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# **GEN III HEMI 5.7L, 6.1L, 6.2L, 6.4L CYLINDER HEAD STUD KIT – ARR-5517 By ARROW RACING ENGINES**

***Thank You for Your Purchase of this Arrow Racing Engine, Cylinder Head Stud Kit. This kit fits, Gen III HEMI 2003-2017- 5.7L, 2005-2010-6.1L, 2015-2017-6.2L, 2011-2017-6.4L. The Kit includes; (1) complete engine set of cylinder head studs, hardened washers, & nuts. NOTE: This Kit does NOT include cylinder heads, or cylinder head gaskets. Installing the Cylinder Head Studs, should only be done by Qualified personnel, incorrect insulation may cause engine damage.***

**ARROW RACING ENGINE WARRANTY** It is the constant endeavor of the Arrow Racing Engine Corporation to give our customers the highest quality of performance products obtainable. Arrow Racing Engine warrants each new product to be free from defects in both workmanship and materials to a period of one year from date of purchase, provided that the product is properly installed and subjected to normal use and service and that the product is not modified or altered in any way unless specified by our instructions. Customers requiring warranty assistance should contact Arrow Racing Engine at the number listed below. Arrow Racing Engine will determine the method of satisfying the warranty. Should Arrow Racing Engine determine that the product be returned to Arrow Racing Engine, it should be accompanied by proof of purchase and a clear notation of the exact problem encountered. The product must be returned freight pre-paid. If a thorough inspection of the product by Arrow Racing Engine indicates defects in workmanship or material, our sole obligation shall be to repair or replace the product. This warranty covers only the product itself and not the cost of installation or removal. ARROW RACING ENGINE CORPORATION SHALL NOT BE LIABLE FOR ANY AND ALL CONSEQUENTIAL DAMAGES OCCASIONED BY THE BREACH OF ANY WRITTEN OR IMPLIED WARRANTY PERTAINING TO THIS SALE, IN EXCESS OF THE PURCHASE PRICE OF THE PRODUCT SOLD.

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## **ARROW RACING ENGINE CYLINDER HEAD STUD PARTS LIST**

ITEM	QUAN	PART NO.	DESCRIPTION
1	1	ARR-5517	CYLINDER HEAD STUD KIT

### **ADDITIONAL ITEMS NEEDED:**

- MOPAR OR EQUIVALENT SHOP MANUAL
- DRAIN PAN, IF ENGINE IS STILL IN THE CAR
- NEW SET OF CYLINDER HEAD GASKETS
- NEW SET OF INTAKE MANIFOLD GASKETS
- NEW SET OF EXHAUST MANIFOLD GASKETS
- TORQUE WRENCH (Ft/Lb) & (In/Lb.)
- GASKET SCRAPER
- NEW COOLANT (IF ENGINE IS STILL IN CAR)
- CLEANING SOLUTION (BRAKE CLEANER OR EQUIV.)
- RAGS (FOR CLEANING )
- mm SOCKET SET
- mm WRENCH SET
- ½” 12 point SOCKET
- 3/8” 12 point SOCKET
- ARP ULTRA-TORQUE FASTENER ASSY LUBE

### **CYLINDER HEAD GASKETS P/N'S**

- |                                  |                                  |
|----------------------------------|----------------------------------|
| 5.7L – LT STD THICK – 53022307AB | 6.1L – LEFT & RIGHT - 05037592AC |
| 0.5mm THICKER – 68240109AA       | 6.2L – LEFT - 68164696AD         |
| 5.7L – RT STD THICK – 53022306AB | 6.2L – RIGHT - 68164621AD        |
| 0.5mm THICKER – 68240108AA       | 6.4L – LEFT – 05038281AE         |
|                                  | 6.4L – RIGHT – 05038280AE        |

### **OPTIONAL PARTS AVAILABLE:**

- STOCK 6.4L CYL HEAD ASSY;** P/N; 05037449BE – LT CYL HEAD, 05037448BE – RT CYL HEAD (INCLUDES; ALUM CYL HEAD MACHINED, ALL STOCK VALVE TRAIN PARTS, WHICH ARE; VALVE SEATS & GUIDES, VALVE STEM SEALS, STOCK VALVES, SPRINGS, SPRING RETAINERS, SPRING SEATS, & RETAINER LOCKS) **UPGRADE INCLUDES;** HEAD SAVERS, & HELICOIL'S ARE INSTALLED IN THE EXHAUST MANIFOLD BOLT HOLES.
- UPGRADED STOCK 6.4L CYL HEAD ASSY;** P/N; ARR-TA2-6555 – LT CYL HEAD, ARR-TA2-6556– RT CYL HEAD (INCLUDES; ALUM CYL HEAD MACHINED, STOCK VALVE SEATS & GUIDES, VALVE STEM SEALS, STOCK EXHAUST VALVES, STOCK EXHAUST SPRING RETAINERS, SPRING SEATS, & STOCK EXHAUST RETAINER LOCKS) **UPGRADE INCLUDES;** TITANIUM INTAKE VALVES, UPGRADED INTAKE & EXHAUST VALVE SPRINGS, UPGRADED INTAKE VALVE SPRING RETAINER & LOCKS, & HEAD SAVERS, & HELICOIL'S ARE INSTALLED IN THE EXHAUST MANIFOLD BOLT HOLES.
- BARE PERFORMANCE 6.4L CYL HEAD, WITH CNC PORTS;** BARE 6.4L ALUM CYL HEADS MACHINED WITH CNC PORTS, & STOCK VALVE SEATS & GUIDES. ALSO INCLUDES HEAD SAVERS, & HELICOIL'S ARE INSTALLED IN THE EXHAUST MANIFOLD BOLT HOLES. **DOES NOT INCLUDE;** VALVE STEM SEALS, VALVES, SPRINGS, SPRING RETAINERS, SPRING SEATS, & RETAINER LOCKS.
- PERFORMANCE 6.4L CYL HEAD ASSY, WITH CNC PORTS;** P/N; ARR-6555-HO – LT CYL HEAD, ARR-6556-HO – RT CYL HEAD (INCLUDES; ALUM CYL HEAD MACHINED WITH CNC PORTS, STOCK VALVE SEATS & GUIDES, VALVE STEM SEALS, STOCK EXHAUST VALVES, STOCK EXHAUST SPRING RETAINERS, SPRING SEATS, & STOCK EXHAUST RETAINER LOCKS) **UPGRADE INCLUDES;** TITANIUM INTAKE VALVES, UPGRADED INTAKE & EXHAUST VALVE SPRINGS, UPGRADED INTAKE VALVE SPRING RETAINER & LOCKS, & HEAD SAVERS, & HELICOIL'S ARE INSTALLED IN THE EXHAUST MANIFOLD BOLT HOLES.



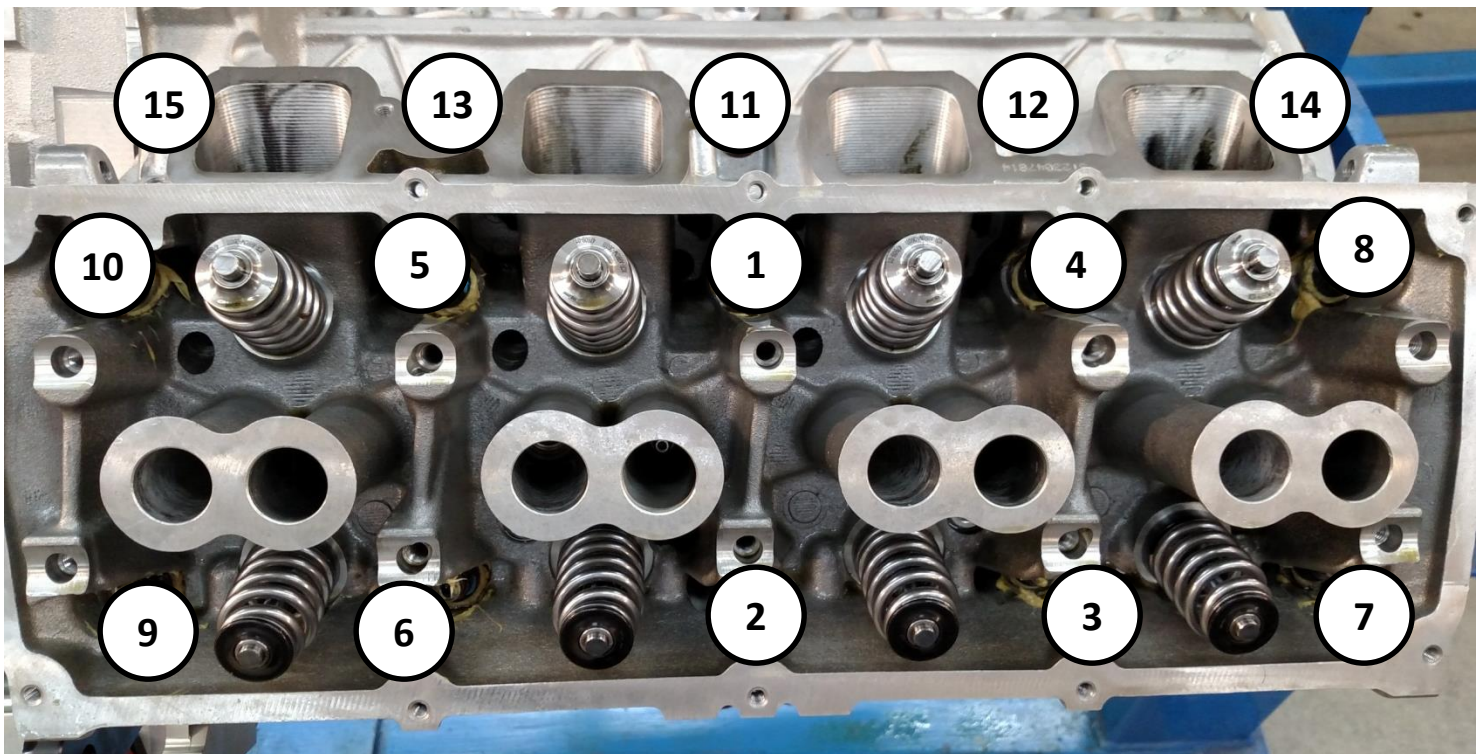
## **GEN III HEMI 5.7L, 6.1L, 6.2L, 6.4L CYLINDER HEAD STUD KIT KIT**

**THE FOLLOWING INSTRUCTIONS MUST BE CAREFULLY STUDIED AND UNDERSTOOD BEFORE YOU REMOVE YOUR CYLINDER HEADS. IF THIS WORK IS ABOVE YOUR SKILL LEVEL, HAVE THE CYL HEAD STUDS INSTALLED BY AN ENGINE BUILDER PROFESSIONAL. FAILURE TO FOLLOW THESE INSTRUCTIONS MAY VOID YOUR WARRANTY.**

1. DON'T NOT WORK ON THE ENGINE IF IT'S HOT, WAIT TILL ENGINE COOLS OFF. (IF THE ENGINE IS OUT OF THE CAR GO TO STEP #4)
2. IF ENGINE IS IN THE CAR, DISCONNECT THE NEGATIVE BATTERY CABLE.
3. IF THE ENGINE IS IN THE CAR, DRAIN THE COOLANT (ONLY IF THE ENGINE IS COOL), PER *MOPAR* OR EQUIVALENT SHOP MANUAL INSTRUCTIONS (INSTRUCTIONS WILL VARY, DEPENDING YEAR & VEHICLE MODEL) NOTE: IF ENGINE IS REMOVED FROM CAR SKIP TO STEP #8
4. DISCONNECT THE WIRING HARNESS FROM THE FUEL INJECTORS, & COIL PACKS, PER *MOPAR* OR EQUIVALENT SHOP MANUAL INSTRUCTIONS (INSTRUCTIONS WILL VARY, DEPENDING YEAR & VEHICLE MODEL)
5. BLEED OFF PRESSURE FROM THE FUEL INJECTION SYSTEM, PER *MOPAR* OR EQUIVALENT SHOP MANUAL INSTRUCTIONS (INSTRUCTIONS WILL VARY, DEPENDING YEAR & VEHICLE MODEL), THEN DISCONNECT THE FUEL SUPPLY LINE TO THE FUEL RAILS, USING THE APPROPRIATE FUEL LINE DISCONNECT TOOL. SEE THE *MOPAR* OR EQUIVALENT SHOP MANUAL INSTRUCTIONS, & REQUIRED TOOLS.
6. REMOVE CLEAN AIR DUCT FROM THROTTLE BODY
7. REMOVE EXHAUST MANIFOLDS PER *MOPAR* OR EQUIVALENT SHOP MANUAL INSTRUCTIONS, (INSTRUCTIONS WILL VARY, DEPENDING YEAR & VEHICLE MODEL)
8. REMOVE INTAKE MANIFOLD PER *MOPAR* OR EQUIVALENT SHOP MANUAL INSTRUCTIONS (INSTRUCTIONS WILL VARY, DEPENDING YEAR & VEHICLE MODEL)
9. REMOVE COIL PACKS PER *MOPAR* OR EQUIVALENT SHOP MANUAL INSTRUCTIONS (INSTRUCTIONS WILL VARY, DEPENDING YEAR & VEHICLE MODEL)
10. REMOVE CYLINDER HEAD TAPPET COVER PER *MOPAR* OR EQUIVALENT SHOP MANUAL INSTRUCTIONS (INSTRUCTIONS WILL VARY, DEPENDING YEAR & VEHICLE MODEL)
11. REMOVE INTAKE & EXHAUST ROCKER ARM SHAFTS PER *MOPAR* OR EQUIVALENT SHOP MANUAL INSTRUCTIONS, NOTE THE LOCATION OF EACH ROCKER SHAFT ASSY, SO IT CAN BE REINSTALLED IN THE SAME LOCATION LATER.
12. REMOVE INTAKE & EXHAUST PUSHRODS , NOTE THE LOCATION OF EACH PUSHROD REMOVED, SO IT CAN BE REINSTALLED IN THE SAME LOCATION LATER.
13. REMOVE CYLINDER HEAD BOLTS
14. REMOVE CYLINDER HEADS (MARK/LABEL THE HEADS LT & RT)
15. CLEAN AND INSPECT THE CYLINDER BLOCK DECK FACE & CYLINDER HEAD DECK FACE FOR ANY ISSUES & MAKE SURE THE CYLINDER HEAD IS WITHIN FLATNESS SPECIFICATIONS PER *MOPAR* OR EQUIVALENT SHOP MANUAL (SPECIFICATIONS WILL VARY, DEPENDING YEAR & VEHICLE MODEL) & REPLACE OR REBUILD THE CYLINDER HEAD IF IT'S WARPED, OR CRACKED, OR THE VALVE GUIDES & VALVES OR VALVE SEATS HAVE BEEN DAMAGED OR OUT OF SPECIFICATIONS. (UPGRADED 6.4L CYLINDER HEADS, OR PERFORMANCE CNC PORTED 6.4L CYLINDER HEADS ARE AVAILABLE FROM ARROW RACING ENGINES, SEE PG.2 FOR A LIST OF CYLINDER HEAD OPTIONS)

## GEN III HEMI 5.7L, 6.1L, 6.2L, 6.4L CYLINDER HEAD STUD KIT KIT

16. AFTER ALL THE PARTS HAVE BEEN CLEANED & INSPECTED, & CHECK OUT OKAY, INSTALL NEW MOPAR OR EQUIVALENT CYLINDER HEAD GASKETS. (SEE PG. #2 FOR A LIST OF MOPAR CYLINDER HEAD GASKET P/N'S) **IMPORTANT:** WHEN INSTALLING THE CYLINDER HEAD GASKETS, MAKE SURE THE WORD "UP" IS FACING UP. NOTE: IF THERE WAS A CYLINDER HEAD COOLANT LEAK, & A DEFINITE REASON HAS NOT BEEN FOUND WHAT CAUSED THE COOLANT LEAK, INSTALLING NEW HEAD STUDS WILL NOT FIX THE COOLANT LEAK ISSUE.
17. INSTALL THE CLEANED & INSPECTED, OR REPLACEMENT CYLINDER HEADS, ON THE NEW CYLINDER HEAD GASKETS, LOCATING THE CYLINDER HEAD ON THE DOWELS IN THE CYLINDER BLOCK DECK FACE. NOTE: THERE IS A DIFFERENCE BETWEEN THE LEFT & RIGHT CYLINDER HEAD. THE LEFT CYLINDER HEAD HAS (3) TAPPED HOLES IN A TRIANGLE PATTERN THAT WILL BE FACING FORWARD WHEN THE CYLINDER HEAD IS INSTALLED ON THE LEFT BANK. (ALSO CYLINDER HEAD PART NUMBER WITH THE LAST DIGIT IS AN ODD NUMBER IS THE LEFT CYLINDER HEAD, & IF THE LAST DIGIT IS AN EVEN NUMBER IS THE RIGHT CYLINDER HEAD)
18. APPLY ARP ULTRA-TORQUE FASTENER ASSY LUBE TO THE THREADS OF THE STUDS & THREAD THE STUDS INTO THE CYLINDER BLOCK & TORQUE HEAD STUDS, PER THE ARP BOLTS INSTRUCTIONS. **IMPORTANT:** OVER TIGHTENING THE STUDS INTO THE CYLINDER BLOCK COULD CAUSE DAMAGE TO THE CYLINDER BLOCK!
19. APPLY ARP ULTRA-TORQUE FASTENER ASSY LUBE TO THE BOTTOM SURFACE OF THE ARP HEAD STUD NUTS, & HAND SNUG ALL THE CYLINDER HEAD STUD NUTS.
20. TORQUE THE HEAD STUD NUTS, IN 3 STEPS OF (30 Ft-Lb, 60 Ft-Lb, 80 Ft-Lb) FOLLOWING THE TORQUE SEQUENCE SHOWN BELOW FOR EACH STEP OF THE TORQUE SEQUENCE.

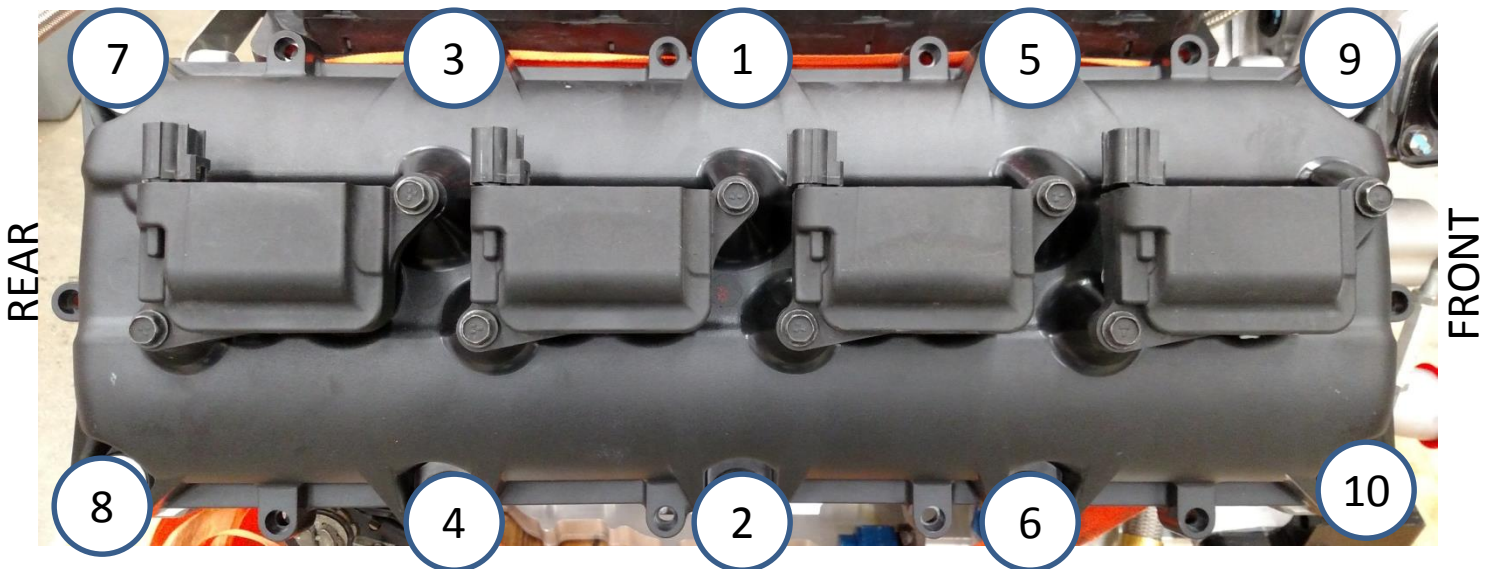


LEFT CYLINDER HEAD SHOWN



## GEN III HEMI 5.7L, 6.1L, 6.2L, 6.4L CYLINDER HEAD STUD KIT KIT

21. CLEAN & INSPECT, & IF NEEDED REPLACE ANY DEFECTIVE PUSHRODS. INSTALL THE CLEANED PUSHRODS IN THE SAME LOCATION AS THEY WERE REMOVED FROM.
22. CLEAN & INSPECT, & IF NEEDED REPLACE ANY DEFECTIVE ROCKER ARMS. INSTALL THE CLEANED ROCKER ARM ASSY IN THE SAME LOCATION AS THEY WERE REMOVED FROM.
23. MAKE SURE ALL THE PUSH ROD END BALLS ARE "SEATED" CORRECTLY IN THE LIFTER BALL SOCKET, & ROCKER ARM BALL SOCKET, THEN FROM THE CENTER ROCKER ARM SHAFT BOLT HAND SNUG THE ROCKER SHAFT BOLTS, TIGHTENING THE BOLTS IN STEPS WORKING BACK & FORTH TIGHTENING THE ROCKER SHAFT BOLTS TILL THE ROCKER SHAFT IS TOUCHING THE CYLINDER HEAD ROCKER SHAFT SADDLE, THEN TORQUE TO 18 Ft/Lb. **IMPORTANT:** RECHECK ALL THE PUSHROD BALL ARE SEATED CORRECTLY. IF PUSHROD BALL IS NOT SEATED CORRECTLY, IT MAY CAUSE THE VALVE TO HIT THE PISTON & CAUSE CATASTROPHIC ENGINE FAILURE!
24. CHECK & CLEAN IF REQUIRED THE CYLINDER HEAD TAPPET COVERS. REPLACE THE TAPPET COVER GASKETS, IF THEY HAVE ANY CUTS OR NICKS. (IF REQUIRED NEW MOPAR TAPPET GASKET KIT; P/N: 05114179AB, GASKET KIT CONTAINS ALL THE GASKETS FOR ONE TAPPET COVER, (2) REQ'D PER ENGINE)
25. INSTALL THE TAPPET COVERS, AND HAND SNUG THE BOLTS, THEN TORQUE THE BOLTS TO 100 In/Lb IN THE SEQUENCE SHOWN BELOW.

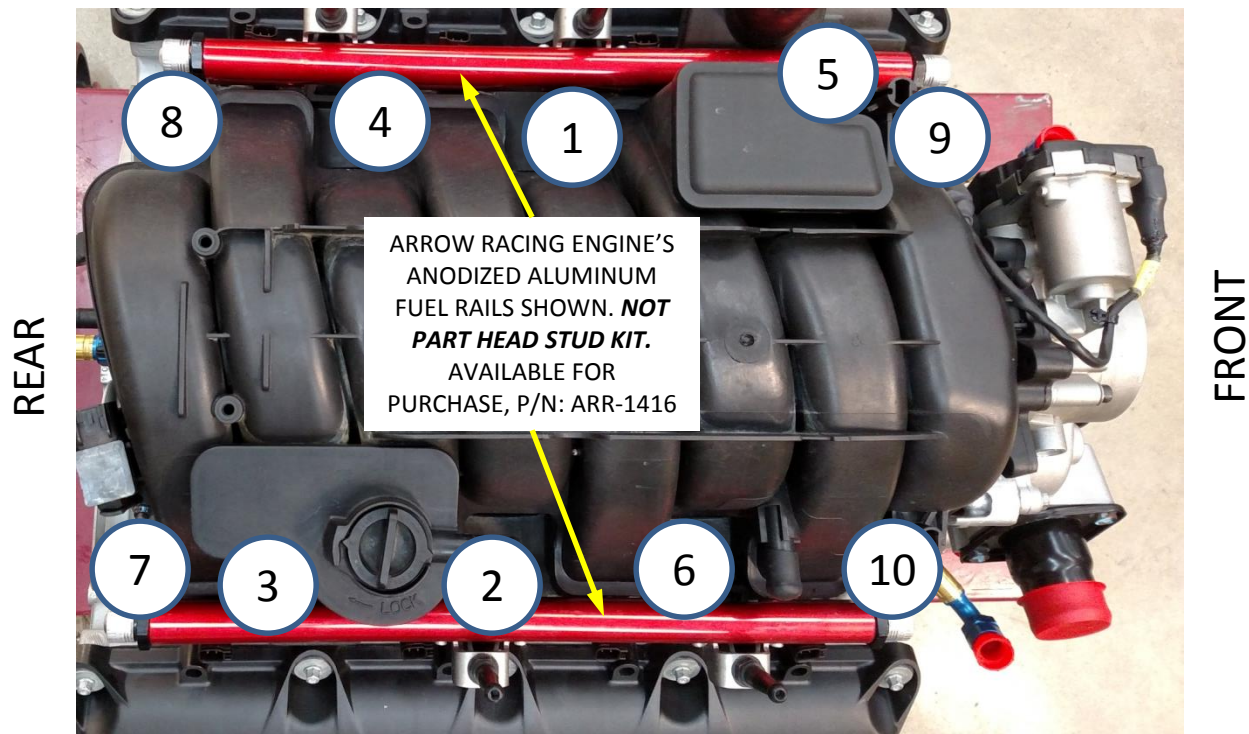


**RIGHT TAPPET ROCKER COVER**

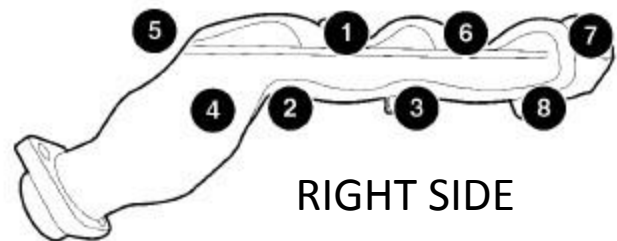
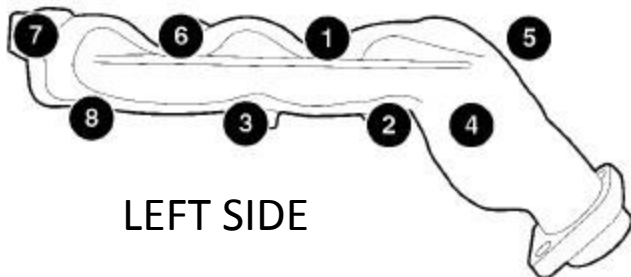
26. INSTALL THE SPARKPLUGS, IF THEY WERE REMOVED, & TORQUE TO 13 Ft/Lb
  27. INSTALL THE COIL PACKS AS SHOWN ABOVE, & TORQUE THE COIL PACK BOLTS TO 100 In/Lb
  28. CLEAN & INSPECT THE INTAKE MANIFOLD, & REPLACE THE INTAKE MANIFOLD TO CYLINDER HEAD GASKETS IF REQUIRED.
- 5.7L, 6.2L, 6.4L; INTAKE PORT PRESS-IN-PLACE GASKET, P/N: 53022143AB, (8) REQ'D PER ENG, PCV RECTANGLE PRESS-IN-PLACE GASKET, P/N: 53022142AB, (2) REQ'D PER ENG
- 6.1L; INTAKE MANIFOLD TO CYLINDER HEAD GASKET, P/N:05037503AA, (2) REQ'D PER ENG

## GEN III HEMI 5.7L, 6.1L, 6.2L, 6.4L CYLINDER HEAD STUD KIT KIT

29. INSTALL INTAKE MANIFOLD, & HAND SNUG THE BOLTS, & THEN TORQUE TO 100 In/Lb, IN THE SEQUENCE SHOWN BELOW.



- 30. INSTALL THE FUEL RAILS IF THEY WERE REMOVED, PER *MOPAR* OR EQUIVALENT SHOP MANUAL INSTRUCTIONS (INSTRUCTIONS WILL VARY, DEPENDING YEAR & VEHICLE MODEL) **NOTE:** IF THE ENGINE IS OUT OF THE CAR, THEN THIS IS THE LAST STEP.
- 31. HOOK UP FUEL LINE TO FUEL RAIL (IF ENGINE IS INSTALLED IN A CAR)
- 32. HOOK UP THE WIRING HARNESS TO THE FUEL INJECTORS, COIL PACKS, MAP SENSOR, & THROTTLE BODY. (IF ENGINE IS INSTALLED IN A CAR)
- 33. INSTALL NEW EXHAUST MANIFOLD GASKETS, & BOLTS, & TORQUE BOLTS TO 23 Ft/Lb IN THE SEQUENCE SHOWN BELOW.



6.1L, 6.2L, 6.4L; LT EXH MANIFOLD GASKET P/N: 05038099AA, RT EXH MANIFOLD GASKET P/N: 05038098AA, HEX HEAD FLANGE BOLT P/N: 06503131, M8-1.25 X 30mm, (16) REQ'D. PER ENG

5.7L; LT EXH MANIFOLD GASKET P/N: 05045495AA, RT EXH MANIFOLD GASKET P/N: 05045496AA, HEX HEAD FLANGE BOLT P/N: 06510140AA, M8-1.25 X 48.5mm, (8) REQ'D. PER ENG, DOUBLE ENDED HEX HEAD STUD P/N: 06510141AA, M8-1.25 X M6-1.0 X 75.5mm , (4) REQ'D. PER ENG, DOUBLE ENDED HEX HEAD STUD P/N: 06509863AA, M8-1.25 X M6-1.0 X 75.5mm , (4) REQ'D. PER ENG, HEX HEAD FLANGE LOCK NUT P/N: 06505316AA, M6-1.0 , (8) REQ'D. PER ENG,



## **GEN III HEMI 5.7L, 6.1L, 6.2L, 6.4L CYLINDER HEAD STUD KIT KIT**

34. HOOK UP THE CLEAN AIR DUCT TO THE THROTTLE BODY, & TIGHTEN THE HOSE CLAMP
35. HOOK UP BRAKE BOOST HOSE, PURGE HOSE, & MAKE-UP AIR HOSE. SEE *MOPAR*, OR EQUIVALENT SHOP MANUAL IF NEEDED FOR CORRECT LOCATIONS
36. INSTALL OIL DRAIN PLUG, & NEW FILTER, IF THEY WERE REMOVED, & FILL WITH THE RECOMMENDED TYPE & AMOUNT OF ENGINE OIL, PER THE *MOPAR*, OR EQUIVALENT SHOP MANUAL
37. FILL THE COOLING SYSTEM WITH THE RECOMMENDED COOLANT, PER THE *MOPAR*, OR EQUIVALENT SHOP MANUAL PROCESS.
38. DOUBLE CHECK TO MAKE SURE ALL ELECTRICAL CONNECTORS, HOSES, ARE HOOKED UP IN THE PROPER LOCATION, & ALL BOLTS ARE TO THE PROPER TORQUE, PER THE *MOPAR*, OR EQUIVALENT SHOP MANUAL
39. HOOK UP THE BATTERY CABLE, & START THE ENGINE & CHECK FOR COOLANT, & FUEL LEAKS.
40. AFTER ENGINE REACHES OPERATING TEMP, ADD COOLANT IF NEEDED.
41. INSTALL THE COIL COVERS, OR ENGINE COVERS