



Performance Cylinder Head Kit (60T)

PART# - RY 100313

INSTALLATION INSTRUCTIONS

PARTS LIST

18	8 x 55mm SS Socket Head Bolts
18	8mm SS Washers
1	5 1/4" L X 1/2" I.D. Waterline
2	1/2" BARBED X 1/4" NPT 90* BRASS FITTINGS
3	1/2" BARBED X 1/4" NPT 45 Degree BRASS FITTING
1	1/2" BARBED 'T' FITTING
2	ALUMINUM SPACERS
5	HOSE CLAMPS
4'	1/2" Waterline
1	1/2" 45 degree water bypass

NOTE: This is a Riva Racing component. It is designed for competition use only. Failures caused by the use of this component are not covered by the Yamaha limited warranty.

***WARNING! DISCONNECT BATTERY BEFORE PERFORMING WORK! ***

****NO SMOKING****

Gasoline and gasoline fumes are highly flammable and explosive. Handle with care!

1. Disconnect battery cables from battery.
2. Disconnect waterlines attached to cylinder head and remove spark plug caps. **NOTE: Set aside hose clamps. These will be used later.**
3. Remove hardware holding OE exhaust brackets in place and carefully remove OE cylinder head. **NOTE: Set aside the two OE cylinder head bolts holding the front exhaust head pipe bracket to OE cylinder head. These will be used later.** Cover pistons with clean rags to prevent any foreign objects from entering motor. Carefully clean gasket surface on cylinders and OE head gasket (avoid using carburetor cleaner or gasket removing chemicals on head gasket). .
NOTE: Take care not to scratch cylinder-cylinder head mating surface when removing cylinder head and cleaning.

Proceed to step 5 if Performance Cylinder Head Girdle Hardware Kit (part# RY100389-H) is not utilized.

4. Remove one of the twelve OE cylinder bolts holding cylinder to upper crankcase and replace with one of the twelve supplied 10mm X 70 MM stud nut bolts. Torque stud nut bolts to 40 Nm (4.0m/kg • 28ft/lbs). Repeat for remaining 11 OE cylinder bolts.

INSTALLING CYLINDER HEADS:

5. With gasket clean, spray gasket with sealant. (We recommend using Permatex® Copper SPRAY-A-GASKET® Hi-Temp Adhesive Sealant. This is available through Riva Motorsports parts department or most automotive stores. Please follow manufacturer's instructions when using sealant.) **NOTE: If OEM head gasket requires replacing use Yamaha Genuine Part 60T-11181-00-00 only.**

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INSTALLATION INSTRUCTIONS (CONT.)

6. Remove rags from the cylinders. Install OE head gasket into position on cylinders making sure gasket follows shape of cylinders.
7. Install cylinder head bodies taking care not to move OE cylinder head gasket. The proper position is indicated when 1/4" cooling outlet on top of cylinder head body is on exhaust manifold side of motor. You will need to make a small modification to the OEM head gasket to make room for the girdled hardware. You can use a rat-tail file to make the cuts in the gasket. **(Refer to illustration #1)**.
8. Loosely install twelve of the supplied 8mm X 55mm bolts with washers into locations 1-6 of center and rear cylinder head bodies **(Refer to illustration #3)**. Tighten and torque bolts in two-step order sequence as shown in illustration # 3.
NOTE: Use Loctite 572 on all bolts.
- 9a. **OE EXHAUST HEAD PIPE APPLICATIONS:** Loosely install four of the remaining supplied 8mm X 55mm bolts into holes 1,3,4 & 6 of front cylinder head body **(Refer to illustration #3)**. Next, install the front OE exhaust bracket using the two OE exhaust bracket/cylinder head bolts and the two supplied aluminum barrel spacers (install barrel spacers under exhaust bracket on cylinder head cover) in locations 2 & 5. Tighten and torque all bolts in two-step order sequence as shown in illustration # 3. **NOTE: Use Loctite 572 on all bolts.**
- 9b. **TRIPLE PIPE EXHAUST APPLICATIONS:** Loosely install the remaining six supplied 8mm X 55mm bolts with washers into locations 1-6 of front cylinder head body **(Refer to illustration #3)**. Tighten and torque bolts in two-step order sequence as shown in illustration # 3. **NOTE: Use Loctite 572 on all bolts.**

Proceed to step 11 if Performance Cylinder Head Girdle Hardware Kit (part# RY100389-H) is not utilized.

10. Loosely install four of the supplied 8mm X 75mm bolts with washers into locations 7-10 of cylinder head bodies **(Refer to illustration #2)**. Tighten and torque bolts in two-step order sequence as shown in illustration # 2. **NOTE: Use Loctite 572 on all bolts.**

INSTALLING WATER FITTINGS:

- 11a. **OE EXHAUST HEAD PIPE APPLICATIONS:** Install Two supplied 1/2" barbed X 1/4" npt 45*brass fitting into front and center cylinder head Next, install one supplied 1/2" barbed X 1/4" npt 45* brass fittings into rear cylinder head body
NOTE: Use Threebond 1211 on the threads to prevent leaking. Do not over tighten!
- 11b. **TRIPLE PIPE EXHAUST APPLICATIONS:** Install one supplied 3/8" barbed X 1/4" npt 90* brass fitting into each cylinder head body. **NOTE: We recommend installing three individual water by-passes towards front of craft when using triple exhaust pipes. This will require extra 3/8" waterline. These are available at Riva Yamaha or your local watercraft dealer.**

INSTALLING COOLING LINES

- 12a. **OE EXHAUST HEAD PIPE APPLICATIONS:** Next, attach curved 1/2" OE waterline on the intake side of the OE exhaust head pipe to the 1/2" barbed fitting using the OE hose clamp. Then, attach the 1/2" OE waterline on exhaust manifold side of OE exhaust head pipe to the 1/2" barbed 45* brass fitting in rear cylinder head body using OE hose clamp.
NOTE: Do not over tighten hose clamps!

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INSTALLATION INSTRUCTIONS (CONT.)

INSTALLING COOLING LINES (cont.)

12b. **TRIPLE PIPE EXHAUST APPLICATIONS:** Attach and secure your 3/8" waterline to each 3/8" barbed X 1/4" npt 90* brass fitting using enclosed hose clamps. **NOTE: Do not over tighten hose clamps!**

INSTALLING EXHAUST BRACKETS

13a. **OE EXHAUST HEAD PIPE APPLICATIONS:** Install two remaining factory exhaust brackets and secure using original factory hardware. Torque to 40Nm (4.0m/kgf • 29ft/lbs).

13b. **TRIPLE PIPE EXHAUST APPLICATIONS:** Install applicable brackets and hardware for your set-up and torque to manufacturer's specs.

14. Check bilge area for tools, loose lines and/or fittings. Reattach battery cables and turn fuel cock valve to on position.

15. Upon completing installation, run engine on flush kit and check for leaks.

NOTE: Be sure to use 14mm X 1.25mm 3/4 " reach spark plugs. (e.g. BR8ES)

IMPORTANT: Technical Support

For answers to questions regarding installation or trouble shooting RIVA Racing Cylinder Head Kit contact:
RIVA Tech Line at (954) 247-0705, online at mailto:tech_support@motorsports.com or you're local RIVA Dealer.

RIVA Racing Limited 1-Year Warranty

RIVA Racing Performance Cylinder Heads carry a one-year limited warranty to the original purchaser. They are warranted to be free of defects in materials and workmanship under normal use and service. Customer modified components will be void of warranty. This warranty is limited to defects in the primary aluminum components only. Anodized finish, wear marks in or on head body, head cover, and hardware are not covered under this warranty.

RIVA Racing's liability is expressly limited to the repair or replacement of the aluminum components contained within or associated with this head system. Riva agrees to repair or at RIVA Racing's option, replace any defective unit without charge, if product is returned to Riva Racing freight prepaid within the warranty period. Any equipment returned which, in RIVA Racing's opinion, has been subjected to misuse; abuse, overheating or accident shall not be covered by this warranty.

RIVA Racing shall have no liability for special, incidental or consequential damages or injury to persons or property from any cause arising from the sale, installation or use of this product.

No other warranty, express or implied, including, but not limited to the implied warranties of merchantability and fitness for a particular purpose, applies. Various states do not allow for the limitation of incidental or consequential damages and therefore the above exclusion or limitation may not apply to you.

Warranty does not include the expenses related to freight or transportation of parts or compensation for any inconvenience or loss of use while being repaired. A copy of the original invoice must accompany all warranty claims.

Warranted replacement parts will be returned freight collect.

Remember the water belongs to everyone! Please ride responsibly!

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INSTALLATION IMAGES

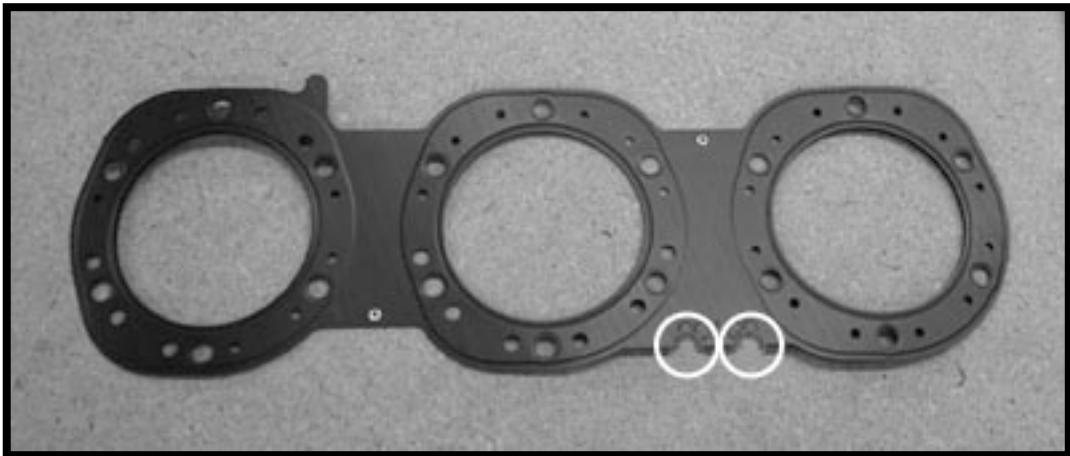


ILLUSTRATION #1

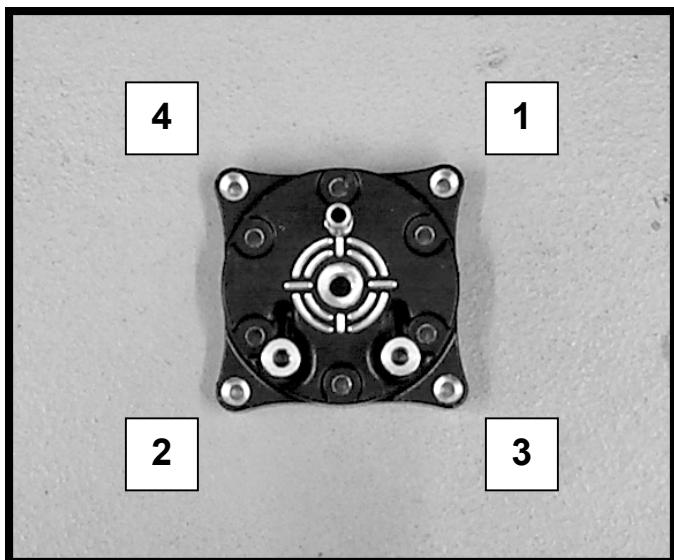


ILLUSTRATION #2

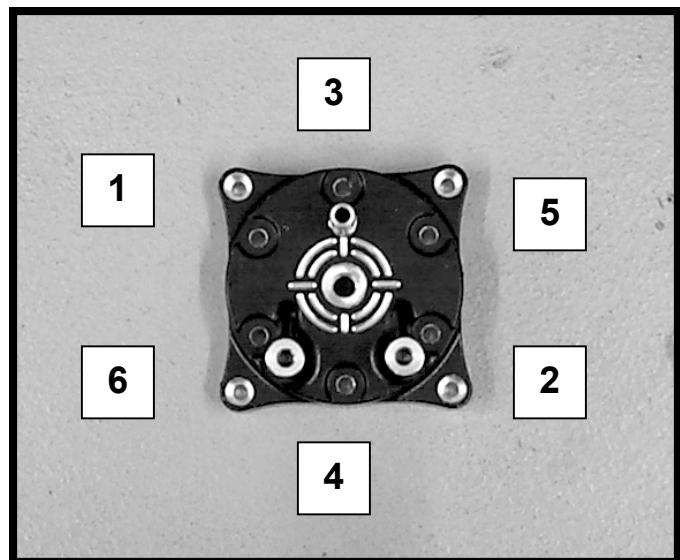


ILLUSTRATION #3

<u>TORQUE PROCEDURES</u>							
GIRDLED HARDWARE				CYLINDER HARDWARE			
<i>Two step procedure</i>							
	<u>Nm</u>	<u>m/kg</u>	<u>ft/lb</u>		<u>Nm</u>	<u>m/kg</u>	<u>ft/lb</u>
1st	15	1.5	11	1st	23	2.3	17
2nd	25	2.5	18	2nd	31	3.1	22