



## **Pro-Series Girdled Twin Cylinder Heads** **INSTALLATION INSTRUCTIONS**

<b>DESCRIPTION</b>	<b>APPLICATION</b>		
	<b>RY10027-A3</b>	<b>RY10027-A4</b>	<b>RY10027-B</b>
Cylinder Head Body	N/A	N/A	1
Cylinder Head Cap	1	1	N/A
M10 x 110mm Socket Head Cap Screws	N/A	N/A	2
M10 x 120mm Socket Head Cap Screws	N/A	N/A	4
M8 x 55mm Socket Head Cap Screws	N/A	N/A	10
M10 Washers	N/A	N/A	12
M8 Washers	N/A	N/A	10
M10 x 45mm Nut Studs	N/A	N/A	6
M10 x 55mm Nut Studs	N/A	N/A	2
O-ring Kit	N/A	N/A	1
Exhaust Mount & Washer	3	4	N/A
3/8" Barbed x 1/4" NPT 90¼ Brass Fitting	N/A	N/A	2
1/8" NPT Brass Plug	N/A	N/A	1
Alignment Dowel Pins	4	4	2

**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.

**NOTE:** If unsure of location and removal procedures, consult your Yamaha water vehicle's service manual.

**\*WARNING! DISCONNECT BATTERY AND TURN FUEL OFF BEFORE PERFORMING WORK!\***

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

1. Disconnect battery cables from battery and turn fuel valve off.
2. Disconnect all waterlines attached to OE cylinder head and disconnect spark plug caps.
3. Remove electrical box bracket assembly from head, if so equipped.
4. Remove exhaust and brackets necessary to remove head and cylinder assembly from engine.. **NOTE: Take care not to scratch contacting surfaces when removing head and cylinder. On some units it may be necessary to remove the flame arrestor bracket.**
5. Cover pistons and exposed crankcase area with clean rags as to prevent any foreign material from entering the crankcase area. Clean any gasket material from the cylinder-mating surface. Take care not to damage the surfaces.
6. Install waterline fitting(s) and/or block-off into head chamber body. Due to the numerous possible applications for this head we have provided two 90° fittings and one block-off fitting. Choose and install the appropriate combination to fit your application. Most basic application is to duplicate the original waterline locations on the original head. **NOTE: Use pipe thread sealant on all fittings to prevent leaks.**
7. Install cylinder stud nuts into cases. The two longer stud nuts go in place of the two longer factory cylinder bolts. The four shorter stud nuts go in place of the six shorter factory cylinder bolts. Torque studs to 25 ft-lbs. **NOTE: Use Loctite 572 on all studs.**
8. Install cylinder using new cylinder gasket. Install 10mm flat washers and hex cap nuts onto cylinder studs. Tighten cylinder hex cap nuts sequentially and in two steps starting from center out. **NOTE: Use Loctite 572 on all hex cap nuts.**

Torque sequence: 1st: 23Nm (2.3m.kg / 17ft-lb)  
2nd: 40Nm (4.0m.kg / 29ft-lb)

10. Apply a small amount of provided grease to O-rings "A" and install in corresponding O-ring grooves as shown in diagram #'s 2 and 3. **NOTE: Do not use silicone sealant on O-rings.** To help in the installation of the supplied O-rings diagram #1 shows O-ring color, size and corresponding letter.
11. Using selected size dome for your application install dome into head body. **NOTE: Do not force domes into head body. Domes install into bottom side of head body.**
12. With domes installed and head body on flat, clean surface (combustion side down) lightly grease O-ring "B" (long O-ring) and install in corresponding O-ring groove as shown in diagram #'s 2 and 3. **NOTE: Lightly stretch O-ring while pushing it into the O-ring groove.** When you have reached your starting point cut the excess O-ring material with a razor blade so the ends meet flush (leave no gaps in O-ring material).
13. Lightly grease and install O-rings "C" and "D" in corresponding O-ring grooves on installed domes in head body. **NOTE: Do not use silicone sealant on O-rings.**
14. Install supplied alignment dowel pins (four in underside of head cover and two in top of head body) to 50% of pin depth. See diagram #'s 2 and 3 for placement. **NOTE: Pins are used in combustion side with stroker plate applications only.**
15. Lightly grease head cover where O-rings "B", "C", and "D" seat. **NOTE: Do not use silicone sealant on O-rings.** Check placement of all O-rings between head body and cover. Checking for dowel pin alignment install head cover on head body. The cover should slide on easily, do not force. **NOTE: Head cover will fit correctly only one way.**
16. Turn the head over. Lightly grease and install O-ring "E" (long O-ring) in corresponding groove using the same sequence as O-ring "B" in step # 12. **NOTE: Do not use silicone sealant on O-rings.**
17. Install O-rings "F" in corresponding grooves using enough grease to hold the O-rings secure when the head is turned over during installation. **NOTE: Do not use silicone sealant on O-rings. NOTE: Due to various craft and numerous possible applications for this cylinder head it may or may not be necessary to use the stock mounting bracket or various after-market brackets that are used to support some exhaust systems.** If you are unsure please check with your dealer or call the technical assistance line listed at the end of these directions.
18. Position the cylinder head onto cylinder taking care not to dislodge O-rings. Proper cylinder head position is indicated when "RIVA" can be read properly when standing on the carburetion side of craft. **Note: If using after-market (lower) exhaust bracket position it in place before proceeding to next step.**
19. Loosely install the ten M8 X 55mm socket head cap screws with flat washers (supplied) into cylinder and tighten in order of torque sequence described in diagram #2. (Use Loctite 572 on bolts). **NOTE: On some models electrical box and flame arrestor brackets to cylinder head may need some slight modifications for proper fit.**
20. Loosely install the eight 10mm socket head cap screws with 10mm washers into the eight cylinder stud nuts previously installed. The longer (120mm) go into the four stud nuts that are in place of the shorter factory cylinder bolts. (Bolts that hold cylinder to crankcase) The shorter (110mm) go into the two stud nuts that are in place of the longer factory cylinder bolts (Bolts that hold cylinder to crankcase) **NOTE: Use Loctite 572 on all bolts.**
21. If using a head cover with no exhaust mounts proceed to step 23. If using a head cover with three or four exhaust mounts proceed to step 21a.
- 21 a. Install supplied exhaust mounts and washers into head cover. Torque to 40 Nm (4.0-m. kg, 29 ft-lb). **NOTE: Use Loctite 271.**
22. Install cooling lines. Reference step #6 for placement.
23. Reinstall exhaust system and any other parts or components whose removal or disassembly was required for cylinder head installation.
24. Check bilge area for tools and any loose lines or fittings. Reattach battery cables and turn fuel valve on.
25. After installation is complete run engine on a flush kit and check for leaks.

**NOTE! Be sure and use 14mm x 1.25mm 3/4" reach spark plugs. Example: BR8ES**

**IMPORTANT: Technical Support**

For answers to questions regarding installation or trouble shooting Riva Yamaha Pro-Series Billet Cylinder Head contact:  
Riva Yamaha Tech Line @ (954) 247-0705 or online at [tech\\_support@rivayamaha.com](mailto:tech_support@rivayamaha.com)  
Or you're local Yamaha Dealer

## **RIVA Yamaha Pro-series Girdled Cylinder Head Limited Lifetime Warranty**

RIVA Yamaha Pro-Series billet cylinder heads carry a lifetime 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 billet aluminum components only. Anodized finish and wear marks in or on head body, head cover, and stroker plate are not covered by warranty. O-rings and hardware are not covered under this warranty.

Riva Yamaha's liability is expressly limited to the repair or replacement of the billet aluminum components contained within, or associated with this head system. RIVA Yamaha agrees to repair or at Riva's option, replace any defective unit without charge, if product is returned to Riva freight prepaid within the warranty period. Any equipment returned which Riva'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.

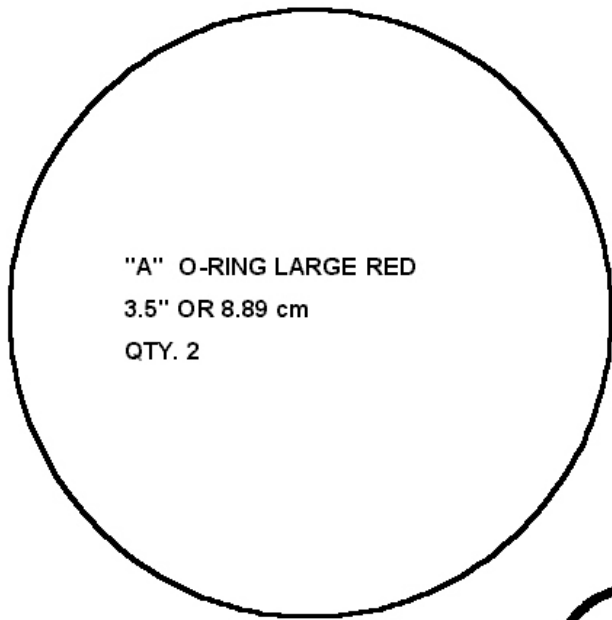
No other warranty, express or implied, including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose, applies. Various states do not allow for the limitation of incidental, or consequential damages and, therefore, the above exclusion or limitation may not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

Warranty does not include 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.

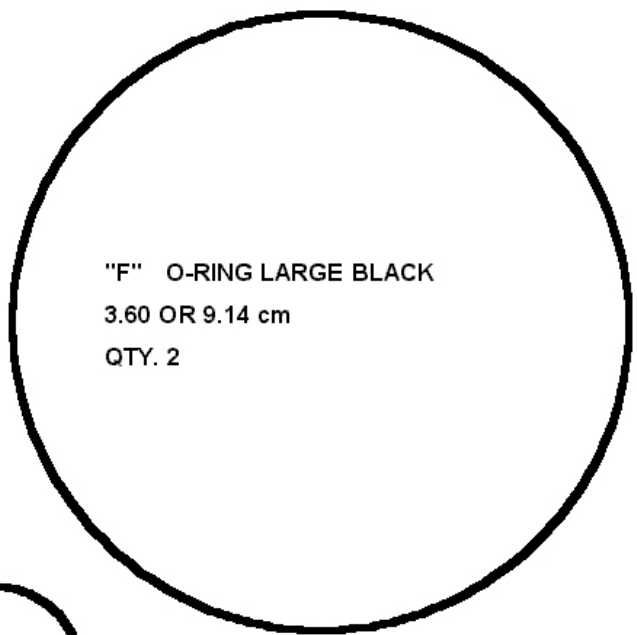
Warranted replacement parts will be returned freight collect.

**Remember the water belongs to everyone.  
Please ride responsibly.**

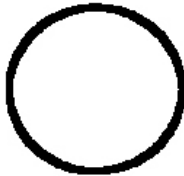
DIAGRAM #1



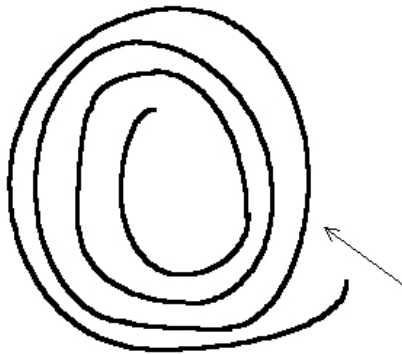
"A" O-RING LARGE RED  
3.5" OR 8.89 cm  
QTY. 2



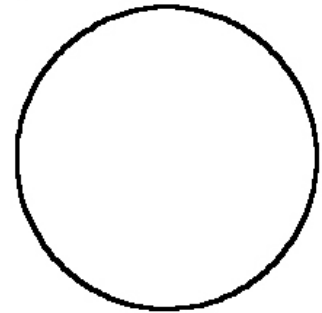
"F" O-RING LARGE BLACK  
3.60 OR 9.14 cm  
QTY. 2



"C"  
SMALL RED O-RING  
1.0" OR 2.54 cm  
QTY. 2



"B" AND "E"  
LONG RED O-RING  
QTY. 2



"D" MEDIUM RED O-RING  
1.8" OR 4.57 cm  
QTY. 2

# DIAGRAM # 2

## TORQUE SEQUENCE:

1<sup>st</sup> 15 Nm (1.5m • kg, 11ft • lb) All

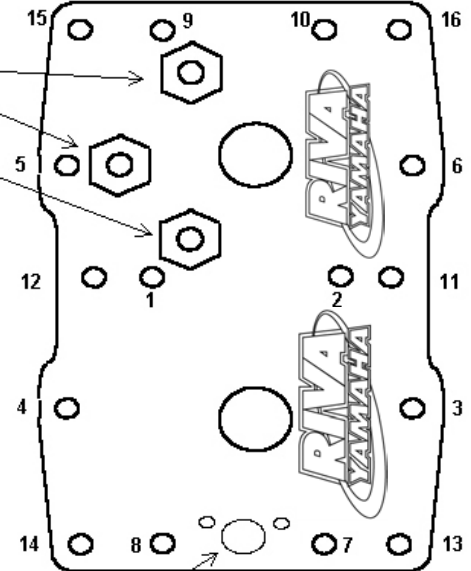
2<sup>nd</sup> 30 Nm (3.0m • kg, 22 ft • lb) **NOTE: Only for bolts (1, 2, 3, 4, 5, 6, 7, 8, 9, and 10). Torque Nuts (11, 12, 13, 14, 15, and 16) to 25 Nm (2.5m • kg, 18 ft • lb).**

O-RING LOCATION



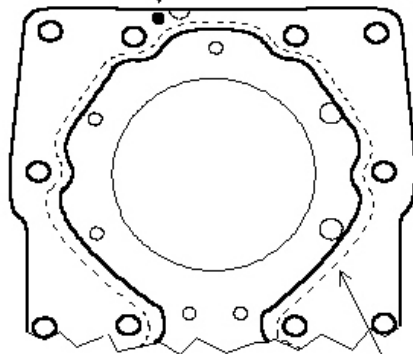
HEAD BODY  
COVER  
FRONT

THREE SUPPLIED  
EXHAUST MOUNTS



DOWL (ALIGNMENT) PIN LOCATION, ONE  
FRONT, ONE REAR, TOP SIDE OF HEAD BODY ONLY.

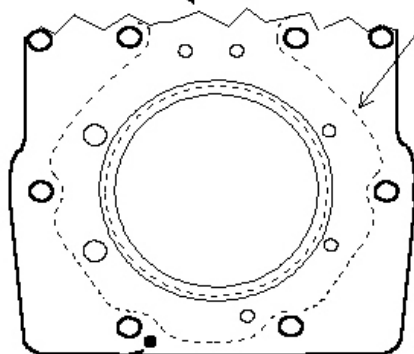
TOP VIEW FRONT PORTION  
OF HEAD BODY



THERMO SENSOR BRACKET  
LOCATION

BOTTOM VIEW REAR PORTION  
OF HEAD BODY

O-RINGS  
"B" AND "E"  
(LONG RED O-RINGS)  
QTY. 2



REAR

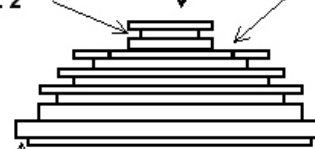
PRO SERIES DOME

O-RING "C"  
SMALL RED  
QTY. 2

O-RING "D"  
MEDIUM RED  
QTY. 2

O-RING "F"  
LARGE BLACK  
QTY. 2

O-RING "A"  
QTY. 2



DOWL (ALIGNMENT) PINS ARE USED ON THE COMBUSTION SIDE  
ONLY WITH STROKER PLATE APPLICATIONS.

### DIAGRAM #3

#### TORQUE SEQUENCE:

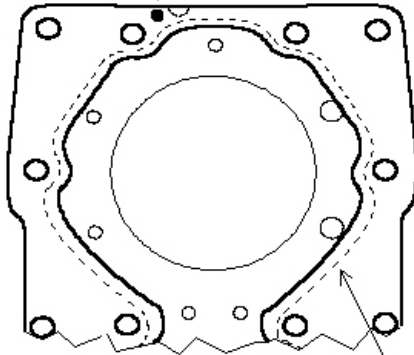
1<sup>st</sup> 15 Nm (1.5m • kg, 11ft • lb) All  
 2<sup>nd</sup> 30 Nm (3.0m • kg, 22 ft • lb) **NOTE: Only for bolts (1, 6, 7, 8, 9, and 10).** Torque Nuts (11, 12, 13, 14, 15, and Nm (2.5m • kg, 18 ft • lb).

O-RING LOCATION

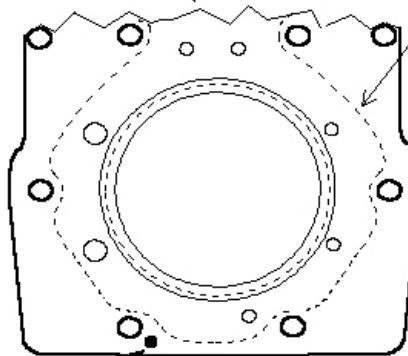


DOWL (ALIGNMENT) PIN LOCATION, ONE FRONT, ONE REAR, TOP SIDE OF HEAD BODY ONLY.

TOP VIEW FRONT PORTION OF HEAD BODY



BOTTOM VIEW REAR PORTION OF HEAD BODY



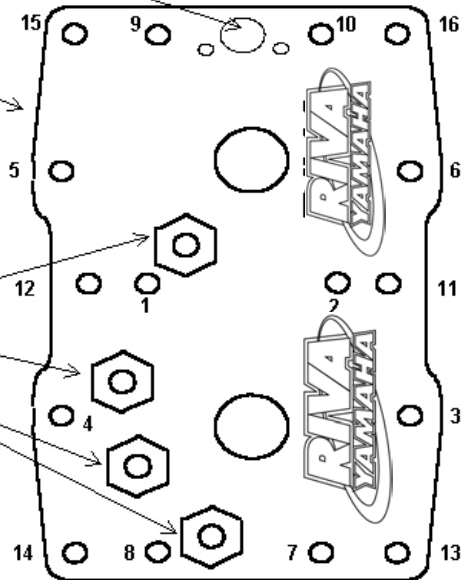
REAR

O-RINGS "B" AND "E" (LONG RED O-RINGS) QTY. 2

DOWL (ALIGNMENT) PINS ARE USED ON THE COMBUSTION SIDE ONLY WITH STROKER PLATE APPLICATIONS.

THERMO SENSOR BRACKET LOCATION

HEAD BODY COVER FRONT



FOUR SUPPLIED EXHAUST MOUNTS

PRO SERIES DOME

O-RING "C" SMALL RED QTY. 2

O-RING "D" MEDIUM RED QTY. 2

O-RING "F" LARGE BLACK QTY. 2

O-RING "A" QTY. 2

