



# 455 STAGE 1,2,3,4 SE & TE HEAD INSTALLATION

Your Serial Number

Keep this serial number with your records

This sheet contains important information about your new TA Performance Aluminum Cylinder Heads. Keep for future reference.

## Important Notes Prior To Installation

When using a high performance specialty gasket such as the TA 1723C "Orange Crush" head gasket, it is imperative that the special torque procedures listed below are used. The following instructions represent proven procedures on how to seal the Buick Big Block to withstand 10:1 up to 13:1 Compression ratios without using an O-ring. The Unique design of the "Orange Crush" gasket incorporates a special composite material that seals under pressure. During the torquing process, initial torque is reduced by as much as 50% over a 24 hour period. So repeated torquing is required for superior sealing. **For BEST results we recommend the use of the TA 1723C "Orange Crush" head gasket.** However, if another brand of composite gasket is going to be used, we recommend drilling (in the gasket) a 5/16" or 3/8" coolant hole in the three positions on the exhaust side to correspond with the three coolant passages in the block, then follow the torque procedure below.

- If using Head Studs with TA aluminum heads, a special hardware upgrade kit is available which will include (4) each 3/8" studs, nuts and washers for position #'s 11,12,13,14 as well as (2) 1/2" 12 Point nuts to be used at position #'s 8 & 10.
- If using Head Bolts with TA aluminum heads, a special hardware upgrade kit is available which will include (4) each 3/8" studs, nuts and washers for position #'s 11,12,13,14.

TA Stage 1  
TA Stage 2,3,4

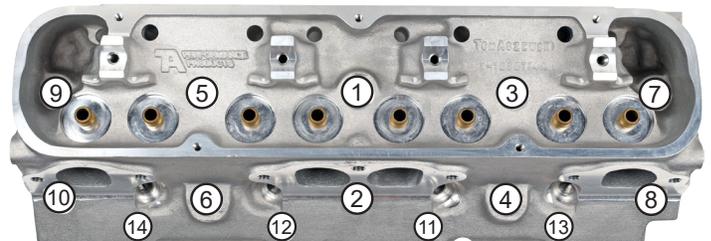
Opt. Head Bolt Kit (TA 1129X)  
Opt. Head Bolt Kit (use TA1136X)

Opt. Head Stud Kit (TA 1134X)  
Opt. Head Stud Kit (TA 1136X)

If electing to use the four additional head bolt/stud positions on our Stage 1 SE/TE heads, please consider the following: Use of the four extra fasteners will slightly reduce the amount of thread engagement for some of the header bolts. Extreme care must be taken to prevent damage to those threads. Shortening of the header bolts may be necessary. Use of studs in place of header bolts for those positions may also be more practical than bolts. To incorporate the extra bolt holes in our Stage 1 SE/TE heads: from the underside drill the remaining portion of the bolt hole with a 25/64" (.390") drill bit.

**Note:** When torquing bolts it is important to use a continuous motion until necessary torque is obtained. If you stop prior to achieving the desired torque, break the bolt loose (about 1/8 turn from where you stopped) and redo.

1. Clean and inspect all hardware prior to installation.
2. To ensure proper thread engagement and accurate torque readings, clean all threads in the block. Chase threads if necessary.
3. Lubricate the bolt or studs, nuts and washers with ARP Ultra-Torque Fastener Assembly Lubricant. **TA Performance recommends using ARP Ultra-Torque Fastener Assembly Lubricant that is provided with our ARP bolt/stud kits as opposed to motor oil. This is due to inconsistencies in the clamping force of the fasteners when motor oil or other low quality lubricants are used.**
4. Install the cylinder heads.
5. Screw bolts/studs into the block hand tight. Install the washers and nuts onto the studs and tighten them hand tight.
6. Follow the recommended torque sequence on the figure below to tighten the bolts/nuts in two equal increments.



Note: Bolt #'s 11,12,13 and 14 are for optional use on TA Aluminum Heads.

**Increment #1:** Torque all bolts to **30 ft/lbs** in sequence

**Increment #2:** Torque all bolts to **55 ft/lbs** in sequence (this is max/final torque for bolts #11-14)

**Increment #3:** Torque bolts **#1-10** to **100 ft/lbs** in sequence (this is max/final torque for bolts #1-10)

During the next couple days we recommend re-torquing the heads three more times. First within 6-8 hours (or overnight) and once approx. 24 hours after that, and then again in another 24 hours or as time permits. In the torque sequence, one at a time, break the bolt/stud loose 1/8 of a turn, then re-torque it to full torque spec with one pull. I.E.: break #1 loose 1/8 turn then torque to 100 ft/lbs, break # 2 loose 1/8 turn and then torque to 100 ft/lbs, etc. DO NOT let the bolt stud stop moving until it reaches full torque. When re-torquing bolt #'s 11-14, do not break loose - just torque at 55 ft/lbs.

- Torque Intake Manifold bolts to 45 ft/lbs.
- On assemblies with dual valve springs that have open pressures above 300lbs on a flat tappet cam, we recommend breaking in the camshaft with the INNER springs removed, otherwise camshaft failure is more likely to occur. After proper cam break-in, re install the inner springs. Our TA 2125 valve spring compressor tool will make this task easier.
- To prevent corrosion, use an aluminum safe coolant with distilled water and a radiator/coolant conditioner such as RMI-25, Part Number TA 1799.
- Use a gasket type spark plug such as NGK BP5ES, BCPR9ES, R5671A-9 or equivalent.
- Use an anti-seize compound on the spark plug threads.
- On regularly driven applications and/or applications that will be driven in cooler weather conditions such as below 60 degrees, you can drill a 3/8"-7/16" hole in the center of each head on the intake side to allow coolant to pass through the underside of the intake manifold. This will warm the carburetor in a similar manner that the original heat cross over system did. This will provide better fuel economy and keep less raw fuel from entering the chamber