



**Performance Cylinder Head Kit (66V)**  
**PART# - RY 100388**

**INSTALLATION INSTRUCTIONS**

**PARTS LIST**

<b><u>QTY</u></b>	<b><u>DESCRIPTION</u></b>
3	Performance Cylinder Head Bodies
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
1	1/2" BARBED X 1/4" NPT STRAIGHT BRASS FITTING
1	1/2" BARBED 'T' FITTING
2	ALUMINUM SPACERS
4	HOSE CLAMPS

**NOTE:** This is a Riva Yamaha 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 AND TURN FUEL OFF BEFORE PERFORMING WORK!\***

**\*\* NO SMOKING \*\***

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

1. Disconnect battery cables from battery and turn fuel cock valve to off position.
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 studs, 10mm washers and hex cap nuts. Torque hex cap nuts to 40 Nm (4.0m/kg • 28ft/lbs). Repeat for remaining 11 OE cylinder bolts. ***NOTE: It is recommended that studs have 12-13mm of thread showing out of cylinder base without the hex cap nut or washer installed. Use Loctite 572 on all studs and hex cap nuts.***

**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 Yamaha's 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 66V-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 (**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 one supplied 1/2" barbed X 1/4" npt straight brass fitting into rear cylinder head body (**Refer to illustration #1**). Next, install two supplied 1/2" barbed X 1/4" npt 90° brass fittings into front and center cylinder head bodies (**Refer to illustration #1**). The two 1/2" barbed X 1/4" npt 90° brass fittings should face each other when installed correctly as there will be a 1/2" 'T' installed between them (**Refer to illustration #1**). **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:** Install supplied 1/2" barbed 'T' fitting between the two 1/2" barbed X 1/4" npt 90° brass fittings installed in front and center cylinder head bodies using the supplied 1/2" waterline and hose clamps (**Refer to illustration #1**). Next, attach curved 1/2" OE waterline on the intake side of the OE exhaust head pipe to the 1/2" barbed 'T' 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 straight 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 Yamaha Performance Cylinder Head Kit contact: Riva Yamaha Tech Line at (954) 247-0705, online at [tech\\_support@rivayamaha.com](mailto:tech_support@rivayamaha.com) or you're local Yamaha Dealer.

### **Riva Yamaha Limited 1-Year Warranty**

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

Riva Yamaha 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

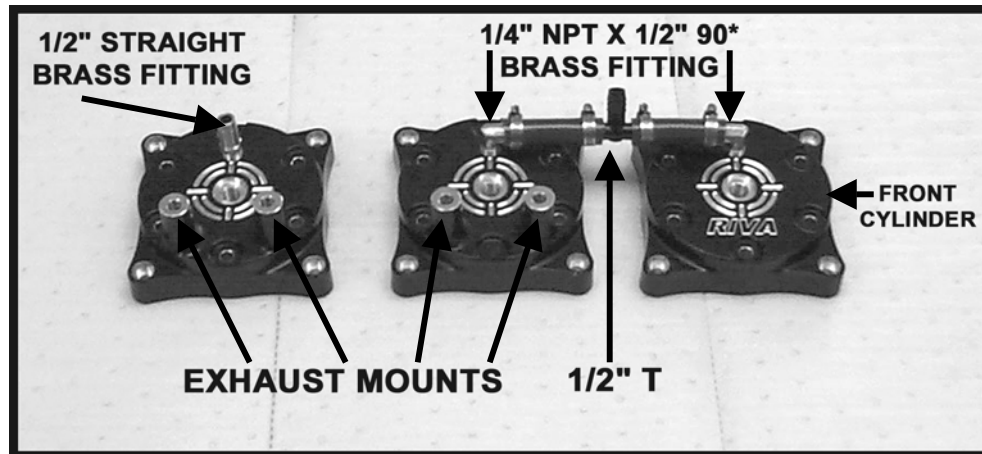


ILLUSTRATION #1

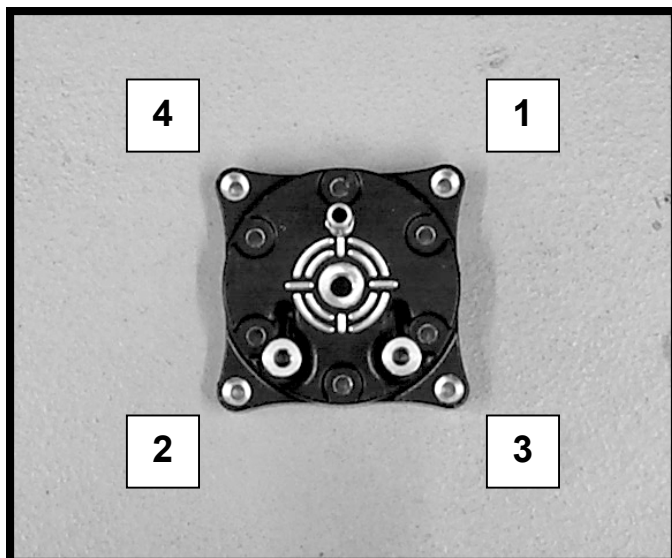


ILLUSTRATION #2

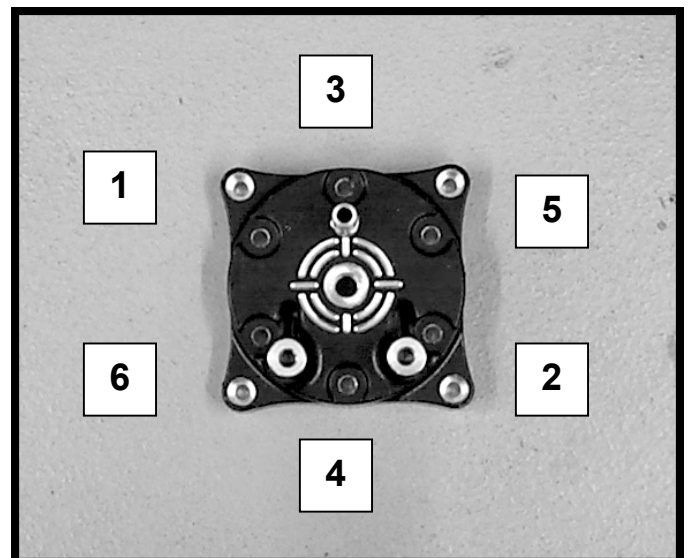


ILLUSTRATION #3

TORQUE PROCEDURES							
GIRDLED HARDWARE				CYLINDER HARDWARE			
Two step procedure							
	<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