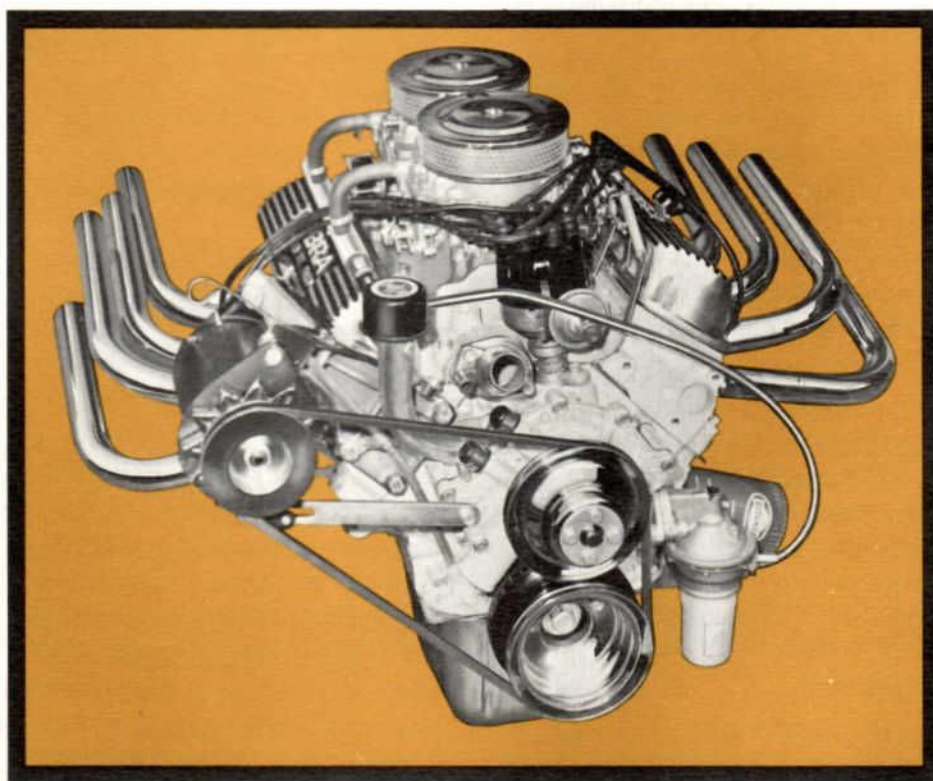


FORD PERFORMANCE TIPS

FROM AK MILLER



COBRA ENGINE PERFORMANCE KITS



Cobra Kits on Fairlane 289 V-8 with special exhaust header pipes.

Ak Miller, one of America's top authorities on high performance equipment, gives his views and answers questions for those in need of expert advice on the selection and installation of engine modification components. Ak Miller's opinions and advice are his own and do not necessarily represent recommendations of the Ford Motor Company.

New Ford Power With a Custom Look

Own a Falcon powered by a 260 C.I.D. engine? Or

a Fairlane with a 221, 260, or 289 2-V? Want more power and sparkle? Check out the new Cobra Kits shown on these pages. Inspired by the championship performance of Ford-powered Cobras, these kits are designed to give your engine stepped-up performance, plus a gleaming, customized appearance.

Read what Ak Miller has to say about Ford's new V-8s and the new Cobra Kits . . .

INSIDE AND OUTSIDE FORD'S NEW V-8s

by Ak Miller

In recent years Ford Fairlane V-8's have been accepted and admired by the motoring world like no other engine in the past. A broad statement admittedly, but one that's backed by the records these fine engines have set for reliability and power output, and their wide popularity with performance-minded car owners.

The Fairlane V-8 has literally stunned the racing world by its consistent winning ways. In 1963, Cobra with its performance-modified 289 became the first sports car to win the coveted Manufacturer's category of the U. S. Road Racing Championship. The final tally in this newly established series of races showed the winning Cobra team with four times as many points as its nearest competitor.

Also in 1963, an aluminum version of the Fairlane engine design shattered records galore in the Indianapolis 500 Memorial Day classic. Installed in a Lotus chassis, this little engine completely changed the established pattern at the Speedway. In late summer, special adaptations of the Fairlane engine racked up three new class records at the 1963 Bonneville Speed Trials. All this in one short year of competition!

Reasons for the Fairlane V-8's success as a pace-setter are many. For example: the basic Fairlane engine is a natural for power-increase modifications because it's designed for high volumetric efficiency and has the advantages of low piston speeds, and short-stroke compactness. The strength and rigidity inherent to Fairlane engine design has permitted output to be boosted to a fantastic 375 horsepower!—a dramatic demonstration of its built-in strength. Remember, these amazing boosts in power were made by modifying without altering the engine's basic compact dimensions.

Along with setting new records, the engine's applications in racing provided a tough proving ground for testing special engine modification parts developed for high speed operation. Because this testing proved these components more than suitable for general use, they are now being offered to enthusiasts who want to get more power and performance from their standard 221-, 260- or 289-cubic-inch V-8 engine. These competition-bred parts are sold in kit form, ranging from special, high-compression cylinder heads to a low-restriction exhaust system.

The performance-minded motorist who doesn't want to go all-out on these kits will find it possible to get a substantial power increase by using just the equipment appropriate to his budget or driving needs. For instance, if one wanted only a moderate 10- to 14-horsepower boost, the single 4-V induction kit would probably do the job. On the other hand, if you were after all-out performance, the ultimate, of course, would be the Weber induction kit. Horsepower carries a price tag, but by careful selection one can pick out kits that will produce the performance desired at a reasonable cost.

In addition to parts that deliver better performance, there are items for your safety and your engine's, too: The high-carbon, cast-steel scatter shield is designed to provide increased protection for you and your passengers. The increased capacity of a competition oil pan provides an extra safety margin for proper lubrication of a high performance engine. Appearance hasn't been forgotten, either. Cobra dress-up kits can make your car's engine a real eye-catcher.

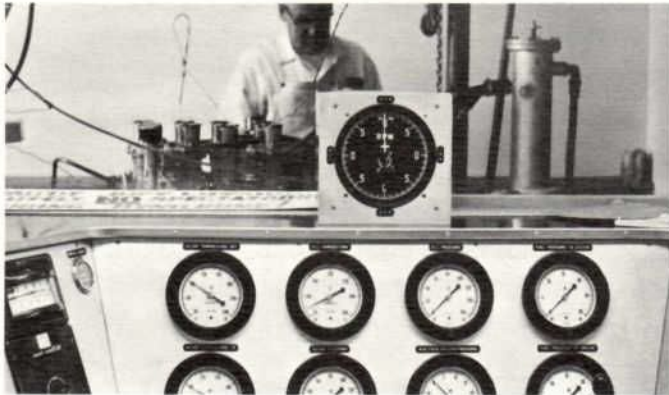
Cobra Kit variety, and the sturdy reliability of the basic design of these engines, facilitate custom modification of Fairlane V-8's to almost any degree of performance and appearance desired.

The opportunity to obtain additional power from your engine without going to the cost of radical machining is given to you through Ford's wide selection of tested and proven Cobra Kits—all you have to do is install them, tune 'er up, and enjoy winning performance with a touch of the throttle.

When it comes to developing competition-winning performance from a Fairlane V-8, the Shelby-American organization has had plenty of experience. Here's how Shelby-American has taken a Fairlane 260 and built it up to obtain various horsepower increases by adding Cobra Kits.

Modifying the 260 CID Engine

Since you determined your engine's displacement when you chose your car, let's consider increasing its horsepower by other means (un-



In developing their winning Cobras, Shelby engineers conducted extensive dynamometer tests of Fairlane V-8's with various modifications. Engine shown has Weber induction system used on King Cobras.

less you want to run for the boring bar). With Cobra Kits, extra power is easily bolted on—no radical machining is necessary. Basically, this additional power output is obtained by increasing the amount of fuel/air mixture and combustion efficiency, and raising the engine speed.

Here are some basic steps requiring little time or money that you can take to make your 260 operate efficiently above the usual passenger car range.

Cobra Distributor Kit

With dual points and mechanically controlled spark advance, the heavy-duty distributor kit delivers reliable spark in the high RPM range. The heavy-duty spark plug leads included in the kit combine with the distributor for an immediate gain of about five horsepower if colder Autolite BF 32 spark plugs are used. (Emission tube removed for competition.)

Cobra Camshaft Kit

Better performance can be had from any engine in which high-RPM "breathing" ability is improved, so let's look at your 260's respiratory system. Except for the distributor kit, the high-lift camshaft and solid lifter kit is the least

expensive path to power. Used with compound valve springs, it can provide a 20-hp jump from the stock 141 rating.

Cobra 4-V Induction Kit

With a change in valve timing allowing better breathing, it makes sense to increase the induction capacity. Replacement of the stock 2-V carburetor with the new 4-V induction kit (carburetor and manifold) can produce an amazing power boost to 220, using racing-type exhaust headers.

Cobra Cylinder Head Kit

The 289 High Performance cylinder head kit, with bigger, stronger valves and heavy-duty springs and rocker arm studs, using a single 4-V carb, pushes power ceiling up to the 225 mark! Total increase? About 85 hp—and no machining necessary.

Cobra 6-V Induction Kit

Prefer the three 2-V induction system? With distributor, cam and cylinder head kits, triple carbs preside over a package capable of providing well over 200 hp.

Cobra Clutch Kit

Getting your performance dollar's worth means full utilization of power at the driving wheels. If a boost to 200 horses or more appeals to you, better start thinking about a clutch that will help handle all that power—the Cobra heavy-duty disc assembly and pressure plate.

Cobra Scatter Shield

Recommended for your own safety in competitive full-throttle operation is the high-carbon cast-steel scatter shield—a good idea for any high-RPM setup.

Cobra Combination Engine Performance Kit

If you want to go all-out from the beginning, the cylinder heads (with complete valve assemblies) and camshaft kits are available as a package that includes a set of matched pistons with heads designed for valve clearance. Top this combination off with the induction system of your choice for a real screamer!

Some notes on the 260 . . .

- The stock 289 4-V High Performance camshaft and solid valve lifters can be used with 260 cylinder heads, and the 289 4-V heavy-duty valve springs can be used with the stock 260 retainers. Screw-in rocker arm studs are not necessary if operation is held below 6000 RPM.
- Caution, the 260 CID cylinder block cannot be bored-out to equal the four-inch bore of the 289 CID block.
- The Cobra Induction Kits should be used in combination with the 289 4-V camshaft kit and heavy-duty valve springs to best obtain maximum engine speed, power and reliability.

. . . 289 CID Engine

Although the High Performance 289 V-8 is delivered with a 4-V carburetor, additional carburetion is available if premium performance is desired. Since many performance features are a part of this engine's standard equipment, modification is largely restricted to choosing the proper induction system for the type of operation planned for the car.

Tests of power increases from the 289 engine were made for the all-out race preparation of Carroll Shelby's King-Cobras. The horsepower figures shown on the chart on page 6 reveal the results of these tests.

. . . 221 CID Engine

Cobra Kits and other 289 High Performance equipment can be installed on the 221 CID engine to produce better than 200 horsepower. However, the smaller displacement of this engine will not allow the power boosts obtainable from highly modified 260 or 289 CID engines.

Tips and Precautions for all engines

Although the Cobra Kit line is actually a series of kits, they have been designed for maximum compatibility with each other. The kits provide a

wide choice and also separate the equipment into Street and Competition or All-Out Competition packages. Development emphasis, however, has been for the enthusiast who uses his car for both normal street driving and occasional competition.

Dynamometer tests of Fairlane V-8 engines modified with Cobra Kits have shown their performance ability under a great variety of conditions. Therefore, it will benefit the prospective buyer to check the chart on page 6. It illustrates the combinations of equipment used to obtain various horsepower increases at different engine speeds.

Factory clearances, stock High Performance camshaft and conventional mechanically operated distributor are used to obtain significant power increases. Nevertheless, certain preparations—as well as specific precautions—are desirable, no matter which engine you're working with.

- The Cobra dual-point distributor kit with solid wire spark plug leads should be installed to draw the best performance from any of the other Cobra Kits.
- For all-out performance, compound valve springs are necessary and should be matched as closely as possible using a spring tester and shim stock.
- A substitute or altered crankshaft assembly should be rebalanced before installation. If the heavy-duty clutch kit is used, it should be attached before rebalancing.
- For top efficiency, a dual exhaust system should be installed in place of the single one.
- The 289 High Performance connecting rods are desirable for modified 221, 260 and 289 2-V engines (rebalancing of the crankshaft assembly is required).
- The 289 4-V cylinder head and valve assembly may be used without the specially designed "eyebrow-ed" pistons if the correct stock head gaskets are used.

- When fitting 289 4-V cylinder heads to a 289 2-V, 260- or 221-inch block, be sure to use the stock gasket for the engine block, not the heads.

- The 289 4-V camshaft can be used in all other engines, and without the 4-V cylinder heads, but care must be taken to use the proper head gasket (proper for the block) to provide sufficient valve clearance.

- The 4-V High Performance cylinder heads are stock, production line parts and are not ported, relieved or polished, but may be machined if desired.

- 289 High Performance exhaust manifolds are not recommended for Falcon installations; extensive reworking of the engine compartment is required.

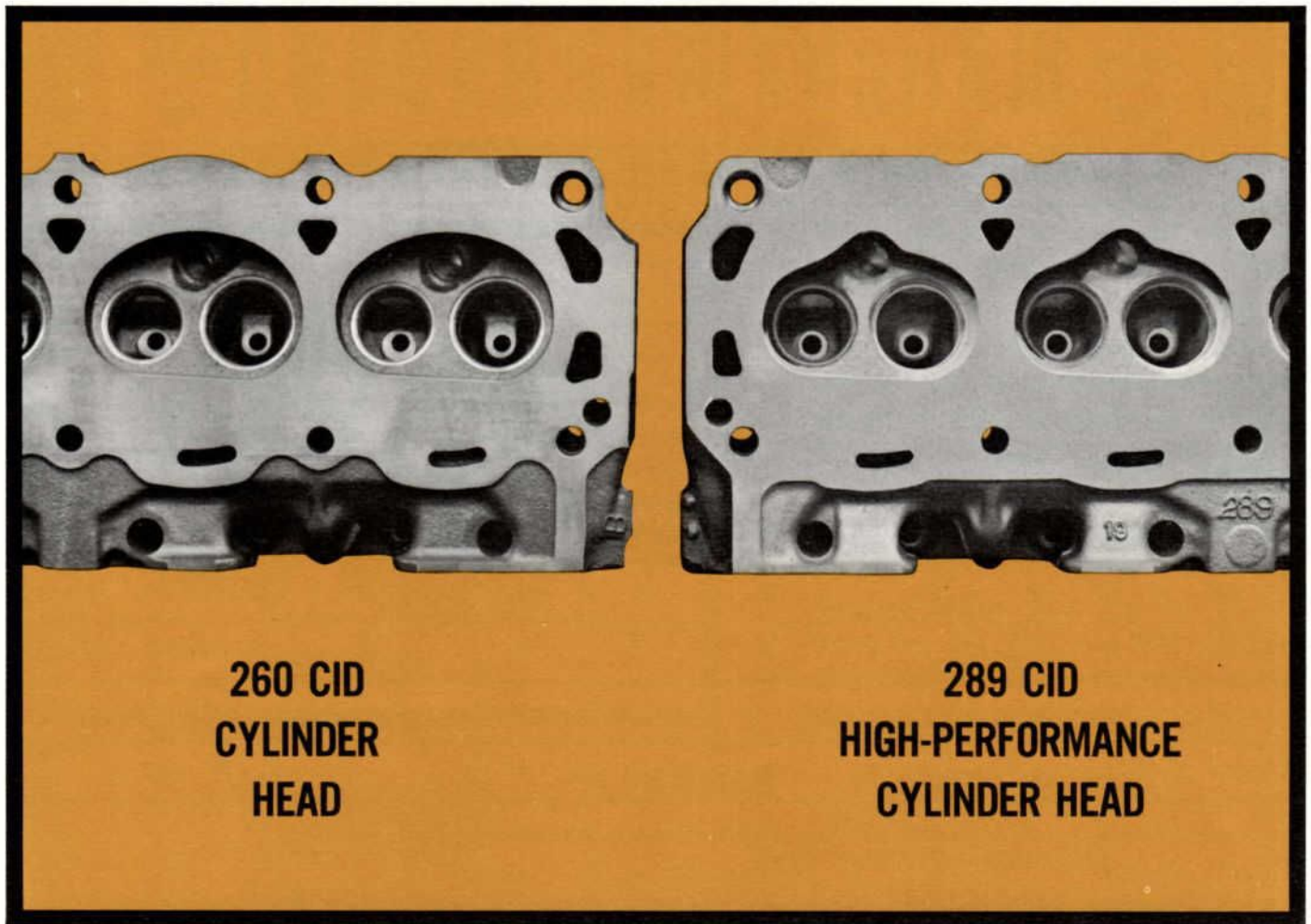
- In assembling your improved engine, remember to use standard head gaskets designed for your engine block. Thinner ones can cause serious valve and piston damage.

- Torque sequence and ratings are extremely important to proper installation of both manifold and cylinder heads.

- The Weber carburetor induction system is recommended for "competition-only" application.

- The Cobra Combination Engine Performance Kit should not be used in cars equipped with automatic transmissions.

Get additional advice on your High Performance Kit or power problems. Write to Ak Miller, Ford Performance Advisor, P.O. Box 627, Dearborn, Michigan.



**260 CID
CYLINDER
HEAD**

**289 CID
HIGH-PERFORMANCE
CYLINDER HEAD**

Larger, better breathing valves, reworked combustion chamber of 289 high-performance heads raise 260 engine's compression ratio to 10.5 to 1. These heads can also be used to help boost power on a 221 CID engine.

DYNAMOMETER TEST RATINGS

BY SHELBY-AMERICAN

HOW TO USE CHART BELOW: Choose engine from top of columns at left if you are interested in horsepower—260 engine, Col. A—289 4-V engine, Col. B. Read down left hand column to select HP increase. Then determine components used to gain HP increase by reading across to right. Code letter "A" indicates component listed above was used on 260 engine—code letter "B", component was used on 289 4-V engine.

Columns at far right give peak torque obtained using same equipment.

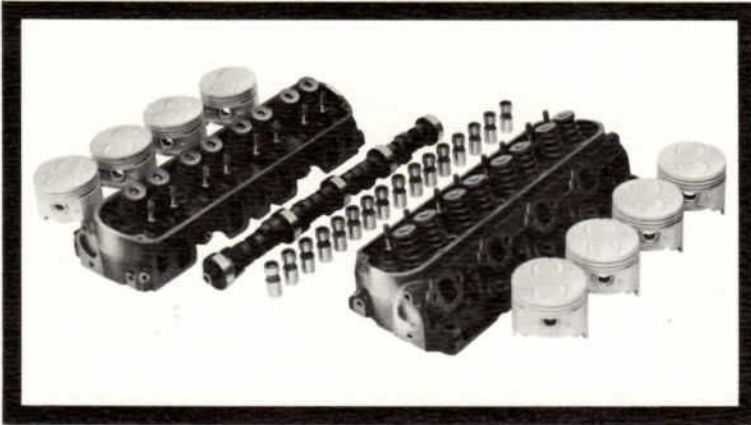
MODIFICATIONS WITH COBRA KITS

STOCK RATING															STOCK RATING			
HORSEPOWER @ RPM															PEAK (lbs.-ft.) TORQUE @ RPM			
A	B														A	B		
260 CID	289 CID (4-V)	Heavy-duty Distributor, Pg. 8 spark plug leads	Autolite BF-32 spark plugs	Emission valve plugged	Cobra Cam Kit, Pg. 8	Compound valve springs	Cobra Cylinder Head Kit, Pg. 7	Reworked 4-V heads: ported, enlarged comb. chambers	Steel shim cyl. head gaskets	289 4-V High Performance Exh. Manifolds	Competition (tubing) exh. headers	4-V (1-4V) Induction Kit, Pg. 10	8-V (2-4V) Induction Kit, Pg. 11	6-V (3-2V) Induction Kit, Pg. 10	8-V (4-2V) Weber Kit, Pg. 11	Generator disconnected	260 CID	289 CID (4-V)
141 @ 4500	232 @ 5500		B									B			AB	227 @ 2500	282 @ 4000	
145 @ 4500	242 @ 6000	AB	AB ₁	AB								B			AB	228 @ 2500	289 @ 3500	
161 @ 5000	247 @ 5500	AB	AB ₁	AB	A	A			B			B			AB	217 @ 3000	295 @ 3500	
	249 @ 5500	B	B ₁	B					B		B	B			B	228 @ 4000	296 @ 3500	
205 @ 5500	276 @ 6000	AB	AB ₁	AB	A	A			B		AB		B	A	AB	232 @ 3500	285 @ 4000	
220 @ 5500	286 @ 6500	AB	AB ₁	AB	A	A		B	B		AB	AB			AB	228 @ 3500	286 @ 4500	
211 @ 5500	314 @ 6500	AB	AB ₁	AB	A		A	B	B		AB			A	AB	230 @ 4000	286 @ 4500	
207 @ 6000	345 @ 6500	AB	A	AB	A		A	B	B	A	B			A	B	AB	232 @ 3500	286 @ 4500
213 @ 6000		A	A	A	A		A				A			A	A	A	230 @ 3500	313 @ 5000
222 @ 5500		A	A	A	A	A					A	A					240 @ 4000	
225 @ 5500		A	A	A	A	A					A	A					244 @ 4000	

1. The 289 4-V engine used Autolite type BTF-1 spark plugs up to 276 hp; higher readings were obtained using type BF-603.

COBRA ENGINE AND DRESS-UP KITS ARE AVAILABLE THROUGH YOUR FORD DEALER. FOR ADDITIONAL DETAILS CHECK AT YOUR DEALER'S PARTS DEPARTMENT.

COBRA COMBINATION ENGINE PERFORMANCE KITS



Each of these Performance Kits includes the Cam Kit on page 8, and the Cylinder Head and Valve Kit on this page. Also included are eight matched pistons, designed with extra clearance for the larger valve size and higher lift. Performance Kits can be easily installed on the engines listed below without extra machining. They should be used with manual-shift transmissions only.

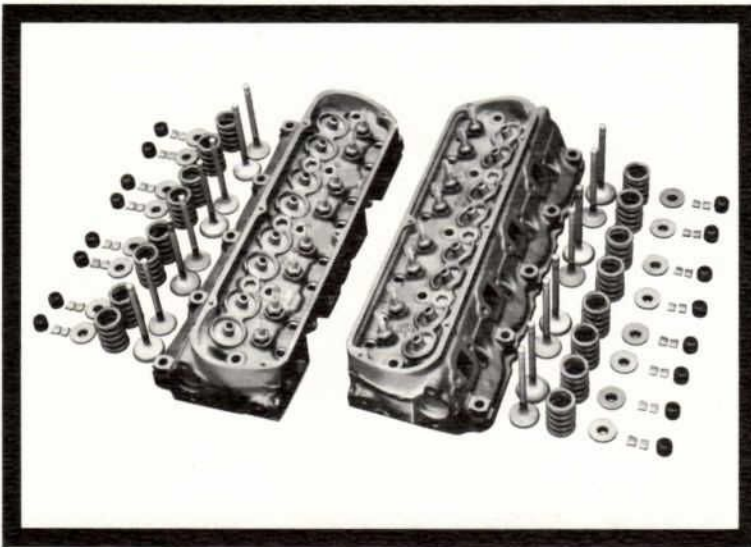
PERFORMANCE KIT NO.

ENGINE

ENGINE	PERFORMANCE KIT NO.
221 CID V-8	C40Z-6A044-A
260 CID V-8	C40Z-6A044-B
289 CID V-8	C40Z-6A044-C

Each \$342.70*

COBRA CYLINDER HEAD AND VALVE KIT

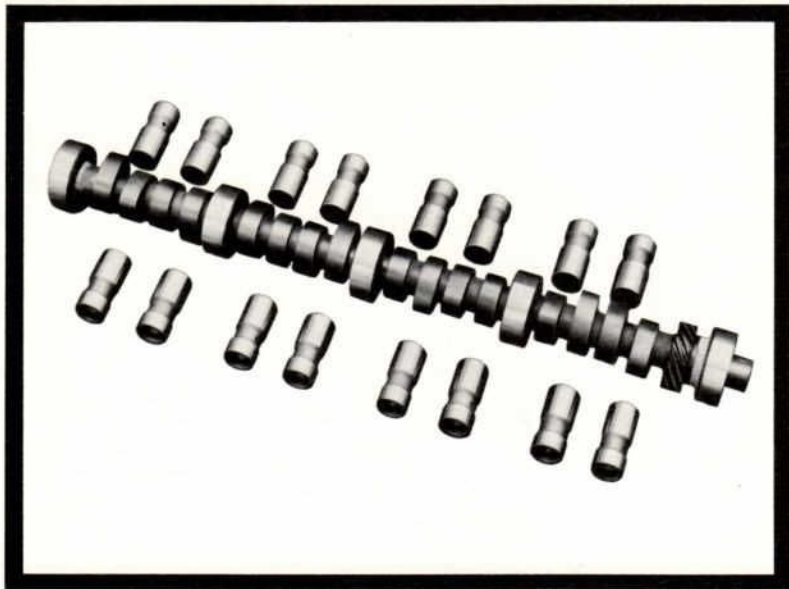


These cylinder heads have heavy-duty threaded rocker arm studs to resist loosening . . . spring seat ridges to help keep valve springs and dampers aligned . . . solid valve spring retainers and oil-controlling valve stem seals. Intake valve head diameter is 1.665"; exhaust, 1.445". Both are aluminized and have polished chrome-plated stems. Exhaust valves are forged, heat-resistant chrome-manganese alloy. For 221, 260, and 289 CID V-8's. **Cobra Cylinder Head and Valve Kit No. C40Z-6C056-A—\$221.50***

KIT INCLUDES:

- Cylinder Heads (2)
- Intake Valves (8)
- Exhaust Valves (8)
- Spring Assemblies—Valve Damper (16)
- Stem Seals (16)
- Valve Spring Retainers (16)
- Key—Valve Spring Retainer (32)

*Manufacturers' suggested retail price. Installation charges and state or local taxes, if any, are extra. All prices subject to change without notice.



COBRA HIGH PERFORMANCE CAM KIT

This is the same high-lift design camshaft used in the High Performance 289 V-8 which powers the latest Cobra model. Cam lift is .289" and the timing duration is 306°. For 221, 260 and 289 CID V-8's.

Cobra High Performance Cam Kit No. C40Z-6A257-A—\$72.55*

Kit includes: Camshaft (1) and Tappets (16)



COBRA DISTRIBUTOR KIT

This heavy-duty unit features dual contact points, centrifugal spark advance control. Specially calibrated for best spark timing in the high speed range to produce maximum possible engine speed. For 260 and 289 CID V-8's.

Cobra Distributor Kit No. C4DZ-12050-A—\$49.80*

Kit includes: Distributor Assembly with distributor rotor, cap, and spark plug cables.



COBRA HEAVY-DUTY CLUTCH KIT

Complete clutch assembly of heavy-duty construction and semi-centrifugal design in a smooth-working unit with low slip characteristics and a firmer grip at all RPM; especially effective at high speeds. For 221, 260, and 289 CID V-8's.

Cobra Heavy-Duty Clutch Kit No. C30Z-7A537-A—\$51.45*

Kit includes: Disc (1) and Pressure Plate (1)

COBRA COMPETITION OIL PAN

Sturdy, cast-aluminum competition-type oil pan features air cooling fins for improved oil temperature control. Also has large 6½ qt. capacity for added engine protection. For 221, 260, and 289 CID V-8's.

Cobra Competition Oil Pan Kit No. C40Z-6675-A

(Available Soon)



COBRA DUAL EXHAUST KIT

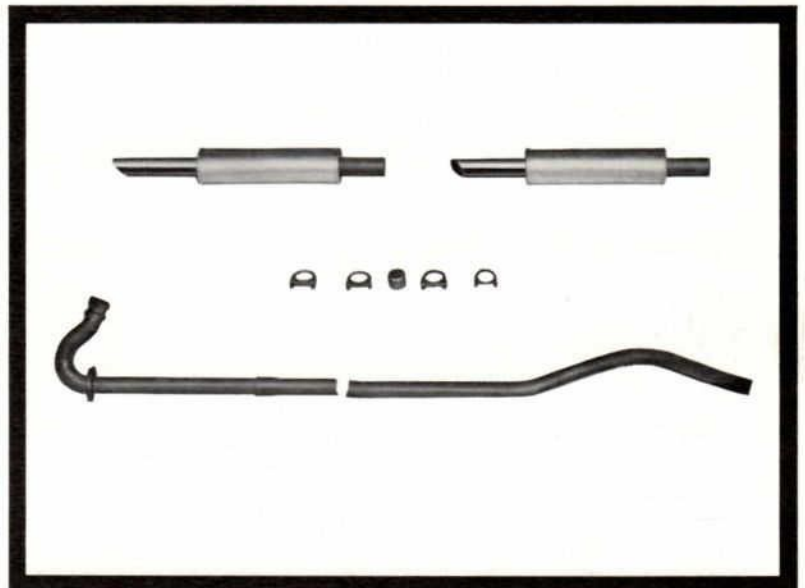
All you'll need to change a single exhaust layout to a dual system. The 4" heavy-duty glass-pack mufflers are of straight-through design to minimize back pressure. For 1963-64 Falcon 260 CID V-8's (Available soon for Fairlane 260 and 289 V-8's).

Cobra Dual Exhaust Kit (Falcon 260 only)

No. C4DZ-5210-A—\$69.95*

Kit includes: Glass-Pack Muffler (2) • Exhaust Pipe (1) • Clamps (4)

Pipe, shown separated, is of one-piece construction.



COBRA SCATTER SHIELD

Made of high-carbon cast steel, this housing is designed to give extra protection for occupants and car especially at high engine speeds. Replaces cast-aluminum housing. For 221, 260, and 289 CID V-8's. (Not available for automatic transmissions.)

Cobra Scatter Shield Kit No. C40Z-6394-A—\$106.75*



SINGLE 4-V INDUCTION KIT

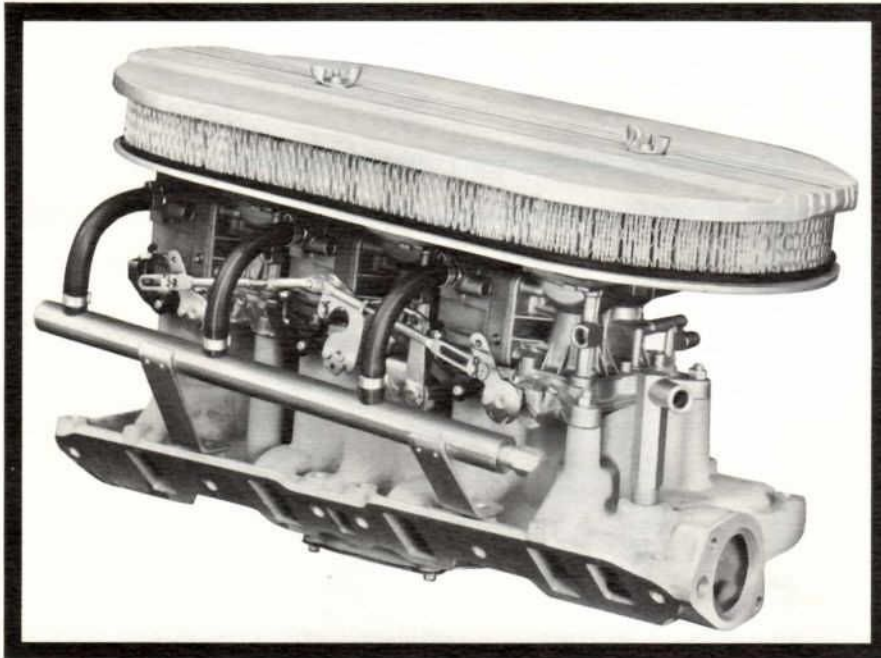


Consisting of production parts, this simple kit will boost engine power at reasonable cost. 4-V kit replaces standard 2-V induction system without major changes to basic system layout. For 221, 260, and 289 CID V-8's.

Single 4-V Induction Kit No. C40Z-6B068-D—\$120.30*

Kit includes: Intake Manifold (1) • Carburetor (1) • Air Cleaner (1) • Spacer (1) • Plus miscellaneous seals, gaskets, studs and screws.

6-V INDUCTION KIT



Combines three 2-venturi carburetors on the precision-cast-aluminum intake manifold. Uses center carburetor for starting, low and medium speeds. Front and rear carburetors act as secondaries, cut in at higher engine speeds, or during maximum acceleration demand periods. For 260 and 289 CID V-8's.

6-V Induction Kit No. C40Z-6B068-A and B (complete)—\$210.00*

Kit includes: Intake Manifold (1) • Carburetors (3) • Air Cleaner (1) • Fuel Manifold (1)

3-2-V Linkage Kit—1963 Falcon C3DZ-9B843-A.

3-2-V Linkage Kit—1964 Falcon C4DZ-9B843-A.

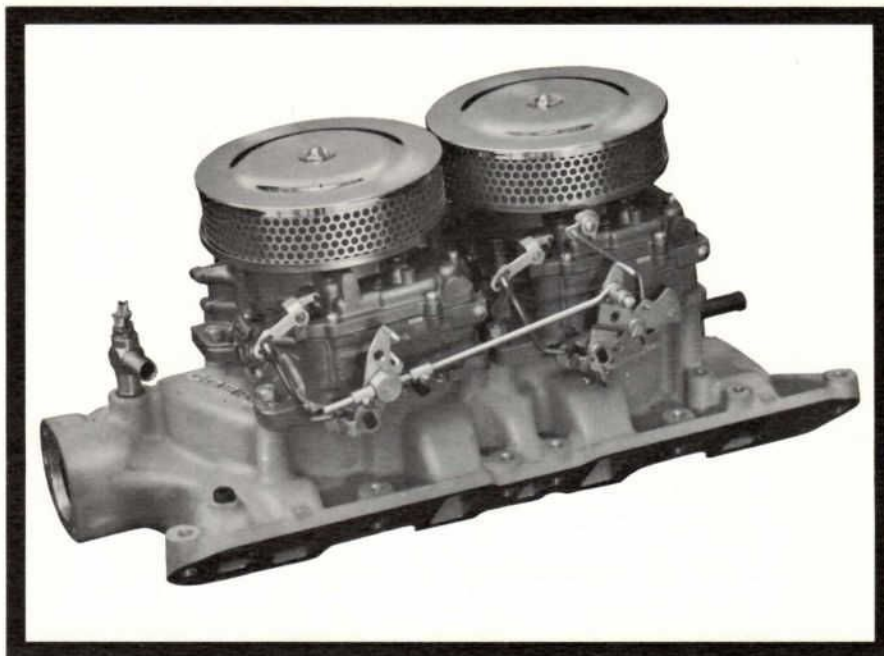
3-2-V Linkage Kit— all Fairlane C40Z-9B843-A.

8-V INDUCTION KIT

This kit features two 4-venturi carburetors mounted on a specially designed cast-aluminum intake manifold. Primary sections of both carburetors operate progressively from throttle linkage for starting, low and medium speeds. Both secondaries are velocity-flow-operated to cut in for acceleration and high speed use. For 221, 260, and 289 CID engines.

8-V Induction Kit No. C40Z-6B068-E—\$243.00*

Kit includes: Intake Manifold (1) • Carburetors (2) • Air Cleaner (2) (Appropriate throttle linkage available separately)

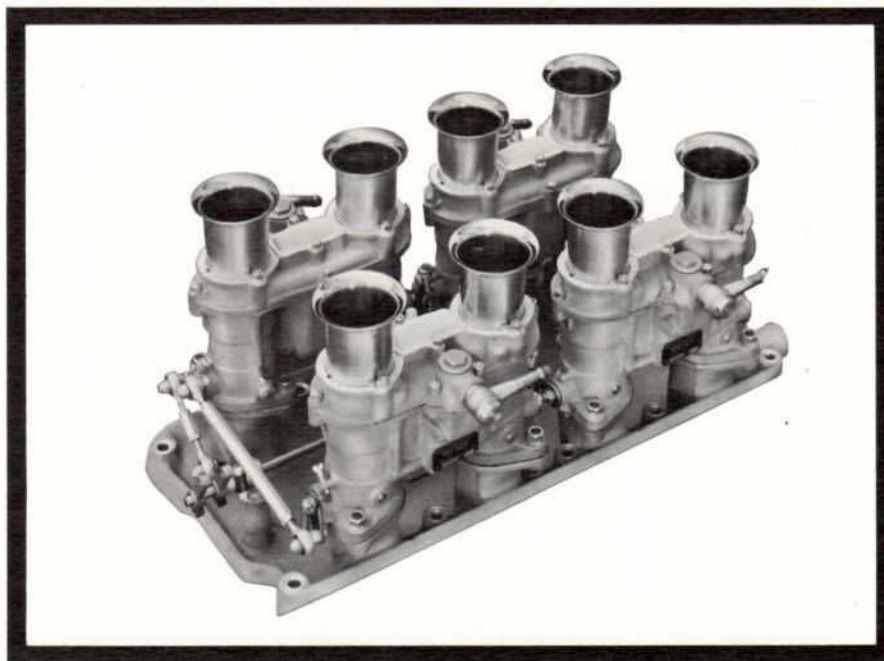


The ultimate induction system for "all-out" competition. Four 2-V Weber carburetors mounted on a special intake manifold for wide-open running. This is the same kind of high-output system used in the Lotus Fords at Indianapolis and the Cooper Cobra that won at Riverside and Laguna Seca. Not recommended for street use. For 221, 260, and 289 CID V-8's.

8-V Weber Induction Kit No. C40Z-6B068-C—\$1230.70*

Kit includes: Intake Manifold (1) • Carburetors (4) • Water and Fuel Manifold (1) (Appropriate throttle linkage available separately)

8-V WEBER INDUCTION KIT





1964 Cobra Engine Dress-Up Kit



1964 Cobra Valve Cover Kit



COBRA ENGINE DRESS-UP KITS

Add the racy "Cobra" look to your engine with bright finned, polished aluminum valve covers; gleaming chrome air cleaner; filler caps and dip stick. For 221, 260, and 289 CID V-8's.

1963 Cobra Engine Dress-Up Kit No. C30Z-6980-A—\$72.45*

Kit includes: 1963 Cobra Valve Cover Kit • *Oil Dip Stick • *Radiator Cap • *Oil Filler Cap • *Master Cyl. Cap • *Air Cleaner Cover and Filler.

**Chrome Plated*

1964 Cobra Engine Dress-Up Kit No. C40Z-6980-A—\$78.35*

For 260 and 289 CID V-8's is the same as above except for:

1964 Cobra Valve Cover Kit C40Z-6A547-A.

COBRA VALVE COVER KITS

Start your engine dress-up project with a pair of handsome finned, polished aluminum valve covers. For 221, 260, and 289 CID V-8's.

1963 Cobra Valve Cover Kit No. C30Z-6A547-A—\$42.00*

Kit includes: Valve Cover Assembly (2) • Chrome Bolts (12) • Chrome Washers (12).

1964 Cobra Valve Cover Kit No. C40Z-6A547-A—\$47.85*

For 260 and 289 CID V-8's is the same as above except for:

1964 Valve Cover Assemblies (1 each).

COBRA ENGINE AND DRESS-UP KITS ARE AVAILABLE THROUGH YOUR FORD DEALER. ASK FOR ADDITIONAL KIT DETAILS AT HIS PARTS DEPARTMENT.



FORD DIVISION/FORD MOTOR COMPANY
BOX 627, DEARBORN, MICHIGAN

INSTALLING THE LATEST CAMSHAFTS

When reworking the 332, 352, or 390 CID FORD engines for added performance, it is only natural to select items that will readily adapt to these earlier type engines from the latest 1964 high performance Fords.

It is common knowledge that intake and exhaust manifolds will interchange with no problem, as will many other items too numerous to list here.

One such item is the latest series camshafts - such as the C3AZ-6250-K cam of 324° duration and the C3AZ-6250-D cam of 306° duration. Both of these camshafts can be installed in the pre-1963 Ford engines mentioned above by modifying the engine to accept the late model thrust plate in place of the early thrust button used prior to 1963.

Here is a list of items needed for this conversion:

1 - Thrust plate	C3AZ-6269-A
1 - Cam sprocket spacer	C3AZ-6265-A
1 - Cam gear	C3AZ-6256-A
1 - Timing chain	B8A-6268-A
1 - Crank gear	C4AZ-6306-A

Simply remove the two soft plugs in the oil galley holes in the front of the engine and tap these holes to 7/16 standard. This will allow the thrust plate to be bolted in place. The remainder of the items will then complete the camshaft change.

Any competent mechanic can make this relatively easy conversion and the effort is certainly worthwhile if it is added performance you are seeking.

The place to get these items, of course, is from your friendly Ford dealer.

Ak Miller
9/30/64