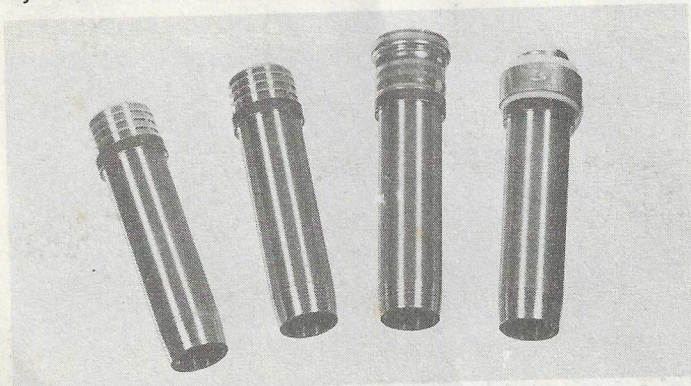


The head bolts must be tightened in several "steps." Tests have shown that if bolts are torqued in 10- or 15-ft/lb increments they will seat 1/8-1/4 turn deeper in the thread bores. This means that the head gaskets will be compressed more tightly, providing a better seal.

The W-2 "A" engine (the 340-cid engine series) head casting is the hottest item released for the smallblock racer in many moons. The intake and exhaust ports were completely reshaped to do one job — flow air! And, though the "B" engine project was undertaken with equal candor and optimism, very little is heard about the work. The W-2 "B" engine heads did not develop into a replacement for the Max-Wedge castings for one simple reason — they just didn't work! The redesigned ports for the "A" engine are a significant improvement however, when this same design technology was applied to the "B," the results showed no improvement at all. This does not mean that further development would be equally disappointing but as far as is known all work on a replacement "B" head has been stopped. With the current trend toward smaller engines it also seems unlikely that the project will ever be resumed (unfortunately!). The accompanying photos of this unique casting (there was only one pair built) are presented so that those interested may be aware of the past efforts toward better air flow.

### VALVETRAIN

The "B" series rockertrain is a shaft-supported system that is ideally suited for high-performance



Replaceable valveguide inserts can "save" a cylinder head that has extensive guide wear. Replaceable guides are also used to sleeve down the guides when small-stem racing valves are installed. They should be installed by a very competent machine shop or a specialty cylinder head prep shop.

use. The rocker arms are held in proper alignment and are supported by a central shaft that is located to the cylinder head by five 3/8-inch National Coarse bolts. Pre-1964 casting used aluminum support blocks to space the rockershaft from the head. These blocks were cast and had only the minimal amount of metal to do the job. They were eliminated in 1964 by using "cast-in" stands that are part of the cylinder head. These do a better job of holding the shaft and they prevent some of the flexing that plagued the early support-block system.

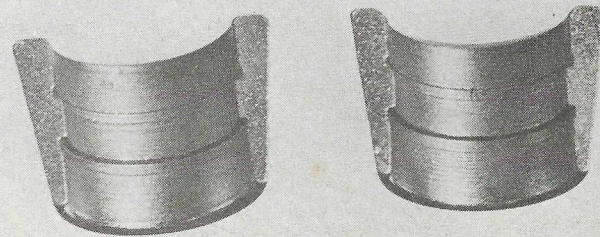
It is now common and legal in many racing classes to mill off the cast stands and use machined steel or aluminum support blocks. The new blocks are sturdier than those of the old design and proponents of this new system claim that the rockershafts are even more firmly held than is possible with the cast-in type. This modification should only be considered by those interested in extracting the last ounce of power (see further details in the "A" engine section). In all other situations the cast-in stands are very acceptable.

### GUIDES

In the last section we discussed the use of bronzewall guides as a method of minimizing wear. Both friction and wear can be further reduced by using hard-chrome plated valve stems. The hard chrome provided a very slippery surface and ideal bearing interface with bronze. Further, the use of hard chrome with standard cast-iron guides is a welcome deterrent. The 440 6-pack engine used chromed-stem valves (PN 3418475-intake, 3418479-exhaust), another special touch on this "last-of-the-breed" performance engine. The intake also used a single-groove stem lock to accommodate the unique "non-rotating" spring retainers, an important improvement for high-rpm potential.

### LOCKS

The intake and exhaust valves hold the retainers with the usual half locks, but not all half locks are the same. Typically, both the intake and exhaust valves



When the P-part single-lock-groove valves are used, fully-machined valve locks can be used. These are much stronger than the stamped two- and three-groove locks.