



R&D PERFORMANCE POWER PLENUM AIR FILTER KIT

The R&D High Performance Power Plenum Air Filter Kit was designed, developed and dyno tested exclusively for the new Yamaha SHO/FZR supercharged intake system to unleash low-end, mid-range, and peak horsepower trapped in the restrictive stock air box. The exclusive lightweight filter design couples to the OEM supercharger hose and is engineered with a large 6"x10"x6" plenum to deliver massive cubic air volume and improved air speed to the supercharger. Replacing the O.E.M. air box with the R&D Filter kit

offers an economical way to improve performance, looks, and sound at a fraction of the cost of other aftermarket kits. Kit comes complete with all necessary hardware and installs in minutes.

Description	Part No.
R&D FX-SHO/FZR/FZS Performance Power Plenum Air Filter Kit	200-01801



R&D VXR/VXS POWER PLENUM FILTER KIT

The R&D High Performance Power Plenum Air Filter Kit was designed and developed exclusively for the new Yamaha 1.8 liter N.A. engine. The R&D filter kit will unleash low-end, mid-range, and peak horsepower trapped in the restrictive stock air box. The exclusive lightweight filter design couples to the OEM throttle body through a tuned built in velocity stack. The engineered oversized Tear Drop plenum, delivers the velocity and cubic air volume needed to add power. Power Plenum Filters generate the maximum airflow and volume. Performs

well, sounds good, looks great, and will install in minutes. Kit comes complete with all necessary hardware.

Description	Part No.
R&D VXR/VXS Power Plenum Filter Kit	200-01805



R&D FX-SHO/FZR/FZS POWER PLENUM FLAME ARRESTER FOR STOCK AIR BOX

The R&D High Flow Filter design replaces the restrictive stock filter

inside the stock air box, allowing improved air flow. Why? Because more air flow means more power and improved performance. The washable and reusable design means this will be the last filter you will ever have to buy.

Description	Part No.
R&D FX-SHO/FZR/FZS / VXR / VXS Power Plenum Flame Arrester	200-01800

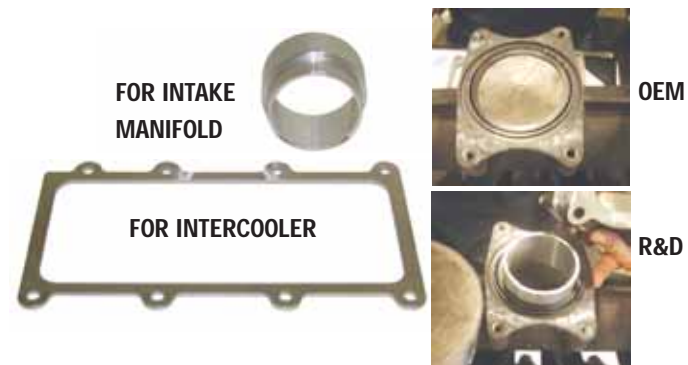


SHO/FZR/FZS PRO COMP COOL AIR FILTER KIT

The system is designed and tested with boost levels above 23 pounds and speeds of 92+ MPH. The R&D System utilizes an oversized specifically designed 7.250" x 5.500" x 6" teardrop shaped R&D Power Plenum Filter w/crankcase vent that rubber mounts in the space over the top left side of the gas tank. The system ducts its air supply to the supercharger via an "Indy Car style" 3.5" mandrel bent Aluminum tube and couples to the supercharger with a 90° Nomex tapered reduction elbow. Power

Plenum Filters generate the maximum airflow and volume and install in minutes. Recommended for the R&D C1, C3, C5, C20X and C23X Monster Supercharger Wheel kits and Superchargers. This system will also couple to the soon to be released R&D Cool Charger Housing, a 100% water-cooled supercharger Housing.

Description	Part No.
SHO/FZR/FZS Pro Comp Cool Air Filter Kit	200-01802



R&D SHO POWER CORE INTAKE MANIFOLD/INTERCOOLER CFM KIT

The R&D FX-SHO/FZR/FZS Power Intake Manifold and Intercooler CFM Kit was developed to increase airflow into and through the intake system by relieving restrictions. The R&D FX-SHO/FZR/FZS intake manifold ribbon remover sleeve will unlock a 40 CFM (cubic feet per minute) air flow restriction by replacing the intake manifold ribbon with the R&D billet venturi sleeve. The R&D Intercooler Spacer will unlock a 30-35 CFM restriction in the intercooler. The R&D FX-SHO/FZR/FZS Intake Kit will add low end and mid range throttle response, and a full 100 plus rpms to top end performance to a stock FX-SHO/FZR/FZS. The R&D FX-SHO/FZR/FZS Intake Kit is an absolute must have parts kit to remove intake restrictions before contemplating power adding compressor booster wheels or turbo charger kits to the FX-SHO/FZR/FZS engine. True horsepower gains on the FX-SHO/FZR/FZS start right here with the R&D Intake Kit. More airflow will equal more power, and there is no other way around the fact that restricted is restricted power.

Description	Part No.
R&D FX-SHO/FZR/FZS Power Core Billet Intake Manifold Sleeve & Intercooler Spacer CFM Kit	612-18000
R&D Power Core Intake Manifold Sleeve Only	612-17998
R&D FX-SHO/FZR/FZS Intercooler CFM Spacer Only	612-17999

YAMAHA
4 STROKE
INTAKE
SYSTEMS
ENGINE/
GASKETS
EXHAUST
DRIVE LINE
HANDLING
ELECTRICAL
WATERLINE
/BILGE
STEERING
& CONTROLS
BODY
ACCESSORIES
SERVICE TOOLS
/HARDWARE
CHEMICAL

YAMAHA FX-SHO/FZ/VXR/VXS • INTAKE • SUPERCHARGER



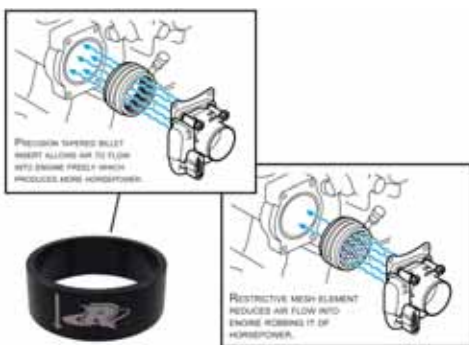
RIVA VXR/VXS POWER FILTER KIT

Our VXR/VXS Power Filter is a true "cold air" intake system that draws cool air from outside your engine compartment delivering significant performance gains. Utilizes OEM hood scoop to feed air into an ultra-dry water trap system for reliable operation in rough water conditions. Cold air is delivered to engine via large 4" smooth-bore ducting that is secured to throttle body with unique velocity stack and sturdy billet clamps. Kit also includes an improved breather system that keeps hot oil vapor and crankcase fumes from entering your engine's air intake.

Key Features:

- Delivers increased acceleration & top speed.
- True "cold air" system utilizes OEM hood scoop.
- Ultra-dry water trap keeps water out of system.
- Genuine screen type K&N Flame Arrestor & water repellent prefilter cover.
- Large 4" smooth-bore ducting attaches to engine via flow-matched velocity stack.
- Includes updated crankcase breather system for improved performance.

Description	Part No.
RIVA VXR/VXS Power Filter Kit	RY13060



RIVA YAMAHA 1.8L ENGINE INTAKE MANIFOLD UPGRADE KIT

Our Intake Manifold Upgrade Kit enables your 1.8L naturally aspirated engine to produce more horsepower by delivering increased air flow. Precision tapered billet sleeve directly replaces restrictive mesh element in intake manifold. Provides improved low end punch and mid range pull through quick & easy installation. Includes detailed installation instructions. NOTE: Our testing has determined the stock ECU will compensate for the increased air flow provided by our Intake Manifold Upgrade Kit. Requires RIVA Power Filter Kit to meet U.S. Coast Guard certified flame arrestor requirements.

IJSBA Stock Class Legal.

Description	Part No.
RIVA Yamaha 1.8L Engine Intake Manifold Upgrade Kit	RY12055-IMUK



RIVA PERFORMANCE YAMAHA FX-SHO/FZR/FZS POWER FILTER KIT

The Riva Power Filter feeds your SHO or FZR a steady diet of cool air delivering greatly improved acceleration and rpm. Replaces restrictive stock air box with a high-volume, precision-formed intake duct that attaches to the supercharger via a large 4" adapter. Cool air enters the system via an oversized K&N filter element. Includes water-repellent pre-filter.

Description	Part No.
Riva FX-SHO/FZR/FZS Performance Power Filter Kit	RY13040



RIVA FX-SHO/FZR/FZS INTAKE MANIFOLD UPGRADE KIT

Our Intake Manifold Upgrade Kit enables your SHO engine to produce more horsepower by delivering increased air flow and boost pressure (+1lb). Precision tapered billet sleeve directly replaces restrictive mesh element in intake manifold. Provides improved low end punch and mid range pull through quick & easy installation. Includes detailed installation instructions. NOTE: Testing has determined the stock ECU will compensate for the increased boost provided by our Intake Manifold Upgrade Kit.

Description	Part No.
Riva FX-SHO/FZR/FZS Intake Manifold Upgrade Kit	RY12040-IMUK

4 STROKE	YAMAHA
SYSTEMS	INTAKE
GASKETS	ENGINE/
EXHAUST	EXHAUST
HANDLING	DRIVE LINE
ELECTRICAL	ELECTRICAL
WATERLINE	WATERLINE
/BILGE	/BILGE
STEERING	STEERING
& CONTROLS	& CONTROLS
BODY	BODY
ACCESSORIES	ACCESSORIES
SERVICE TOOLS	SERVICE TOOLS
HARDWARE	HARDWARE
CHEMICAL	CHEMICAL

YAMAHA FX-SHO & FZ • SUPERCHARGER

YAMAHA
4 STROKE

INTAKE
SYSTEMS

ENGINE/
GASKETS

EXHAUST

DRIVE LINE
HANDLING

ELECTRICAL

WATERLINE
/BILGE

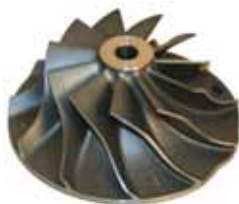
STEERING
& CONTROLS

BODY

ACCESSORIES

SERVICE TOOLS
/HARDWARE

CHEMICAL



R&D FX-SHO/FZR/FZS C1 MONSTER CHARGER WHEEL

R&D's new C1 11 Blade Series Monster Compressor Wheel Kit for Yamaha SHO/FZS/FZR engines is new and improved to deliver "horsepower you can feel" with instant throttle response,

improved mid range acceleration, and increased top end performance. The R&D Monster Wheel replaces the stock wheels inefficient 5 blade design with an all new modern low profile, high flow, 11 blade high tech design. Fits directly into the O.E.M. stock compressor housing with no modifications. The C1-11 Monster works with the OEM intercooler, OEM fuel injectors, OEM ignition system and the R&D Intake CFM Kit. Kit performs well on 91 octane pump gasoline. Boost rated 7/8.5 P.S.I. (7 @ 7500 and 8.5 @ 7700) Horsepower increases were professionally documented by MOTEC AUSTRALIA.

- Increased boost pressure (3-3.5 over stock @ 7700 rpm)
- Increased airflow (1.5-2 pound per minute gain)
- 25-30 Horsepower increase and 2 MPH Gain (with OEM ignition)
- 70 Horsepower increase (with Motec ECU, CFM kit, 91 pump gas)
- Precision balanced (turbo specs .012-.027 gram inches)
- Better throttle response, increased horsepower • Ultra easy installation
- 91 octane pump gas friendly • Inexpensive horsepower upgrade

The C1 Wheel Kit works excellent for recreational use applications retaining the OEM ignition, fuel system, injectors, and intercooler. R&D has data logged and documented the A.F.R. (air to fuel ratio) to be a conservative and safe 11.8-12.0 with the C1 wheel kit. R&D recommends that the R&D Power Core Intake Manifold and intercooler CFM kit or the R&D Stage 1 Intercooler Kit be used with the C1 wheel.

Description	Part No.
R&D FX-SHO/FZR/FZS C1 Monster Charger Wheel	612-25001



R&D FX-SHO/FZR/FZS C3 MONSTER CHARGER WHEEL

R&D's new C3-11 Blade Series Racing Monster Compressor Wheel Kit for Yamaha SHO/FZS/FZR engines is an exciting new racing product that will deliver "horsepower you can feel" with instant throttle response, aggressively improved low and mid range acceleration, and increased top end performance.

The R&D Monster Wheel replaces the stock wheels

low performing 5 blade design with a modern low profile, high flow 11 blade high tech design with a larger exducer diameter to move more air flow at lower rpm's producing better holeshot horsepower. The R&D C3 Monster Wheel and R&D Exducer Seal Plate Kit will install directly into the O.E.M. stock compressor housing with no modifications. The C3 Racing Monster will require the R&D High Performance Intercooler Kit, and an R&D Impellor upgrade. The C3-11 performs well on 91 octane pump gasoline. Boost rated 10/13 P.S.I. (10 @ 7700 and 13@8300) The new R&D 11 blade series compressor wheels offer the highest levels of airflow and horsepower gains available for the 1.8 Yamaha engine using the stock E.C.U.

- Increased boost pressure (5 P.S.I. over stock @ 7700 rpm)
- Increased airflow (2.5-3 pound per minute gain)
- 35+ Horsepower increase and 2 MPH Gain (with stock ECU)
- 300+ Horsepower using aftermarket ECU (MOTEC)
- Precision balanced (turbo specs .012-.027 gram inches)
- Utilizes O.E.M. ignition system with R&D Impellor Upgrade
- Utilizes O.E.M. fuel injectors • 91 octane pump gas friendly

NOTE: The C3 Monster Wheel Kit will require impellor upgrades over the C1 impellor suggestions.

Description	Part No.
R&D FX-SHO/FZR/FZS C3 Monster Charger Wheel	612-25003



R&D SHO/FZR/FZS C5 MONSTER CHARGER WHEEL

The new "drop-in" R&D C5 Monster

Compressor Wheel and Exducer Seal Plate Kit installs directly into the OEM supercharger without any modification. The new C5 delivers "horsepower you can feel" with instant throttle response, aggressively improved low and mid range acceleration, and intensified top end performance. The new C5 features a light weight, high flow, 8 blade design with 8 supporting splitter veins and an increased exducer diameter over stock. R&D's large exducer diameter and aggressive blade design is the key to improving CFM airflow volume throughout the RPM range. The oversized exducer diameter increases the size of the supercharger by enhancing air pumping volume and efficiency. The C5 out performs any OEM sized compressor wheel in its boost pressure classification. After all, its airflow volume gains that increase horsepower.

The R&D Monster Wheel Kit produces 14-15 pound per minute airflow gain with a solid 15-16 pounds of boost pressure @ 8400-8500 rpm, 17+ @ 8700-8800 rpm. The new drop-in R&D C5 also offers superior off throttle surge reduction over other 15-16 pound boost wheels. The new R&D C5 series compressor wheels offer the highest levels of airflow and horsepower gains available for the 1.8L Yamaha engine in the 15-17 pound boost range. A properly tuned C5 set up (with supporting modifications) can produce well over 325 horsepower. In addition, no other rotating group on the market is lighter or more powerful than the new C5 Monster Wheel combined with the R&D Billet Supercharger Shaft.

In sum, the R&D C5 Monster Wheel and Shaft weighs less, has less surge, rockets to 80 in less seconds and carves through corners in less time than any other wheel and shaft in its class. Hit the throttle, hang on and discover the astounding sensation that's called Power!

- Aggressive throttle response, increased horsepower
- Increased boost pressure (10 P.S.I. over stock @ 8500 rpm)
- Increased airflow volume (14-15 pound per minute gain)
- 100+ horsepower increase (with R&D R3 ECU)
- 325+ horsepower using aftermarket ECU
- Precision balanced (turbo specs .012-.027 gram inches)
- Utilizes O.E.M. Reprogrammed R3 ECU ignition system
- Utilizes O.E.M. fuel injectors w/R&D RRFPR, R3, and Powershot
- 91 octane pump gas friendly with R3 ECU
- Less weight and surge
- Easy installation

C5 Modification Requirements:

- R&D High Performance Pro Series Intercooler Kit w/R&D Greddy BOV
- R&D Rising Rate Fuel Pressure Regulator Kit
- R&D R3 ECU upgrade to allow 8500-8850 RPM
- R&D Powershot
- R&D Engine/intercooler Cooling Kit
- R&D Twin Prop

NOTE: The C5 Monster Wheel will work best in sea level to 2000 ft. elevations, or in ambient air temperatures between 60 and 100 degrees. NOTE: The C5 Monster Wheel Kit will require serious impellor upgrades.

Description	Part No.
SHO/FZR/FZS C5 Monster Charger Wheel	612-25005

YAMAHA FX-SHO & FZ • SUPERCHARGER



FX-SHO/FZR/FZS C8 MONSTER WHEEL

The new "drop-in" R&D C8 Monster Compressor Wheel and Exducer Seal Plate Kit installs directly into the OEM supercharger without any modification. The new C8 delivers "horsepower you can feel" with instant throttle response,

aggressively improved low and mid range acceleration, and intensified top end performance. The new C8 features a light weight, high flow, 8 blade design with 8 supporting splitter veins and an increased exducer compression height over stock. R&D's larger exducer height and aggressive blade design is the key to improving CFM airflow volume throughout the RPM range. The increased exducer height dimension increases the size of the supercharger by enhancing air pumping volume and efficiency. The C8 out performs any OEM sized compressor wheel in its boost pressure classification. After all, its airflow volume gains that increase horsepower.

The R&D Monster Wheel Kit produces 18 plus pounds of boost pressure @ 8700-8900 rpm, 16+ @ 8500-8600 rpm. The new drop-in R&D C8 also offers superior off throttle surge over other 16-18 pound boost wheels. Less surge increases supercharger clutch reliability.

The new R&D C8 series compressor wheels offer the highest levels of airflow and horsepower gains available for the 1.8L Yamaha engine. A properly tuned C8 set up (with supporting modifications) can produce well over 325+ horsepower. In addition, the rotating group of the new C8 Monster Wheel combined with the R&D Billet Supercharger Shaft is the undisputed Light Weight Champ, no other rotating group on the market is lighter or more powerful.

Less is More

In sum, the R&D C8 Monster Wheel and Shaft weighs less, has far less surge over competitors' wheel kits, rockets to 80 in less seconds and carves through corners in less time than any other wheel and shaft on the planet. Hit the throttle, hang on and discover the astounding sensation that less IS more ...much, much more.

- Aggressive throttle response, increased horsepower
- Increased boost pressure (12 P.S.I. over stock @ 8800 rpm)
- Increased airflow volume (14-15 pound per minute gain)
- 100+ horsepower increase (with R&D R3 ECU)
- 350+ horsepower w/supporting parts
- Precision balanced (turbo specs .012-.027 gram inches)
- Utilizes O.E.M. Reprogrammed R3 ECU ignition system
- Utilizes O.E.M. fuel injectors w/R&D RRFPR, R3, and Powershot
- 91 octane pump gas friendly with R3 ECU
- Less weight and surge
- Easy installation

C8 Modification Requirements:

R&D High Performance Pro Series Intercooler Kit w/R&D GReddy BOV
R&D Rising Rate Fuel Pressure Regulator Kit
R&D R3 ECU upgrade to allow 8500-8850 RPM
R&D Powershot
R&D Engine/intercooler Cooling Kit
R&D Twin Prop

Boost rating: 12 @ 7800, 15/16 @ 8400-8500, 17 @ 8700-8800, 18 @ 9200-9500).

NOTE: The C8 Monster Wheel will work best in sea level to 2000 ft. elevations, or in ambient air temperatures between 60 and 100 degrees. NOTE: The C5 Monster Wheel Kit will require serious impellor upgrades.

Description	Part No.
FZR C8 Monster Charger Wheel	612-25008



FX-SHO/FZR/FZS C20X MONSTER WHEEL

Twenty pounds of boost now available. R&D's leading the way in performance with the new C20X Racing Monster Compressor Wheel Kit for the Yamaha SHO, FZ, and FZR. The C20X delivers arm stretching power like you have never experienced. The C20X pumps out 18 pounds of boost @ 8500-8700 rpm and 20 pounds of boost @ 9000 rpm with a 17.5-18.5 pound per minute airflow gain

through its high flow 8 blade wheel design featuring oversized inducer and exducer wheel diameters. R&D's large inducer and exducer wheel diameters along with an aggressive blade design are the key to improving CFM airflow volume throughout the RPM range. The oversized inducer and exducer diameters increase the size of the supercharger by enhancing air pumping volume and efficiency. After all, its airflow volume gains that increase horsepower. The C20X Racing Monster wheel requires the R&D High Performance Pro Series Intercooler Kit, R&D 1000cc Fuel Injectors, R&D Rising Rate Fuel Pressure Regulator Kit, and an aftermarket ECU (MoTeC or ViPEC) upgrade to allow proper engine tuning. R&D also suggests upgrading to R&D Forged Racing Rods and Performance Pistons. The new R&D C20X is for Racing use only and requires 110 octane racing fuel. Boost rated to 18 plus at 8500-8700 and 20 pounds at 9000. The new R&D C20X series compressor wheels offer the highest levels of airflow and horsepower gains available for the 1.8 Yamaha engine. Aftermarket ignition systems and a C20X Monster properly tuned can achieve up to 400 Horsepower.

The new C20X will require a shop service to bore out your compressor front housing to except the larger C20X compressor wheel. For those customers that have previously purchased the C5-11 and already have the shop service to the compressor front housing, just order the C20X wheel kit and change out the wheel. No other supercharger compressor wheel kit has stolen more holeshots and won more National and Offshore Titles than the R&D Monster Wheel Kits. If 20 pounds of boost is truly what you're looking for, well look no further and just give us a call. The new C20X has been tested against all other existing wheels on the market and is guaranteed to blow them away!

- Aggressive throttle response, increased horsepower
- Increased boost pressure (+12 P.S.I. over stock @ 8700 rpm)
- Increased airflow (17.5-18.5 pound per minute gain)
- 150-175 horsepower increase
- Aftermarket ECU REQUIRED (MOTEC M400/ViPEC)
- Aftermarket R&D Fuel Injectors REQUIRED
- Aftermarket R&D RRFPR REQUIRED
- Precision balanced (turbo specs .012-.027 gram inches)
- Utilizes O.E.M. fuel injectors w/R&D RRFPR,R2 and Powershot
- VP C12 octane RACE gas friendly
- Easy installation

NOTE: The R&D C20X Monster Compressor Wheel delivers a 17.5-18.5 pound per minute airflow gain (approximately 150 plus horsepower at sea level at 8500 rpm's). Pound per air volume gain is based on the rate of 1 pound of air gain per minute for every 8-10 H.P. gain. The C20X Monster Wheel will work best in sea level to 2000 ft. elevations, or in ambient air temperatures between 60 and 100 degrees. R&D strongly suggests that the R&D High Performance Racing Intercooler Kit, Aftermarket ECU, R&D RRFPR be installed with the C20X Kit. Trust the pros at R&D to boost up your airflow volume, after all, its airflow volume gains that increase horsepower. NOTE: The C20X Monster Wheel Kit requires serious impellor up grades.

Description	Part No.
C20X Monster Wheel And Exducer Kit Only	612-25006
C20X Monster Wheel And Exducer Kit with Machining Service to your Front Housing	612-25007
Watercooled Supercharger Cover for C20X	612-24001

4 STROKE	YAMAHA
SYSTEMS	INATKE
GASKETS	ENGINE/
EXHAUST	EXHAUST
HANDLING	DRIVE LINE
ELECTRICAL	ELECTRICAL
WATERLINE	WATERLINE
STERLING	STERLING
STEERING	STEERING
CONTROLS	& CONTROLS
BODY	BODY
ACCESSORIES	ACCESSORIES
SERVICE TOOLS	SERVICE TOOLS
HARDWARE	HARDWARE
CHEMICAL	CHEMICAL

YAMAHA FX-SHO & FZ • SUPERCHARGER

YAMAHA
4 STROKE
INTAKE
SYSTEMS
ENGINE/
GASKETS
EXHAUST
DRIVE LINE
HANDLING
ELECTRICAL
WATERLINE
/BILGE
STEERING
& CONTROLS
BODY
ACCESSORIES
SERVICE TOOLS
/HARDWARE
CHEMICAL



RIVA FX-SHO/FZR SUPERCHARGER IMPELLERS

Riva Racing released the ultimate (drop-in) performance supercharger impellers for the Yamaha 1.8 liter SHO Engine! Working closely with Vortech Engineers, Riva designed these impellers to deliver more horsepower and torque throughout the RPM range resulting in excellent acceleration and top speed. Investment cast from an extremely strong, lightweight proprietary aluminum and CNC machined to ensure exact tolerances. All new blade design is optimized aerodynamically and precision balanced to deliver smooth operation. Installs easily into stock supercharger housing with no modifications required. Includes detailed installation instructions. B1 produces 11.5psi @ 7,700rpm • E1 produces 16psi @ 8,000rpm

NOTE: Both impellers require use of aftermarket engine management system for proper calibration

Description	Part No.
Riva FX-SHO/FZR S/C Impeller - 11.5 psi	RY17040-SCI-B1
Riva FX-SHO/FZR S/C Impeller - 16 psi	RY17040-SCI-E1



RIVA FX-SHO/FZ 'H1' RACE CHARGER IMPELLER & HOUSING

The 'H1' Race Charger was designed for serious racers and tuners who demand the ultimate performance gains. H1 Impeller and housing combo delivers 20psi of boost pressure at 8,500rpm producing up to 400hp on modified engines. High performance impeller and housing combo increase horsepower through superior blade design and larger interior housing volume. Impeller features a sophisticated HKS blade design that is precision balanced for smooth operation. Requires aftermarket ECU and upgraded engine components for proper calibration and durability.

FOR COMPETITION USE ONLY. RIVA Racing is not liable for possible damage to associated parts or labor costs incurred due to the installation of this racing component.

Performance Data:
 • 16.5psi @ 7,500rpm • 17psi @ 7,700rpm
 • 18psi @ 8,000rpm • 20psi @ 8,500rpm

Description	Part No.
RIVA FX-SHO/FZ 'H1' Race Charger Impeller & Housing	RY17040-IH-H1



FZR WATER-COOLED SUPERCHARGER SYSTEM

Ever wonder why the supercharger is so HOT? Heat is a derivative of compressed air (boost). The more boost pressure, the hotter the supercharger gets. The engineers at R&D understand the key in producing more horsepower and maximizing performance, is managing heat.

R&D is proud to announce the new Water-Cooled Supercharger Housing System. The new R&D Water-Cooled Supercharger System is fully water jacketed and eliminates heat at its source, the Supercharger. The new system replaces the OEM inducer cover and mounts directly to the OEM Supercharger body.

The system features a High Performance Volute (intake air path), Internal Anti-Surge Port, 100% Water-Cooling and a custom R&D Power Plenum Air Filter. Now since the Supercharger is the coolest part in the engine compartment and runs at lake temperature, it only made since to design a custom R&D Power Plenum Air Filter that would take full advantage of the new found cool air, now located directly in front of the Supercharger.

System installs in 45 minutes and comes complete with all necessary hardware and pictorial instructions.

Performance Benefits: Up to 200° F cooler supercharger temperature, cooler and denser intake air, decreased engine compartment temperature, improved clutch life through Internal Anti-Surge Port, increased RPM (up to 200 rpm), increased boost pressure, improved top speed, no heat fade,= consistent peak engine rpm.

Fitment: The R&D Water-Cooled System fits all supercharger wheels that fit into the OEM charger housing.

Description	Part No.
SHO/FZR/FZS Water-Cooled OEM Supercharger System for (C1, C3, C5)	612-24000
SHO/FZR/FZS Water-Cooled Supercharger System (For C20X)	612-24001



R&D SUPERCHARGER BLOCK-OFF PLATE

The R&D Supercharger Block-off Plate is designed to seal the case on the front of the engine that is exposed when the supercharger is removed for a Turbo.

Description	Part No.
R&D Supercharger Block-off Plate	612-19100

YAMAHA FX-SHO & FZ • SUPERCHARGER



ENGINE-TECH FX-SHO/FZ XTREME SERIES SC IMPELLER

Engine-Tech Xtreme series supercharger impeller from Race Tech for Yamaha 1.8 liter supercharged engines. This billet aluminum impeller was computer designed for maximum efficiency and produced on a 5 axis CNC center. It then gets computer balanced

and anodized for corrosion resistance. Every gram of excess weight was shaved from this impeller to make it the lightest impeller on the market without sacrificing strength. It is a full 17% lighter than the stock impeller for better clutch and shaft life. This impeller can produce up to an astonishing 16+ lbs of boost!

Must be used with adjustable fuel regulator, high flow intercooler and ECU (Motec or equiv, Motec map available upon request)

Description	Part No.
Engine-Tech Xtreme Supercharger Impeller (16+ lbs)	ETYAMHO



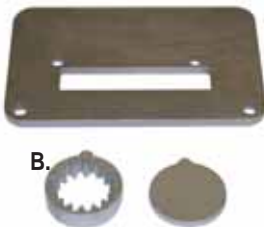
ENGINE-TECH YAMAHA FZR SUPERCHARGER IMPELLER

This is a drop in impeller so no modifications to the housings are necessary. Weighing a mere 106 grams this is the lightest impeller on the market reducing wear and tear on the clutch/shaft assembly. Output is 15+ psi @7700

rpm and an amazing 18+psi @8500 rpm.

Must be used with adjustable fuel regulator, high flow intercooler and ECU (Motec or equiv, Motec map available upon request)

Description	Part No.
Engine-Tech FZR SC Impeller (18+ lbs)	ETYAMSHO



A. R&D SPECIALTY SUPERCHARGER TOOLS

R&D has designed a custom tool kit that is essential in the rebuilding process of the Yamaha Supercharger. All tools are specific in application and are cnc machined to ensure a precision job.

Description	Part No.
A. Supercharger Housing Holder Bracket Tool	612-92010
B. Shaft/Gear Holding Tool	612-92011



RIVA YAMAHA FX-SHO/FZ HEAVY DUTY SHAFT UPGRADE KIT

Riva Heavy-duty Supercharger Shaft Upgrade Kit delivers increased strength & reliability to your Yamaha SC System. Upgraded shaft & bearings directly replace OEM parts for maximum durability in performance applications. Manufactured exclusively for RIVA by HKS, these components feature superior materials & finishing treatments for reduced friction and abrasion resistance.

Key benefits include:

- Reduced friction between moving parts
 - Increased fatigue strength in parts
 - Higher resistance to surface abrasion
 - Improved seize resistance
- Kit includes supercharger shaft, 2 bearings, shaft nut and instructions.

Description	Part No.
Riva Heavy-Duty SC Shaft Upgrade Kit	RY17040-UK-6S5



R&D YAMAHA SHO/FZR BILLET SUPERCHARGER SHAFT KIT

R&D's new High Performance Billet Supercharger Shaft

eliminates the weak design features of the OEM and aftermarket HKS supercharger shafts. After analyzing the OEM HKS shaft design and sorting through the various failures we had with it while testing our popular Monster S/C Wheels, we developed a superior shaft design. The new R&D shaft is not a copy of the fragile HKS design. Rather, it is a completely new design, superior in material strength and improved in every way. The new R&D Shaft is precision CNC machined, heat treated, and precision ground from billet steel alloy. Featuring a uni-structure design that incorporates the shaft and gear as one billet piece, much like a transmission shaft. This eliminates the fracture point on the OEM design where the gear shears off the end of the shaft. The billet design will not allow the gear to slip under high boost loads like the pressed on OEM gear.

Next R&D increased the inadequate 6mm thread diameter on the OEM shaft to utilize a well proven "Turbo spec" LARGER 5/16-24 left handed thread that will not break under extreme conditions. The larger thread diameter will also allow wheel torque specs to be increased safely.

Lastly, R&D reduced the weight of the R&D Supercharger shaft by eliminating the hex nut on rear the gear and lightened the end of the shaft/gear inside diameter to significantly reduce reciprocating weight. We all know what that will do to add to clutch performance. Kit comes complete with larger nut and installation instructions. All in all, the new R&D High Performance Billet Racing Shaft is not just a replacement shaft, but a solution to end all supercharger shaft problems.

Description	Part No.
R&D FX-SHO/FZR Billet Supercharger Shaft Kit	612-25020



R&D SHO/FZR HIGH PERFORMANCE SUPERCHARGER REPLACEMENT THRUST BEARING/SEAL KITS & DUPLEX BEARING KIT

R&D offers an answer to both repairing & upgrading the O.E.M. superchargers vulnerable thrust bearing and main shaft bearing assemblies. Engines with superchargers running higher boost pressures and higher rpm frequencies will eventually need bearing servicing. Servicing the supercharger main bearings periodically or upgrading to R&D's new "Duplex Bearing System" will extend the life of the superchargers thrust bearing significantly. R&D offers both standard replacement bearing kits, and the new "Duplex Bearing Kit" that will work in any Yamaha supercharger. R&D also offers complete rebuild kits for stock superchargers running C1 Monster Wheel Kits and all supercharger wheel kits using the stock exducer size. R&D also offers rebuild kits for all C3, C5, C7 Monster Wheel Kits with larger exducers.

Description	Part No.
OEM Replacement Bearing Kit (stock/limited class legal)	612-25025
Upgraded Supercharger Duplex Bearing Kit	612-25026
Supercharger Rebuild Kit with OEM Exducer/Thrust Bearing Assembly Kit	612-25028
Supercharger Rebuild Kit with C3/C5 Exducer/Thrust Bearing Assembly Kit	612-25030

4 STROKE	YAMAHA
SYSTEMS	INATKE
GASKETS	ENGINE/
EXHAUST	EXHAUST
HANDLING	DRIVE LINE
ELECTRICAL	ELECTRICAL
WATERLINE	WATERLINE
& BILGE	& BILGE
STEERING	STEERING
& CONTROLS	& CONTROLS
BODY	BODY
ACCESSORIES	ACCESSORIES
SERVICE TOOLS	SERVICE TOOLS
& HARDWARE	& HARDWARE
CHEMICAL	CHEMICAL

YAMAHA FX-SHO & FZ • SUPERCHARGER

YAMAHA
4 STROKE

INTAKE
SYSTEMS

ENGINE/
GASKETS

EXHAUST

DRIVE LINE
HANDLING

ELECTRICAL

WATERLINE
/BILGE

STEERING
& CONTROLS

BODY

SERVICE TOOLS
ACCESSORIES
/HARDWARE

CHEMICAL



R&D FX-SHO/FZR SURGE PROTECTOR KIT

The R&D Yamaha FX-SHO/FZR Surge Protector Kit will significantly improve supercharger clutch and compressor wheel performance and reliability by eliminating damaging compressor surge. The R&D Surge Protection Kit utilizes an

automotive vacuum assisted Bosch pressure blow off valve that releases the unwanted intake pressure between the throttle valve and the supercharger thus keeping the pressures in P1 and P2 equal. As soon as the throttle valve is opened, the blow off valve immediately closes and the compressor can supply its full boost potentials to the engine. The R&D surge hose is manufactured from high performance, high-temperature silicone with an integrated molded riser for the blow off valve to function without hindering intake flow or velocity. The R&D kit installs easily in place of the OEM rubber elbow joint with no modifications. The R&D Pressure Port installs between the MAP sensor and the MAP sensor bracket with a "bolt on" part. The R&D Surge Protection Kit is a necessary and cost effective upgrade for the Yamaha SHO/FZR supercharged engine. The R&D kit comes completely assembled with silicone elbow, blow off valve, R&D B.O.V. filter, mounting hardware and instructions.

Description	Part No.
R&D Surge Protector Kit	612-18008



RIVA FX-SHO/FZ PERFORMANCE BLOW-OFF VALVE KIT

Riva Performance Blow-off Valve Kit improves supercharger reliability and performance by relieving unwanted pressure during off-throttle operation. Reduces supercharger clutch & gear wear and eliminates heat soak in discharge tube. High-strength silicone hose with integrated HKS valve installs easily in place of OEM elbow joint. Includes high quality HKS Super SQV (Super Sequential Blow Off Valve) that features unique sequential valve structure and a differential pressure control system, allowing for a broad operation boost range. Also includes vacuum line and fittings necessary for installation on SHO engine. A simple and cost effective upgrade for both stock and modified engines.

Description	Part No.
RIVA FX-SHO/FZ Performance Blow-off Valve Kit	RY17040-BV



R&D FX-SHO/FZR/FZS SILICONE INTAKE HOSE KIT

The R&D Yamaha FX-SHO/FZR/FZS Supercharger High Performance Hose Kit was developed while testing the R&D Monster Compressor Wheel Kits. Higher boost pressures create higher intake air temperatures of up to 235 degrees. The O.E.M. standard black rubber hose and standard hose clamps just do not hold up to the pressures and heat like high quality, high temperature silicone hose and high strength stainless steel T-bolt style hose clamps. The R&D "Blue Hose" is manufactured from high performance, turbo charger quality high-temperature silicone. The R&D silicone hose installs easily in place of the OEM rubber elbow hose, and T-bolt clamps will keep the hose secure for the longest of endurance races.

Description	Part No.
R&D FX-SHO/FZR/FZS Silicone Intake Hose Kit	612-18007



RIVA FX-SHO/FZR BLOW-OFF VALVE KIT

High quality HKS Blow-off Valve reduces wear and tear on clutch & drive gears of supercharger and eliminates heat soak in discharge tube. For use with RIVA FX-SHO/FZ Power Cooler (part# RY17040-PC). HKS Super SQV (Super Sequential Blow Off Valve) features unique sequential valve structure and a differential pressure control system, allowing for a broad operation boost range. Includes vacuum line and specific fittings necessary for installation.

Description	Part No.
Riva FX-SHO/FZR Blow-Off Valve Kit	RY17040BOVSSQV



613-95262

613-95261

R&D GREDDY BLOW OFF VALVE & 1" HOSE ADAPTER

R&D Greddy Blow Off Valves are easily adjustable to eliminate compressor surge and preventing premature boost leakage, while increasing boost response. Each valve is made of durable cast and billet aluminum frame and the valve to diaphragm ratio provides performance that cheap piston types cannot offer. The spring stiffness adjustment screw and the three different sizes give the Greddy user the option to match vehicles with mild upgrades to heavily tuned engines. There are many factors in matching a blow-off valve to an application, valve location, turbocharger/supercharger size and pressure, but as a general rule of thumb, we recommend the Type RZ for 100-400hp. *1" Hose ADAPTER sold separately.*

Description	Part No.
R&D Greddy Blow Off Valve & 1" Hose ADAPTER	613-95261
R&D 1" O.D. Hose Adapter for Greddy Valve	613-95262



R&D SUPERCHARGER CLUTCH REMOVAL TOOL



This R&D tool enables the clutch to be changed in a matter of only minutes. With the supercharger and front engine cover removed the tool drops down through the case and secures the drive gear at the front of the crankshaft from rotating when the clutch is removed and installed. This is a "must have" tool that will save massive amounts of time for any mechanic.

Description	Part No.
R&D Supercharger Clutch Removal Tool	612-92012



R&D FRONT COVER GASKET

R&D's new Front Cover Gasket features a metal reinforced center that enables it to be reusable when servicing the supercharger clutch.

Description	Part No.
R&D Front Cover Gasket	080-21024

YAMAHA FX-SHO & FZ • INTERCOOLER



R&D FX-SHO/FZR STAGE 1 INTERCOOLER CORE KIT

The R&D Yamaha FX SHO/FZR Stage 1 Intercooler Core Kit was developed to replace the over restrictive OEM intercooler with an inexpensive direct replacement core that will bolt in to the OEM stock location with all stock hardware. The R&D Intercooler Core reduces the deadhead air restriction (similar to the R&D Intake Core Kit) that is created when installing a C1 Monster compressor wheel with a 3-4 pound boost pressure gain. The R&D Intercooler offers better cooling efficiency with an aluminum 8 core design.

- Flows 40 CFM more than stock
- Improves cooling efficiency
- Increases horsepower by reducing restrictions
- Works great with C1 compressor wheel
- Retains O.E.M. flushing system for maintenance
- 3 pounds lighter than stock
- Bolts directly into stock location

Description	Part No.
R&D FX-SHO/FZR/FZS Stage 1 Intercooler Core Kit	612-18001



RIVA FX-SHO/FZR POWER COOLER KIT

The RIVA Power Cooler intercooler system features a huge cooler element that is rated for up to 450hp. Delivers an increase of 20 peak horsepower over original intercooler. Quality manufacturing of cooler core ensures the highest boost pressure capacities, minimal pressure drops and excellent thermal efficiency. The cooling element is dramatically reduces exit temperatures averaging 60°F cooler than stock. Innovative design allows easy disassembly of cooler element & ducting for maintenance and cleaning. Features integrated blow-off valve mount that will accept RIVA/HKS Blow-Off Valve kit (sold separately) for improved supercharger reliability and performance. Power cooler installs securely with shock absorbing rubber mounting system and stainless steel hardware.

*Note: Power Cooler requires use of one of the following components:
RIVA FX-SHO/FZ Power Cooler Blow-off Valve Kit (part# RY17040-BOV-SSQV) or RIVA Blow-off Valve Block-off Kit (part# RY17040-BVBO-SSQV)*

Description	Part No.
RIVA FX-SHO/FZR Power Cooler Kit	RY17040-PC



R&D YAMAHA SHO/FZR PRO LIMITED INTERCOOLER KIT

The R&D Yamaha SHO/FZ/FZR Pro Limited Intercooler Kit was developed to directly replace the restrictive O.E.M. intercooler. The new R&D design offers high performance affordable intercooling that will bolt into the OEM stock location utilizing the OEM inlet cover, and all stock hoses and hardware. The new R&D design is IJSBA & APBA Limited Class legal, complying with rule book regulating aftermarket intercooler size. The R&D Intercooler has been specifically designed, sized, and routed to also comply with the I.J.S.B.A.'s 25% rule. The Intercooler Kit is constructed from aircraft aluminum and is extremely easy to install, removes quick for cleaning and winter storage, is ultra strong, and rubber mounted so vibration will not compromise the long term performance. The R&D intercooler offers better cooling efficiency through a aluminum core design that easily out performs cheaper inefficient intercooler cores known to crack, leak and cause extreme detonation. The R&D intercooler core will flow more air, deliver better cooling efficiency, and allow C1 and C3 Monster Wheel to live up to their airflow volume and power potential. The new R&D design drastically reduces deadhead air restriction producing ultra responsive "POWER NOW" acceleration all the way through the RPM range. The R&D Pro Limited Intercooler Kit has also incorporated an integral flange which will allow the easy bolt on addition of a Greddy RZ Blow-off valve which can be adjusted to regulate boost, and compressor surge blow-off under deceleration.

- * Significantly improves cooling efficiency
- * Flows 40 CFM more than stock
- * Bolts directly into stock location w/oem hardware
- * Increases overall horsepower
- * Aggressive holeshot and mid range acceleration
- * Works great with C1 or C3 Monster compressor wheels
- * Retains O.E.M. flushing system for maintenance
- * I.J.S.B.A. and A.P.B.A. Limited Class Legal (Rule 7.8.3.)

*7.8.3 AIR/FUEL DELIVERY — FOUR-STROKE (RUNABOUTS ONLY)
Turbocharger impeller or supercharger impeller may be modified or aftermarket. The impeller housing must remain stock as supplied by the manufacturer. Intercoolers may be modified or aftermarket. Intercooler heat exchange surface area may not be increased by more than 25%.

Description	Part No.
R&D Yamaha SHO/FZ/FZR Pro Limited Intercooler Kit	612-18004

4 STROKE	YAMAHA
SYSTEMS	INAKE
GASKETS	ENGINE/
EXHAUST	EXHAUST
HANDLING	DRIVE LINE
ELECTRICAL	ELECTRICAL
WATERLINE	WATERLINE
& CONTROLS	STEERING
BODY	BODY
ACCESSORIES	ACCESSORIES
SERVICE TOOLS	SERVICE TOOLS
HARDWARE	HARDWARE
CHEMICAL	CHEMICAL



R&D FX-SHO/FZR/FZS INTERCOOLER COOLING KIT

The R&D Yamaha FX-SHO/FZR/FZS Intercooler Temperature Control system was developed to offer an inexpensive complete bolt on kit that will allow the

full performance and cooling potential the O.E.M. intercooler has to offer for recreational applications. Intercooler core water temperatures have a range of affect on the supercharged air temperatures that enter into the engine. The Yamaha SHO Intercooler operates on a single low pressure (10 P.S.I.) line of lake temperature water to cool the intercooler. R&D has found that by adding an additional intercooler water in line, and adding an additional water out line and bypass fitting, there will be double the water flow volume at 20 P.S.I. Reduced intercooler core temperatures can add a noticeable increase in low end and midrange power along with reduced detonation. R&D offers a range of machined flow control fittings to allow water volume control tuning for intercooler temperature adjustments for warm lake water and extreme hot air conditions. R&D also offers a pressure relief blowoff valve kit for high water volume flow rates on higher boost Stage 1 and up engine kits. The R&D Kit will allow temperature tuning that will deliver surprising results. Unlock hidden performance and power potential in the OEM stock intercooler or aftermarket intercooler system by reducing intercooler core temperatures.

- More horsepower with cooler intake air temperatures
- Increased acceleration and mid range performance
- Reduces detonation in hot weather conditions
- Temperature control tuneability
- An inexpensive recreational performance addition
- Pressure relief valve options
- Easy installation instruction

Description	Part No.
R&D FX-SHO/FZR/FZS Intercooler Cooling Kit	660-18000



R&D FX-SHO/FZR/FZS INTERCOOLER TEMPERATURE CONTROL PRESSURE RELIEF VALVE KIT

R&D also offers a pressure relief blowoff valve kit for high water volume flow rates on higher boost Stage 1 and up engine kits. The R&D kit will allow temperature tuning

that will deliver surprising results. Unlock hidden performance and power potential in the OEM stock intercooler or aftermarket intercooler system by reducing intercooler core temperatures.

Description	Part No.
R&D FX-SHO/FZR/FZS Intercooler Temperature Control Pressure Relief Valve Kit	660-82511



R&D YAMAHA FX-SHO/FZR ENGINE INTERCOOLER COOLING KIT

The R&D Yamaha SHO/FZR Engine/Intercooler Cooling Kit was devel-

oped for high performance recreational and racing use. Extensive engine cooling and inlet air temperature testing using both MoTeC I2 and Innovate digital logging systems has proven the R&D High Performance Cooling Kit to offer double the water volume flow through the engine, oil cooler, and intercooler as well as increase water pressure. The O.E.M. cooling system has a very low water pressure (10 P.S.I. at 7600 rpm's) and a low water volume flow. The new R&D kit will double the water volume which will lower intake air temperature by 15-20 degrees as well as lower engine block and head temperatures by 40-50 degrees. The additional oil cooler water line will lower engine oil temperatures by 15-20 degrees promoting better lubrication and increased engine cooling. The R&D Cooling Kit arrives 100 percent complete with pre-cut hoses, "T" connectors, dual line pump block, through hull bulk-head fittings, hose clamps, water by-pass fittings, the thermostat removal sealing washer, and detailed instructions with pictures. R&D recommends the cooling system to be upgraded as a stand alone performance upgrade and a must have kit addition when installing power adders such as R&D Supercharger Wheels, Engine Performance Parts, and Engine Management Kit parts. Cooler engine, inlet air, and oil temperatures produce higher horsepower with decrease detonation

- *Better throttle response, increased horsepower
- *Cooler header and under seat temperatures
- *Increased power with cooler air inlet temperatures
- *Cooler cylinder and cylinder head will reduce knock
- *Cooler oil will lubricate better and last longer
- *Increased engine protection
- *Improved clutch performance with cooler oil

Description	Part No.
R&D SHO/FZR Engine/Intercooler Cooling Kit	660-18001



RIVA ENGINE BREATHER UPGRADE KIT

Easy to install Engine Breather Upgrade Kit eliminates power-robbing crankcase emissions from your engine's air intake. Increases horsepower by removing the engine's requirement to burn relatively non-combustible oil. Also improves intercooler efficiency by preventing the oil sludge coating that lowers thermal efficiency. Easy installation retains highly efficient OEM air/oil separator system. Kit includes pre-formed hose with attached K&N filter along with all necessary hardware & instructions.

Description	Part No.
RIVA Engine Breather Upgrade Kit	RY19040-EBUK

YAMAHA FX-SHO & FZ • INTERCOOLER



RIVA FX-SHO/FZR STOCK INTERCOOLER UPGRADE KIT

The RIVA Intercooler Upgrade Kit delivers a huge performance gain to your stock intercooler system. The cost efficient upgrade kit features billet aluminum spacers that increase the end tank capacity and water flow in and out of the OEM intercooler.

Key Benefits Include:

- Intercooler exit temps average 30-degrees cooler than stock.
- Increased horsepower with cooler, denser air temps.
- No drilling or machining required to OEM intercooler.
- Includes billet "high-flow" pump strainer providing a second dedicated waterline to intercooler.
- Replaceable sacrificial zinc anode protects cooling system from corrosion.
- **IJSBA/ABPBA Stock Class Legal.**

Description	Part No.
RIVA FX-SHO/FZR Stock Intercooler Upgrade Kit	RY17040-ICUK



RY10040-ECUK-1



RY10040-ECUK-PC

RIVA FX-SHO/FZ ENGINE COOLING UPGRADE KITS

The RIVA Engine Cooling Upgrade Kit delivers dramatically improved cooling efficiency to engine and oil cooler for increased reliability & performance. Greatly enhances water flow & pressure by replacing restrictive OEM water fittings with high-flow billet fittings and superior routing. Allows the addition of aftermarket ECU's, high-boost compressor wheels and other performance modifications that can increase heat & detonation. Includes all necessary water lines, hardware, fittings and detailed installation instructions.

Fits 2009-10 FX-SHO & FZ models.

Description	Part No.
FX-SHO/FZ Engine Cooling Upgrade Kit	RY10040-ECUK-1
For use with the OEM Intercooler Upgrade Kit	
FX-SHO/FZ Engine Cooling Upgrade Kit	RY10040-ECUK-PC
For use with the Riva Power Cooler Kit	



ENGINE BLOCK THERMOSTAT KIT COOLING OPTION

The R&D Block Thermostat Kit Option was developed to offer a way to run "Dual Thermostats" to the engines cooling system to control and allow warm up and pre heat cycles to take place.

Engine Block and Head cooling on the Yamaha Engine becomes difficult when running high compression ratios, higher boost levels, and aggressively advanced ignition timing. R&D has found that multiple cooling lines need to be added to the cooling system to provide enough volume to keep temperatures stable and in check. The problem is the Single OEM thermostat is too restrictive and doesn't allow enough water volume flow to reduce temperatures with the added cooling lines. R&D has found a way to add an additional thermostat that allows enough water flow volume to cool the engine and head and retain the O.E.M. method for engine pre heat or warm up. The R&D Kit installs as a bolt on kit directly in place of the corrosion anode. Running two thermostats allows enough water flow to cool the engine properly. The R&D thermostat kit option will start to open at 120 degrees, and will allow full flow at 140 degrees. The O.E.M. stock thermostat opens at 118-126 degrees and allows full flow at 140 degrees. Having two thermostats installed that are full open at 140 degrees, and flow enough water volume, will help to keep engine block temperatures to between an ideal 150-175 degrees. R&D has done extensive testing with the engineers at MoTeC both on the Dyno and on the water to determine that 150-160 degrees block temperatures is where the most peak power is, any hotter and power diminishes. The R&D dual thermostat kit will be a must have addition where engines are being run in extreme cold water and weather conditions. There has been many debates over these theories, and until now there has been no way around extended warm up cycles to bring engine temps up before high engine loads can be applied. R&D has found a way to end the debate and give everyone what they are looking for in a complete cooling system.

Description	Part No.
SHO/FZR/FZSNXR/VXS	660-18004



4 STROKE	YAMAHA
INATKE	SYSTEMS
ENGINE/	GASKETS
EXHAUST	
DRIVE LINE	HANDLING
ELECTRICAL	
WATERLINE	/BLIGE
STEERING	& CONTROLS
BODY	
ACCESSORIES	
SERVICE TOOLS	/HARDWARE
CHEMICAL	

YAMAHA
4 STROKE
INTAKE
SYSTEMS
ENGINE/
GASKETS
EXHAUST
DRIVE LINE
HANDLING
ELECTRICAL
WATERLINE
/BILGE
STEERING
& CONTROLS
BODY
ACCESSORIES
SERVICE TOOLS
/HARDWARE
CHEMICAL



RIVA REAR EXHAUST KIT

RIVA Racing Rear Exhaust Kit delivers performance and cutting-edge style. Allows for removal of restrictive sound suppression system located between waterbox and hull exit. Improves engine performance by reducing back pressure and restriction. Includes mandrel bent aluminum exhaust tube that is powder coated to prevent corrosion, large billet through-hull exhaust outlet, billet OEM exhaust outlet block-off and high-temp silicone couplers along with all necessary mounting hardware & installation.

Description	Part No.
RIVA Racing FZR/FZS Rear Exhaust Kit	RY15050
RIVA Racing FX-SHO Rear Exhaust Kit	RY15040
RIVA Racing VXR/VXS Rear Exhaust Kit	RY15060



RIVA FX SHO/FZR FREE FLOW EXHAUST KIT

Replaces the restrictive sound suppression system located between the water box and hull exit on your watercraft. Improves engine performance by reducing back pressure and harmful detonation. Includes mandrel bent aluminum tubing that is powder coated to prevent corrosion, high-temp silicone replacement coupler and installation instructions.

ing back pressure and harmful detonation. Includes mandrel bent aluminum tubing that is powder coated to prevent corrosion, high-temp silicone replacement coupler and installation instructions.

Description	Part No.
Riva FX-SHO/FZR/FZS Free Flow Exhaust Kit	RY16040



R&D FX-SHO/FZR/FZS HIGH FLOW EXHAUST KIT

The R&D SHO High Flow Exhaust Kit will add a noticeable low end and mid range power feel as well as add top end performance! The R&D High Flow Exhaust Kit will add a great performance

sound to the SHO while maintaining a safe and under IJSBA and Coast Guard approved 86 db!

Description	Part No.
FX-SHO/FZR/FZS High Flow Exhaust Kit	332-18000
RIVA VXR/VXS Free Flow Exhaust Kit	RY16060

EXHAUST RESONATOR REMOVAL KIT



The R&D Exhaust Resonator Removal Kit will allow the sound suppression ball to be removed and plugged. When removing the exhaust sound suppression ball and modifying the exhaust hose, low end response is gained and trapped hot exhaust gases can be evacuated quicker through less restriction or back pressure.

Description	Part No.
VXR/VXS Exhaust Resonator Removal Kit	332-18005



BILLET EXHAUST OUTLET

The new R&D Billet Exhaust Outlet.

Description	Part No.
3" Diameter R&D Billet Exhaust Outlet	331-30000
2.75" Diameter R&D Billet Exhaust Outlet	331-32750



R&D HIGH TEMPERATURE SILICON COUPLINGS

Description	Part No.
3" - 3" High Temp Silicon Couplings	061-30030
3" - 2" Reducer High Temp Silicon Couplings	061-32500
2.75" - 2.5" Reducer High Temp Silicon Couplings	061-32501
3" - 2.75" Reducer High Temp Silicon Couplings	061-32750



RIVA FX-SHO/FZ PRO-SERIES WATER BOX

Developed on our Dyno and tested extensively on the water, this water box features radiused exhaust tubes and end caps for optimum exhaust flow. Unique exhaust baffle will increase the low-end power and mid-range pull of your Yamaha watercraft. Delivers up to 15hp on modified engines along with significant torque gains. High-strength aluminum construction will survive backfires and meltdowns. Powder coated to prevent corrosion. *A must for modified motors.*

Key Features:

- Delivers up to 15hp on modified craft!
- Machined hose flanges for reliable coupler retention.
- Radiused exhaust tubes & end caps.
- Powder coated to prevent corrosion.

Description	Part No.
Riva FX-SHO/FZ Pro Series Water Box	RY16041

YAMAHA FX-SHO/FZ/VXR/VXS • FUEL SYSTEM



R&D FX-SHO/FZR/FZS/VXR/VXS FUEL PRESSURE REGULATOR KIT

R&D offers a Yamaha FX-SHO/FZR/FZS model specific fuel pressure regulator system allowing custom fuel pressure tuning to the EFI fuel systems fuel pressures. The R&D Fuel Pressure Regulator System offers a wide range of setup possibilities. Base fuel pressure is adjustable from 5 to 60 PSI. The R&D fuel pressure regulator can also be set up to allow "rising rate" fuel pressure at a 1 to 1 ratio (One pound of fuel pressure gain over base for every pound of boost gain). R&D offers two types of fuel pressure regulator set ups. Part #802-00080 will come completely assembled and ready to install. The R&D Pro System is 100 percent complete, installs directly to the top of the fuel tank, and connects directly to the fuel rail with OEM security lock connectors with no modifications. For the R&D Fuel Pressure Regulator only use part #801-25010, which comes complete with 90 degree barbed brass fittings for use with push on type hose and Oetiker style clamps for security. R&D offers high performance fuel hose that can be purchased by the foot, as well as the Oetiker style clamps. The R&D bypass style regulator system is capable of handling any fuel pump up to 250 GPH. Replace "Deadhead" regulator performance and experience the full flow volume and rock steady fuel pressure that only a dynamic R&D fuel pressure regulator kit can produce.

- Fuel pressure will rise on a 1:1 ratio when boost referenced
- All ports are 3/8" NPT, with one inlet, 3 outlets, and one return port on the bottom
- Beautiful type II bright dip anodized finish
- Bypass design produces the ultimate, dynamic fuel delivery system
- 3/8 pipe tapped for standard or AN fitting ready
- R&D offers pre-assembled #4 AN hose to finish off a return system
- R&D offers fuel hose by the foot for custom routing

Description	Part No.
R&D FX-SHO/FZR/FZS/VXR/VXS Fuel Pressure Regulator Kit	802-00080



R&D-FX SHO/FZR/VXR/VXS IN-TANK FUEL PRESSURE REGULATOR BLOCK OFF KIT

R&D offers a Fuel Pressure Regulator Block off Kit which will allow the OEM stock in tank fuel pressure regulator to be removed, blocked off, and replaced with a billet part which is mandatory when installing an aftermarket externally adjustable fuel pressure regulator system. The OEM in tank fuel pressure regulator is fixed to maintain 40-43 pounds of fuel pressure at all times. For high performance applications where horsepower is boosted, it is necessary to install larger flowing fuel injectors and be able to tune the fuel pressure up or down as needed. Most factory race teams are running 65 plus pounds of fuel pressure along with higher flowing fuel injectors and externally adjustable pressure regulators. The R&D has a complete line up of fuel pumps, fuel injectors, fuel pressure regulators, fuel gauge, and fuel hose accessories all designed specifically for the Yamaha SHO. All R&D fuel injection parts and products meet Coast Guard, I.J.S.B.A., and APBA approval.

Description	Part No.
R&D FX-SHO/FZR/FZS/VXR/VXS In-Tank Fuel Pressure Regulator Block Off Kit	812-35257



RIVA FX-SHO/FZ RISING RATE FUEL PRESSURE REGULATOR KIT

Riva Fuel Pressure Regulator Kit provides the precision pressure control necessary to compliment aftermarket ECU applications on the 'SHO' engine. Kit is fully assembled & mounts securely on top of fuel tank via sturdy aluminum bracket. High quality billet pressure regulator can adjust base pressure from 25 to 80 PSI. Unit can also



be set up as rising rate fuel pressure regulator at a 1 to 1 ratio providing one additional pound of fuel pressure for every pound of boost gain. Plugs directly into original fuel system with OEM connectors and features a large 3/8" fuel return line that is routed through supplied rubber fuel tank cap. Includes integrated liquid-filled pressure gauge and billet Fuel Pressure Regulator Block-Off necessary for removal of stock fuel pressure regulator in fuel tank.

Key Features Include:

- Precision fuel pressure control with optional rising rate function.
- High quality stainless steel liquid-filled pressure gage.
- Large 3/8 fuel return line.
- Includes billet Fuel Pressure Regulator Block-Off.
- Easy bolt-on installation with OEM fuel connectors.
- Includes complete installation instructions & tuning guide.

Fits Yamaha FX-SHO, FZR & FZS models.

Description	Part No.
Riva Fuel Pressure Regulator Kit	RY12040-RRFPR-6S5



R&D INLINE FUEL PRESSURE GAUGE ADAPTER

The R&D Fuel Pressure Gauge ADAPTER Tool is designed to be a plug

in fuel pressure gauge that needs no modifications to install and use. Simply disconnect the OEM locking fuel connector from the fuel rail and plug the gauge tool directly into the connector. Plug the locking connector supplied on the R&D tool onto the fuel rail and lock. Use the tool to verify fuel pressure and fuel pump condition. Use the tool to set and verify base fuel pressure settings on the R&D Rising Rate Fuel Pressure Regulator (RRFPR). When finished, disconnect the tool and reconnect the stock fuel line. The ADAPTER installs inline between the OEM fuel rail and the R&D RRFPR via the OEM connectors for easy connect and disconnect. The R&D Tool works on both Yamaha and Kawasaki fuel systems. Installation time is only 2 minutes. Liquid filled fuel pressure gauge sold separately.

Description	Part No.
R&D Inline Fuel Pressure Gauge ADAPTER	612-00081
Liquid Filled Fuel Pressure Gauge	900-02180

4 STROKE	YAMAHA
SYSTEMS	INATKE
GASKETS	ENGINE/
EXHAUST	EXHAUST
HANDLING	DRIVE LINE
ELECTRICAL	ELECTRICAL
WATERLINE /BILGE	WATERLINE /BILGE
STEERING & CONTROLS	STEERING & CONTROLS
BODY	BODY
ACCESSORIES	ACCESSORIES
SERVICE TOOLS /HARDWARE	SERVICE TOOLS /HARDWARE
CHEMICAL	CHEMICAL

YAMAHA
4 STROKE

INTAKE
SYSTEMS

ENGINE/
GASKETS

EXHAUST

DRIVE LINE
HANDLING

ELECTRICAL

WATERLINE
/BILGE

STEERING
& CONTROLS

BODY

ACCESSORIES

SERVICE TOOLS
/HARDWARE

CHEMICAL



Upgrade Kit



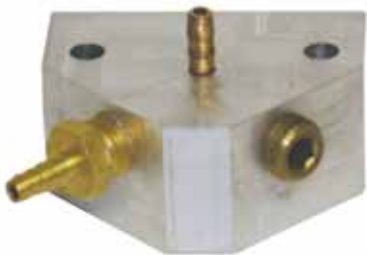
Complete Kit

R&D TUNABLE RAISING RATE FUEL PRESSURE REGULATOR

The R&D Tunable Raising Rate Fuel Pressure Regulator enables the “raising rate” portion of the fuel pressure to be tuned. With the addition of two volume plates and three jets that change the internal volume and pressure the “raising rate fuel pressure curve” can be manipulated. The regulator comes with a baseline setup, which contains no volume plates or jets. The baseline setup will provide a larger increase in fuel pressure as boost increases. If a lower slope (leaner) is desired, the volume plates and jets can be installed to tune the raising rate fuel pressure. The regulator utilizes a tunable pressure relief port to lower the slope of the curve to dampen pressure transitions. Kit comes complete with a graph page indicating the increase in fuel pressure as boost increases with and without the volume plates and jets installed.

NOTE: Tuning the rising rate is necessary to be able to tune out rich spots in the fuel curve caused by varying intercooler performance.

Description	Part No.
Tunable Raising rate Upgrade Kit (for R&D RRFRP)	802-00081
Tunable Raising Rate Fuel Pressure Regulator Kit	802-00082



R&D FX-SHO/FZR/FZS MULTI-PRESSURE PORT BOOST GAUGE/SURGE/RRFPS ADAPTER KIT

The R&D Yamaha FX-SHO/FZR/FZS Multi-Pressure Port ADAPTER Kit will allow quick and easy hook up of digital or manual boost gauges with the R&D Multi-port billet ADAPTER. The R&D Pressure Port ADAPTER installs between the MAP sensor and the MAP sensor bracket as a “bolt on” part no with modifications. Operate a vacuum/boost gauge, check plenum air temperatures, and operate a surge protection valve at the same time, or run a boost gauge, surge protection device, and operate a boost referenced fuel pressure regulator (RRFPR) at the same time with one simple part. The R&D Pressure Port ADAPTER Kit comes complete with longer MAP sensor mounting screws, o-ring seals, nylon cable ties, all mounting hardware and instruction.

Description	Part No.
R&D FX-SHO/FZR/FZS Multi-Pressure Port Boost Gauge/Surge/RRFPS ADAPTER Kit	612-92005



RIVA/HKS FX-SHO/FZ HIGH VOLUME FUEL PUMP

This is a direct replacement high volume fuel pump for high performance applications. Delivers 265LPH to support highly modified engine packages. Easy installation requires no modifications. Includes detailed installation instructions.

Description	Part No.
RIVA/HKS FX-SHO High Volume Fuel Pump	RY12040-265FP-6S5



R&D FX-SHO/FZR/FZS/VXR/VXS HIGH PERFORMANCE HIGH VOLUME FUEL PUMP KITS

R&D Performance carries a complete line up of high performance replacement fuel pumps that are machined specifically to fit the Yamaha FX-SHO/FZR/FZS fuel pump housing and are offered in a variety of flow ratings to facilitate from basic low cost replacement to an all out 500 H.P. race machine. All R&D FX-SHO/FZR/FZS fuel pumps have been precision flow rate tested and charted in (LPH) liters per hour. R&D FX-SHO/FZR/FZS fuel pumps arrive complete with Yamaha FX-SHO/FZR/FZS model specific installation instructions complete with detailed photos that will help make the fuel pump installation quick and easy.

NOTE: There are no modifications necessary to install the R&D fuel pump therefore switching back to the O.E.M. fuel pump assembly is quick and easy as well.

Description	Part No.
R&D FX-SHO/FZR/FZS/VXR/VXS 190 LPH OEM Replacement Fuel Pump Kit	812-35190
R&D FX-SHO/FZR/FZS/VXR/VXS 255 LPH Low Pressure Fuel Pump Kit	812-35255
R&D FX-SHO/FZR/FZS/VXR/VXS 255 LPH High Pressure Fuel Pump Kit	812-35256



R&D #4 & #6 FUEL RETURN LINE KIT

R&D has developed a two larger fuel return line kits for the FX-SHO/FZR/FZS. Increasing the diameter of the fuel return line to #4 or #6, decreases line pressure and increases fuel volume, yielding increased tuning ability in high heat and higher performance applications.

Description	Part No.
R&D #4 Fuel Return Line	612-00082
R&D #6 Fuel Return Line	612-00083

YAMAHA FX-SHO/FZ/VXR/VXS • FUEL SYSTEM



FX-SHO/FZ/VXR/VXS 725 CC/1000 CC PRO SERIES FUEL INJECTOR KIT

R&D Pro Series injectors offer increased fuel delivery over our 525cc injectors. The new Pro Series injectors are offered in 725cc and

1000cc flow rates. Each set of injectors have been flow rate and voltage comp tested to insure linear accuracy and are shipped with a precision dead time (voltage compensation) chart that can be added into your aftermarket ECU's software program under battery compensations. R&D Pro Series injectors offer perfectly clean linear response performance from low idle all the way through the entire power range. R&D has flow rate tested the O.E.M. Yamaha FX HO injectors and verified them to flow 396 cc at 43 PSI of fuel pressure, which rates them to flow 39 pounds of fuel per hour. The R&D Pro Series Fuel Injectors have been precision flow rate tested to 725cc at 43 PSI of fuel pressure, and 925cc at 70 PSI of fuel pressure, which rates them to flow as much as 92 pounds of fuel per hour. R&D fuel Injectors perform excellent, delivering precise fuel flow at fuel pressure ratings ranging from 40 to 80 PSI. Each R&D injector set is packaged complete with all installation hardware, necessary harness interface connectors, voltage compensation chart, and instructions.

Description	Part No.
R&D Pro-Series 725cc Injectors (set of 4)	812-18001
Flow Rate: 725cc at 43.5 Pounds of Pressure =72 Pounds Per Fuel Hour Fuel Flow.	
Flow Rate: 925cc at 70.0 Pounds of Pressure =92 Pounds Per Fuel Hour Fuel Flow.	
R&D Pro-Series 1000cc Injectors (set of 4)	812-18002
Flow Rate: 1000cc at 43.5 Pounds of Pressure =100 Pounds Per Fuel Hour Fuel Flow.	
Flow Rate: 1225cc at 70.0 Pounds of Pressure =120 Pounds Per Fuel Hour Fuel Flow.	



FX-SHO/FZR/FZS/VXR/VXS HIGH PERFORMANCE FUEL INJECTOR KIT

When boosting the horsepower on the

FX-SHO/FZR/FZS four stroke fuel injected engine, whether using high compression pistons, cams, or higher ratio supercharger compressor wheels, it will be necessary to increase the fuel flow delivery. The OEM Yamaha SHO injectors have been precision flow rate tested to be 80 percent peaked on stock units at sea level without modifications. R&D offers high performance fuel injectors with a higher atomization spray pattern that are easily capable of delivering fuel flow specifications to accommodate up to 400 horsepower! R&D has flow rate tested the O.E.M. Yamaha SHO injectors and verified them to flow 396 cc at 43 PSI of fuel pressure, which rates them to flow 30 pounds of fuel per hour. The R&D High Performance Fuel Injectors have precision flow rate tested to **525 cc at 43 PSI of fuel pressure**, and **625 cc at 70 PSI of fuel pressure**, which rates them to flow as much as **62 pounds of fuel per hour**. R&D High Performance Injectors have been flow rate tested to perform excellent, delivering precise fuel at fuel pressure ratings ranging from 40 to 80 PSI. Each R&D High Performance Fuel Injector Kit will come packaged with vital flow test rating information that will be broken down specifically in five pound increments in fuel pressure to give the fuel flow delivery information that will help in tuning fuel pressure to match the engines fuel flow needs based on horsepower gains over stock. R&D offers only the highest quality fuel injectors, fuel pressure regulators, and fuel management accessories, for all your engine management needs.

Description	Part No.
R&D FX-SHO/FZR/FZS/VXR/VXS High Perf. Fuel Injector Kit	812-18000



RIVA PRO-SERIES YAMAHA FUEL INJECTORS

Our high impedance fuel injector kit delivers additional fuel to modified engines for high boost applications. **100lb (1,000cc)** injectors are for use with aftermarket ECU (RY11840-01-C) for correct calibration. Kit includes injectors, plug and play adapters, fuel rail spacers and detailed installation instructions. Fits 2009-11 FX-SHO & FZ models.

Description	Part No.
Riva Pro-Series Yamaha Fuel Injectors	RY12040-I-KIT-100



RIVA FX SHO/FZR PRO-SERIES FUEL INJECTOR KIT

Riva's high performance fuel injector kit supplies modified Yamaha 1.8 liter Supercharged engines with additional fuel for RIVA Stage II & III applications. These **95lb** injectors are designed for use with RIVA Pro-Series ECU for correct calibration. Injector sets are flow-matched for optimum idle quality and peak performance.

Description	Part No.
Riva FX-SHO/FZR/FZS Pro-Series Fuel Injector Kit	RY12040-I-KIT



RIVA FX SHO/FZ 3 BAR MAP SENSOR KIT

Do you plan on running over 14.7psi of boost? If so, our 3 Bar MAP Sensor Kit is essential for accurate engine management with high boost applications. High quality 3 Bar MAP Sensor

will measure up to 29.7psi, where the OEM 2 Bar MAP Sensor will only measure up to 14.7psi. It is critical to provide accurate pressure information to your aftermarket ECU to ensure proper air/fuel mixture and data logging. RIVA 3 Bar MAP Sensor mounts directly in place of OEM sensor with stainless bracket and plugs directly into OEM wiring harness.

Description	Part No.
Riva FX-SHO/FZ 3 Bar Map Sensor Kit	RY11740-MS-3

4 STROKE	YAMAHA
INATKE	SYSTEMS
ENGINE/ GASKETS	
EXHAUST	
DRIVE LINE HANDLING	
ELECTRICAL	
WATERLINE /BILGE	
STEERING & CONTROLS	
BODY	
ACCESSORIES SERVICE TOOLS /HARDWARE	
CHEMICAL	

FX-SHO/FZR HIGH PERFORMANCE R&D ECU REPROGRAMMING SERVICES

DOLLAR FOR DOLLAR UNBEATABLE PERFORMANCE: R&D is proud to announce our new line up of Yamaha FZR and SHO ECU reprogramming services. The engineering staff at R&D have been testing and developing ECU programs to allow new performance levels to be reached for recreational enthusiasts and racers who are interested in more performance through reprogrammed the OEM ECU. Entry level programs will allow the enjoyment of a raised RPM limit settings, advanced ignition timing, re-calibrated fuel map, as well as the internal boost limiter raised to allow R&D Monster Wheels to work to full potentials. There are several performance levels to choose from that work with stock or R&D C1, C3, and C5 Monster Wheels or any wheel kit rated up to 18 pounds of boost. Programs offered are recreational performance tuned with safe AFR values, and can be further custom tuned (Richened) to accommodate additional boost levels. Existing customers who have purchased an R&D Powershot Fuel Control Unit can send their units in to R&D for free upgraded re-programming to allow custom fuel tuning to work with the new ECU Programs. R&D Powershot Fuel Control Units are not required on entry recreational level (R1, R2, or R3) programs using stock, C1, or C3 Wheels. However, custom fuel tuning with the Powershot Fuel Tuner can be an add-on or additional upgrade that is suggested for higher performance applications such as C5 Monster Wheel Kits. Fuel tuning or AFR conditions should always be checked and verified as values will always be slightly different from one engine set up to another. Higher performing programs are continuously under development and will be announced through updates on the R&D website, so stay tuned. Custom program files can also be performed to accommodate just about any combination of performance level or type of fuel being used. R&D strongly suggests that AFR tuning be periodically verified using Innovate Products LM1 or LC1 Logging Kit also available from R&D.

Part #802-01801 R&D R1 ECU; Reprogrammed ECU to allow up to 8450 RPM's, Raised Boost limiter to allow up to 18 pounds boost, and upgraded ignition timing safe for all recreational and offshore racing use. R1 works great with stock, C1, C3, or C5 Monster Wheel Kits, or any wheel kit rated up to 18 pounds of boost. 89 octane safe with stock and C1 wheels, 91 octane pump fuel use is recommended for C3 and C5. The R1 program file does not require a Powershot Fuel Tuner for use with C1 and C3 Monster Wheels.

Part #802-01802 R&D R2 ECU; Reprogrammed ECU to allow 8750 RPM's, Raised Boost limiter to 17 pounds, advanced ignition timing for high performance recreational use. R2 works great with stock, C1, C3, or C5 Monster Wheel Kits, or any wheel kit rated up to 18 pounds of boost. 91 octane pump fuel should be used with R2 reprogram. 93-95 octane fuel is recommended for closed course racing conditions where high engine loads are present. The R2 program file does not require a Powershot Fuel Tuner for use with C1 and C3 Monster Wheels.

Part #802-01803 R&D R3 ECU; Reprogrammed ECU to allow 8850 RPM's, eliminated Boost limiter, aggressively advanced ignition timing in the low end areas and softer high rpm settings in the peak boost areas for high performance recreational use. R3 works great with C1, C3, or C5 Monster Wheel Kits, or any wheel kit rated up to 18 pounds of boost. 91-93 octane pump fuel should be used with R3 reprogram with O.E.M. 8.6-1 pistons and cams. R&D suggests 100 plus octane fuel when using 9.5-1 pistons, RC1 Cams, and R&D Pro Tune Adjustable Cam Gear Kits. NOTE: The R3 program file does not require a Powershot Fuel Tuner for use with C1 and C3 Monster Wheels. Use the Powershot for custom fuel tuning with C5 wheel kits. NOTE: The R&D RRFPR Kit is required when using the R&D C5 Monster Wheel Kit.

Part #802-01803v R&D R3 VF ECU; Reprogrammed ECU allows the use of variable fuels. Run 91 octane at 12-13 pounds (180 kpa) of peak boost, and run 98 or 100LL Aviation fuel when boost pressure is adjusted to 15-18 pounds. The program allows 8850 RPM's, eliminated Boost limiter, aggressively advanced ignition timing in the low end areas and softer high rpm settings in the peak boost areas for high performance recreational use. R3 VF works great with C1, C3, or C5 Monster Wheel Kits, or any wheel kit rated up to 18 pounds of boost. 91-93 octane pump fuel should be used with R3 VF reprogram with O.E.M. 8.6-1 pistons and cams at 12-13 pounds. R&D suggests 100 plus octane fuel when using 9.5-1 pistons, RC1 Cams, and R&D Pro Tune Adjustable Cam Gear Kits. NOTE: The R3 VF program file does not require a Powershot Fuel Tuner for use with C1 and C3 Monster Wheels. Use the Powershot for custom fuel tuning with C5 wheel kits. NOTE: The R&D RRFPR Kit is required when using the R&D C5 Monster Wheel Kit. NOTE: Adjusting the peak boost pressure is done via the R&D/GReddy adjustable boost level/surge protection valve. The R3 VF Program allows the recreational rider/racer the flexibility to race on Sunday with 15-18 pounds of boost and aggressive timing with 100 octane Aviation fuel, and still be able to take the family out for weekend fun with 91 octane pump gas when boost is adjusted back to 10-13 pounds. NO need for switching booster wheels to attain lower boost and lower rpm settings. Another great feature available only from R&D!

Part #802-01804 R&D R4 ECU; Reprogrammed ECU to allow 8850 RPM's, eliminated Boost limiter, aggressively advanced ignition timing that requires 100 octane Aviation fuel for high performance Pro Stock or Pro Limited racing use. R4 works great with stock, C1, C3, or C5 Monster Wheel Kits, or any wheel kit rated up to 18 pounds of boost.

Part #802-01805 R&D R5 ECU; Reprogrammed ECU to allow 8950 RPM's, eliminated Boost limiter, aggressively advanced ignition timing that requires VP MS 109 race gas for high performance Pro Stock or Pro Limited racing use. R5 works great with stock, C1, C3, or C5 Monster Wheel Kits, or any wheel kit rated up to 18 pounds of boost.

Part #802-01806 R&D R6 ECU; Reprogrammed ECU to allow 9000 RPM's, eliminated Boost limiter, aggressively advanced ignition timing that requires VP MS 109E fuel for high performance Pro Stock or Pro Limited racing use. R6 works great with stock, C1, C3, or C5 Monster Wheel Kits, or any wheel kit rated up to 18 pounds of boost.

Part #802-01807 R&D R7 ECU; Reprogrammed ECU to allow 9000 RPM's, eliminated Boost limiter, aggressively advanced ignition timing that requires VP C12 race gas for high performance Pro Stock or Pro Limited racing use. R7 works great with stock, C1, C3, or C5 Monster Wheel Kits, or any wheel kit rated up to 18 pounds of boost.

Part #802-01808 R&D R8 ECU; Reprogrammed ECU for 725cc injectors @ 52 psi fuel pressure, 8750 RPM's, eliminated Boost limiter, advanced ignition timing requires 91 octane pump gas for high performance recreational use. R8 is designed for the C5 Monster Wheel Kit or any wheel kit rated for 18 pounds of boost.

Part #802-01809 R&D R9 ECU; Reprogrammed ECU for 725cc injectors @ 52 psi fuel pressure, 8850 RPM's, eliminated Boost limiter, advanced ignition timing requires 100 octane Aviation fuel. R9 is designed for the C5 Monster Wheel Kit or any wheel kit rated for 18 pounds of boost.

Part #802-01810 R&D R10 ECU; Reprogrammed ECU for 725cc injectors @ 52 psi fuel pressure, 9000 RPM's, eliminated Boost limiter, advanced ignition timing requires VP MS 109 Race gas. R10 is designed for the C5 Monster Wheel Kit or any wheel kit rated for 18 pounds of boost.

Part #802-01811 R&D R11 ECU; Reprogrammed ECU for 725cc injectors @ 60 psi fuel pressure, 9000 RPM's, eliminated Boost limiter, advanced ignition timing requires VP C12 Race gas. R11 is designed for the C5 Monster Wheel Kit or any wheel kit rated for 18 pounds of boost.

Part #802-01812 R&D R12 ECU; Reprogrammed ECU for 1000cc injectors @ 60 psi fuel pressure, 9000 RPM's, eliminated Boost limiter, advanced ignition timing requires VP MS 109/C12 Race gas. R12 is designed for the C5 Monster Wheel Kit or any wheel kit rated for 18 pounds of boost.

NOTE: Rev Limiter settings can be raised or lowered upon request.

YAMAHA 4 STROKE
INTAKE SYSTEMS
ENGINE/ GASKETS
EXHAUST
DRIVE LINE HANDLING
ELECTRICAL
WATERLINE /BILGE
STEERING & CONTROLS
BODY
ACCESSORIES
SERVICE TOOLS /HARDWARE
CHEMICAL

YAMAHA FX-SHO/FZ/VXR/VXS • ENGINE • FUEL SYSTEM

R&D YAMAHA SHO/FZ/FZR POWERSHOT ADJUSTABLE FUEL TUNER

The new R&D Powershot Fuel Injection/Engine Tuning module for the YAMAHA SHO/FZR will deliver increased acceleration, stronger mid-range, and increased top speed performance by delivering a higher performing air to fuel ratio (A.F.R.) and allowing higher mass air/boost pressure levels to be utilized. R&D Performance has data logged and analyzed the O.E.M. fuel map and FlyBy Wire functions on the new YAMAHA SHO/ FZR four stroke engine and has determined that one of the main horsepower and performance holdbacks in Yamaha's Fly by Wire E.C.U. system is the mass air or boost limitation that is controlled by the Fly by Wire Throttle System. The Yamaha E.C.U. manipulates and controls the mass air or boost pressure levels by closing the throttle plate which limits peak horsepower performance. The R&D Powershot interfaces with the E.C.U., fuel injectors, and sensors to unlock, take over, and control mass air or boost limitations. The R&D Powershot will allow the R&D C1 and C3 Monster Supercharger Wheels to perform to their full potential by defending against unwanted codes and internal E.C.U. limitations. The R&D Powershot comes pre-programmed and coded to safely alter the fuel map, intercept and recondition sensor voltage signals allowing up to 10 P.S.I. of boost pressure without throttle limitation or regulation. The R&D Powershot allows custom fuel tuning to cruise, acceleration, and top end zones. Top end fuel mixtures can be custom tuned from 13.5:1 (lean) to 11.5:1 (rich) on the fly. Quicker acceleration, stronger mid-range, and increased top speed performance is the result when the A.F.R. is tuned for optimum performance.

The R&D Powershot is fully adjustable to accommodate and properly performance tune the A.F.R. for any combination of aftermarket parts.

No more Boost Limiter!

Description	Part No.
SHO/FZ/FZR Powershot Adjustable Fuel Tuner	802-18000



R&D YAMAHA VXR/VXS POWERSHOT ADJUSTABLE FUEL TUNER

R&D Powershot Fuel Injection/Engine Tuning module for the YAMAHA VXR/VXS. The R&D Powershot will deliver increased acceleration, stronger mid-range, and increased top speed performance by delivering a higher performing air to fuel ratio (A.F.R.) R&D Performance has data logged and analyzed the O.E.M. fuel map on the Yamaha 1.8 N. A. four stroke

engine and documented that the fuel tables are a very green and stoichiometric. If quicker acceleration and stronger mid range power and the ability to have your cake and eat it too, then the Powershot is for you. The Powershot will allow you to adjust the fuel to either run green or mean. The R&D Powershot interfaces with the stock E.C.U., and fuel injectors allowing piggy back adjustments to the fuel table. The R&D Powershot comes pre-programmed and coded to safely alter the fuel map right out of the box for plug and play performance. The R&D Powershot allows custom fuel tuning to cruise, acceleration, and top end zones. Top end fuel mixtures can be custom tuned from 13.5:1 (lean) to 11.5:1 (rich) on the fly. Quicker acceleration, stronger mid-range, and increased top speed performance is the result when the A.F.R. is tuned for optimum performance. The R&D Powershot is fully adjustable to accommodate and properly performance tune the A.F.R. for any combination of aftermarket parts. Unlock the YAMAHA VXR/VXS's full performance potential with an R&D Powershot Engine Tuner. Call R&D today and get the latest high performance tuning parts, accessories, and information!

- Preprogrammed and Pre set to 12.5:1 (plug in and run)
 - Allows overall fuel map tuning
 - Utilizes O.E.M. ignition system
 - Utilizes O.E.M. fuel injectors
 - Retains all O.E.M. dash, warning, and service indicators
 - 91 octane pump gas friendly
 - Ultra easy 20 minute installation
- For competition use only!*

Description	Part No.
VXR/VXS Powershot Adjustable Fuel Tuner	802-18010



VXR/VXS HIGH PERFORMANCE ECU REPROGRAMMING SERVICES

Part #802-02801 R&D R1 ECU; Reprogrammed ECU for the VXR/VXS offers improved ignition timing map advancements that produce quicker acceleration and top speed performance. The fuel maps are tuned to offer a cleaner than stock (leaner idle), clean and green cruise areas which will keep fuel consumption either the same or better than stock in the cruising ranges, and an overall improvement to top speed or wide open throttle ranges. The rev limiter is raised to allow up to 8150 RPM's that will promote a more positive pump hook up in rough water conditions. The R1 ECU programs are 89 and 91octane (pump fuel) safe. The R1 program file does not require a Powershot Fuel Tuner.



Part #802-02802 R&D R2 ECU; Reprogrammed ECU for the VXR/VXS offers improved ignition timing map advancements that produce quicker acceleration and top speed performance. The fuel maps are tuned to offer a cleaner than stock (leaner idle), clean and green cruise areas which will keep fuel consumption either the same or better than stock in the cruising ranges, improved hard acceleration enrichment for the hard core rider that want a more aggressive mid range acceleration, and an overall improvement to top speed or wide open throttle ranges. The rev limiter is raised to allow up to 8250 RPM's that will promote a more positive pump hook up in rough water conditions. The R2 ECU programs are 91octane (pump fuel) safe. The R2 ECU program can be used with R&D Performer, Stage 1 and 2 kits. The R2 program file does not require a Powershot Fuel Tuner.

NOTE: Custom Rev Limiter settings available upon request.

Description	Part No.
Reprogrammed ECU for the VXR/VXS	802-02801
Reprogrammed ECU for the VXR/VXS	802-02802

4 STROKE	YAMAHA
SYSTEMS	INATKE
GASKETS	ENGINE/
EXHAUST	EXHAUST
HANDLING	DRIVE LINE
ELECTRICAL	ELECTRICAL
WATERLINE	WATERLINE
& CONTROLS	/BLIGE
BODY	STEERING
ACCESSORIES	& CONTROLS
SERVICE TOOLS	BODY
HARDWARE	ACCESSORIES
CHEMICAL	SERVICE TOOLS

YAMAHA
4 STROKE

INTAKE
SYSTEMS

ENGINE/
GASKETS

EXHAUST

DRIVE LINE
HANDLING

ELECTRICAL

WATERLINE
/BILGE

STEERING
& CONTROLS

BODY

ACCESSORIES

SERVICE TOOLS
/HARDWARE

CHEMICAL



RIVA/ViPEC PRO-SERIES ECU

The Pro-Series ECU provides a huge performance advantage to the Yamaha 1.8L Supercharged Engine delivering over 50hp to the stock engine. ECU is fully programmable with either RIVA supplied mapping or user defined parameters. Most calibrations require use of RIVA Fuel Pressure Regulator

Kit and 91+ octane pump fuel. Plugs directly into factory wiring harness via waterproof connectors.

Key benefits include:

- 1) Easy loading of supplied calibrations/maps for various performance applications.
 - * Performance Fuel Mapping: Delivers optimal fuel required for your specific level of modification based on boost pressure.
 - * Performance Timing Curves: Special racing curves produce more power throughout the RPM range.
 - * Rev Limiter Increase: Stock rev limit can be increased so engine RPM can be run higher producing more boost pressure and horsepower.
- 2) Retains OEM Dash Display, Engine Diagnostic & Engine Safety Functions:
 - * All original dash functions are retained.
 - * Provides diagnostic information that can be displayed via computer interface.
- 3) Includes input for optional lambda sensor kit (part# RY11540-LC1-6S5) for data logging air/fuel ratios & tuning functions.
- 4) Individual Cylinder Knock Control function. Identifies which cylinder is detonating by tracking firing order utilizing OEM knock sensor.
- 5) Traction Control function. Can be calibrated to match specific applications.
- 6) Antilag function (for turbo applications).

NOTE: RIVA Pro-Series ECU is for competition use only.

Description	Part No.
Riva/Vipec FX-SHO/FZR Pro-Series ECU	RY11840-01-C



RIVA FX-SHO/FZ BOOST CLAMP

The LC-1 is a complete wideband Lambda controller built into a sealed cable and wired specifically to connect to the RIVA/ViPEC FX-SHO/FZ Pro-Series ECU via a waterproof factory connector. O2 sensor installs into stock exhaust pipe using our precision machined Exhaust A/F Sensor Mount. The LC-1 is more accurate than conventional designs costing many times as much, and its self-calibrating circuitry can compensate for changes in temperature, altitude and sensor condition.

Description	Part No.
RIVA LC1 Wideband Lambda Controller	RY11740-BC-6S5



NGK SPECIAL SPARK PLUGS FOR FOUR STROKE ENGINES

Description	Part No.
Yamaha FX SHO/FX Cruiser SHO/FZR (10 plugs per box)	LF6A



RIVA LC1 WIDEBAND LAMBDA CONTROLLER

The LC-1 is a complete wideband Lambda controller built into a sealed cable and wired specifically to connect to the RIVA/ViPEC FX-SHO/FZ Pro-Series ECU via a waterproof factory connector. O2 sensor installs into stock exhaust pipe using our precision machined Exhaust A/F Sensor Mount. The LC-1 is more accurate than conventional designs costing many times as much, and its self-calibrating circuitry can compensate for changes in temperature, altitude and sensor condition.

Key Benefits Include:

- * Fully digital wideband controller.
- * Auto calibration capability to compensate for changes in temperature, altitude, and sensor condition.
- * Plugs directly into RIVA/ViPEC ECU harness.
- * Includes Bosch LSU 4.2 O2 sensor.

Description	Part No.
RIVA LC1 Wideband Lambda Controller	RY11540-LC1-6S5
Exhaust Air/Fuel Ratio Sensor Mount	RY15-AFSB



RIVA EXHAUST AIR/FUEL RATIO SENSOR MOUNTS

Riva's precision machined stainless steel exhaust O2 sensor mounts install easily into exhaust system allowing use of air/fuel ratio sensors. Simple installation replaces OEM plug with no modifications or special tools.

Description	Part No.
RIVA Exhaust Air/Fuel Ratio Sensor Mounts	RY15-AFSB



R&D FX-SHO/FZR/FZS O2 SENSOR MOUNT KIT

The new R&D O2 sensor mount kit makes installing an AFR gauge a breeze on the Yamaha FX-SHO, FZR, FZS, FX140, HO, GPR, and VX110. It simply replaces the OEM plug and

installs directly into the OEM pipe without any modifications. Kit comes complete with installation tool. AFR gauge sold separately.

Description	Part No.
FX-SHO/FZR/FZS/FX140/HO/GPR/VX110/VXR/VXS O2 Sensor Mount Kit	332-18010

YAMAHA FX-SHO/FZ/VXR/VXS • ENGINE



RIVA PRO-SERIES 4-STROKE RACING PISTONS

Riva's forged racing pistons deliver maximum reliability and performance in high boost & turbo applications. High strength piston kits include premium ring package, tool steel wrist pin & carbon steel wire locks.

Key Features Include:

- CNC machined from high strength/lightweight forgings.
- Optimized dome design for efficient combustion.
- Improved lubrication hole placement for reduced friction.
- Premium low friction ring package.
- High-strength tool steel wrist pins machined from special tool steel bar stock & heat treated.
- Carbon steel wire locks.
- Direct replacement diameter plus 2 oversizes available.

8.6 to 1 Compression	Part No.
FX SHO/FZR/FZS (8.6:1/STD)	RY1000-6S5-86
FX SHO/FZR/FZS (8.6:1/.020)	RY1000-6S5-8.6-020
FX SHO/FZR/FZS (8.6:1/.040)	RY1000-6S5-8.6-040

*Sold individually - this is not a set.



R&D HIGH PERFORMANCE FORGED PISTON KITS

R&D Yamaha Forged Racing Piston Kits have been developed for the hard core race enthusiasts or precision engine builders who are looking to gain maximum horsepower and reliability from their racing engines. R&D offers high quality forged aluminum, heat treated, and CNC machined racing pistons in stock 8.6-1, 9.5-1, 10.5-1 and 11-1 compression ratios to replace O.E.M. cast aluminum pistons known to be less reliable in high performance, high heat conditions. High horsepower marine engines with high boost pressures are more prone to have detonation over conventional racing engines due to sustained loads. Forged pistons in marine applications are a must. What ever performance platform you are planning to build, trust the pros at R&D with all your compression ratio, boost, and engine management needs or questions.

R&D recommends upgrading to our High Performance Pistons and Rods in applications producing over 300 H.P. @ sustained RPM's 8,000+.

- Direct replacement piston kits for High H.P. applications
- High quality forged materials replace low performance cast
- Improved ring seal with Nascar Style ring sets
- Increased RPM's and horsepower by reducing weight
- Works great with high boost compressor wheels and turbo kits
- Retains O.E.M. wrist pins
- Four pistons per kit

R&D/JE Pistons	Part No.
8.6-1 Compression OEM Replacement for SHO/FZR	432-18861
9.5-1 Compression	432-18951
10.5-1 Compression	432-18105
11-1 Compression OEM Replacement for VXR/VXS	432-18111

R&D/CP Pistons	Part No.
8.6-1 Compression OEM Replacement for SHO/FZR	432-19861
9.5-1 Compression	432-19951
10.5-1 Compression	432-19105
11-1 Compression OEM Replacement for VXR/VXS	432-19111



FZR HIGH PERFORMANCE RACING CYLINDER SLEEVES YAMAHA 1.8L ENGINE

R&D High Performance Racing Sleeves are made to precise specifications specific for the Yamaha FZR/SHO Supercharged engine. R&D Racing Sleeves install easily and properly using the flanged "top hang" register design. The "top hang" design when installed and seated properly will not drop or slip which will allow 100 percent head gasket contact for a positive head gasket seal. R&D Racing Sleeves are manufactured from the highest grades of centrifugally cast "Molly 2000" Chrome Molly Iron Alloy to provide superior strength and hardness. Trouble free installation, boring, and honing using kit supplied installation instructions and tips on final hone specifications for O.E.M. cast and R&D Forged Racing Piston Kits are included. When the time comes to repair wavy, scored, seized, or worn cylinders trust the pros at R&D. We have been re-sleeving race engines for over 40 years. *Sleeves are sold individually.*

Description	Part No.
SHO/FZR High Performance Racing Cylinder Sleeves	432-18000
LA Sleeve Yamaha 1.8L Engine Cylinder Sleeve	YA-5688



R&D/CARRILLO HIGH PERFORMANCE RODS

Carrillo is recognized as one of the finest manufactures of connecting rods for high performance engines. Carrillo connecting rods are a precision, high strength, quality product that reflects the optimum balance between lightweight and durability. The Light weight forged design is substantially stronger and lighter than the OEM rod and will deliver the strength needed to perform reliably under high horsepower supercharged and turbo applications. R&D recommends upgrading to performance rods when using the R&D Monster C3-11 & C5-11 Supercharger Wheel or R&D Turbo Kit. Rod kit comes complete with Silicone Bronze wrist pin bushing and high strength fasteners.

R&D recommends upgrading to our High Performance Pistons and Rods in applications producing over 300 H.P. @ sustained RPM's 8,000+.

Description	Part No.
R&D/Carrillo High Performance Rods (4 Rod Set)	672-18000



RIVA PRO-SERIES 4-STROKE CYLINDER HEAD STUD KITS

Riva's ultra high strength cylinder head stud kit is essential equipment when upgrading internal components on your high boost Yamaha engine. Precision machined from premium grade 8740 alloy and heat treated to exacting tolerances, these studs dramatically increase reliability & ease of maintenance. Key Benefits Include:

- Superior material & heat treat process provide 10X better fatigue strength than OEM bolts.
- Studs provide improved alignment of cylinder head and gasket for increased reliability and ease of maintenance.
- More accurate & consistent torque loading provides a more uniform clamping force on head gasket.
- Helps prevent blown head gaskets and assures optimum engine sealing.

Description	Part No.
RIVA Pro-Series Cylinder Head Stud Kits	RY10040-HSK
FX-SHO/FZR/FZS	

4 STROKE	YAMAHA
SYSTEMS	INATKE
GASKETS	ENGINE/
EXHAUST	EXHAUST
HANDLING	DRIVE LINE
ELECTRICAL	ELECTRICAL
WATERLINE	WATERLINE
& CONTROLS	STEEERING
BODY	BODY
ACCESSORIES	ACCESSORIES
SERVICE TOOLS	SERVICE TOOLS
HARDWARE	HARDWARE
CHEMICAL	CHEMICAL

YAMAHA
4 STROKE

INTAKE
SYSTEMS

ENGINE/
GASKETS

EXHAUST

DRIVE LINE
HANDLING

ELECTRICAL

WATERLINE
/BILGE

STEERING
& CONTROLS

BODY

ACCESSORIES

SERVICE TOOLS
/HARDWARE

CHEMICAL



R&D HIGH PERFORMANCE DUAL VALVE SPRING KIT

R&D has developed an economical solution for upgrading the valve train by offering a series of upgrade parts that will work great with the O.E.M. retainer and valve seals. R&D has documented that the seat tension or pressure on the stock springs is a low 52-55 pounds,

and coil bind on the stock springs occurs .050" after full lift on the stock cams. As an industry rule or standard, as boost levels are increased to the engine, the valve spring seat pressure should be increased 1-2 pounds per pound of boost. As an industry rule, as RPM's are increased, the spring pressure at full lift should be increased as well to reduce or eliminate valve float at high rpm frequencies. With the stock springs "short lift travel" shimming is NOT an option. Valve Springs MUST be upgraded. Also to consider is valve spring travel at full cam lift, and to have enough spring clearance freedom to run high performance camshafts or add additional spring tension pressures without coil bind issues. The R&D spring kit parts were developed and used with stock retainers during the 2009 season and have proven their performance with an APBA/IJSBA Pro Open National Championship. R&D dual springs are a "lightweight design" and manufactured from ultra clean, high tensile material with multi step surface treatments to improve fatigue strength and reliability. NOTE: R&D Spring Kits must use the R&D Bottom Spring Retainer Cups kit Pt. # 612-93006 for proper assembly and seat pressures!

Engine Tuning Features

- 70-75 pounds at seat, 140-150 pounds at full lift (standard spec.)
- Shim friendly, add R&D spring collar base shims to add 2 pounds per .010 shim
- Allows the use of higher lift cams (up to +.080)
- Linear spring pressure curve allows smooth precision valve control
- High performance materials and surface finishes add to reliability

Description	Part No.
R&D High Perf Dual Valve Spring Kit (16 per kit)	612-93001



R&D HIGH PERFORMANCE VALVE SHIM KIT

The R&D spring base collar "shims" offer precision valve spring tension shimming to fine tune spring seat pressures based on boost pressures the engine will run at. The R&D shim kits are offered in the thicknesses of .010", .020", and .030".

Description	Part No.
R&D .010" Thick Shim Kit (set of 16)	612-93003
R&D .020" Thick Shim Kit (set of 16)	612-93004
R&D .030" Thick Shim Kit (set of 16)	612-93005



R&D HIGH PERFORMANCE BOTTOM SPRING RETAINER CUPS

R&D spring retainer cups will install under the R&D valve spring and support and house the bottom of the spring securely. The R&D Spring Retainer Cups must be used with the R&D spring kits for proper assembly. Use R&D Valve Spring Shim Kits to fine tune valve spring seat pressure.

Description	Part No.
R&D High Perf Bottom Spring Retainer Cups (set of 16)	612-93006



R&D HIGH PERFORMANCE VALVE STEM SEAL KIT

R&D offers High Performance Valve Stem Seal Kits manufactured from only the best high quality Viton rubber materials that will resist high valve guide and oil temperatures to maintain a good valve seal in all

high rpm, high performance applications. When valve springs are changed out or periodic head service work is being performed, trust R&D Valve Stem Seal Kits at any performance level.

Description	Part No.
R&D High Performance Valve Stem Seal Kit	612-93007



RIVA YAMAHA 1.8L ENGINE PERFORMANCE VALVE SEALS

Our high quality viton seals are extremely resistant to heat and abrasion. Superior sealing keeps unwanted oil from contaminating combustion chambers and prevents air leakage through valve guides. A precision seal removal & installation tool (RY19040-VST) is available separately. Sold in sets of 16.

Description	Part No.
RIVA Yamaha 1.8L Engine Performance Valve Seals	RY19040-PVS



VA YAMAHA 1.8L ENGINE VALVE RETAINER UPGRADE KIT

Our Valve Retainer Upgrade Kit increases the reliability of your engine by reducing the possibility of valve float at high rpm. Includes 16 lightweight, precision-machined titanium valve retainers. A must for IJSBA & APBA Stock Class race craft.

NOTE: For modified engines (Stage 3 & above) we recommend the complete RIVA Valve Train Upgrade Kit (part # Ry19040-VTU).

Description	Part No.
RIVA Yamaha 1.8L Engine Valve Retainer Upgrade Kit	RY19040-SRU



RIVA VALVE TRAIN UPGRADE KIT

Riva's Valve Train Upgrade Kits increase the reliability of your modified engine by reducing the possibility of valve float at high rpm. Includes light-weight, precision-machined titanium valve retainers, racing valve springs, and base washers.

Description	Part No.
RIVA FX-SHO/FZR/FZS Valve Train Upgrade Kit	RY19040-VTU



RIVA YAMAHA HIGH PERFORMANCE VALVE SET



RIVA High Performance Valve Kits are engineered to improve reliability and performance in high-boost supercharged & turbocharged engines. Intake valves are built from high grade EV-8 (24-4N) stainless that is extremely resistant to corrosion. Exhaust valves are built from inconel alloy (IN-751) that is highly resistant to heat

damage. Valve heads have been redesigned for increased air flow and durability. Valve stems feature hard-chrome plating for superior wear & lubricity. Kits include high strength valve locks, precision machined from 4130 chromoly.

Drop-in Valve Kits: Standard size drop-in direct replacement valves require no machining of cylinder head.

Oversized Valve Kits: +1mm Intake/+1mm Exhaust valves deliver more air flow (requires machining of cylinder head).

Key Features:

- Stronger & lighter than stock valves.
- Redesigned valve heads for improved air flow & strength.
- High grade stainless intake valves resist corrosion.
- Inconel exhaust valves resist heat from high boost applications.
- Valve stems are hard-chrome plated for improved wear.
- Includes high strength valve locks.
- Sold in sets of 16 (8 Intake/8 Exhaust).

Description	Part No.
RIVA Yamaha High Performance Valve Set	RY19040-HPV-0
	(Standard/Drop-in)
RIVA Yamaha High Performance Valve Set	RY19040-HPV-1:1
	(+1mm Intake / +1mm Exhaust)

Installation



Removal

RIVA YAMAHA 1.8L ENGINE VALVE SEAL TOOL

This handy tool provides easy removal and installation of valve stem seals on Yamaha 1.8L engines. Allows seal installation during fitting of valve train upgrade kit without removing cylinder head.

Key features:

- Prevents seal distortion & gouging.
- Precision machined from 6061 aluminum & anodized.
- Knurled handle for positive grip.

Description	Part No.
RIVA Yamaha 1.8L Engine Valve Seal Tool	RY19040-VST



R&D VALVE STEM CONCENTRICITY GAUGE

The R&D Valve Stem Concentricity Gauge is a testing tool to check the roundness and trueness of valves. Small valves can distort or bend from heat produced in high performance supercharged or turbo charged engines. To achieve a perfect seal on the seat the valve needs to be concentric and true in every dimension. Gauge is fully adjustable to accommodate a variety of valve sizes and features a rigid, positive stop that can be set once and the trueness for an entire set of valves can be measured. Kit comes complete with dial indicator accurate to .001". This is a must have tool for any engine builder to get the most out of your high performance 4 stroke engine.

Description	Part No.
R&D Valve Stem Concentricity Gauge	612-80010



RIVA VALVE COMPRESSION TOOL

Riva's overhead Valve Compression Tool allows easy removal of valve springs and keepers without removing cylinder head. Includes compression adapter to pressurize cylinder keeping valves in place during removal of stock springs and keepers. Fits both Yamaha 1.8L & Kawasaki 1.5L 4-stroke engines.

Description	Part No.
RIVA Valve Compression Tool	RY19040-VCT
Fits Yamaha 1.8L & Kawasaki 1.5L 4-stroke	



FZR VALVE SPRING COMPRESSION TOOL KIT

The R&D Valve Spring Compression Tool Kit allows easy removal of the intake or exhaust valve springs and keepers without removing the cylinder head. R&D recommends using the compression adapter from a compression gauge kit to pressurize cylinder keeping valves in place during removal of springs and keepers.

Description	Part No.
FZR Valve Spring Compression Tool Kit	612-92013



FZR CAM TENSIONER TOOL

The R&D Cam Tensioner Tool is designed to mechanically spring preload the cam chain in order to set and verify cam timing. This eliminates the process of pressurizing the hydraulic cam tensioner to verify cam timing.

Description	Part No.
FZR Cam Tensioner Tool	612-92015

4 STROKE	YAMAHA
SYSTEMS	INATKE
GASKETS	ENGINE/
EXHAUST	EXHAUST
HANDLING	DRIVE LINE
ELECTRICAL	ELECTRICAL
WATERLINE	WATERLINE
/BLIGE	/BLIGE
& CONTROLS	STEERING
BODY	BODY
ACCESSORIES	ACCESSORIES
SERVICE TOOLS	SERVICE TOOLS
/HARDWARE	/HARDWARE
CHEMICAL	CHEMICAL

R&D YAMAHA FZ/FZR/SHO RC1 RACING CAM KIT

R&D's RC1 Recreational/Racing Camshaft kit offers a great boost in horsepower for the recreational rider/racer who wants as much lift and duration that can be "Bolted In" without valve spring changes or valve guide machining. The R&D RC1 will install and work well with O.E.M. valve springs and retainers. The RC1 is a great choice for recreational and offshore riding or racing targeting the 7500-8500 RPM range for top end power while also improving low and mid range performance. The secret to the R&D cam lobe is in the precision grind finish on the cams base circle and duration at .050". R&D maintains strict specifications in this area of the cam lobe which is the key to having strong vacuum, a great idle tune, and clean acceleration performance.



Overall lobe Lift and Durations are increased to allow as much lift as possible and still run O.E.M. "uncut" valve guides. R&D has improved the lobe profile with "state-of-the-art" technologies that will reduce valve lifter friction and improve valve lifter wear. The R&D "boost friendly" lobe profiles increased lift and duration will produce a noticeable horsepower increases and work well with C1, C3, and C5 Monster Wheels and also work well with R&D R1, R2, and R3 ECU Reprogramming Services. R&D RC1 custom cams can be installed easily and shimmed with basic hand tools and the O.E.M. service manual in as little as two hours without the removal of the head, or any valve spring or retainer parts. Call R&D today for further details and specifications for all your camshaft and valve train upgrades.

- Aggressive throttle response, increased overall horsepower
- Increased rpm performance (150-200 RPM Gain)
- Increased lift and duration (.368" lift and 6° degrees more duration)
- LC and LSA tunable (with R&D Cam Gears)
- 10-15 Bolt on Horsepower up grade
- R&D R1, R2 and R3 ECU Compatible
- Works well with R&D Valve Spring Kit upgrades
- Easy installation

NOTE: The R&D RC1 Recreational Camshaft Grind Specifications have been extensively endurance tested to be the best lobe profile for recreational riding or offshore racing. The lift and duration are similar to the Yamaha 1800 N.A. cam with a total lift average of .368". The duration on the RC1 cam is less at .050" lift over the N.A., however, the same 6° degree duration advantage is in the recipe. That puts the RC1 comparable on lift, equal on overall duration and a strong low end vacuum to allow the use of R1, R2, and R3 ECU's. R&D has worked hard in the duration curve area of the cam paying careful attention to the duration at .050" and overall added duration.

The R&D recreational camshaft kit is a performance modification regrind that is performed in a normal 2-3 day turnaround to your existing camshaft cores. R&D also stocks Camshaft kits that can be mail ordered direct with a reasonable additional cam core charge. R&D camshaft specifications have been performance tested against the 1800 naturally aspirated cams, and clearly, there is no comparison in the tune ability area. R&D suggests that the FZ/FZR, and SHO supercharged engines should benefit greatly from a supercharger or turbocharger specific cam lobe profile and design. If installing the R1 Cams with R&D Pro Tune Cam Timing Gears, a MoTeC or comparable ECU must be used for tuning as aggressive lobe center changes will reduce engine vacuum to lower than 15 inches and special custom tuning will be required. R&D RC1 cams are a precision tolerance regrind. Valve lifter re-shimming will be necessary. R&D will supply shimming specifications with each cam set that will make valve adjustment easy. R&D recommends the use of Hot Cams Shim Kits also available from R&D.

Description	Part No.
R&D FZ/FZR/SHO RC1 Racing Cam Kit	612-93009

R&D YAMAHA FZ/FZR/SHO RC2 RACING CAM KIT

R&D's new RC2 Racing Camshaft kit offers a serious boost in horsepower for the racer who wants as much lift and duration that can be safely "Bolted In" without valve guide or spring base machining. The R&D RC2 Cam lobe profile has all of the same features in concept and design as our RC1 recreational lobe, except for the increased lift and duration. The secret to the R&D cam lobe is in the precision grind finish on the cams base circle and duration at .050". R&D maintains strict specifications in this area of the cam lobe which is the key to having strong vacuum, a great idle tune, and clean acceleration performance.

Overall lobe Lift and Durations are increased to allow as much lift as possible and still run O.E.M. "uncut" valve guides. R&D has improved the lobe profile with "state of the art" technologies that will reduce valve lifter friction and improve valve lifter wear. The R&D "boost friendly" lobe profiles increased lift and duration will produce a noticeable horsepower gain and can also be tuned to custom LSA (lobe separation angles) when using R&D "Pro Tune" Cam Gears (Pt. # 612-93008). The R&D RC2 will produce noticeable horsepower gains over R&D RC1 recreational cams with improved gains from idle to wide open throttle. The RC2 Cam Kit really goes to work adding top end pulling power in the 8500-9500 rpm zone. R&D custom cams can be installed easily and shimmed with basic hand tools and the O.E.M. service manual. R&D High Rev Valve Spring and shim kit parts are required for the RC2 Cam Kit to work properly without coil bind damage. Call R&D today for further details and specifications for all your camshaft and valve train upgrades.

NOTE: The R&D RC2 requires the installation of R&D's High Performance Valve Spring kit as the O.E.M. valve springs will run into coil bind with the added lift on the RC2 lobe profile. The RC2 will also require the use of a stand alone ECU system such as a MoTeC M400 to custom tune the fuel and ignition for optimum performance.

- Aggressive throttle response, increased overall horsepower
- Increased rpm performance (RPM range increased to 9500)
- Increased CFM airflow
- Horsepower increase gain (with R&D Cam Gears)
- Aftermarket ignition is required for custom tuning
- Works well with R&D Valve Spring Kit upgrades (Required)
- Easy installation • Bolt on 25+ Horsepower Upgrade

NOTE: The R&D RC2 Racing Camshaft Grind Specifications have been Race Proven during the 2009 and 2010 racing seasons. No other camshaft has more lift and more duration than the RC2. The nearest competitor to date is the Yamaha 1800 N.A. Cam with a total lift average of .368". That puts the RC2 a full .020" higher. R&D has worked hard in the duration curve area of the cam paying careful attention to the duration at .050" and overall added duration. R&D is currently working on the RC3 Racing Cam available in mid October. The R&D RC2 camshaft kit is a performance modification that is performed in a normal 2-3 day turnaround to your existing camshaft cores. R&D also stocks Camshaft kits that can be mail ordered direct with a reasonable additional cam core charge. R&D suggests that the FZ/FZR, and SHO supercharged engines should benefit greatly from a supercharger or turbocharger specific cam lobe profile design and custom LC and LSA set up.

Description	Part No.
R&D FZ/FZR/SHO RC2 Racing Cam Kit	612-93010

YAMAHA FX-SHO/FZ/VXR/VXS • ENGINE



R&D YAMAHA FZ/FZR/SHO PRO TUNE ADJUSTABLE CAM GEAR KIT

R&D's Racing Cam Gear kit allows a huge boost in overall horsepower to be gained by custom tuning the camshafts LCA (lobe separation angle) set up. Tuning the LCA with R&D Pro Tune Cam Gears can add 200-300 RPM's, increased boost pressure, and 2-3 MPH to your existing engine package. Adjusting the camshafts LCA is a very simple "BOLT IN" modification with the R&D Pro Tune Adjustable Cam Gear Kit. Understanding the LCA concept principle is fairly easy. A wide LCA like found in the SHO and FZR will generally result in decreased valve overlap, later intake events, earlier exhaust events, and high intake manifold pressures which produce great idle, smooth accelerating with mild low and top end power. Wide LCA's are great for school buses and soccer mom vans. However, if strong mid range pull and top end horsepower is what you're looking for, then a narrower LCA will need to be generated. The R&D Pro Tune Cam Gear Kit allows the LCA (lobe separation) to be adjusted narrower which will generate increased valve overlap, earlier intake events, and later exhaust events. Resulting in snappier throttle response, increased mid range and top end power and more boost. Why spend big money on optional camshaft kits (i.e. 1800 N.A. cams) that have proven to offer too narrow of LCA compromising idle tune? Buy the R&D Pro Tune Cam Gears designed specifically to improve overall power at a fraction of the cost and provide an optimum overall tune. The R&D Cam Gear Kit offers four possible LCA combinations that allow the cams to be tuned depending on the type of riding or racing and type of fuel. In fact, R&D has built a specific engine designated for degreasing, checking and proving camshaft specifications. Depend on the Pro's at R&D to deliver all your horsepower needs.

- Aggressive throttle response, increased overall horsepower
- Increased rpm performance (+200-300 RPM Gain)
- Boost Pressure Increase (+1 pound) • 15-25 Horsepower Increase
- Precision CNC Billet/Ground Cam Gears (lighter than stock)
- R&D R1, R2, and R3 ECU Compatible
- Works well with R&D Cam Regrind and Valve Spring Kit upgrades
- Easy installation • Bolt on Higher Horsepower Upgrade

NOTE: R&D has determined that the O.E.M LCA is a WIDE 120 degrees stock, with an intake cam lobe center of 122.5 degrees. Considering the LCA timing facts, using the R&D Pro Tune Cam Gears to tune the cams will generate huge performance power gains. R&D has found in testing that a 2.5 degree LCA change will act similar to a 1 pound boost addition. Tests have proven that an R&D C1 or C3 compressor wheel and a 7 degree LCA change can have the same performance advantages as a 15 pound compressor wheel. Call R&D for constant power upgrade information as we are constantly at work looking for more.

Description	Part No.
R&D YAMAHA FZ/FZR/SHO Pro Tune Adjustable Cam Gear Kit	612-93008

R&D CAM TENSIONER GASKET



R&D's new Cam Tensioner Gasket has a metal reinforced center that enables it to be reusable.

Description	Part No.
R&D Cam Tensioner Gasket	080-21025



RIVA PRO-SERIES 4-STROKE CYLINDER HEAD GASKETS

Our Pro-Series Cylinder Head Gaskets were developed to withstand severe heat & pressure generated by high-boost and high horsepower applications delivering maximum reliability to your racing engine.

Key Benefits Include:

- Three layer stainless construction for durability & corrosion resistance.
- Viton coated & embossed surfaces for maximum sealing between head and cylinder block.
- Unique design promotes even torque load across sealing surface & requires no re-torque.

Description	Part No.
Riva Pro-Series Head Gasket Standard FX-SHO/FZR/FZS	RY10040-CHG-86



R&D FZR HIGH PERFORMANCE RACING HEAD GASKET



R&D High Performance Racing Head Gaskets were developed to replace the O.E.M. head gasket with a higher performing Multi Layer Steel Stack Design (MLS), utilizing state of the art materials proven to withstand extreme heat

generated from high cylinder pressures in high boost performance packages. Each gasket is deep dual embossed (both sides) and Viton Coated to promote a positive seal. Use the R&D Head Gasket with confidence in standard replacement situations or Pro Race Engines. Our race proven design maintains a positive seal with up to 24 pounds of boost. Available in STD 86, 86.5, 87, 87.5, and 88mm bore sizes. R&D also offers a "Super Thin" Gasket that will raise the compression level when changing piston ratio is not an option.

NOTE: R&D also offers Custom R&D/CP High Performance pistons to fit any bore size R&D Head Gasket. Gas porting also available upon request.

NOTE: NO need to re-torque the head bolts after initial installation which is a big plus on DOHC engines where cams would otherwise need to be removed. Head torque specifications are included with each gasket

Description	Part No.
R&D 86mm HP Head Gasket .027" 3 Layer	080-01800
R&D 86.5 HP Head Gasket .027" 3 Layer	080-01801
R&D 87 HP Head Gasket .027" 3 Layer	080-01802
R&D 87.5 HP Head Gasket .027" 3 Layer	080-01803
R&D 88 HP Head Gasket .027" 3 Layer	080-01804
R&D HP Head Gasket 0.18" 2 Layer (Specify Bore Sz.)	080-01810

4 STROKE	YAMAHA
INATKE SYSTEMS	
ENGINE/ GASKETS	
EXHAUST	
DRIVE LINE HANDLING	
ELECTRICAL	
WATERLINE /BILGE	
STEERING & CONTROLS	
BODY	
ACCESSORIES	
SERVICE TOOLS /HARDWARE	
CHEMICAL	



FZR
112-18001

R&D FZR AQUAVEIN INTAKE GRATE

The huge FZR pump intake demands strength and an extra large wing for maximum hook up. The new R&D FZR grate utilizes an all new ultra strong 3 bar front

mount strut design to support a new "extra wide" forward mounted wing that is guaranteed to top load the FZ pump with enough water to stay hooked up and moving forward in the roughest water conditions. The new "SUPER DEEP" race legal bars are the biggest and strongest we have ever built to deliver unmatched strength. The new 3 bar concept and "Flat Faced" wide wing proved out to provide superior cornering over previous single bar designs. Big pump inlets need big grates, and that's what we have built.

* For proper installation R&D recommends the use of the R&D Pump Shoe Seal Kit (Pt. # 162-00007)

Description	Part No.
R&D FZR Aquavein Intake Grate	112-18001



FX SHO
112-18000



R&D AQUAVEIN INTAKE GRATE

Description	Part No.
R&D FX SHO Aquavein Intake Grate	112-18000
R&D VXR/VXS Aquavein Intake Grate	112-18020



R&D PUMP SEAL KIT

R&D's new pump seal kit stuffs up all the unwanted cavities in the pump shoe that aid in producing cavitation. This kit offers a way to seal the pump shoe, which will reduce cavitation and increase pump efficiency and performance.

Description	Part No.
FX SHO Pump Seal Kit for OEM Intake Grate	162-00003
FX SHO Pump Seal Kit for Riva Racing Intake Grate	162-00004
FX SHO Pump Seal Kit for R&D Aquavein Intake Grate	162-00005
FZR Pump Seal Kit for OEM Intake Grate	162-00006
FZR Pump Seal Kit for R&D Aquavein Intake Grate	162-00007
VXR Pump Seal Kit for Stock Scoop Grate	162-00008
VXR Pump Seal Kit for R&D Aquavein Intake Grate	162-00009



RIVA FZR/FZ STAINLESS STEEL TOP-LOADER INTAKE GRATE

Our revolutionary new intake grate for FZR/FZS delivers the ultimate in speed, hook up & strength. All new design features oversized top loader wing and optimized inlet ramp for closed course and offshore racing.

Bulletproof stainless steel construction makes this grate virtually indestructible and eliminates the need for additional restrictive support bars. Race bred design significantly reduces cavitation and provides superior handling along with unmatched durability in extreme conditions.

Description	Part No.
Riva FX Stainless Steel Top-Loader Intake Grate	RY22050-1



RY22040

RIVA YAMAHA INTAKE GRATE

Riva's Top-Loader intake grate improves hook up and handling in rough conditions. Center wing eliminates prop spin and cavitation found with the stock grate along with the

SHO/VXR's tendency to drop on its nose when the throttle is let off at high speeds. Powder coated to prevent corrosion.

Description	Part No.
Riva FX-SHO/08-10 FX Intake Grate	RY22040
Riva VXR/VXS Intake Grate	RY21030



FX-SHO - RY25040



FZR/FZS - RY25050

RIVA PUMP SEAL KITS

Dramatically reduce cavitation and prop spin with our easy to install Pump Seal Kits. Location specific, molded inserts fill the voids in OEM pump inlet shoe that bleed air into pump causing cavitation. Recommended for modified craft using aftermarket intake grates. Includes detailed installation instructions.

Description	Part No.
Riva FX-SHO Pump Seal Kit	RY25040
Riva FZR/FZS Pump Seal Kit	RY25050



R&D PRO SERIES RIDE PLATE

The new R&D Adjustable Ride Plate delivers a perfect balance of increased top speed performance, improved cornering capabilities, and superb straight line stability. The new adjustable design utilizes kit supplied shims to fine tune the performance for a perfect balance of speed/handling for rider weight or water conditions from drag to surf. Increased top speed performance and compromises nothing when turned loose in rough water conditions. The design utilizes the vital OEM hull protection stainless steel pads, which safely disperse the pressure loads from the ride plate over a larger area on the hull. The new R&D FZR Adjustable Pro Series Ride Plate will meet the demands in performance whether being used for weekend recreational riding, closed course racing, surf, or offshore competition. Made in the USA from cast aluminum and powder coated for corrosion resistance.

- Top speed improvement
- Adjustable design
- Unique multi-step concept
- Improved straight line stability
- Significantly improved cornering
- Reduced chine walking on high speed sweepers
- Drives through chop with superior stability
- Retains reverse gate operation

Description	Part No.
R&D FZR Pro Series Ride Plate	122-18001
R&D VXR/VXS Pro Series Ride Plate	122-18004



FX SHO
122-18000

R&D HIGH PERFORMANCE RIDE PLATE

The new R&D SHO Pro Series Ride Plate will meet the demands in performance whether being used for weekend recreational riding,

closed course racing, or offshore competition. Increased top speed performance of .50 to 1 MPH over stock, and compromises nothing when turned loose in rough water conditions. Bow search with full fuel loads is alleviated completely.

- 1 MPH top speed improvement
- Unique multi-step concept
- Improved straight line stability
- Significantly improved cornering
- Reduced chine walking on high speed sweepers
- Drives through chop with superior stability
- Retains reverse gate mounting and operation

Description	Part No.
R&D FX SHO High Performance Ride Plate	122-18000



RIVA PERFORMANCE RIDE PLATE

Riva Ride Plate delivers the perfect balance of top speed and improved handling in a variety of water conditions and speeds. Its race bred design features deep channels for improved acceleration and traction in turns. Provides excellent straightline stability at high speed with reduced porpoising. Utilizes stock ride plate support brackets and accepts OEM speedo sensor.

Key Benefits Include:

- Superior handling performance.
- Quicker planing & improved top speed.
- Reduced porpoising.
- Improved straight line tracking at high speed.
- Race bred design.
- Improves acceleration, cornering and straight line handling.
- Turnable with included shims.
- Powder coated to prevent corrosion.
- IJSBA/APBA Race Legal.

Description	Part No.
RIVA FX-SHO Performance Ride Plate	RY21040
RIVA FZR/FZS Performance Ride Plate	RY21050
RIVA VXR/VXS Performance Ride Plate	RY21060



2010 WORLD FINALS • LAKE HAVASU, AZ
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YAMAHA
4 STROKE

INATKE
SYSTEMS

ENGINE/
GASKETS

EXHAUST

DRIVE LINE
HANDLING

ELECTRICAL

WATERLINE
/BILGE

STEERING
& CONTROLS

BODY

ACCESSORIES

SERVICE TOOLS
/HARDWARE

CHEMICAL

YAMAHA
4 STROKE

INTAKE
SYSTEMS

ENGINE/
GASKETS

EXHAUST

DRIVE LINE
HANDLING

ELECTRICAL

WATERLINE
/BILGE

STEERING
& CONTROLS

BODY

ACCESSORIES

SERVICE TOOLS
/HARDWARE

CHEMICAL

R&D YAMAHA FX-SHO/FZR/FZS SPONSON KIT



The new R&D Yamaha SHO Pro Series Sponson Kit was designed and developed with all new generation performance concepts in mind to deliver a whole new

level of handling and speed performance with offshore and closed course race proven adjustability options. The R&D Pro Series Sponson Kits have been extensively offshore, race track, and 1 and 2 up recreational tested to guarantee a comfortable setting for any riding style or condition! The R&D Sponson Kit will deliver higher top speed performance and a much smoother and more predictable ride over O.E.M. sponsons. Low speed and high-speed turns are a breeze with new found control. The secret to R&D's new generation concept is in the backing plate design with an aftermarket first, low pressure, low friction concept that breaks up and relieves speed robbing drag within the sponson's backing plate channel. The new R&D design staggers the sponson blades fins water trapping area to pick up less water in the front and more in the back. The stagger/step-up concept greatly reduces chine walk in high speed corners, while allowing more rear end grip. There is also a higher end recreational/race setting with enough grip for the best of pro's! Finally there is an aftermarket sponson kit that really does it all! More top speed due to less drag, less chine walking, racer preferred rear end grip, and unmatched straight line stability.

Description	Part No.
R&D FX-SHO Sponson Kit	122-01800
R&D FZR/FZS Sponson Kit	122-01801
R&D VXR/VXS Sponson Kit	122-01820

RIVA YAMAHA FX-SHO/FZR/FZS/VX SPONSON KIT



Unique blade design provides a significant improvement to the handling characteristics. Reduces rough water hunting and rolling sometimes experienced with stock sponsons. Sponson depth is

adjustable to control the amount of influence they have on craft. Easily installs to stock mounting points with our bulletproof mounting system that features billet inserts in sponson fins. Fits all Yamaha FX-SHO, FZR, FZS & VX models.

Description	Part No.
Riva FX-SHO/FZR/FZS/VX Sponsons Kit	RY2625

WORX RACING YAMAHA SHO/FZR/FZS SPONSONS



Fitting WORX sponsons provide unbelievable cornering, better control in the rough and predictable inline tracking while towing wakeboards or waterskiers. WORX sponsons are easy to fit, look great and bolt right into stock mounting holes.

Description	Part No.
Worx FX-SHO Sponsons Kit	WR542
Worx FZR/FZS Sponsons Kit	WR543



RIVA FZ PRO-SERIES STEERING SYSTEM

Introducing the ultimate race proven steering system for your Yamaha FZR/FZS. Fully adjustable design features a dual tube steering head for maximum strength & rigidity. Directly replaces bulky OEM mechanism with a stronger & lighter unit that provides variable height and tilt positions. Delivers a precision feel and the confidence to push your craft to the limit with improved dependability and comfort. Bulletproof bar clamp will accept any 7/8" handlebar or 1 1/8" bulge bar. Includes all necessary installation hardware and instructions.

Key Features:

- Superior strength & rigidity over OEM system.
- Billet stainless steel steering shaft is much stronger than the OEM aluminum shaft.
- Cutting edge race styling.
- Variable height and tilt adjustment.
- Accepts both 7/8" bars & 1 1/8" bulge bars.
- Billet steering arm features adjustable "quick turn" settings.
- Retains Off Throttle Steering system.
- Race tested & proven on 2010 IJSBA/APBA tours.
- All aluminum parts anodized to prevent corrosion.
- Standard 3.5" tubes provide adjustment +/- 1" from OEM low position.
- Optional 5-1/2" & 7-1/2" tubes provide additional height choices.

Description	Part No.
RIVA FZ Pro-Series Steering System	RY20050-U-3.5



SATO ENGINEERING FZR/FZS STEERING SYSTEM

This billet steering system is the ultimate upgrade for the new Yamaha FZ watercraft. The system is extremely strong and allows the rider to change to handlebars of their choice.

Description	Part No.
Sato Engineering FZR/FZS Steering System	SE-027020



RIVA VXR/VXS PRO-SERIES STEERING SYSTEM

Our VXR/VXS steering system directly replaces bulky OEM mechanism with a stronger & lighter unit that provides variable tilt adjustment. Delivers a precision feel and the confidence to push your craft to the limit with improved dependability and comfort. Bulletproof bar clamp will accept any aftermarket 7/8" handlebar or 1-1/8" bulge bar. Includes all necessary installation hardware and instructions.

Key Features:

- Superior strength & rigidity over OEM system.
- Billet stainless steel steering shaft is much stronger than OEM aluminum shaft.
- Cutting edge race styling.
- Variable tilt adjustment.
- Accepts both 7/8" bars & 1-1/8" bulge bars.
- Billet steering arm features adjustable "quick turn" settings.
- Retains Off Throttle Steering system.
- Integrated throttle cable retention bracket.
- All aluminum parts anodized to prevent corrosion.

NOTE: Requires use of aftermarket handlebars.

Description	Part No.
Pro-Series Steering System YAM VXR/VXS	RY20060-U

R&D FZR BILLET STEERING SYSTEM KITS



The new R&D Billet Steering System was developed and tested during the 2009 APBA/JSBA National and World Championships and is a proven winner in design and performance.

R&D's Billet design offers superior strength and lighter weight over the OEM steering system. Utilizing a 7/8" MX handlebar, allows the rider to personalize the bar setup to their liking. R&D chose the 7/8" diameter bar type over the Fat bar, because of the space watercraft bars need for start/stop switches, VTS switches, and custom trim lever systems. When using fat or taper bars, the bar widths are forced wider than comfortable in a watercraft application.

R&D offers two types of Handlebars for the new billet steering system, MX Low for short to average height pilots and MX high for taller pilots. Handlebars sold separately. The R&D Steering System is the way to go when setting up the ergonomic steering comfort "your way". Available for FZR/FZS and SHO models.

- 3 pounds lighter than stock system
- Easy installation (1hour) includes all hardware and instructions
- Increases overall comfort and handling performance
- Allows custom bar setups (set up your way)
- Utilizes 7/8" diameter handlebars of our choice
- Adds a true "Factory Racing" look to your watercraft

Description	Part No.
FZR / FZS Billet Steering System	512-18000
FX-SHO Billet Steering System	512-18001
R&D MX Low Bar	512-18010
R&D MX High Bar	512-18012



R&D FX-SHO/FZR/FZS/VXR/VXS AUTO TRIM NOZZLE KIT

The R&D FX-SHO/FZR/FZS Auto Trim Kit was developed to accommodate the O.E.M. VTS Quick Shift System with a fully adjustable and fully automatic trim system! The R&D Auto Trim automatically drops a rider preferred and adjustable 2-8 degrees. Drive from turn to turn never worrying whether the trim is in the best position for perfect turn negotiation! The R&D Auto Trim allows you to set the trim up your way to carve perfect turn every time! For long straight rides the R&D Auto Trim System works in conjunction with O.E.M VTS, so stock trim settings are retained, while the R&D Auto Trim takes over in the turns. The combination allows the best of both worlds for recreational and closed course riding!

Description	Part No.
FX-SHO/FZR/FZS/VXR/VXS Auto Trim Nozzle Kit	162-18020



R&D FX-SHO/FZR/FZS/VXR/VXS HYDRO FORCE STEERING NOZZLE

R&D's new Hydro Force Steering Nozzle for the FX-SHO/FZR/FZS/VXR/VXS is a direct replacement nozzle. The new lengthened design delivers a full 1 MPH speed gain over stock. The adjustable pivot position improves the turning radius allowing you to carve tighter turns with a more positive feel. Improved performance through speed, acceleration and handling.

Description	Part No.
R&D FX-SHO/FZR/FZS/VXR/VXS Hydro Force Steering Nozzle	162-14000



R&D FX-SHO/FZR/FZS VTS QUICK SHIFT CAM KIT

The R&D FX-SHO/FZR/FZS VTS Trim Driver Cam is a cam device that installs directly in place of the O.E.M. plastic VTS trim driver cam. The R&D cam is designed to recalibrate the trim position amount from an O.E.M. 7 to 8 degree per shift to a finer and speed friendly 4 degree per shift. The O.E.M. SHO neutral position setting is 85 degree or 5 degree up from horizontal zero. The new recalibrated position with the new R&D Trim Cam is 87.5 degrees or 2.5 degree up from horizontal zero. The R&D Trim Cam will deliver a more positive group of adjustments that will allow much better turning capabilities, as well as finer adjustments for rough water conditions. The R&D Trim Cam will work with the O.E.M. trim nozzle assembly, or the R&D Auto Trim Kit.

Description	Part No.
R&D FX-SHO/FZR/FZS VTS Trim Driver Cam Kit	162-18010

4 STROKE	YAMAHA
SYSTEMS	INAKE
GASKETS	ENGINE/
EXHAUST	EXHAUST
HANDLING	DRIVE LINE
ELECTRICAL	ELECTRICAL
WATERLINE	WATERLINE
& CONTROLS	/BILGE
BODY	STEERING
ACCESSORIES	& CONTROLS
SERVICE TOOLS	BODY
HARDWARE	ACCESSORIES
CHEMICAL	SERVICE TOOLS

YAMAHA
4 STROKE

INTAKE
SYSTEMS

ENGINE/
GASKETS

EXHAUST

DRIVE LINE
HANDLING

ELECTRICAL

WATERLINE
/BILGE

STEERING
& CONTROLS

BODY

ACCESSORIES

SERVICE TOOLS
/HARDWARE

CHEMICAL



R&D FX-SHO/FZR/FZS/VXR/VXS PERFORMANCE EXIT NOZZLE

The new R&D cast aluminum exit nozzle is designed to fine tune the pump and prop to maximize performance and rpm. The new R&D exit nozzle is available in 2.5 and 5 degree up sweep angles. The 5 degree positive angle lightens the nose of the craft

and adds top speed; this is great for recreational use. The 2.5 degree delivers improved performance in rough water conditions by producing more nose pressure to drive the hull through the bumps; this design is perfect for closed course and offshore competition. Both types are available in bore sizes of 80, 80.5, 81, and 81.5. *Custom bore sizes from 80 to 90 available at no extra charge, specify size when ordering. The maintenance free R&D cast aluminum and powder coated one piece construction exit nozzle is the better alternative to a removable ring design. With the new R&D nozzle the OEM reliability and safety is retained, because there is not a removable ring sleeve to vibrate loose, falls out and gets wedged in the steering nozzle creating a whole new definition to the term BUCKING.

Custom bore sizes available at no extra charge, specify size when ordering

Description	Part No.
R&D Perf. Exit Nozzle 2.5 degree 80mm	162-82800
R&D Perf. Exit Nozzle 2.5 degree 80.5mm	162-82805
R&D Perf. Exit Nozzle 2.5 degree 81mm	162-82810
R&D Perf. Exit Nozzle 2.5 degree 81.5mm	162-82815

Description	Part No.
R&D Perf. Exit Nozzle 5 degree 80mm	162-85800
R&D Perf. Exit Nozzle 5 degree 80.5mm	162-85805
R&D Perf. Exit Nozzle 5 degree 81mm	162-85810
R&D FZR Perf. Exit Nozzle 5 degree 81.5mm	162-85815



RIVA FX-SHO/FZ PRO-SERIES REDUCTION NOZZLE

Our Pro-Series Reduction Nozzle is ideal for tuning your Yamaha pump combination to maximize performance. Nozzle exit diameter can be easily changed via interchangeable ring system. Looking for more RPM or acceleration power? Insert a larger

diameter ring. Want more top speed or less RPM? Install a smaller diameter ring. Nozzle includes three precision-machined stainless steel rings in graduated sizes (81, 82 & 83mm). Additional ring sizes available.

Note: Nozzle eliminates water spout function to maximize performance and conform to racing safety rules.

Description	Part No.
RIVA FX-SHO/FZ Pro-Series Reduction Nozzle	RY23040-N



R&D FX-SHO/FZR/FZS/VXR/VXS ANTI-CAVITATION CONE

Our Pro-Series Reduction Nozzle is ideal for tuning your Yamaha pump combination to maximize performance. Nozzle exit diameter can be easily

changed via interchangeable ring system. Looking for more RPM or acceleration power? Insert a larger diameter ring. Want more top speed or less RPM? Install a smaller diameter ring. Nozzle includes three precision-machined stainless steel rings in graduated sizes (81, 82 & 83mm). Additional ring sizes available. Note: Nozzle eliminates water spout function to maximize performance and conform to racing safety rules.

Description	Part No.
Anti-Cavitation Cone	162-18000



SHO/FZR R&D ANTI-CAVITATION TRANSOM PLATE MACHINING MODIFICATION

R&D's new SHO/FZR Anti-Cavitation Transom Plate Machining Modification service is now available. The engineers at R&D have been successful at reducing pump cavitation by removing the restriction in the OEM Transom Plate. The OEM Transom Plate has a 3mm taper that restricts water flow in front of the prop. Removing this restriction significantly reduces cavitation and improves holeshot and hook up with any prop type or diameter. The service includes line boring the Transom Plate and blue printing the new pump shoe diameter to blend with the R&D Aquavein Intake Grate, and the sealing surface of the transom plate where it mounts the hull is also improved by plugging the OEM casting pocket in the face of the Transom Plate with R&D's Sure Seal Urethane Material. R&D also offers the service to a new OEM Transom Plate available for immediate shipping.

Description	Part No.
Transom Plate Machining Service	162-18004
Complete new FZR Transom Plate w/Machining Service	162-18005
Complete new SHO Transom Plate w/Machining Service	162-18006



RIVA BILLET DRIVESHAFT SLEEVE KITS

Our precision machined Billet Driveshaft Sleeve is a direct replacement for the thin factory rubber hose that is prone to distortion and failure. Sleeve is constructed of 6061 aluminum and is anodized to prevent corrosion. Kit includes high quality silicon couplers and stainless steel clamps. This upgraded sleeve kit is highly recommended for performance applications due to increased pump pressure that accelerates failure of original rubber hose.

Description	Part No.
Billet Driveshaft Sleeve Kit FX/FZ All	RY30040-DSS
Billet Driveshaft Sleeve Kit VXR/VXS	RY30060-DSS

Skat-Trak^{USA} PERFORMANCE PRODUCTS



SKAT-TRAK FX-SHO/FZR/VXR/VXS 155-75-25 SWIRL IMPELLERS

RIVA Racing carries the complete line of Skat-Trak stainless steel Swirl impellers for Yamaha FX-SHO & FZ models. Let our performance experts assist you

with matching the correct impeller with your performance application. Includes a billet nose boot and impeller wrench.

Description	Part No.
Skat-Trak FX-SHO/FZR/FZS 11/19	SY557525SW1119
Skat-Trak FX-SHO/FZR/FZS 12/19	SY557525SW1219
Skat-Trak FX-SHO/FZR/FZS 12/20	SY557525SW1220
Skat-Trak FX-SHO/FZR/FZS 13/20	SY557525SW1320
Skat-Trak FX-SHO/FZR/FZS 13/21	SY557525SW1321
Skat-Trak FX-SHO/FZR/FZS 13/22	SY557525SW1322
Skat-Trak FX-SHO/FZR/FZS 13/23	SY557525SW1323
Skat-Trak FX-SHO/FZR/FZS 13/24	SY557525SW1324
Skat-Trak FX-SHO/FZR/FZS 13/25	SY557525SW1325



RIVA SOLAS DYNAPLY R-SERIES IMPELLER

This all new impeller delivers unmatched acceleration & top speed in Yamaha FX-SHO/FZ applications. The "R" Series impeller is precision tuned to

RIVA specifications using a pitch block fixture. This offers a higher level of consistency when matched with RIVA Performance Kits. Includes billet impeller cone that locks solidly into place with 3 stainless set screws. Ideal for Riva Stage 1 applications or higher levels of modification when matched with RIVA Pro-Series FX-SHO/FZ Reduction Nozzle (part# RY23040-N).

Description	Part No.
Riva Solas Dynafly Impeller 13/22R	YS-DF-13/22R

Solas Recommends:	Part No.
FX-SHO/FZ Stock Replacement Impeller	YS-DF-14/21
FX-SHO/FZ Limited Boat Replacement Impeller	YS-DF-15/22



FX-SHO/FZR/FZS/VXR/VXS IMPELLER SHAFT HOLDER TOOL

Developed specifically for the FX-SHO/FZR/FZS watercraft, this tool is required to change the impeller. 20mm splined.

Description	Part No.
FX-SHO/FZR/FZS/VXR/VXS Impeller Tool	TOOL #53



SKAT-TRAK FX-SHO/FZR TWIN IMPELLERS

The new Twin Prop design drives of the line much quicker than the traditional single prop, and offers a substantial increase in rough water hookup.

	Engine Mods	Pitch	Part No.
Main Drive	Stock	12/18	SY557525SWM1218
Main Drive	Limited	12/20	SY557525SWM1220
Main Drive	Supermod	13/23	SY557525SWM1323

	Engine Mods	Pitch	Part No.
Inducer	Stock	12/17	SY440ID1217
Inducer	Limited	12/17	SY440ID1217
Inducer	Supermod	14/18	SY440ID1418



FX-SHO/FZR/FZS/VXR/VXS R&D PRO COMP. CLUTCH SAVER BILLET DRIVELINE COUPLERS

R&D Performance is proud to announce the release of the new SHO/FZR Pro Comp. Clutch Saver Driveline Couplers. The new clutch saver design increases the rotational

mass of the 1800cc engine. The engineers at R&D added approximately 1.5 pounds of weight to the driveline couplers to increase the rotational mass of the engine. The added mass dampens the moment of inertia and absorbs shock that the supercharger clutch and pump impeller receive each time the engine accelerates. The result is smoother engine performance with added clutch life and reduced prop shock and cavitation. These precision couplers are made from billet aircraft aluminum and CNC machined to exact tolerance. Also available for MOD SHOP conversion hull kits.

Description	Part No.
SHO/FZR/VXR/VXS	612-01801



YAMAHA
4 STROKE

INATKE
SYSTEMS

ENGINE/
GASKETS

EXHAUST

DRIVE LINE
HANDLING

ELECTRICAL

WATERLINE
/BLIGE

STEERING
& CONTROLS

BODY

ACCESSORIES

SERVICE TOOLS
/HARDWARE

CHEMICAL



RIVA FZ BILLET MIRROR BLOCK-OFF KIT

Riva's billet Block-off Kit covers the opening left in the hood when mirrors are removed for competition. Enhances craft's sleek lines and aerodynamics. Easy installation requires no special tools. Precision machined from billet aluminum and anodized to prevent corrosion. Includes installation hardware.

Description	Part No.
Riva FZR/FZS Billet Mirror Block-Off Kit	RY5-FZ-MB



RIVA VXR/VXS/VX MIRROR BLOCK-OFF KIT

Riva's billet Block-off Kit covers the opening

left in the hood when mirrors are removed for competition. Enhances craft's sleek lines and aerodynamics. Easy installation requires no special tools. Precision machined from billet aluminum and anodized to prevent corrosion. Includes rubber mounting pad & installation hardware. Fits all 2010-2011 VX & 2011 VXR/VXS.

Description	Part No.
RIVA VXR/VXS/VX Mirror Block-off Kit	RY5-VXR-MB



RIVA VXR/VXS/VX REAR STORAGE TUB

Add 4 gallons of convenient under-seat storage to your VX or VXR/VXS watercraft. Durable plastic storage tub removes easily to allow access for maintenance.

Fits all 2010-2011 VX & 2011 VXR/VXS

Description	Part No.
RIVA VXR/VXS/VX Rear Storage Tub	RY4-RST-060

RIVA PERFORMANCE RECOMMENDATION PARTS LIST

YAMAHA FX-SHO - STAGE 1

PERFORMANCE DATA

Stock 67 MPH @ 7,500

Stage 1 70-71 MPH @ 7,600 RPM

Note: All testing performed with 1/3 tank of fuel; trim neutral.

Stage Performance Parts

Description	Quantity	Part No.
Performance Power Filter Kit	1	RY13040
Intake Manifold Upgrade Kit	1	RY12040-IMUK
Free Flow Exhaust Kit	1	RY16040
Pump Seal Kit	1	RY25040
Top-Loader Intake Grate	1	RY22040
R-Series DynaFly Impeller	1	YS-DF-13/22R
Performance Ride Plate	1	RY21040

YAMAHA FZR - STAGE 1

PERFORMANCE DATA

Stock 67 MPH @ 7,500

Stage 1 70-71 MPH @ 7,600 RPM

Note: All testing performed with 1/3 tank of fuel; trim neutral.

Stage Performance Parts

Description	Quantity	Part No.
Performance Power Filter Kit	1	RY13040
Intake Manifold Upgrade Kit	1	RY12040-IMUK
Free Flow Exhaust Kit	1	RY16040
Pump Seal Kit	1	RY25050-1
Stainless Steel Intake Grate	1	RY22050-1
R-Series DynaFly Impeller	1	YS-DF-13/22R
Performance Ride Plate	1	RY21050



2011 APBA HOT PRODUCTS
MARK HAHN MEMORIAL HAVASU 300

YAMAHA FX-SHO/FZ/VXR/VXS • SEAT COVER



JETTRIM CUSTOM ORDER SEAT COVER

Description	Part No.
Jettrim FZR Spike Design Custom Seat Cover	YFZR101
Jettrim FZR Retro Design Custom Seat Cover	YFZR102
Jettrim FZS Retro Design Custom Seat Cover	YFZS101
Jettrim FZS Spike Design Custom Seat Cover	YFZS102
Jettrim FX-SHO Custom Design Seat Cover	YSHO101
Jettrim VXR Custom Design Seat Cover	YVXR101

The upholstery outline for your custom designed seat cover is available in the Hot Products Price List.

PRE-COLORED HOT PRODUCTS RECOMMENDED JETTRIM SEAT COVERS

FZR Series



YFZR101-B
Top: Black Diamond Plate Non-Slip Vinyl
Front & Rear Side: Carbon Black Large
Spike: Smooth Light Green Vinyl
Rear: Black Ostrich
Stitch: Green Thread on Top



YFZR101-C
Top: Medium Slip Silver Vinyl
Front & Rear Side: Carbon Black Large
Spike: Smooth Light Green Vinyl
Rear: Black Ostrich
Stitch: Blue Thread on Top



YFZR102-B
Top: Medium Slip Black Vinyl
Front & Rear Side: Carbon Black Large
Front Collar & Band: Smooth Light Green Vinyl
Rear: Smooth Light Green Vinyl
Stitch: Bright Green Thread on Top



FZS Series



YFZS101-A
Front: Kevlar Black
Top 1: Medium Slip Silver
Top 2: Smooth Grain Yellow
Rear Top: Medium Slip Black
Rear Tail: Smooth Grain Yellow
Side: Carbon Black
Tail: Medium Slip Black
Rear Side: Carbon Dark Silver



YFZS101-B
Front: Kevlar Black
Top 1: Medium Slip Silver
Top 2: Smooth Grain Red
Rear Top: Medium Slip Black
Rear Tail: Smooth Grain Red
Side: Carbon Black
Tail: Medium Slip Black
Rear Side: Carbon Dark Silver



YFZS102-B
Top 1: Medium Slip Silver
Top 2 & Rear Top: Medium Slip Black
Rear Side: Smooth Grain White
Side 1: Kevlar Black
Spike: Smooth Grain Light Orange
Side 2: Smooth Grain White
Rear Tail: Carbon Black

VXR Series



YVXR101-A
Top Front: Medium Slip Silver Vinyl
Top Rear: Medium Slip Black
Front Collar: Carbon Dark Blue Vinyl
Center Band & Tail: Carbon Dark Blue Vinyl
Side & Back Rest: Smooth Black Vinyl
Stitch: Blue Thread on Top



YVXR101-B
Top Front & Rear: Medium Slip Black Vinyl
Back Rest: Carbon Black
Front Collar: Silver Diamond Vinyl
Center Band & Tail: Silver Diamond Vinyl
Side: Smooth Black Vinyl
Stitch: Silver & Black Thread



YVXR101-C
Top Front & Rear: Non Slip Black Diamond Plate Vinyl
Front Collar: Smooth Grain Black Vinyl
Center Band & Tail: Smooth Grain Black Vinyl
Side: Carbon Black
Back Rest: Bright Orange
Stitch: Orange Thread

4 STROKE	YAMAHA
SYSTEMS	INATKE
GASKETS	ENGINE/
	EXHAUST
HANDLING	DRIVE LINE
ELECTRICAL	
WATERLINE	/BLIGE
STEERING	& CONTROLS
BODY	
ACCESSORIES	SERVICE TOOLS
/HARDWARE	
CHEMICAL	