MAXI MUSCLE FOR FORD'S MINI

In this second article in our Boss prepping series we examine the factory recommended mods for the little 302

BY FRED FREEL

UNLEADED FUEL WILL undoubtedly have a great effect on engine design in the next few years, as can already be witnessed in the lower compression ratios and "discontinued" designs from Detroit. The 302 Boss engine was only with us for a short year and a half, yet even in that short time it made quite a name for itself. Since the production version is no longer available from the factory, the only way possible to get your hands on a complete engine will be to buy a used Boss Mustang or stand in line at your neighborhood Ford parts counter. There has been no indication of how long the engines will be supplied by Ford, but they are used in Trans-Am racers and it'll *have* to be a *production* engine.

From the latest information available at press time the Boss 351 will take the 302's place sometime around the first of the year. The two engines are decisively different in both manufacture and specification, so all the recommendations made here pertain to the 302 *only* until we can be more certain of the newer Boss' design and tune.

There are basically two different approaches to use when modifying the Boss for competition. The factors are, of course, determined by the type of racing you plan to do. For production catagories, where engine modification is limited, many of the production 302-B components can be used with few exceptions. Ford should really be congratulated for assembling such a race-worthy production engine! However, for all-out competition only (C.O.) special "over the counter" pieces are available to practically change the personality of the little Dearborn screamer.

Our major interest here is modification. Space doesn't allow us to go into blueprinting, so we'll just touch on the important points here, and get on to the real nitty-gritty. If you follow all of the prescribed procedures using *exactness* as a guide, you may well have the "runnin'st" Boss in town.

Since a major blueprint is recommended for *any* type of competition engine, all of the necessary machine work should be farmed out, unless you have the necessary equipment available. Attention to detail and tolerances can make or break a good race engine, so be certain that *you* double-check all the machine shop's specs. A little attention will undoubtedly give you better finished components. The highlights of the blueprint are as follows:

Disassembly: Check for misalignment and warpage of all machined surfaces.

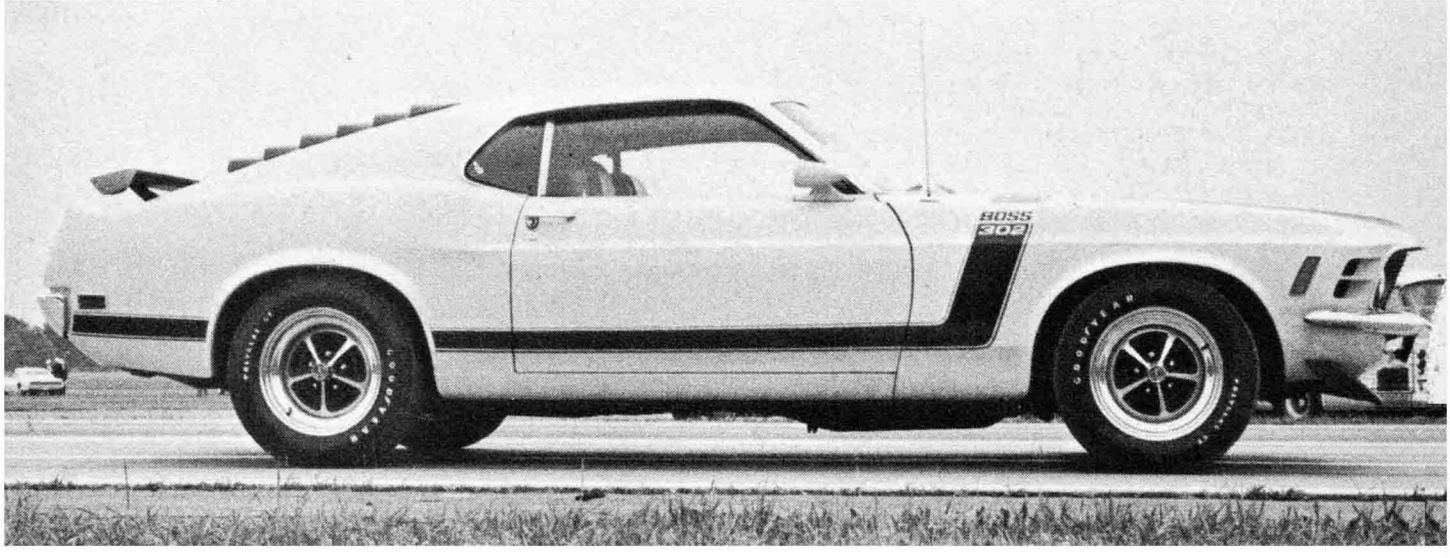
Measure and record all deck heights.

Measure rod side clearance.

Measure crankshaft end play.

Check rod/main bearing clearances.

Cylinder block: Check cylinder clearance and hone to size with a 45-degree cross pattern #150-180 stone.



The Boss 302 V-8 was (*is*?) probably the most advanced non-Hemi design ever to emanate from Detroit. "Obsolete" Boss parts are still *boss* and available.

Maximum out-of-round and taper should not exceed .100-inch, with a maximum barrel or "hour glass" of .0005-inch.

Mill and/or correct all alignment of machined surfaces.

Remove *every* sharp edge and smooth all "lumpy" spots or casting flash you can reach.

Crankshaft: With a micrometer, check all bearing journals for roundness and taper holding specs to ±.003inch.

Clean and balance.

Connecting rods: Insure correct side clearance.

Check big-end roundness.

Adjust alignment.

Cylinder heads: "Stock" valve job.

CC combustion chambers.

As much of the above requires special tools and equipment, it's best left to an automotive machine shop, but much of the actual "cleaning up" can be done with a minimum of power tools.

The factory-production 302-B engine was originally designed to operate at engine speeds of up to 7000 rpm. Yet, to really take advantage of the powerplant's huge valves and ports, it's necessary to run the engine with a *mid*-power range of 7000! That is to say, the engine really starts to turn on at around 6000 rpm, and doesn't peak out until 8000, or maybe 8500 rpm. The standard bits 'n pieces just aren't up to the job, so Ford has made a very complete selection of C.O. parts available over the parts counter to bring the 302-B block up to full-race specs.

Although many of the newly announced Boss Muscle Parts have been around for a while, most were used only in factory racing applications. Now that Ford has decreased its racing efforts, the parts are being put into limited production for all to acquire.

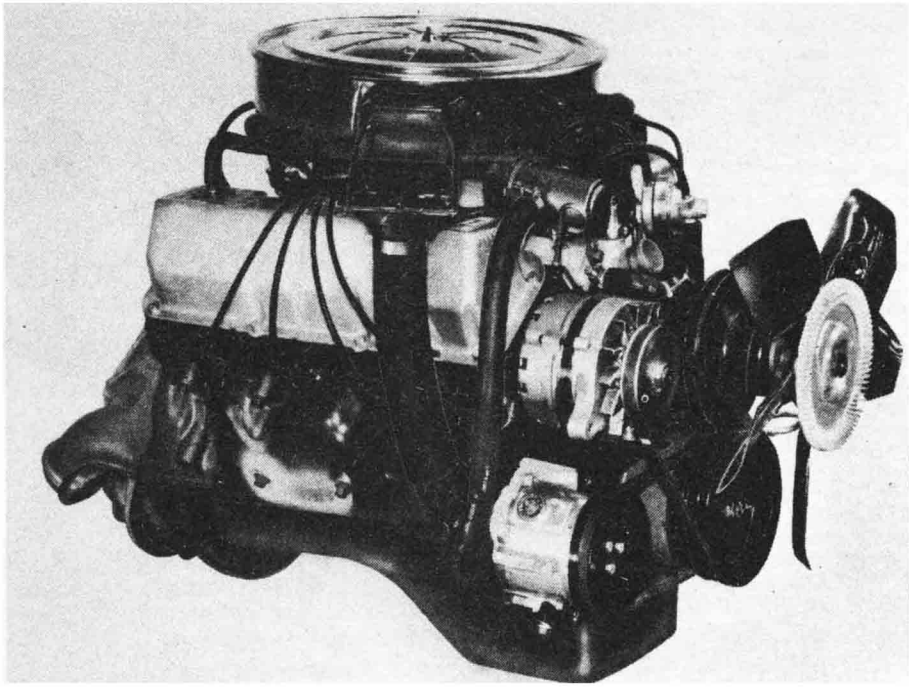
The standard block and crank can be employed as is since these components were race-ready when the engine was first conceived. Some builders prefer to Magnaflux and Tuftride the stock forged crank, but the Tuftride process has a tendency to cause the crank to "grow," thus requiring straightening and re-machining. All that's really necessary however, is cleaning and balancing. All 1969 and early 1970 cranks are cross-drilled for oil flow. Late 1970 models are not, as testing proved that the non-cross-drilled crank is adequate. When cleaning the cross-

BOSS 302 PRODUCTION COMPONENTS

PART NUMBER	NO.PER ENGINE	DESCRIPTION
DOZZ 6049-B	2	cylinder head
C9ZZ 6051-C	2	cylinder head gasket
DOZZ 6108-A	8	piston assembly (std. red size)
DOZZ 6108-B	8	piston assembly (std. blue size)
DOZZ 6108-C	8	piston assembly (.003" oversize)
C9ZZ 6135-E	8	piston pin
C9ZZ 6200-B	8	connecting rod
C30Z 6211-M	16	connecting rod bearing (std. size)
C9AZ 6212-B	16	connecting rod nut (3/8-24)
C9ZZ 6214-B	16	connecting rod bolt (2-7/64" long)
DOZZ 6250-A	1	camshaft (290° duration)
C9ZZ 6307-A	8	crankshaft plug (69 only)
C9ZZ 6307-B	8	crankshaft plug retainer (69 only)
DOAZ 6500-C	16	mechanical tappets
C9ZZ 6505-A	8	exhaust valve (1.71 x 5.02"--69 only)
DOZZ 6505-A	8	exhaust valve (1.71 x 5.05"--70 only)
C9ZZ 6507-A	8	intake valve (2.23 x 5.23"--69 only)
DOZZ 6507-A	8	intake valve (2.19 x 5.23"--70 only)
DOZZ 6513-A	16	valve springs (w/4 dark blue stripes)
C9ZZ 6514-A	16	valve retainer
C9ZZ 6518-A	32	valve retainer key
C9ZZ 6A527-A	16	rocker arm stud (7/16-20 & 7/16-14)
C9ZZ 6A536-A	16	valve spring seat
C9ZZ 6564-A	16	rocker arm (1.73:1 ratio)
C9ZZ 6A564-A	8	push rod guide
C9ZZ 6565-A	16	push rod (7.595" long)
C9ZZ 6B633-A	1	oil cooler bracket (upper)
C9ZZ 6B634-A	1	oil cooler bracket (lower)
C9ZZ 6A636-A	1	oil filter to block gasket
C90Z 6A642-A	1	oil cooler assembly
C9ZZ 6687-B	1	crankshaft windage baffle
C9ZZ 6A715-C	1	oil cooler inlet hose
C9ZZ 6A715-D	1	oil cooler outlet hose
C9ZZ 6881-A	1	oil filter adapter (w/oil cooler)
B8A 6890-A	1	oil filter adapter mounting bolt insert
C9AZ 6890-A	1	oil filter adapter mounting insert
C4GY 6894-A	1	oil filter adapter mounting bolt assembly
C9ZZ 9424	1	intake manifold (dual-plane 4V)
C50Z 12127-E	1	dual point distributor

CLEARANCES AND FITS

	STOCK	BLUEPRINT	COMPETITION
Bearings			
Select fit mains	.0005-.0015	.0025-.0030	.0020-.0025
Select fit rods	.0015-.0025	.0025-.0030	.0020-.0025
Camshaft	.0010-.0030	.0010-.0030	.0010-.0030
End play			
Crankshaft	.004-.008	.004-.008	.004-.008
Camshaft	.0005-.0055	.005-.005	.002-.005
Connecting rod (2 rods)	.010-.020	.022-.032	.022-.032
Distributor shaft	.004-.025	.004-.025	.004-.025
Piston			
to bore	.0018-.0026	.0055-.0065	.0055-.0065
to pin	.0006-.0008	.0007-.0009	.0007-.0009
to connecting rod (press)	.0007-.0024	.0007-.0024	.0007-.0024
Ring gap			
#1 compression	.010-.020	.010-.020	.010-.020
#2 compression	.010-.020	.010-.020	.015-.030
Oil	.015-.069	.015-.069	.015-.069
Ring to groove			
Compression	.002-.004	.002-.004	.002-.004
Oil	snug	snug	snug
Valves			
Stem to guide; IN	.0010-.0027	.0015-.0020	.0015-.0020
Stem to guide; EX	.0015-.0032	.0015-.0020	.0015-.0020
Valve lash (hot)	.025	.025	.025
Tappet to bore	.0007-.0027	.0007-.0027	.0007-.0027
Distributor gear back lash	.003-.010	.001-.010	.003-.005
Ignition timing BTDC	38° @ 5000	40° @ 5000	40° @ 5000



Although the 302-incher has been replaced by the 351 torquer, the boss *Boss-302* parts are still tops for hop-ups.

drilled crank you must remove the oil line plugs from each side of every throw, and install new plugs and snap rings upon reassembly. The balancing of the crank must be done with the flywheel and front damper in place. Should the flywheel ever be replaced, the whole unit must again be balanced.

The stock main bearings have proven to be up to the job of keeping things together in most competition engines. However, for better oil flow, you can utilize fully grooved bearings. The standard bearing can be grooved by any capable auto-machine shop.

For C.O. applications, Ford engineers recommend that the stock rods be magnafluxed, the "I" beams polished and the complete rod shot-peened—in that order. The areas to be shot-peened are: 1) the entire outer section of the "I" beam; 2) the outside surface of the cap particularly in the small fillet between the nut seating surface and the cap rail. The shot must be small enough to get into a fillet radius of .060-inch and must induce approximately 20,000 psi compressive surface stress.

If your racing class permits, or if you are looking for the ultimate in rev potential, the standard rods should be swapped for a set of 302 C.O. rods. These units were originally designed for use in the 255 CI Indianapolis twin-cam, and have thicker shanks, a heftier big-end, 7/16-inch bolts and are forged from 4340 chrome-nickel alloy. The standard rod is good for up to 7000 rpm in the 302-B block, but these Indy rods have been twisted to 9600 (!) on the Ford test-stand with no ill-effects. The rod big ends should all be checked for roundness before installation in the engine.

The stock rod bearings are of the heavy-duty type and are up to the rigors of competition. However, if you plan to use the C.O. rods, a completely different bearing set-up must be used. The C.O. inserts are expressly made for the C.O. rods and are of the heavy-walled design with tin-overlay babbit. It will not fit in the stock rod, as the wall thickness and locating tangs are different. The shells are color coded red and blue, the red giving .0004-inch less clearance. It's possible to "mix" the shells in the rods to obtain a .0002-inch blueprint tolerance.

The stock 302-B pistons are of the impact-extruded design, so they require only minor modifications to bring them to racing specs. As standard they are "forged" by TRW and employ moly-coated piston rings. For racing the piston crowns should be fly-cut to give a minimum of .100-inch valve-to-piston clearance. *Never* remove more material than necessary—crown thickness should never be less than .150-inch. The C.O. pop-up pistons can only be used with the C.O. rod and they utilize thinner 1/16-inch compression and 1/8-inch oil rings.

To correctly check the valve to piston clearance on your engine, follow this procedure: Place a small pad of modeling clay atop the piston area where the valves operate. Install the head gasket, head, valve train, etc. Set the tappet clearance at zero and torque all bolts to the specified tensions. Turn the engine over manually for two revolutions and then remove the heads. The modeling clay will be compressed, showing the indentations caused by the valves. Carefully slice through each indented section, at the point of greatest compression with a sharp knife or blade. With a machinist's scale, measure the thickness of the clay. This will tell determine your clearance between pistons and valves.

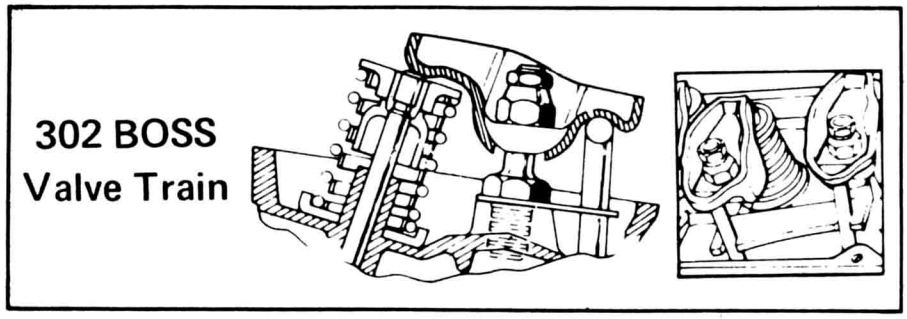
It's recommended that you at least check cylinders one and six, or *all* if any machining of components parts has been done. It only takes one bent or broken valve to foul up the works. so be certain that you have a minimum of .100-inch clearance. It should also be remembered that when material is removed from the piston crown during the fly-cutting operation, there will be a proportionate decrease in compression ratio.

A.C.O. piston is also available with forged configuration, but has a different shape compression pop-up for a higher final ratio. The crown is also specially contoured to prevent most valve clearance problems, although it is still wise to check the clearances. If you prefer a compression ratio of more than 11.5-to-1, it'll be necessary to go to an accessory type available through M/T, Hahns, Venolia, etc.

Camshaft selection now-a-days is more of an art than a problem. There are so many different grinds available from the different speed merchants that one is hard-pressed to choose the "perfect" cam for his specific application. Well, Ford doesn't have the answer either, but the factory C.O. stick made available in Muscle Parts form is a real healthy try. The new DOZX 6250-B is the final result evolved from several cams Ford race research has developed for racing. This cam has a high lift of no less than .600-inch and a duration of 324 degrees. Timing goes something like this: 62-92/82-52. Valve overlap is 110-degrees. The

camshaft is sold only in kit form and comes complete with a set of special 80-inch radius, phosphate-coated tappets and a can of Ford Oil Conditioner for proper run-in. No other tappets can be used with this cam, or the cam with any other tappets.

The first step in modifying the cylinder heads for competition is complete disassembly and cleaning—followed by a deburring treatment as done on the cylinder block. How far you go with the cylinder head mods will be necessarily determined by the type of racing you plan to do. For class racing, such as NHRA stock, the only thing permissible is a performance valve job and cc-ing of the combustion chambers to minimum specs. A performance valve job is accomplished in the normal way but care should be taken so that the machining angles are correct and that specifications are followed. Essentially, three cuts are made; the first at a 70-degree angle, the seat at a 45-degree angle and the under-cut at a 30-degree angle. Seat width should be narrowed to about .050-inch for street/strip use—.035-.040-inch for serious drag strip work. Care must be taken on the last step, as narrowing the seat not only leads to a better flow of mixture but also reduces both sealing area and heat dissipating properties which can shorten valve and seat life. This is especially true if the seat has any run-out, so this tolerance should be kept to a minimum of .001-inch.



Canted and multiple-angle placement of valves yields 100 percent unshrouding.

BOSS 302 COMPETITION ONLY COMPONENTS

PART NUMBER	NO.PER ENGINE	DESCRIPTION
DIZZ 6051-B	2	head gasket
DOZX 6108-A	8	forged piston and pin set
C90Z 6148-A	4	moly coated piston rings (kit for 2 pistons)
DOZX 6200-A	8	"Indy" connecting rod
DOZX 6211-A	8	connecting rod bearings (red)
DOZX 6211-B	8	connecting rod bearings (blue)
DOZX 6250-B	1	324° camshaft kit (w/tappets and lube)
DOZX 6505-A	8	hollow stem exhaust valves (1.71 dia.)
DOZX 6507-A	8	titanium intake valves (2.19 dia.)
DOZX 6A511-A	16	valve spring and damper assembly
DOZX 6A585-A	16	needle bearing rocker arm fulcrum assembly
DOZX 9412-A	1	"Cross Boss" intake manifold base
DOZX 9C483-A	1	"Cross Boss" intake manifold cover (inline 4V)
XH 10222	1	dual inline intake manifold cover (8V)
DOZX 9C484-A	1	intake manifold gasket
DOZX 9510-A	Opt.	Autolite 4V inline carb (1.688" bores)
DOZX 9510-B	Opt.	Autolite 4V inline carb (2.200" bores)

FACTORY RECOMMENDED COMPETITION CLUTCHES AND FLYWHEELS

MAKE & NO.	NO.PER ENGINE	DESCRIPTION
HAYS		
226-1/2	1	aluminum flywheel
626-1/2	1	steel flywheel
NI 11L	1	pressure plate
118 BR	1	clutch disc
SCHIEFER		
30-40068	1	aluminum flywheel
60-11450	1	aluminum pressure plate
50-40125	1	clutch disc (1-1/16" spline)
50-40128	1	clutch disc (1-3/8" spline)
WEBER		
52112	1	aluminum flywheel
72112	1	steel flywheel
1440SC	1	pressure plate (w/alum. flywheel)
0350SC	1	pressure plate (w/steel flywheel)
1009	1	clutch disc (w/riveted lining)
2009	1	clutch disc (w/bonded lining)

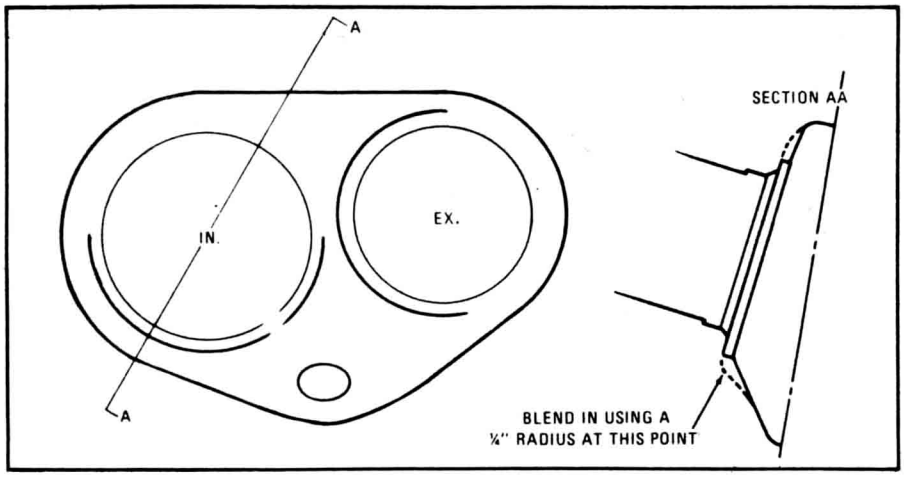
A valve job, properly done, will allow you to CC your heads by simply putting a thin coating of petroleum jelly on the valve faces and by dropping them in place. If the combustion chamber is left stock is should contain from 57.1 to 60.1 (61.3/64.3—1969). However, if any modifications are made to the chamber, it may be necessary to mill .006-inch off the head surface for every increase of 1cc in volume. Although no more than .060-inch should be removed from the head, this will bring the compression ratio up to about 11.4-to-1 (nominal) with the standard pistons and 12.3-to-1 with the C.O. Of course, any increase in deck height will also affect compression ratio. In any event, you must hold a minimum of .100-inch clearance between the valves and pistons and discontinue the use of long reach spark plugs, as they interfere with the C.O. piston's pop-up at high revs. Always use a standard or racing gap plug.

The stock Boss head gasket has performed remarkably considering its production line purpose, but there's a C.O. unit available which is specially designed for endurance racing. This gasket should work fine for all types of competition.

Head modifications, other than the progressive seat grinding already mentioned, are usually concerned with porting and polishing. The 302-Boss, in factory trim, has unusually efficient cylinder head porting and super-huge valves. Yet, for maximum performance, the ports should be fully "reworked." Similarly, the

(Continued on page 56)

(Continued from page 14)



Stock Boss-302 combustion chambers have ridges on valve seats. Blend this area with a .25-inch stone.

TORQUE SPECIFICATIONS (ft./lbs.)

	BLUEPRINT & STOCK		COMPETITION	
APPLICATION	SIZE	TORQUE	SIZE	TORQUE
Cylinder head				
1st step	7/16-14	35-45	7/16-14	35-45
2nd step		55-65		55-65
3rd step		75-80		75-80
Main bearing caps	1/2-13	60-70	1/2-13	60-70
Main bearing caps	3/8-16	30-35	3/8-16	30-35
Cam sprocket to camshaft bolt	3/8-16	40-45	3/8-16	40-45
Spark plug	14mm	10-15	14mm	15-25
Connecting rod nut	3/8-24	35-40	7/16-20	50-55*

*With oil on thread and moly spray on nut face only.

AUTOLITE 14mm HEAT RANGE CHART

TYPE	AUTOLITE NUMBER	HEAT RANGE
STANDARD GAP	AF3	
	AF2	HOT
	AF1	-
	AF901	-
	AF701	COLD
	AF501	
POWER TIP	AF52	
	AF42	HOT
	AF32	-
	AF22	-
	AF12	COLD
RACING GAP	AF503	HOT
	AF303	-
	AF103	-
		COLD

combustion chamber should receive the same treatment with emphasis on "clean up" rather than "relieving."

To properly reshape the combustion chamber, the edges are blued and scribed using the head gasket as a template to form the desired finish shape. The two outside edges are then ground with a power grinder to fair into the new chamber contour. This helps to open up the area between the valve and the chamber wall, improving flow and reducing valve shrouding.

As can be noted in the accompanying drawings, the valve pocket in the combustion chamber is machined with a small ridge around the valve seat. It's best practice to fair these ridges into the chamber roof, since a smooth transition at that point can greatly assist in mixture flow. Inside the valve pocket, retaining the same diameter as the stock machine cut, the valve throat should be left straight for the first half-inch from the seat before the radius is developed into the curved area. The machined portion should be gradually blended into the "as-cast" pocket, employing a generous radius at the points of transition. Care must be taken in reshaping the port, as removing too ***much*** material from the port sides can cause formation of turbulence from the odd shaped port throat.

The valve guide requires little modification. The modifications illustrated include reducing the outside diameter of the guide by .100-inch, while the base of the guide should be blended into the roof of the port with a .125-inch radius stone and the sharp edges can be removed from the ends of the machined guides by grinding a small radius. The port runners themselves should be polished to a smooth finish to remove any casting irregularities or protrusions. Remove only enough metal to produce a smooth finish and keep each runner at the same dimensions and contour to assure equal mixture flow.

Cylinder head reworking also includes matching the intake ports. This is done by scribing the surfaces of both head and manifold. The ports are then ground-out to match the scribe marks. For C.O. applications Ford recommends that the Thermactor passages be drilled out to .500-inch and a press-fit plug tapped in. This prevents the back-passage of exhaust gases from the air outlets in the exhaust ports. Of course, if the en-

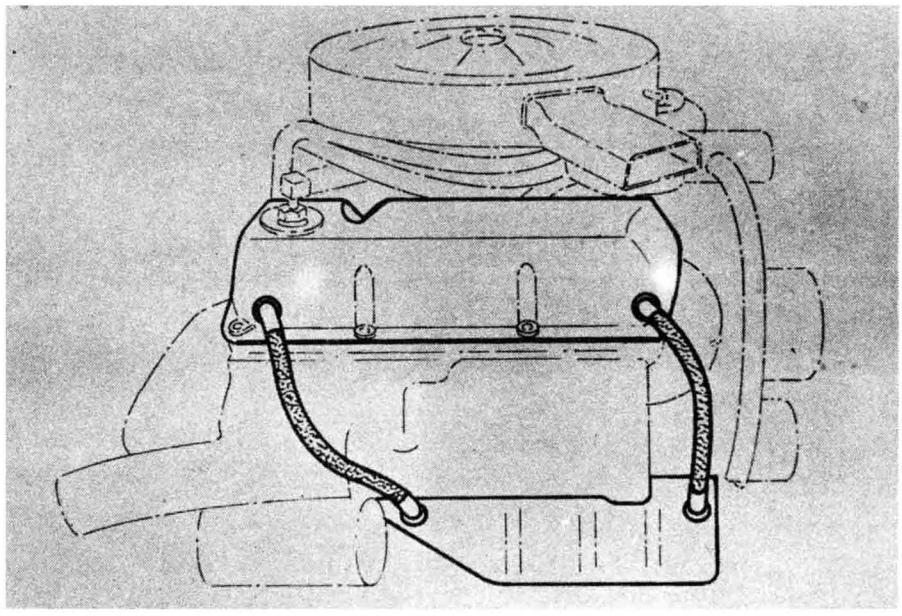
gine is ever to be used on the street again, this is *illegal!*

Ford also recommends the use of Perfect Circle valve stem oil seals for both types of engines, but they are mandatory for the C.O. engine. The standard stem seal will not fit inside the dual valve springs.

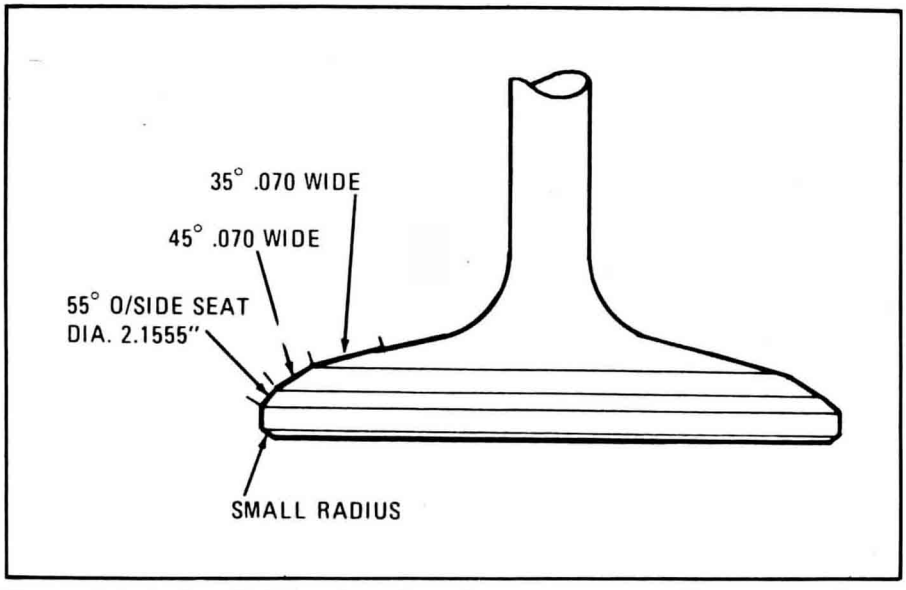
Two different pairs of valves are employed in Boss heads; the standard valves which are fine for up to 7000 rpm, and the C.O. types which may help you see 9000! The C.O. intake valve is machined from solid titanium and has a moly-metal coated stem. For maximum flow and good pressure recovery, the intake valve should be ground to the head configuration illustrated. A 35-degree angle cut is made on the inside of the seat to hold its width to .070-inch. The seats are then cut to a 45-degree angle and a 55-degree cut is made on the outside of the seat to hold the outside diameter to 2.1555-inch. It's also advisable to put a small radius on the underside of the valve head.

The stock production valve springs are designed to operate in conjunction with the factory "mild" cams. For any high-lift long-duration setups, Ford's Super Springs should be used. These dual heavy-duty springs are counter-wound and employ a damper between the inner and outer springs—giving a little friction to damp-out unwanted harmonics. Total spring pressure on the seat is 135 pounds, while this increases to 375 pounds at full lift (.600-inch). The stock retainer utilizes a small ridge in

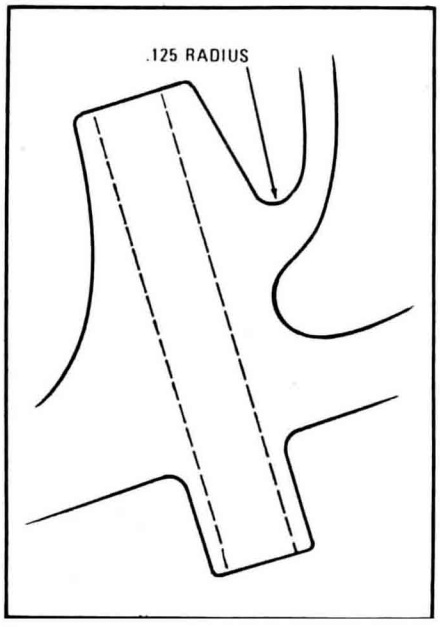
(Continued on page 59)



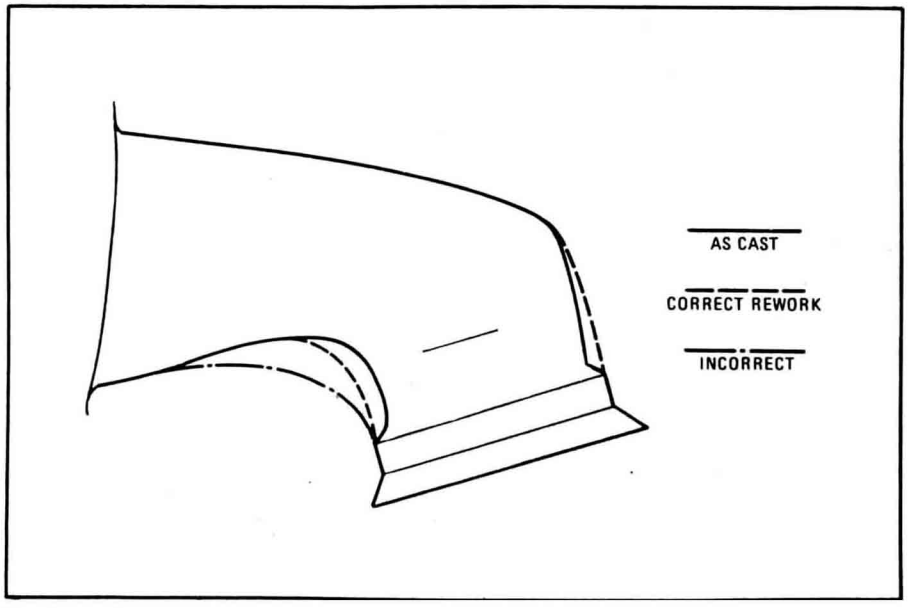
Rally work or gymkhana bashing necessitates steel-braided drain back hoses emptying into oil pan.



These angles on intakes will yield maximum flow and good pressure recovery (for comp. only).



Reduce O.D. of valve guides by .100-inch. Blend-in guide with a .125-inch radius stone.



Porting and/or relieving must be done correctly as illustrated above or port design will be destroyed.

(continued from page 57)

its outer edge to pilot the outer valve spring. This type retainer must also be used in C.O. applications, as the inner spring is .100-inch shorter than the outer spring. Lightweight aluminum retainers should only be used for drag racing, as the steel damper tends to chafe the soft retainer in endurance racing.

When using the C.O. Super Springs with the C.O. cam and tappets, install the springs at a height of 1.80±.010-inch., and run in at 2000-5000 rpm for 15 to 30 minutes under no engine load. After 'break-in' readjust the spring height to the specified 1.69±.010-inch. Always prime the tappets through the pushrods with a high pressure oil before run-in. The valve spring "assemblies" should never be disassembled, as there is an interference fit between the coils. The smallest scratch could cause failure later on.

There are two different rocker arms available for the 302-B. The standard item will work in most cases, but they should never be used in applications where valve lift exceeds .500-inch. The rocker "shell" should also be Tuftrided to pre-stress it for strength. Ford's latest rocker set-up is a Tuftrided stock rocker shell which employs a needle bearing fulcrum assembly. When installing these rockers, blue the valve stem pad of the rocker and check for a full contact pattern throughout the operation range. If you don't get a full pattern, switch the rockers around from stud to stud until they are. The Allen head set screw should be torqued to 15-20 lbs./ft. Valve lash settings for the 302-B are .026-inch intake, .028-inch exhaust, cold, and .025-inch hot.

In stock form the Boss 302 enjoys the advantages of special oil pan baffles and a crankshaft windage tray as standard equipment. These pieces are sufficient for drag racing, and it isn't necessary to go to a larger capacity pan unless you plan to do some endurance racing. There are specially fabricated pans available, from various manufacturers, but eight or nine quart capacities are only needed for Trans-Am racing or the Continental Series.

One trick employed in Trans-Am racing is to connect two steel braided oil hoses from the lower side of the rocker cover to the side of the oil pan; thus assuring quick oil drain-back into the sump.

In the carburetion department you

can (at present) go only three ways for competition; Holley 4700 or 4500 series, Autolite inline(s), or Doug Nash (Hilborn type) fuel injection. The Holleys have already proven their worth on a multitude of Chevys, so all that's necessary here is to mate the right carbs with your engine. The new Autolite 4V inline is another matter. Although the carb has finally reached limited production and the price is down to $200 (!) plus $175 manifold, it's had very little application because of scarcity. However, the latest versions incorporate huge 2.25-inch throttle bores to give plenty of breathing for the required "Cross Boss" ram manifold. The 14-inch "pipes" in the manifold base give a good kick in the mid-range—about 6400 rpm. With the special dual inline mounting plate there's one throat for each cylinder and a flow rate of 1800 cfm with the *small* carbs.

A good set of headers, properly tuned, are a must. For street/strip use, Ford recommends 1.75 to 1.875-inch I.D. and 36-inch primary tube length. For race applications, the tubes should be 2.00-inch I.D. Drag racing requires 32 to 34-inch primary tubes with 10-inch collectors. The preferred road-race set-up is 38 to 40-inch primaries and 10-inch collectors.

The techniques illustrated above have been proven in actual competition, and they produce *winners*. So remember, painstaking preparation really pays off.

BAJA BOUNCE

(continued from page 55)

hicles, a Jeep piloted by Sandy Cone and Farris Hytower finished first in 19:02.14, which was the 11th fastest time overall. Category 6, non-production four-wheel drive vehicles, saw the Jeep team of Robert Sievert and Dan Widner win in 21:34.09, good for 28th place overall.

In Category 7, Steve Hurd and Dub Smith rode their DKW motorcycle to victory in the up to 125cc class in a time of 21:35.45, which was 29th place overall. The winning motorcycle team in Category 8, cycles 125cc and up, was the Yahama ridden by Phil Bowers and Mike Patrick in a time of 18:31.45, good for eighth place overall. Bowers and Patrick had the fastest time in the 1970 Mint 400.

For Wilson, the victory was a repeat of his win in the inaugural Mexican 1000 in 1967. (His co-driver was Ted Mangels in that race.) The 1970 triumph wa also a repeat of 1969 wins for Lindquist, Johnny Johnson, Sievert/Widner, and DeVercelly.

Parnelli Jones, former Indy 500 winner and 1970 Baja 500 champ, looked like a sure winner with his co-driver/navigator Bill Stroppe, but mechanical problems 130 miles from the finish delayed their modified Ford Bronco. They were plagued by flat tires, air cleaner and vapor lock problems after having a 40-minute lead. They finished in 20:55.18,—22nd place overall.

NORRA officials said there were no serious injuries in this race. The 1969 event saw two drivers killed when their Bronco crashed and rolled.

Prize money, paid out of the $350-per-vehicle entry fees, totaled $38,000. Contingency prizes offered by manufacturers added another $72,050. First place cash prize in each category was $2200; second, $1100; third, $600; fourth, $500 and fifth, $350.

NORRA officials said that the crowd of spectators at the start and finish lines was bigger than ever and that Mexican authorities had some problems controlling the mass of enthusiasts.

The tentative dates for the 1971 Baja 500 race are June 8-11.

TOP COMBOS

(continued from page 33)

The new Barracuda-Challenger body is quite heavy—at least 100 pounds more than the Camaro and Mustang bodies. This hurts. And the 340 MoPar doesn't have the camming and carburetion of the other two. The best way to take care of this is to order the optional triple-2-barrel carburetion system—using the three Holleys with vacuum actuation of the two end carbs. (The car cruises on just the center carb.) This setup gives excellent breathing, and adds nearly 20 hp to the output at the flywheel—plus good response at low and medium speeds on the street, due to the gradual opening of the end carbs. It's a good option. And with this triple carburetion, I would have to rate these MoPar 340 Trans-Am packages very close to the Camaro and Mustang on total performance.

SENIOR SUPERCARS

These are the big-inch cars that use intermediate-size coupe bodies—a concept started by Pontiac with their famous GTO in 1964. Since then practically every company has come up with one or more strong entries in the class. Sales have boomed, and this