



2017-2021 Maverick X3 Turbo R & Base Model ECU Tuning

NOTE: 2017 & 120 base model Require 2018 Turbo R Fuel Pump

By purchasing this kit, you agree to and understand the following:

- This is a high-performance upgrade!!!! Although we have gone through great lengths to build safety into the upgraded tuning, the fact is installing any performance enhancing product from any company requires care in both operation and/or installation. Poor fuel, improper setup or any number of things that are done incorrectly can damage your engine/vehicle
- You have likely voided the sound and exhaust emission standards of your state, county or country if applicable
- This upgrade is intended for OFF ROAD or for racing use only
- The fuel requirements must be adhered to!!!! Poor fuel can destroy an engine in seconds!!!
- Due to the variability of fuel quality and other factors, Evolution Powersports (EVP) bears no responsibility for damage caused to your vehicle by the installation of EVP products. The warranty on our parts is 90 days from date of purchase. Evolution Powersports, at its discretion will determine whether a part meets the warranty requirements. In no case is there any warranty from EVP for your vehicle. We assume no liability for damage to vehicle or personal injury from installing or using any of our products.
- The installation of some aspects of this kit are technical and mechanical in nature with opportunities to make mistakes – mistakes that can be very costly!!! If you are not qualified to install this kit, don't do it!!
- This kit will make your vehicle faster, climb higher and accelerate more quickly and take a longer distance to brake than a stock tuned vehicle. If you are not capable of controlling the vehicle with the added performance, do not install the kit.
- Do not ever allow a child or an unqualified driver to operate this vehicle!!!!!!!!!!!!!!!!!!!!
- The Multi Map option must be used carefully – running in “95 octane mode” with poor fuel can damage your engine quickly. Absolutely no warranty is expressed or implied due to the possibility of running the engine in the wrong mode.
- **NOTE: ALL OCTANE RATINGS ARE BASED UPON HOW THE US MEASURES OCTANE: APPROXIMATE CONVERSIONS OF US OCTANE TO EUROPE AND ASIA: 91 US = 95 EUROPE AND ASIA, 93 US = 98 EUROPE AND ASIA, 95 US = 102 EUROPE AND ASIA**
- By installing our products on your vehicle, you agree to the above terms and conditions.
- **NOTE: When using a fuel cell with an aftermarket fuel pump fuel pressure must be set at 65-68 PSI.**



STAGE 1-2 STAGE 2R / 3R / 3R93 STAGE 3Ri, 3RWi, 4RWi, 4RWi-x100,5RWi, 5RWi-X85

Parts list:

EVP Wastegate actuator (RWi tunes only)

Fuel pump (2017->2018 upgrade only) – see fuel pump install instructions on last page

EVP Fuel Injectors (Big Injector tunes only)

Multi Map Switch (Multi Map Tunes Only)

Hardware Setup Instructions

Stages 1 Stock Injector

1. Verify your wastegate crack pressure is set to 7 lbs. (This should be the factory setting on the 2018s. 2017 Upgrades will need to raise the crack pressure to **7 lbs**) (see **wastegate adjustment procedure**)
2. Use only GOOD 91 Octane or better fuel
3. Recommended: Re-gap OEM Spark Plugs to **.016-018”**

Stages 2R & 3R Stock Injector

1. OEM Wastegate crack pressure must be raised to **8 lbs.** (see **wastegate adjustment procedure**)
2. Use only GOOD 91 Octane or better fuel
3. Recommended: Re-gap OEM Spark Plugs to **.016-018”**

3R-93 Stock Injector

4. OEM Wastegate crack pressure must be raised to **8 lbs.** (see **wastegate adjustment procedure**)
5. Use only GOOD 93 Octane or better fuel
6. Recommended: Re-gap OEM Spark Plugs to **.016-018”**

Stages 3RWi BIG INJECTOR

1. Install new EVP supplied wastegate actuator – reuse the OEM **rod end** - refer to picture on page 3. Set new wastegate actuator crack pressure to **8 lbs.** (see **wastegate adjustment procedure**)
2. Install injectors (see injector instructions)
3. 3RWi = 93 octane fuel
 - o Or mix 1 gallon of 110 octane race fuel to 4 gallons of 91 Octane
 - o Or mix 1.5 gallons of 100LL or 100 octane race fuel to 3.5 gallons of 91 Octane
4. Recommended: Re-gap OEM Spark Plugs to **.016-018”**

Stage 4RWi BIG INJECTOR

1. Install new EVP supplied wastegate actuator – reuse the OEM **rod end** - refer to picture on page 3. Set new wastegate actuator crack pressure to **9 lbs.** (see **wastegate adjustment procedure**)
2. Install injectors (see injector instructions)
3. 4RWi = 95+ octane fuel
 - o Or mix 1.5 gallon of 110 octane race fuel to 3.5 gallons of 91 Octane



- Or mix 2.5 gallons of 100LL or 100 octane race fuel to 2.5 gallons of 91 Octane
4. Required: Re-gap OEM Spark Plugs to **.016-018"**

Stage 4RWi-MM 95/91 BIG INJECTOR

1. Install new EVP supplied wastegate actuator – reuse the OEM **rod end** - refer to picture on page 3.
Set new wastegate actuator crack pressure to **9 lbs.** (see **wastegate adjustment procedure**)
2. Install injectors (see injector instructions)
3. 4RWi = 95+ octane fuel
 - Or mix 1.5 gallon of 110 octane race fuel to 3.5 gallons of 91 Octane
 - Or mix 2.5 gallons of 100LL or 100 octane race fuel to 2.5 gallons of 91 Octane
4. Required: Re-gap OEM Spark Plugs to **.016-018"**

Stage 4RWi X100 BIG INJECTOR

1. Install new EVP supplied wastegate actuator – reuse the OEM **rod end** - refer to picture on page 3.
Set new wastegate actuator crack pressure to **11 lbs.** (see **wastegate adjustment procedure**)
2. Install injectors (see injector instructions)
3. 4RWi-X100 = 100 Octane
4. Required: Re-gap OEM Spark Plugs to **.016-018"**

Stage 5RWi X85 BIG INJECTOR

5. Install new EVP supplied wastegate actuator – reuse the OEM **rod end** - refer to picture on page 3.
Set new wastegate actuator crack pressure to **11 lbs.** (see **wastegate adjustment procedure**)
6. Install injectors (see injector instructions)
7. 5RWi = E85 (must be close to 85% ethanol) **PUMP E85 can measure anywhere from E55 to E90 and will possibly run poorly
8. We recommend Ignite E85 <http://www.igniteracingfuel.com/E-85.html>
9. Required: Re-gap OEM Spark Plugs to **.016-018"**

Injector Removal and Installation Instructions for 3Ri-5RWi

Tools needed: T30 Socket, compressed air, dielectric grease, small flat blade screwdriver - **NOTE: ENGINE MUST BE COLD TO DO THIS INSTALL!!!!**

- Use compressed air to blow out dirt and dust around the fuel rail and injector seats
- Using a T30 socket, remove the two torx screws securing the fuel rail to the plenum
- Lift the fuel rail upward and back (without removing the injectors) – this will make it easier to disconnect injector plugs. Squeeze the retainer clips to release plugs from injectors and remove.
- Move fuel rail to the passenger side of the engine so it is easier to work on. Use a small flat blade screwdriver to remove the injector clips securing the injectors to the fuel rail – make note of their orientation as they will be installed the same on the new injectors.
- Apply dielectric (silicone) grease on the top and bottom o-rings of the new injectors



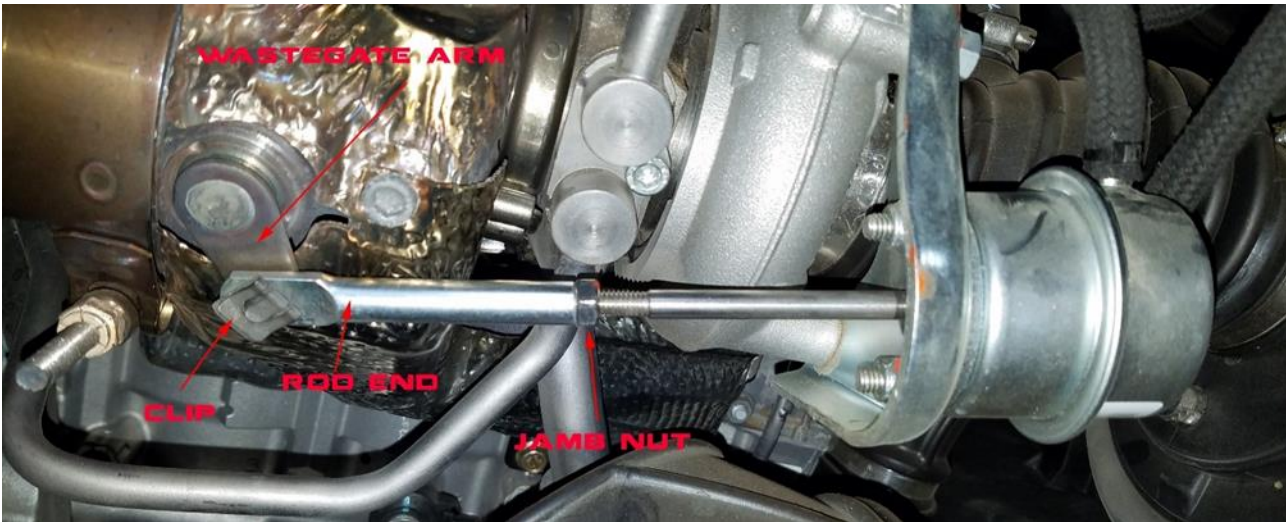
- Install the injectors into the fuel rail in the same orientation as they were removed.
- Reinstall clips making sure they are installed onto the injectors in the groove the same as they were on the OEM injectors
- Reconnect injector plugs
- Reinstall fuel rail hold down bolts – DO NOT OVERTIGHTEN!
- Push start button, but do not start the engine – check for fuel leaks – if there is any leaking of fuel from the injectors or fuel rail, this must be addressed prior to running the engine!!

WASTEGATE ADJUSTMENT PROCEDURE (only for tunes that require it)

Tools needed: Small flat blade screwdriver, [Mityvac MV8255](https://www.amazon.com/dp/B078V8255) (can be purchased on Amazon.com) or similar pressure gauge, 10mm wrench

NOTE: see picture on next page for clarification of this procedure

- Remove panel between the seats that allows access to the turbocharger
- Using a small flat blade screwdriver, remove the clip that holds the wastegate actuator rod onto the wastegate arm
- Using a 10mm wrench, loosen the jamb nut on the wastegate rod
- Remove the wastegate rod end from the wastegate arm. Screw the rod end clockwise to shorten the arm to raise the crack pressure. Conversely, lengthen the rod to lower the crack pressure. Check crack pressure with Mityvac. Please see our Youtube video for the correct way to do this <https://youtu.be/qOg2MnBfl08>
- **Check pressure 3 times to make sure it is correct!**
- Put the wastegate rod end back onto the wastegate arm.
- Reinstall the clip and tighten the jamb nut.



MULTI MAP

(For customers that have purchased the Vmap Multi Map Option)

Multi Map enables customers to use the “Sport Mode” and “ECO Mode” switch to select different tunes. Included is a new switch cover labeled “Race Gas” and “Pump Gas”. Customers can switch between tunes using this feature.

- Remove the factory sport/eco mode switch
- Install the Supplied EVP 95 Oct/91 Oct switch
- For a Stage 4RWI Tune with the Multi Map Option – 95 Octane Fuel is required
- How to make 95 Octane:
 - Or mix 1.5 gallons of 110 octane race fuel to 3.5 gallons of 91 Octane
 - Or mix 2.5 gallons of 100LL or 100 octane race fuel to 2.5 gallons of 91 Octane
- **YOU MUST BE CAREFUL USING THIS FUNCTION – ACCIDENTALLY RUNNING IN “RACE GAS MODE” WHEN PUMP GAS IS IN THE TANK CAN DAMAGE YOUR ENGINE**

CLUTCHING

The X3 engine tuned makes best power around **7900-8100 RPMS**. Strongly consider a clutch kit from us or another reputable company to get the best performance and belt life out of your vehicle.

18 FUEL PUMP INSTALLATION

1. Remove plastics covering fuel tank. See picture below for location.
2. Locate the arrow on the top of the fuel pump. The arrow will face the passenger side of the vehicle.
3. Unplug electrical connector going into the top of the pump.
4. Unhook fuel hose by removing the red clip from the connection. Then push down on the fitting while pushing in on the back side of the fitting – then lift the fitting off the pump assembly.
5. Rotate pump assembly cap counterclockwise and remove. Remove assembly.



6. Install the 2018 fuel pump assembly in the reverse order. Make sure to reinstall the rubber gasket at the top of the fuel tank or the tank will leak!!!



INSTALLATION INSTRUCTIONS

Thank you for choosing Evolution Powersports products. If you require further assistance, please call our Tech Support @ (715) 247-3862

Note: This product is exempt from the emission standards and related requirements of 40 C.F.R. § 1051 as provided by 40 C.F.R. § 1051.620, and California law [e.g., vehicle code §§ 27156 and 38391]. This product is sold only for use in connection with EPA certified, purpose-built, nonroad vehicles used solely for closed course, nonroad competition/racing and not used for any recreational purpose or on public highways or right of ways maintained by and open to the public. This product is sold only in connection with machines that do not fall under state and/or federal noise or emission standards/regulations. Purchasers who/that purchase this product represent and warrant that the product is purchased only in connection with EPA -certified, emission-regulations-exempt and noise-regulations-exempt competition/racing vehicles as interpreted under applicable state and/or federal law. Questions: Call Evolution Powersports at (715) 247-3862.

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