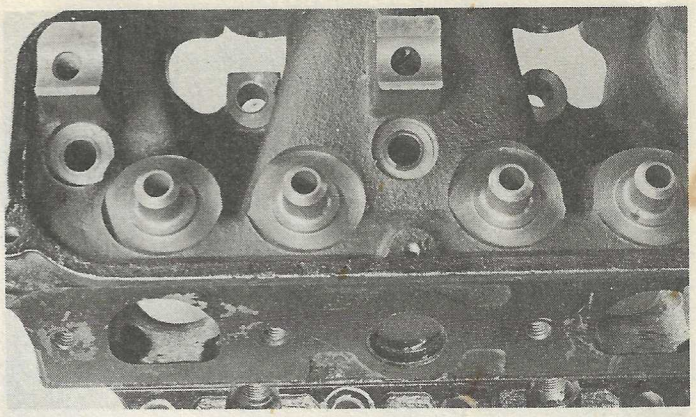
A very high level of performance can only be achieved with an equally high degree of porting. Full-competition porting, as it is most often called, is very costly, and not well suited to street use, because of the usual sacrifice in bottom-end power. The intake and exhaust ports must be enlarged to their absolute limits in order for the wedge "B" to flow sufficiently to be competitive with other engines that have better stock port designs; *i.e.*, Hemi, Cleveland Ford, etc.

For unlimited racing the intake pocket should be enlarged to accept the 2.19-inch P-part valve. The exhaust port should utilize the 1.75-inch valve. Both ports must be carefully checked with a flow bench during the porting process. There is very little data available on the fully-ported "B," however a 30% improvement can be attained if the greatest care is practiced. The engine builder who attempts all-out modification on his own can find very little valid guidance. These modifications are subtle in nature and the most effective techniques are virtually impossible to describe in words and photograph. Bob Mullen has spent some time with the wedge "B" and he has helped in many drag racing and Nascar projects. He is an excellent source of information and advice if extensive rework is desired.

The decision to invest in porting the "B" should be made carefully. If you are planning a street, bracket or casual racer, porting (or at least extensive porting) should be avoided, as the cost versus the performance gained is high. If the performance level required *must* be near the maximum, the cost for the preparation of the cylinder heads will also be maximum — it is not uncommon to pay $1,000 for a pair of all-out ported heads. The accompanying "cost-effective" chart can be consulted to determine cost performance levels.

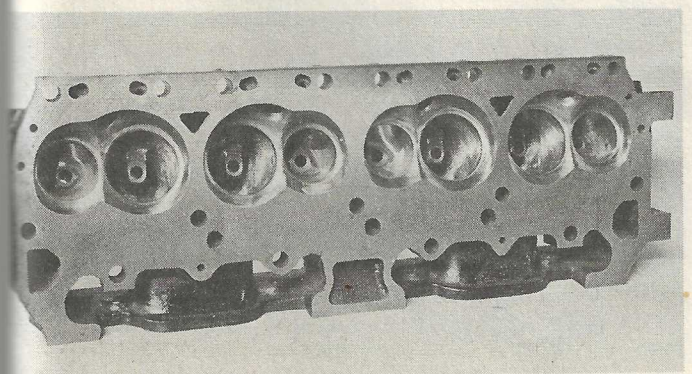
Cost/Performance Porting

Use	Prep. Done	Cost	Approx. ET 3200lb Car
Street	Valve job surface deck spring, seals	$150	14.5-to 13.5
Street/Strip	All above + gasket match 1.75 Exh.	$175	14.5-to 13.0
Bracket Race	All above + pocket port	$300	13.5-to 12.5
Racing	All above + flow-bench porting	$400	13.0-to 12.0
Serious Racing	All above + all-out ports large valves	$700-to $900	10.5-to 11.5

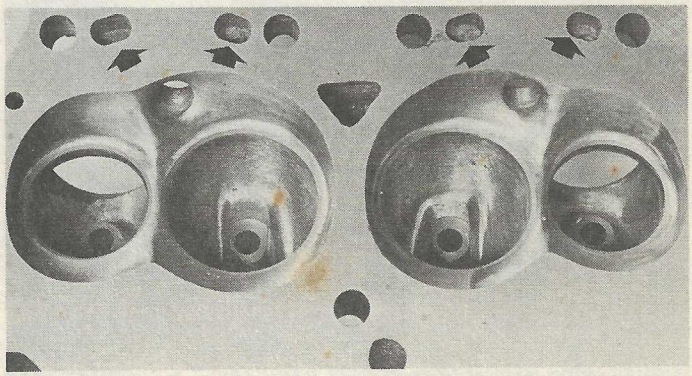


This casting has additional material on the roof of the port to allow further porting. It is possible, however, that no improvement in flow will be gained until the intake valve size is increased to 2.19 inches or larger.

A fully-modified intake port can be expected to flow approximately 100 cubic feet of air per minute (cfm). This is much less than the fully-ported Hemi (135 cfm) or the Cleveland Ford (125 cfm). The maximum flow level is limited by the maximum cross-sectional area that can be achieved by port grinding (there are other limitations but sectional area is always a prime consideration for maximum flow studies). This is, of course, determined by the basic casting design. The intake flow cannot be improved much beyond the 100-cfm limit without very extensive welding and *external* modification of the port walls. An attempt was made by Chrysler several years ago to develop a new head casting for the "B" that would bolt on the block and use the intake manifold, but would have the intake and exhaust ports redesigned for maximum airflow. This project was a parallel study with the W-2 head design for the "A" engine.



Although the engineers must have had something in mind, this constructive chamber shape could be part of the reason for the disappointing flow. Since the exhaust area is almost closed off from the spark plug, flame travel would be unusual."



A closer view reveals the details of the W-2 chamber. Note the additional water passages to cool the area around the 10-mm taper-seat spark plugs. The piston dome required to fit this chamber and still gain a desirable compression ratio would be a dandy!