AIR FLOW RESEARCH HEADS. INC.

WARRANTY: All warranties need to be sent directly to AFR, do not return your merchandise to the location purchased from. Call AFR toll free, (888) 549-2211 for a RMA #.

(661) 257-8124 FAX (661) 257-4462
www.airflowresearch.com

INSTRUCTIONS FOR THE BIG BLOCK FORD ALUMINUM HEADS

For updates to instructions please see AFR's website.

ATTN: *PLEASE READ THROUGH ALL INSTRUCTIONS BEFORE ATTEMPTING CYLINDER HEAD INSTALLATION.*

VALVE SPRINGS: *IT IS THE CUSTOMER'S RESPONSIBILITY TO CHECK AND MAKE SURE THAT SPRING PRESSURES ARE CORRECT FOR HIS/HER CAM. FAILURE TO DO SO CAN RESULT IN SIGNIFICANT ENGINE DAMAGE.*

VALVE GUIDE CLEARANCE: *INTAKE AND EXHAUST GUIDE CLEARANCES ARE .00125", ON SOME SEVERE APPLICATIONS (NITROUS, MARINE OR BLOWER) LOOSER GUIDES MIGHT BE REQUIRED.*

IMPORTANT: *APPLY ANTI-SEIZE TO ALL BOLTS AND SPARKS PLUGS TO ENSURE A LONG THREAD LIFE.*

WARNING: *PISTON DOME TO CYLINDER HEAD CLEARANCE MUST BE CHECKED PRIOR TO FINAL ASSEMBLY OF ENGINE. PISTON MIGHT NEED CLEARANCE WITH AFR HEART SHAPED CHAMBER.*

Please note, due to AFR's revised valve angle and location custom pistons or notching existing pistons may be required

VALVE TIPS: ***DO NOT GRIND YOUR VALVE TIPS.*** Some AFR heads have hardened stellite tips which cannot be reground. If ground the tip will mushroom over causing severe damage. If your valve tips are magnetic you can grind a maximum of .015" from the tip.

VALVE COVER GASKET: Use Fel-Pro #1643 ¼" thick cork-lam with steel core. Note For Valve Cover Fastener: Teflon or some non hardening thread sealer is required on the bottom threaded portion of the valve cover stud or bolt that enters the head. Without sealer oil is drawn into the intake port under vacuum and will cause excessive smoking.

EXHAUST GASKETS: Any header or manifold gasket designed for original equipment heads will fit the AFR 270cc, 285cc, and 300cc, use Fel-Pro #1420.

HEAD GASKETS: Use Fel-Pro #1018 for bore sizes under 4.500", for bore sizes over 4.500" and under 4.670" use Fel-Pro #1028.

INTAKE GASKETS: If using AFR Intake Manifold p/n 4992 or 4993 use AFR gasket p/n 6893. With non AFR intake manifolds use Fel Pro 1231. Do not port match with Felpro gasket.

PISTON TO VALVE CLEARANCE: It is your responsibility to check and make sure you have adequate piston to valve clearance before final engine assembly. Don't forget to check radial (side) clearance as well.

VALVE SEATS: Both intake and exhaust valve seats are heat treated ductile iron and are compatible with unleaded fuels.

ACCESSORIES: Although AFR cylinder heads will accept OEM components, rocker arms, valve covers, and intake manifolds, we highly recommend that premium quality hardware be used with your new heads.

ROCKER ARMS: Air Flow Research aluminum heads are designed to use standard pushrod location rocker arms (offset rockers are not required). Clearance between rocker arms and the retainers should be checked. For high RPM stability shaft systems are recommended. Teflon or some non hardening thread sealer is required on the bottom threaded portion of the stud for all 270cc, 285cc and 300cc heads. Without sealer oil is drawn into the intake port under vacuum and will cause excessives smoking.

TORQUING: We suggest not using a torque wrench on intake and exhaust manifold bolts, accessory bolts, or spark plugs as inaccurate torque wrench values can easily strip the smaller threads. Just snug up hand tight with a wrench only.

HEAD BOLTS or STUDS: High quality head studs or head bolts with hardened washers must be used to prevent galling of the aluminum head. The recommended head bolts are ARP #155-3603, and for head studs use ARP #155-4023.

HEAD BOLT TORQUE: Apply moly-oil mixture to washers, fastener, threads and area around head bolt to prevent galling and improper torque readings. With factory bolts torque to 140ft lbs. Re-torque is recommended after initial start-up and cool down (allow 2-3 hours for cooling). With ARP following manufactures torque specifications. If using ARP fasteners re-torquing is not necessary if you follow ARP instructions. However, it may be necessary under certain circumstances if the head gasket manufacturers instructions require it, particularly if a fire ring has been installed. Sealer should be applied to all head bolts or studs that enter into the block's water-jacketing system. Permatex is a good general-purpose sealer.

COOLANT: It is important to maintain 50/50 mix of antifreeze in the cooling system to prevent corrosion of aluminum heads. Do not use tap water, use distilled water instead. Most supermarkets sell purified or distilled water. Check labeling to verify purified through deionization.

SPARK PLUGS: Use 14mm x 3/4" reach gasket type spark plugs, no tapered seat plugs. Street application use Autolite #3924, use Autolite #3932 for race applications. Plug selection is of course dictated by many factors including RPM level, compression ratio and fuel type. Forced induction or nitrous applications usually require 1 to 2 heat ranges colder. Spark plug gap should be determined by the ignition manufacturer. You can cross reference to your favorite brand spark plug if desired.

CLEANING: AFR thoroughly cleaned your heads prior to shipment. Your heads were washed in a water soluble chemical agitation tank and blown out with high pressure air 3 to 4 times before they were boxed. However during some machining operations chips are packed and wedged into the water jacketing and occasionally come loose in transit. Keep in mind one chip the size of a dime breaks into hundreds of tiny chips and makes the situation appear much worse than it is in reality. It is not unusual, if you blow high pressure air into the water jacketing, to see additional foreign debris or chips finding their way out. AFR recommends that you thoroughly blow out your heads prior to installation.

GUIDEPLATES: ***USE ONLY THE GUIDE PLATES SUPPLIED BY AIR FLOW RESEARCH.*** Pushrod guide plates are furnished with each set of AFR aluminum heads. Studs should be torque to 60ft./lbs. Silicon sealer is recommended on applications where the stud hole intersects the intake port.

IMPORTANT* *3/8" THICK WALL CHROME MOLY HEAT TREATED PUSHRODS SHOULD BE USED TO AVOID WEAR OF THE PUSHROD FROM CONTACT WITH THE GUIDE PLATE.*

PUSHROD LENGTH: This seems like an easily answered question, however, there are many variables. Block and cylinder head deck heights, head gasket thickness, varying cams, rockers arms and valve length can all affect pushrod length. For exact pushrod length we suggest using an adjustable pushrod to determine the proper length pushrod to be used. See our web site under FAQ for detailed information on pushrod length.

Valve Spring Specifications - 10/26/2015

All springs that come standard with AFR Cylinder Heads are made of high quality spring wire and are sufficient for most general applications when following the below recommendations. Keep in mind that forced induction, Nitrous, high RPM, and even modest RPM with aggressively designed (faster) cam lobes require additional spring pressure and higher quality spring wire. AFR offers various upgrades over standard valve springs; if you're questioning the spring requirement for your particular application, we advise you contact AFR directly. It is always better to run a higher quality spring than you need, resulting in greater spring life, and more importantly, a higher level of reliability while doing so.

Valve spring pressures may vary plus or minus 5%. It is the customer's responsibility to verify springs are correct for their application. Failure to do so could result in engine damage

Part #, Application, & Markings	Size (in)	Installed & Open Load (lbs/in)	Material, Manufacturer & Spring Type	Coil Bind (in)	Rate (lbs/in)	Gross Max Lift General Guideline	Max RPM General Guideline
AFR-8000 *Solid Roller* *Orange Stripe*	1.550 OD .800 ID	220 lbs. @ 1.950 603 lbs. @ 1.240	Chrome Silicon PAC Racing Springs Dual Spring	1.155	540	.710 *.680 for valves larger than 2.165*	7200-7400
AFR-8001* *Solid Roller* *Yellow Stripe*	1.550 OD .788 ID	250 lbs. @ 2.000 762 lbs. @ 1.200	Pacaloy PAC Racing Springs #1225 Dual Spring	1.150	640	.800	8000-8200
AFR-8002 *Hydraulic Roller* *Green Stripe*	1.550 OD .755 ID	175 lbs. @ 2.000 505 lbs. @ 1.275	Pacaloy Pac Racing Springs #1940 Dual Spring with Damper	1.110	455	.725	6500-6700
AFR-8005 *Solid Roller* *Yellow Stripe*	1.550 OD .788 ID	265 lbs. @ 1.970 745 lbs. @ 1.220	Pacaloy PAC Racing Springs #1225 Dual Spring	1.150	640	.750	7400-7600
AFR-8014* *Solid Roller* *No Stripe*	1.645 OD .871 ID .633 ID	385 lbs. @ 2.100 1000 lbs. @ 1.200	Pacaloy PAC Racing Springs #1258 Triple Spring	1.130	688	.900	8300-8500
AFR-8016 *Solid Flat Tappet* *No Stripe*	1.550 OD .750 ID	140 lbs. @ 1.930 406 lbs. @ 1.280	Chrome Silicon Pioneer Springs Dual Spring with Damper	1.140	410	.650	7200-7400
AFR-8017 *Hydraulic Roller* *No Stripe*	1.290 OD .685 ID	140 lbs. @ 1.810 356 lbs. @ 1.210	Premium Grade Chrome Silicon PAC Racing Springs Dual Spring	1.000	360	.600	6300-6500
AFR-8019* *Hydraulic Roller* *Red or Pink Stripe*	1.270 OD .645 ID	155 lbs. @ 1.810 448 lbs. @ 1.160	Premium Grade Chrome Silicon PAC Racing Springs Dual Spring	1.080	450	.650	7000-7200
AFR-8020 *Hydraulic Flat Tappet* *Inner Blue*	1.437 OD .720 ID	125 lbs. @ 1.800 304 lbs. @ 1.250	Chrome Silicon Pioneer Springs Dual Spring with Damper	1.090	320	.550	6100-6300
AFR-8022* *Solid Roller* *Green Stripe*	1.640 OD .860 ID	320 lbs. @ 2.040 862 lbs. @ 1.200	Premium Grade Chrome Silicon Manley Nextek #221425-16 Dual Spring	1.150	645	.840	8200-8400
AFR-8023* *Solid Roller* *White Stripe*	1.580 OD .832 ID	235 lbs. @ 1.950 625 lbs. @ 1.220	Premium Grade Chrome Silicon† Erson # E 915043 Dual Spring	1.170	535	.730	7200-7400
AFR-8031 *Solid Roller* *No Stripe*	1.625 OD .851 ID	275 lbs. @ 2.000 810 lbs. @ 1.150	Pacaloy PAC Racing Springs #1224 Dual Spring	1.100	629	.850	7400-7600

***Titanium Retainers Recommended**
†Endurance Valve Spring

IMPORTANT: Break in cam per cam manufacturers specifications. This can be critical for solid flat tappet and hydraulic flat tappet cams.

WARRANTY: All returns/warranties need to be sent directly to AFR, do not return your merchandise to the location purchased from. Call AFR toll free, (888) 549-2211 for a RMA #.

(661) 257-8124 FAX (661) 257-4462
www.airflowresearch.com

TERMS and POLICIES

Returned Merchandise

Returned merchandise will not be accepted without prior permission from an authorized agent at Air Flow Research, Inc. Call your AFR sales rep for a RGA number; without a RGA number we will refuse delivery on parts. Return freight charges must be prepaid and include a copy of the original invoice. A **20% restocking** charge is levied on all returned merchandise except warranty returns due to Air Flow Research's error. Inventory exchange with approved authorization only. **Once merchandise has been installed or used, no returns are allowed.**

Cylinder Head Limited Lifetime Warranty

Effective on purchases on or after January 1st, 2010, AFR warranties the aluminum cylinder head casting for the lifetime of the product with proof of purchase to the original purchaser. Additionally, valves, guides, valve seats, valve springs, retainers, locks, studs, guide plates, and valve seals are warranted for two years with proof of purchase. All returns must have a RMA number in order to be returned, call for a RMA number. Parts must be returned prepaid freight by the original purchaser. When it has been determined, by AFR at its sole discretion, that the product does indeed have a warrantable problem from workmanship, materials, or an undetermined cause (mystery failure) AFR will repair at no charge and reimburse UPS ground freight and return UPS ground freight. AFR will repair or replace the casting at its option. This warranty does not cover fitness for purpose and/or merchantability on any product sold by AFR.

Manifold Warranty

AFR warranties their composite intake manifold to be free of defects for a period of one year's time. All returns must have a RMA number in order to be returned, call for a RMA number. Parts must be returned prepaid freight by the original purchaser. When AFR determines at its sole discretion that the product does indeed have a warrantable problem from workmanship, material, or an undetermined cause, AFR will repair or replace the product at no charge. This warranty does not cover fitness of purpose and/or merchantability on any products sold by AFR.

This warranty does not cover the following:

1. Failure due to improper installation or maintenance, abuse, misuse, unauthorized repairs, modifications, or alterations determined at the sole discretion of AFR. If your machine shop, engine builder, or installer performs any unauthorized repairs, AFR's warranty is voided and AFR will not reimburse any cost you incurred.
2. Removal or replacement cost.
3. Costs incurred due to down time of the vehicle.
4. Damage to related components.
5. Marine salt water corrosion.
6. Corrosion from not using/refreshing antifreeze.
7. Running heads without water.
8. Fitness for purpose or mechantability.

Implied Warranty

This warranty is in lieu of all other warranties and/or representations, express or implied, including, without limitations, warranties of merchantability and fitness for purpose, and all other liabilities, including special or consequential damages, in connection with the sale or use of any Air Flow Research product. Any warranties implied by law are limited in duration to the duration of this warranty, except in those states where prohibited by law.

Warning

Speed kills—please drive responsibly and enjoy our hobby at the racetrack only, as this is the designed application of AFR products. AFR products are not intended for street racing and AFR only promotes safe habits at your local track. With this additional performance AFR suggests you consider upgrading your brakes for better stopping performance.

Revised 11/2015