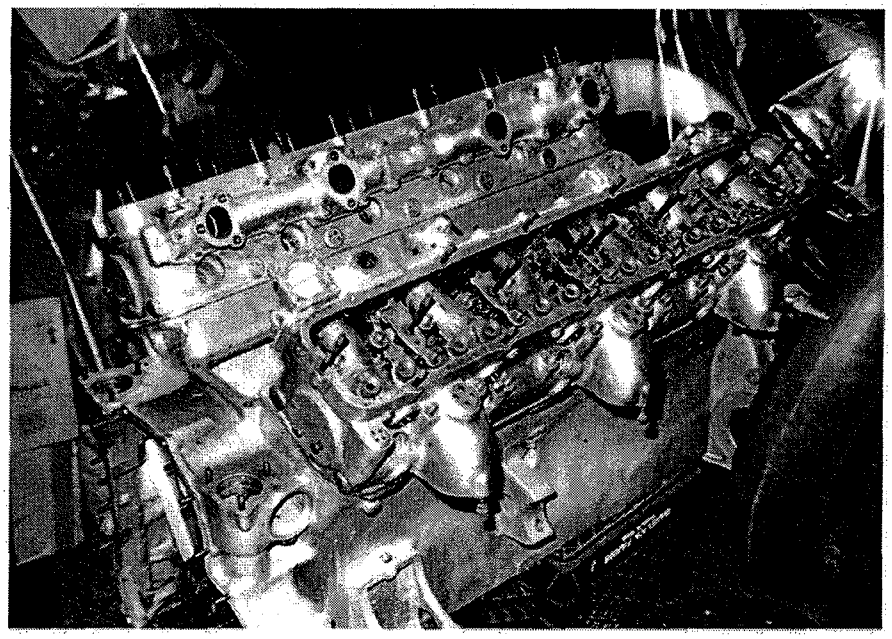


Not quite the same Phantom engine as in the text, but this PIII engine is similarly prone to stuck heads as steel studs and aluminum heads create electrolytic action that glues them solid.

Removing a Stuck Aluminum Head

By HERBERT TOBIN, CT

I recently had to remove the aluminum cylinder head from my Phantom II, 281AJS. What I learned while doing this may be of interest to other club members.

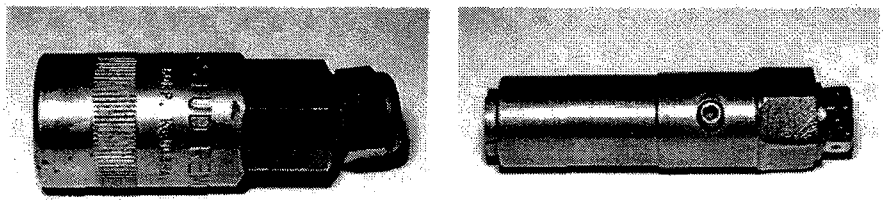
Removing a head stuck into place by electrolytic corrosion can be a risky operation and there are several proven, safe and reliable ways to remove heads that have been used for years by top restorers and experts in the club. There are also a number of less-than-satisfactory methods that should not be attempted under any circumstance. Unlike these "creative" methods, the procedures outlined are proven safe and do not run any risk of damaging the head or block mating faces, the con rods or other key engine components. Regardless, use caution when undertaking the removal of a stuck head and contact the club technical advisors if you have doubts about how to proceed.

Though I have only used this method personally on my Phantom II, I am told that the method should be applicable to heads ranging from the late PI aluminum heads right through to the post-war Cloud/S six-cylinder engines.

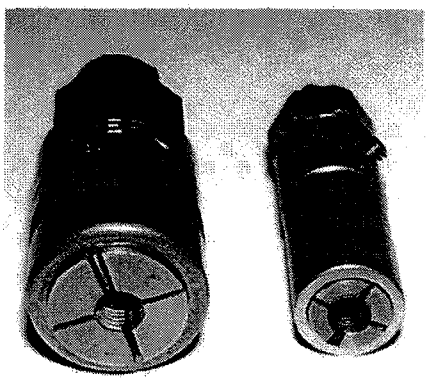
The engine in 281AJS had last been apart for major engine work in 1963. In fact, I remember being in the middle of cleaning out the oil pan when I heard the news of President Kennedy's assassination. Since then, the head had not been off.

The car saw a lot of use when I first acquired it, but for the last 15 or 20 years it has been mostly inactive. There were periods during this time when the car would sit for years between being run.

I set out to remove the head by removing all of the usual manifolding, wire looms, rocker shafts, etc. The specific steps are all spelled out in the manuals and handbooks that I have obtained from RROC over the years. Everything went along smoothly.



Two stud removers, one commercial (above left) and one made by the author (above right).



The business end of the stud removers showing the collets made by the author. They grip studs without crimping or damaging them, even when only a fraction of an inch is reachable.

When I removed the head bolts, however, the head refused to budge. At first I tried lifting it from above by hand. This has always worked for me on this car and the many others I've worked on. Nothing moved.

I tried applying gentle pressure with an hydraulic ram pushing up on the head where it is exposed between the front and rear cylinder blocks. Again nothing moved and this time it looked like there was a risk of doing serious damage to the head or crankcase.

Consulting back issues of *The Flying Lady*, I found that a sticking head is a common occurrence on aluminum heads. It results from electrolytic action that causes corrosion between the steel studs and the aluminum head and virtually welds the heads to the studs through a combination of rust and white aluminum oxide powder. The ways suggested for removing these stuck heads have consisted of specialized hole saws which are used to drill out a space between the studs and the head, along with hardwood wedges driven into the sides of the head gasket. In extreme cases it is suggested to drill out the studs completely.

After consulting with RROC member Bill Butler (Yankee Region), I was put in touch with one John O'Shea who had been through a similar problem, but on an L-head Packard. John said that he had tried the hole saws (see: FL83-3, p. 2716) but that the saws were continually breaking up. What had worked for him, he said, was to use a stud remover and break up the corrosion by rotating the studs. I decided to take his advice.

Snap-On makes a stud remover, which consists of a heavy tapered housing into which a collet is drawn. The collet is internally threaded to match the threads of the