIEW

Installation (takes ~1 hour)

PROCEDURE	DESCRIPTION
1	Connect Transmission plug'n play ECU harness
2	Clip LED/Switch onto A-pillar
3	Connect the OBD2 cables
4	Mount the Control Unit and Heatsink
5	Test

Equipment & Tools Required

TOOL	PURPOSE
• Trim removal tool	Transmission ECU access
• Wire Cutters	Trim cable ties
• Screwdriver	4JJ1 glovebox removal

WARNINGS AND CAUTIONS

MM4X4 accepts no liability for damage to the product or vehicle as a result of product installation or use.

PLEASE READ THESE INSTALLATION INSTRUCTIONS BEFORE COMMENCING.

ONLY PROCEED IF YOU ARE CONFIDENT YOU CAN PERFORM THE TASKS CORRECTLY. IF UNSURE, WE RECOMMEND YOU HAVE THE UNIT INSTALLED BY AN QUALIFIED TECHNICIAN.

CAUTION: AVOID METAL TOOLS WITH SHARP EDGES SUCH AS A KNIFE, OTHERWISE THE TRIM MAY BE DAMAGED [REF: STEP 1.2]

WARNING: PLACE THE LED/SWITCH ON THE A-PILLAR BELOW THE AIRBAG STRAP [REF: STEP 2.2]

WARNING: ENSURE THE CABLES ARE SECURED TO PREVENT OBSTRUCTION OF BRAKE AND ACCELERATOR PEDAL OPERATIONS [REF: STEPS 2.3, 3.4]

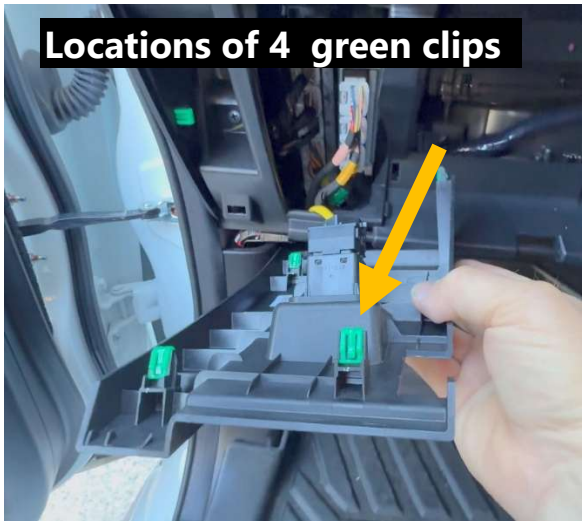
DETAILED INSTRUCTIONS

Step 1 - Connect the Transmission ECU harness

1. Remove the Glovebox. Lift upward to release.
2. Remove the trim to reveal the transmission ECU.

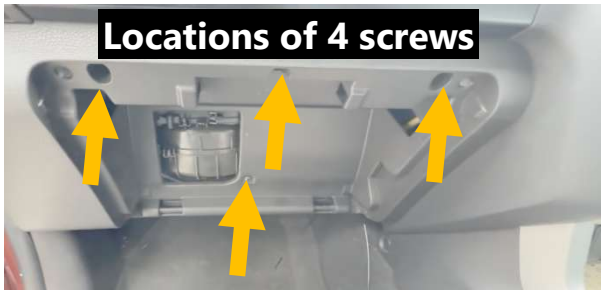
4JJ3 (2020+)

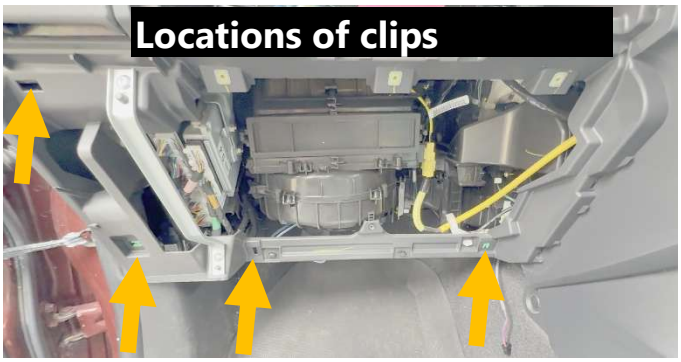
Pull the trim panel rearwards.



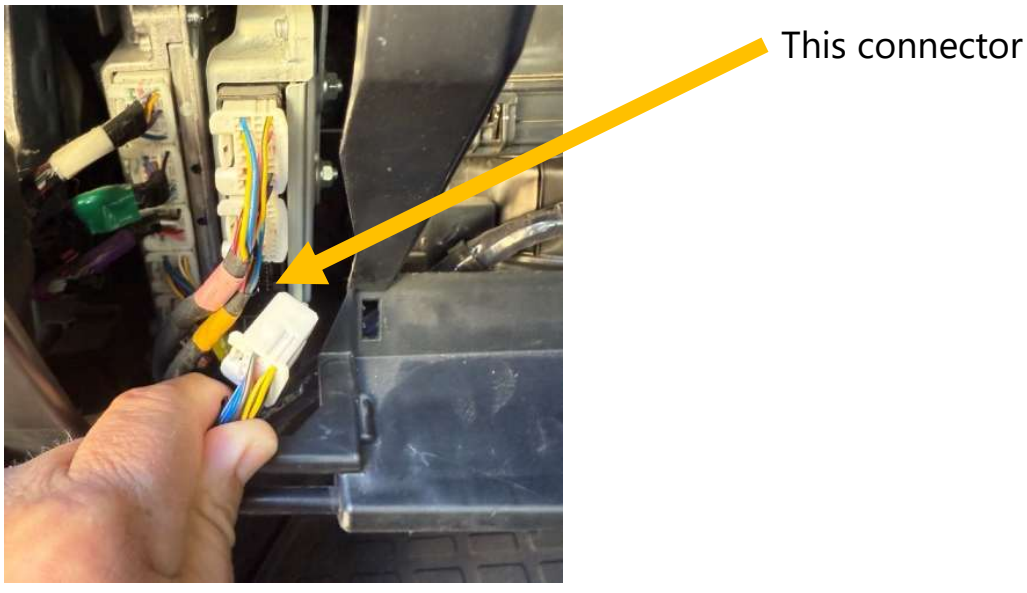
4JJ1 (2016-2020)

Remove 4 screws, then pull the trim panel rearwards.





3. Decide on the location of the control unit and heatsink. (Refer to Step 4).
4. Route ECU harness cable from control unit location to the transmission computer.
5. Remove the bottom connector (with green tape) and connect the plug'n play lockup kit connectors.



6. Tidy harness and cables with cable ties.

Step 2 - Mount LED/Switch Cable

1. Pull back the rubber door trim on driver's side.
2. Clip the LED/Switch into the plastic trim.

   WARNING: Place the switch at the lower section, below the airbag strap.
3. Route the cable across to the control unit location. Cable tie in place.

   WARNING: Ensure cable is secured and cannot fall near the driver's feet.

Step 3 – Connect the OBD2 cables

1. Connect the Y-splitter cable to the vehicle OBD2 port.

   4JJ3 (2020+) This port is located under the dash, above the driver's left shin.

   4JJ1 (2016-2020) This port is located in the pocket below the steering column
2. Connect the CANBus cable to one end of the OBD2 Y-splitter cable.
3. Connect the other free plug of the OBD2 Y-splitter cable to your OBD2 device (if you have one connected).
4. Route cable through transmission tunnel to the control unit location.
5. Connect the 4pin CANBus cable into the control unit. There are two identical CANBus ports (one is for future expansion). Either port can be used.

Step 4 – Mount Control Unit and Heatsink

Depending on your vehicle, mount the control unit and heatsink in a suitable location using cable ties, such as in the transmission tunnel or below the glove box. Ensure there isn't strain on the cables. The heatsink should have access to air to assist with cooling and not be confined under the carpet.

NOTE: Avoid a placement that may interfere with the removal of the cabin filter (if fitted).

Coil any excess cable into a loop and cable tie for neatness.

Step 5 – Driveway Testing

1. Switch ignition ON and confirm the transmission error lamp is not flashing
2. Conduct the lockup kit self-test:

   - Turn the Ignition ON but don't start the engine

   - Place the shift lever into the MANUAL position

   - Press and hold the LED/switch for 5 seconds.

   - The kit will illuminate the LED while it conducts 6 tests, for about 10 seconds. A relay click should be heard during the tests.

     - PASS: At the end of the tests the LED will stay off.
     - FAIL: The LED will flash a number of times, pause, and then flash again. The number of flashes is the test number which failed. Eg between 1 to 6 times, pause , and repeat.

   - To exit diagnostic mode, move the shift lever to D.

Step 6 – Road Test

1. Start the engine and drive using D mode.
2. If the LED is pulsing the transmission hasn't warmed up. Wait for it to stop pulsing.
3. Stop the car.
4. Ensure the lockup kit is turned on. Tap the LED/switch to toggle the kit on and off.

   Once tapped, the LED will flash once. A shorter flash is OFF, a longer flash is ON.
5. On a quiet, flat road, drive in D to 50 KPH – the LED should stay OFF.
6. Move shift lever to MANUAL and select 3rd gear. Relay clicks and LED comes ON.
7. Change to 4th gear – LED should go OFF (unlocks). If not, slow down a little.

   Normal behaviour:

   - LED shows lockup status, and the relay can be heard as lockup kit and transmission ECU control exchange control over the lockup solenoid.
   - In DRIVE, the kit does not lockup until about 80 KPH.
   - In MANUAL, it locks up from 35 KPH in 3rd – 6th gears but only when conditions are suitable.

TESTING IS COMPLETE. ENJOY!

TROUBLESHOOTING

FAULT DESCRIPTION	POSSIBLE CAUSES
Flashing Transmission Error lamp  **or MIL (when engine running)** 	Check all lockup kit connectors. Review the installation video troubleshooting part. Try clearing the error – double TAP the LED/switch to command CLEAR CODES Read the error code using an OBD2 reader (if you have one). Contact MM4X4
Fails to start self diagnostics test	Turn off ignition and turn on again while monitoring the LED. It should flash once. If not, check for power to the controller: a. Check the OBD2 connectors are plugged in. b. Check the controller is receiving power by looking through the connectors inside the controller – there should be a red glow of a power LED. c. If not, try to bypass the OBD2 Y-splitter cable in case there is a fault with this cable. d. Check OBD2 socket is providing power by using another OBD2 device (if you have one). e. Check fuses. f. Ensure the LED is held for between 4–7 seconds with the shift lever in MANUAL. Ignition must be on with the engine stopped. g. Check the kit has been installed as per the installation instructions.

FAULT DESCRIPTION	POSSIBLE CAUSE
Test 1 Failure - The lockup kit cannot detect the transmission ECU driving current directly into the lockup solenoid (Circuit 1)	Check all connectors. Replug Transmission ECU cable harness at ECU and the lockup control unit. Unplug and replug 6 pin connector from control unit. Inspect connector terminal pins for damage or incorrect insertion. Lockup controller relay fault – contact MM4X4.
Test 2 Failure - The lockup kit cannot detect the transmission ECU driving current into the lockup solenoid (Circuit 2)	As above.
Test 3 Failure - Relay switches and the lockup kit cannot detect current from the ECU being driven into the load resistor on the heatsink.	Unplug and replug 6 pin connector from control unit. Inspect connector terminal pins for damage or incorrect insertion. Inspect wiring to load resistor is not damaged. Check the load resistor measures 5.6 ohms (+-5%).
Test 4, 5, or 6 – The lockup kit is driving current into the solenoid and failed to measure the correct amount of current being driven.	Unplug and replug 6 pin connector from control unit. Inspect connector terminal pins for damage or incorrect insertion. Ensure the vehicle battery is well charged and above 12.4 Volts.

WARRANTY POLICY

MM 4X4 is committed to providing quality products to you and this policy outlines our warranty against defective products manufactured by MM 4X4.

MM 4X4 warrants our manufactured products against defects in workmanship or materials for the Warranty Period. The warranty does not cover damage due to normal wear and tear (for example marks and scratches). This warranty is not applicable to products re-sold by MM 4X4. Warranties for these products are defined by the manufacturer.

MM 4X4 accepts no liability for damage to the vehicle as a result of product installation or use.

Warranty Period

MM 4X4 warrants MM 4X4 manufactured products for a period of 12 months commencing from the date of purchase.

Warranty Entitlement

To be entitled to claim a warranty claim, the customer must:

1. Fit the product according to the provided installations instructions;
2. Provide evidence of purchase;
3. Return the faulty product to MM 4X4 for assessment against the Warranty Entitlement Exclusions; and
4. Make a claim within the Warranty Period.

Warranty Entitlement Exclusions

The Customer is not entitled to a warranty claim if:

1. The defect is the result of misuse, inappropriate use, incorrect installation, or installation into a vehicle not supported by the product; or
2. The product has been modified; or
3. The product housing has been opened; or
4. The product has been damaged.

Making a Warranty Claim

To make a warranty claim:

1. Contact MM 4X4 (enquiries@mm4x4.com.au) to discuss the claim;
2. If directed by MM 4X4, return the product to the address provided by MM 4X4 (at the customer's expense) and ensure the product is accompanied with the following information:
    a. A copy of the proof of purchase;
    b. The return merchandise authorisation (RMA) number provided by MM 4X4;
    c. The customer's name and contact details;
    d. A return shipping address.

Upon receipt of the faulty product, MM 4X4 will assess the claim against the Warranty Entitlement and Exclusions.

For valid warranty claims, MM 4X4 will repair or replace the goods and ship them (free of charge) to the provided shipping address.

For warranty claims that are assessed as invalid, MM 4X4 will contact the customer to seek further direction, which may include:

a. Reasons for denying the warranty claim;
b. A quote to repair the faulty product;
c. Returning the faulty or repaired product to the provided shipping address (at the customer's expense);
d. Agreement to dispose of the faulty product; or
e. A quote to supply a replacement product.

Warranty Complaints and Enquiries

Our goods come with guarantees that cannot be excluded under the Australian Consumer Law. You are entitled to a replacement or refund for a major failure and compensation for any other reasonably foreseeable loss or damage. You are also entitled to have the goods repaired or replaced if the goods fail to be of acceptable quality and the failure does not amount to a major failure.

MM4X4 VEHICLE ELECTRONICS

ABN 95 625 092 091

Tea Tree Gully, South Australia

Online Shop www.mm4x4.com.au **Email** enquiries@mm4x4.com.au **Mobile** (08) 8164 6907