



## **FAT BOY 4 COMPLETE EXHAUST SYSTEM**

**MODEL: 2006-10 Suzuki LT-R450** with Electronic Fuel Injection

1. Remove complete stock exhaust system. Retain (2) stock head nuts and (2) muffler mount bolts
2. Before starting your Fat Boy 4 installation. You must make sure that the cylinder head exhaust gasket is intact and in good condition (usually they stay in the cylinder head). Under normal conditions it is OK to reuse them. If they are missing or in need of replacement they may be purchased from your Suzuki Dealer Part # 14181-35G00. **DO NOT RUN MACHINE WITHOUT EXHAUST GASKETS.**

*Improperly sealing exhaust gasket will decrease performance and can also cause engine to pop and back fire, especially when engine is decelerating.*

3. Install the header first. Install stock header nuts and finger tighten.

4. Install muffler and tail pipe assembly (tail pipe is bolted to the Fat Boy 4 muffler). Before installing tail pipe on to head pipe apply a fine coat of Hi-Temp silicone to the inside of the tail pipe. The rear end of head pipe will slide into the tail pipe. *(This is necessary to ensure a proper seal between the tail pipe and head pipe section.)* Install bolt in front muffler mount first, then install bolt in rear muffler mount. **When installing the (2) muffler bolts make sure to install the enclosed 19.0 mm aluminum spacers between sub-frame mounting tabs and mounts on Fat Boy 4 muffler.** After both bolts are installed, tighten both evenly.

5. Check exhaust system front to back. Tighten header nuts and make sure muffler bolts are secure.

6. **AIR FUEL MIXTURE MUST BE ADJUSTED. MIXTURE WILL BE TOO LEAN IF MACHINE IS RUN UNCORRECTED, RESULTING IN POSSIBLE ENGINE DAMAGE.**

**CARBURETION:** This machine is NOT carbureted. This machine is equipped with fuel injection. Read EFI information regarding tuning/adjusting air fuel mixture

**AIR FUEL RATIO/IGNITION:** Stock ECU should be replaced with Vortex X10 ECU. The Vortex ECU is preprogrammed with new fuel and ignition maps to work with modified engines.

**NOTE: The ECU(Engine Control Unit) controls all fuel (jetting equivalent in carbureted engine) and all spark (CDI equivalent on carbureted engines)**

**ELECTRONIC FUEL INJECTION:** To adjust the air fuel mixture on this machine (which is required with ALL performance engine modifications) a VORTEX X10 ECU- Engine Control Unit or VORTEX Interceptor is required.



**VORTEX ECU:** Pre Programmed with 10 Performance Fuel & Ignition maps developed on the Dyno & Track - all the work is done for you! · Instant Plug in Performance (replaces standard ECU with no mods to wiring required) · Additional 3 fuel trim switches to adjust fuel mapping by +12.5% to minus 10% in Lo , Mid and Hi throttle opening. Adjustments made using a screwdriver and switches provide visual feedback as to changes made. Rubber Mounting Boot + Brackets supplied (where required)

- V-Boost - Programmable Voltage Boost Circuit for maximizing Spark Energy across the entire rev range. Higher Rev Limit (where required) · Robust design -fully waterproof - o-ring sealed switches
- Diagnostic Flash codes - tests for sensor faults and flashes codes to FI light
- Re Programmable (Software and Interface hardware not Included)

**VORTEX Interceptor:** The Interceptor is a plug in module that taps into the fuel injector drive circuit from the standard ECU(Engine Control Unit) whilst monitoring the Throttle Position Sensor (TPS) then remaps the injector pulses thus the fuel flow to better match the increased air flow created by the addition of the modified engine components being installed. This is done over all throttle positions and RPM. The pre-programmed fuel map is developed by Vortex Performance/ DRI and is intended to work your hi performance engine combinations. In addition we have included three rotary switches which represent 0-33%, 34-66% and 67-100% Throttle Openings. Each switch allows the user to richen or lean the pre programmed Vortex Fuel Map by up to +/- 8% in 2% increments per click. The microprocessor controlled Interceptor re calculates the fuel maps and controls the fuel injector in accordance with the Vortex Fuel Map as well as the position of the switches. The switches act in a similar way to previously understood carburetor jets of, Pilot, Needle and Main. This is done by dividing the fuel adjustment controlled by the switches into three bands of throttle position 0 - 1/3, 1/3 - 2/3 and 2/3 – Full. The Interceptor does not control spark.

The Interceptor is also commonly referred to as a “Piggy Back” type tuner. Don’t be mislead, while a good “Piggy Back” tuner like an Interceptor can get the job. There is no comparison for any “Piggy back” type tuner when matched against a fully programmed and developed Hi Performance ECU.

The Vortex ECU out performs the Piggy Back” system every time.

**EFI TROUBLE SHOOTING:** Both the stock OEM ECU and the VORTEX X10 ECU have a flash code system that works with the OEM dash lights. It is essential to keep the original Yamaha dash in tack and in good working condition.

For information on trouble shooting dash codes consult OEM Yamaha Service Manual or Vortex X10 ECU instructions.

\*Call DRI for additional technical support 619-258-6306

(Cont)

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Additional Performance and Tuning Recommendations;

For the best performance using your NEW Fat Boy 4 it is recommended to use a Pro Flow Air Cleaner Flange system with a K&N filter. The kits are made by Pro Design and are sold through Duncan Racing. The K&N filter makes the best power. It is recommended to run air box with the lid removed.

Be careful not to run machine too lean-engine damage may result from a lean condition. To rich power will be lost; engine will run flat and or blubber.

**REPACKING SCHEDULE:** For proper exhaust performance and to keep noise level consistent it is recommended to repack your Fat Boy 4 exhaust every 20 hours of usage. Under extreme riding conditions packing could need replacement in as short as 10 hours. The repacking used in your Fat Boy 4 exhaust is a perishable item. (Similar to the oil in your engine). It is designed to suppress the exhaust note of your engine while maintaining proper exhaust function and maximum performance.

Failure to repack and maintain your exhaust system can and will result in engine power loss and excessive db noise levels. Running your fat Boy 4 equipped ATV with burnt, worn or low packing will also cause damage to your Fat Boy 4. Core, body and front and rear end caps. This unnecessary damage can and will effect your manufactures limited warranty. Unnecessary damage incurred to Fat Boy 4 due to use with failed packing will **NOT** be covered under **Limited Lifetime Warranty**

Air/Fuel ratio tuning Notes:

Colder temperature requires richer settings.  
Higher elevations cause engine to be low on compression and generally require leaner settings.  
Air box lid on requires leaner settings than with lid off.

For more information contact:

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Check our Website for additional LT-R450 Performance items.  
**[www.duncanracing.com](http://www.duncanracing.com)**