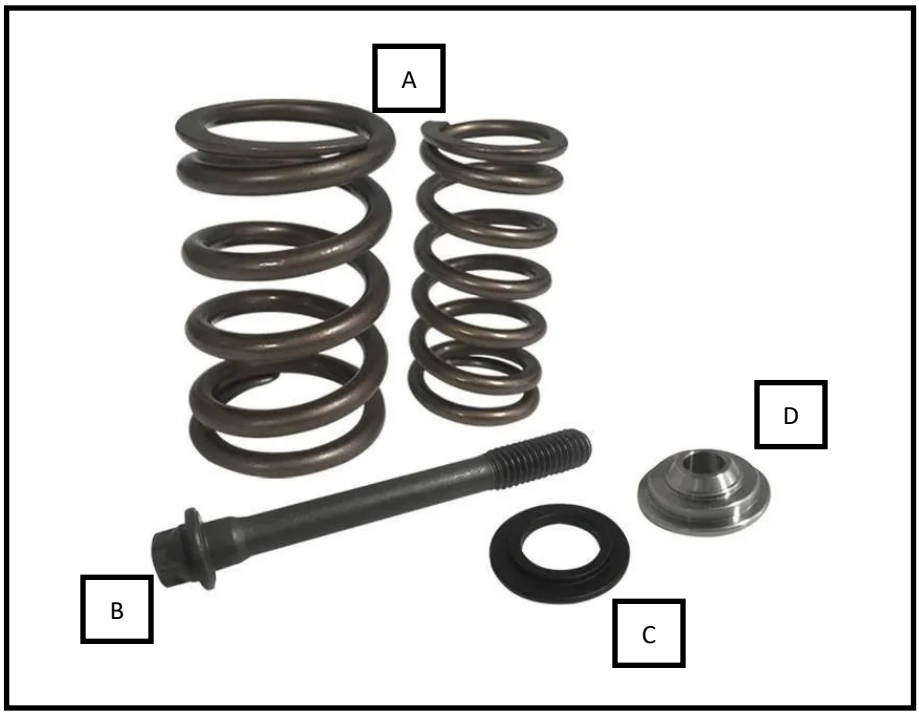
Sea-Doo 4-TEC Valve Train Upgrade Kit

RS19050-VTU



Applications:
All 1503 & 1630 4-TEC Engines

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Prior to installation, go to the RIVA Racing online Instruction Library to download the latest version of these instructions:

https://rivaracing.com/instructions

Approximate Installation Time:
3.0 hours

Recommended Specialty Tools:	***Part #***
RIVA Valve Compression Tool	RS19050-VCT-1

Required Materials:	***Part #***
N/A	

Recommended Upgrades:	***Part #***
RIVA Sea-Doo 4-TEC Rocker Arm Upgrade Kit	RS19220-RAUK

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COMPONENT LIST

ITEM	DESCRIPTION	RIVA PART #	QTY	NOTES
A	Outer & Inner Valve Springs	S10044	24	12 Outer / 12 Inner
B	OEM Rocker Arm Shaft Bolts	420641080	6	
C	Valve Spring Seat (Base Washer)	SL80008	12	
D	Valve Retainer	E80023	12	

Your kit was inspected and verified before being carefully packaged by our staff. Please check package contents before beginning assembly. If you have a question about missing or damaged items please contact RIVA Technical Support directly at (954) 247-0705 or by e-mail at tech_support@rivaracing.com.

We strongly recommend the use of a service manual to familiarize yourself with the various components and procedures involved with this installation. Please note that some of the original hardware removed in the disassembly process will be used in the installation process. These instructions have been written in step-by-step format and refer to illustrations. Read through instructions entirely before performing installation. Please follow these step-by-step instructions and illustrations carefully.

***** ALLOW ENGINE TO COOL COMPLETELY BEFORE PERFORMING INSTALLATION *****

***** NO SMOKING *** NO SMOKING *** NO SMOKING *****

Caution: Whenever using electric or battery operated tools inside the hull be sure it is well ventilated and no fumes are present. Failure to do so could result in a fire, or explosion and serious personal injury or death.

This kit is not intended for use on pollution controlled vehicles. Installation on pollution controlled vehicles may constitute a violation of state or local statutes.

- INSTALLATION INSTRUCTIONS -

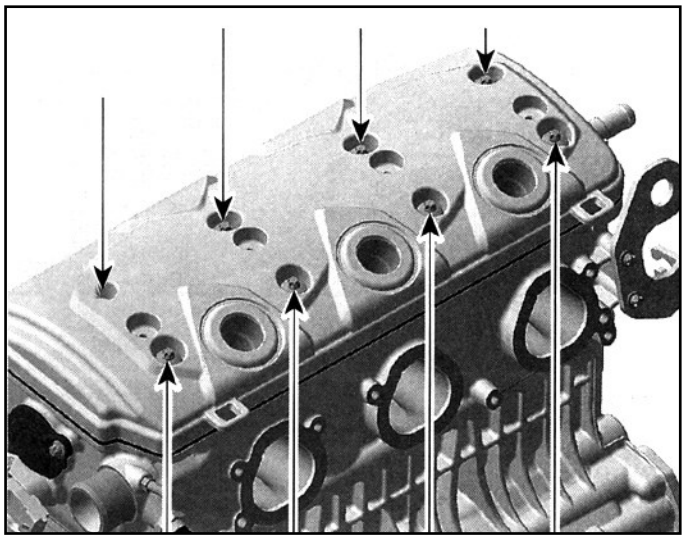
Remove engine service cover (13 Torx screws) on applicable models.

Remove D.E.S.S. lanyard and disconnect battery cables. **NOTE: Negative (black) first. Positive (red) second.**

Remove ignition coils (spark plug caps).

Remove plastic cover with BRP logo from valve cover to access valve cover bolts on applicable engines.

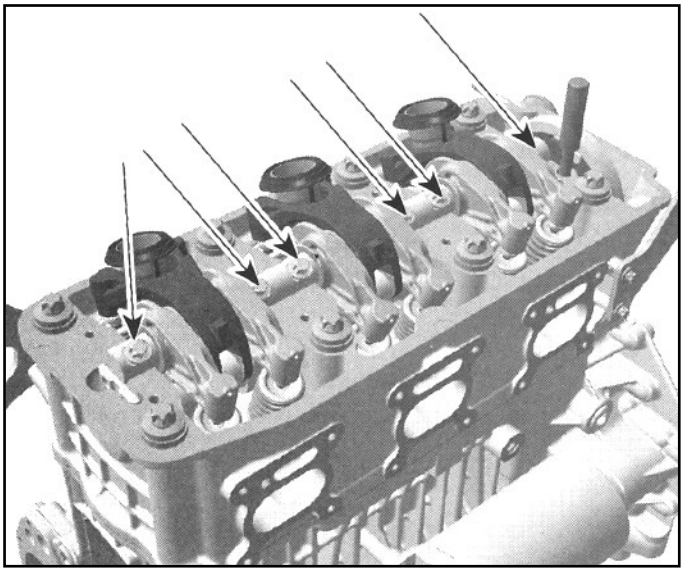
Remove Torx bolts (8) securing valve cover to cylinder head.



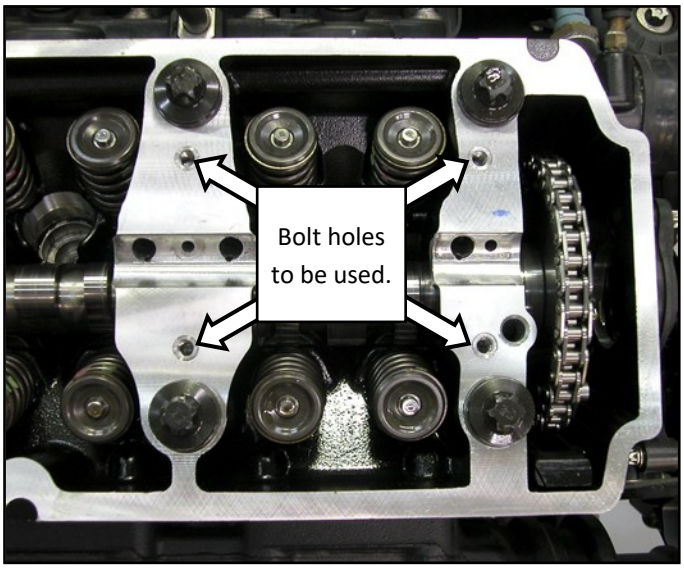
Remove valve cover.

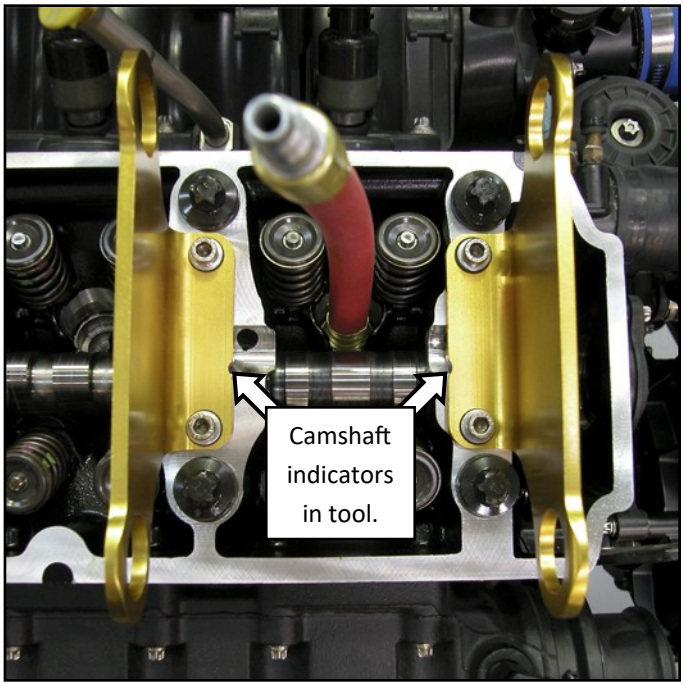
Remove spark plug tubes.

Remove rocker arm shaft assembly and discard bolts (6). **NOTE: Before removing rocker arm shaft, indicate orientation at one end for reference when replacing.**



Install compression rod supports onto cylinder head using supplied hardware making sure red indicators are aligned with camshaft.

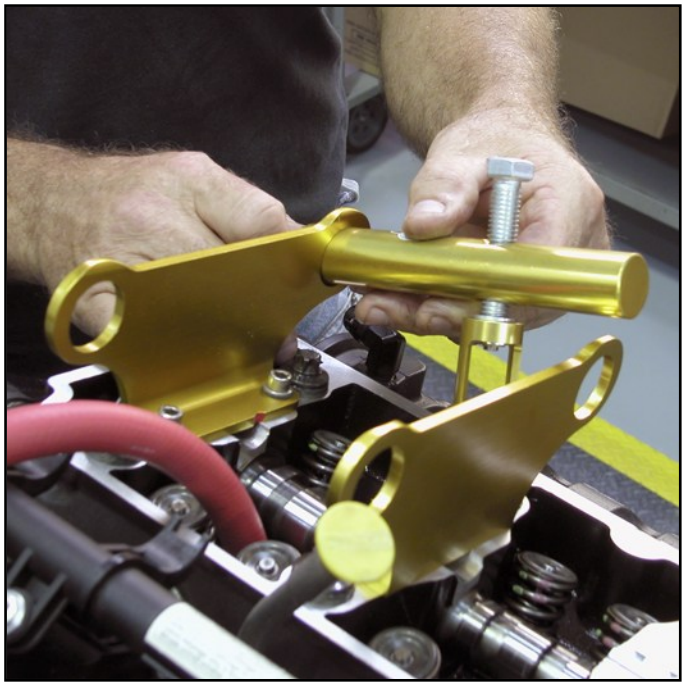




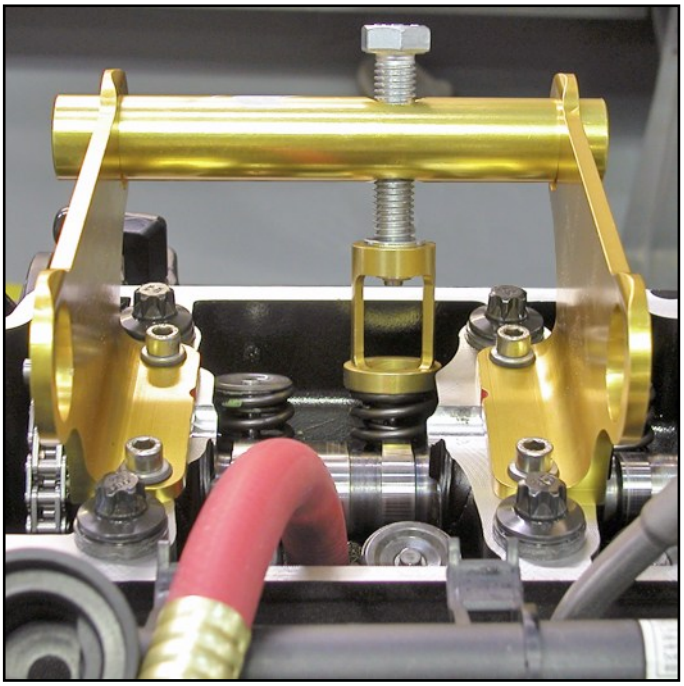
Install supplied airline into spark plug receiver for cylinder being serviced. Using a metered airline, pressurize cylinder to **80psi maximum**. **NOTE: When pressurizing cylinder cam chain guide may rise out of cylinder head. Simply hold in place or press back into place.**

- INSTALLATION INSTRUCTIONS -

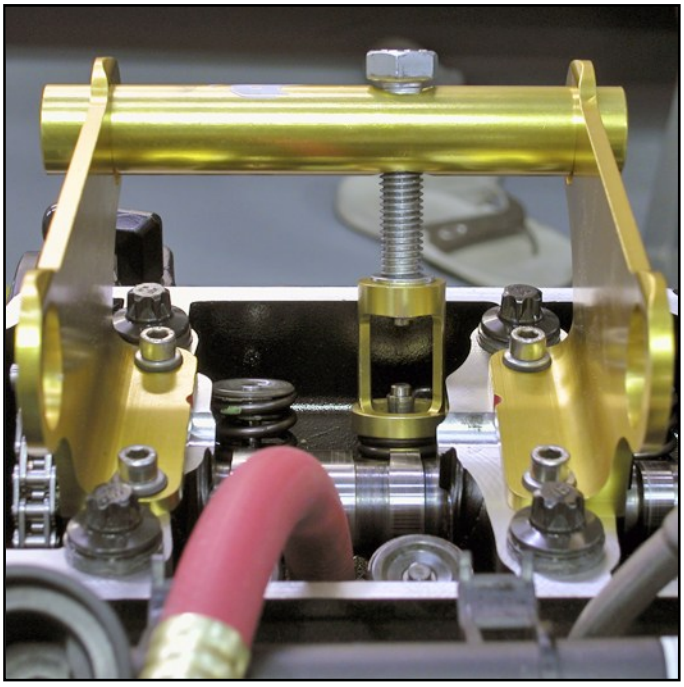
Insert compression rod into supports and align compression cup with valve spring retainer to be replaced.



Tighten compression bolt until compression cup seats on valve spring retainer. Check alignment.

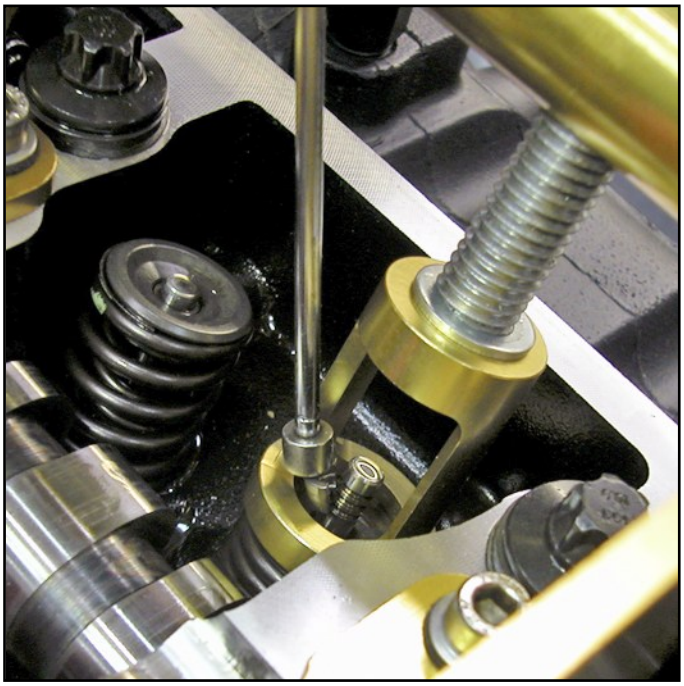


Tighten compression bolt enough to expose valve spring retainer cotters.



Remove valve spring retainer cotters (2 per valve).

TIP: Use a magnet!



Loosen compression bolt completely. Rotate compression rod to allow access to valve.

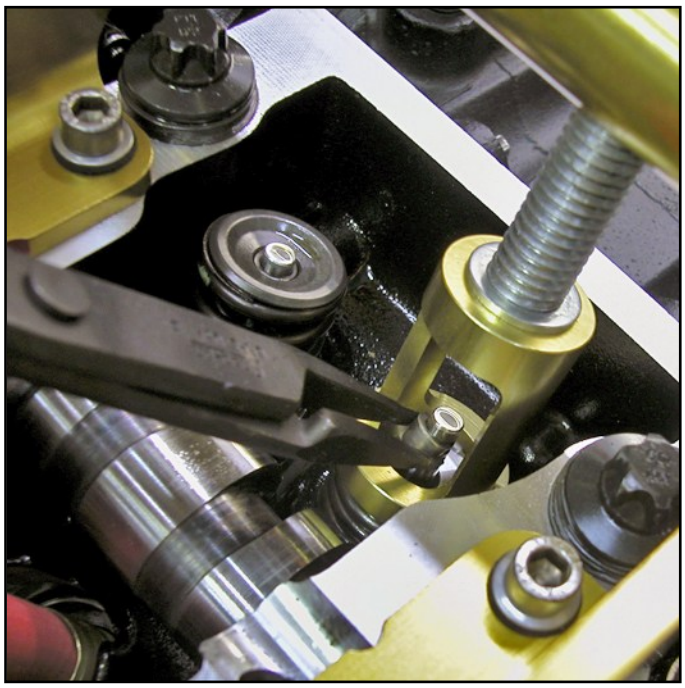
Remove OE valve spring retainer and OE valve springs (1 outer & 1 inner).

- INSTALLATION INSTRUCTIONS -

In this exact order, install one supplied valve spring seat (base washer) onto valve shaft, one supplied valve spring set (1 inner/1 outer) and one supplied valve spring retainer. **NOTE: Base washer and valve spring retainer install one way only. See illustration below.**

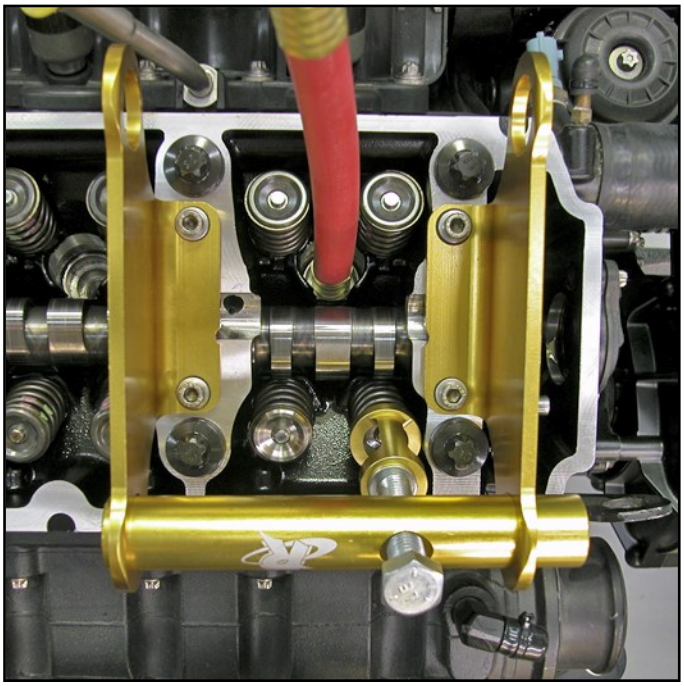
Rotate compression rod and realign compression cup with new valve spring retainer. Tighten compression bolt until compression cup seats on valve spring retainer. Check alignment. Tighten bolt enough to expose end of valve stem.

Apply white lithium grease to inside of valve spring retainer cotters (2 per valve). Install onto end of valve shaft.



Loosen compression bolt completely and rotate compression rod to allow access to valve. Thoroughly inspect valve spring assembly to ensure cotters are seated properly. **CAUTION: An improperly locked valve spring will cause engine damage.**

Remove compression rod from supports. Rotate 180-degrees and insert into supports for same valve set.



Repeat previous steps for other valve.

Remove compression rod from supports and insert into opposite side for remaining valves. **EG- If procedure began with intake valves you would now modify exhaust valves.** Repeat previous steps carefully.

After modifying all 4 valves carefully release air pressure from cylinder. Remove supplied air hose.

Remove compression rod supports and move to next cylinder. Repeat entire process until remaining OE valve spring retainers and valve springs have been replaced with supplied valve spring retainers, valve springs and valve spring seats (base washers).

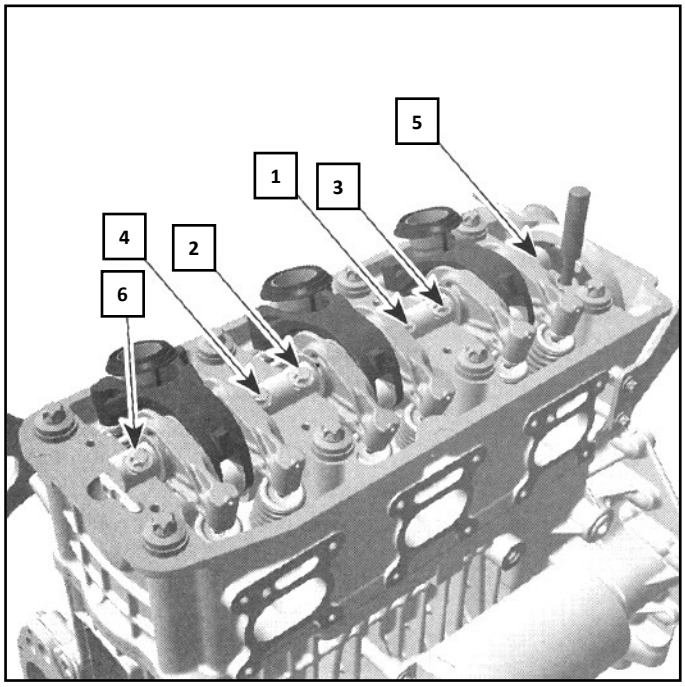
Thoroughly inspect valve train for misaligned valve spring keepers, valve springs and foreign objects.

Apply BRP 4-stroke XPS oil to rocker arm shaft.

Install rocker arm shaft assembly. **NOTE: Rocker arm shaft assembly can only be installed one way. Use indicator marking applied during removal for orientation reference.**

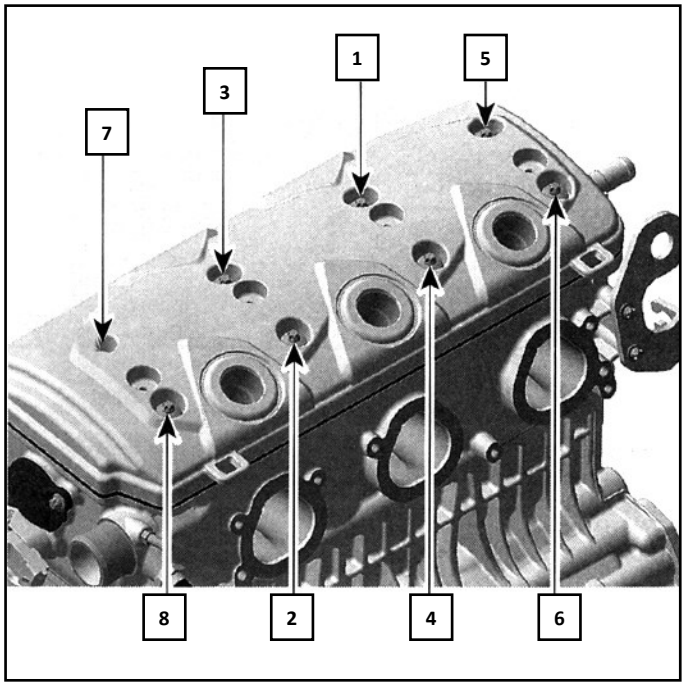
- INSTALLATION INSTRUCTIONS -

Secure rocker arm shaft using supplied bolts. **NOTE: DO NOT USE ORIGINAL BOLTS. Reference illustration below for proper torque sequence.** Torque at first to 7 ft•lbs / 10 N•m. Torque again to 14 ft•lbs / 20 N•m. Finish tightening by turning each bolt an additional 90-degrees. **DO NOT APPLY THREAD LOCK.**



Install spark plug tubes.

Clean outer edge of cylinder head. Install valve cover making sure sealing ring is properly seated. **NOTE: Reference illustration below for proper torque sequence.** Torque to 7 ft•lbs / 10 N•m. **DO NOT APPLY THREAD LOCK.**



Install plastic cover with BRP log onto valve cover on applicable engines.

Install ignition coils (spark plug caps).

Reconnect battery cables. **NOTE: Positive (red) first. Negative (black) second.**

Check bilge for rags, tools etc.

Run craft on a flush hose to check for proper operation.

Replace engine service cover (13 Torx screws) on applicable models.

Replace seat(s).

Remember, the water belongs to everyone.

Please ride responsibly and respect the environment!

Technical Support

For answers to questions regarding installation or trouble shooting RIVA Performance Products contact:

RIVA Technical Support directly at (954) 247-0705 or by e-mail at tech_support@rivaracing.com.

Limited Warranty

RIVA Valve Train Upgrade Kits carry a 30-day 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 components only. Finish and/or wear marks in or on primary components are not covered under this warranty.

RIVA Racing's liability is expressly limited to the repair or replacement of the components contained within or associated with this kit. RIVA Racing agrees to repair or at RIVA'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'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.