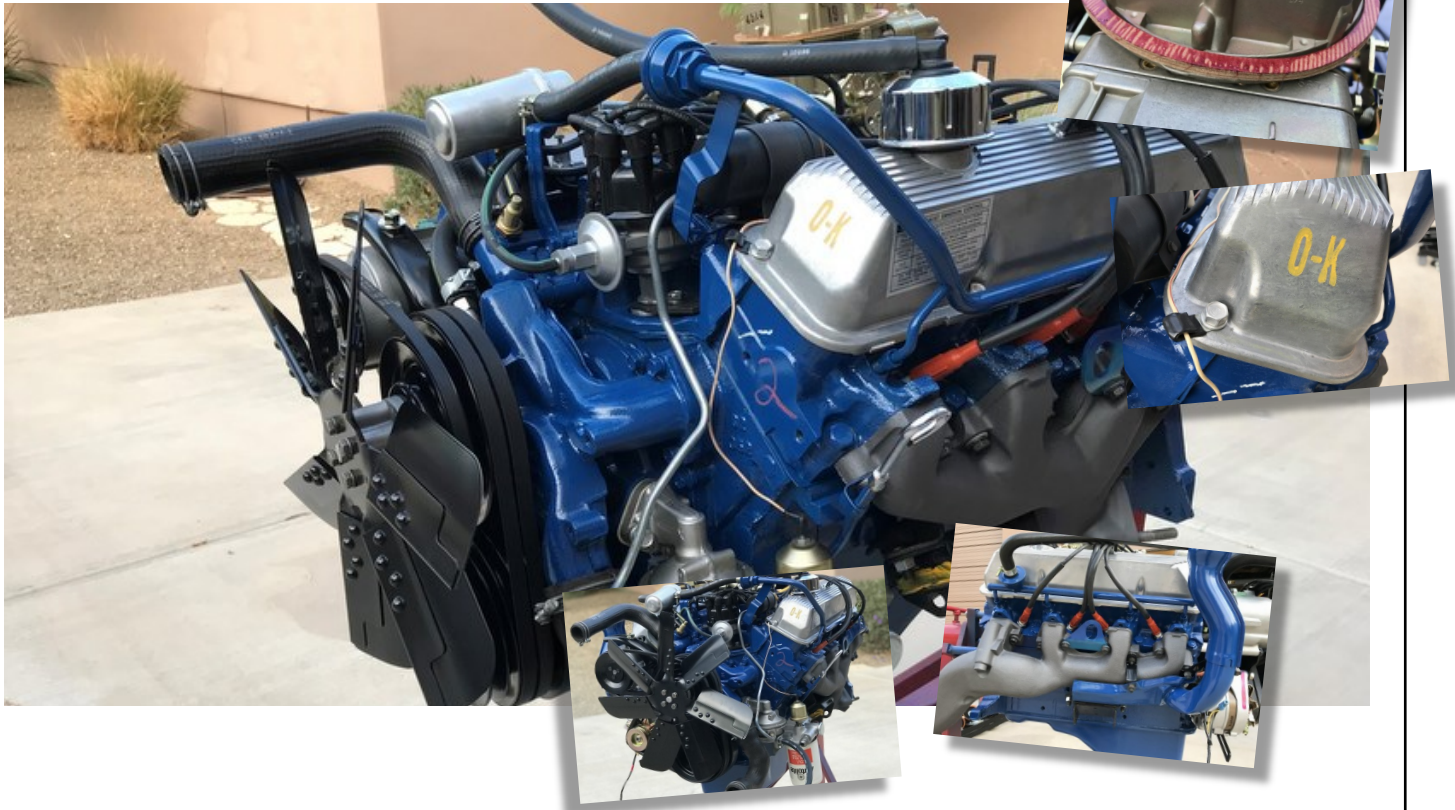


How To: 428 Cobra Jet Engine Detailing

M A R C U S A N G H E L
B O B P E R K I N S



HOW TO GUIDE ON ONE OF FORDS MOST ICONIC MOTORS

The Cobra Jet motor that was introduced in April 1968 is easily one of the most well known engines of the late 1960's and early 1970's from the muscle car era. It is also one of the hardest to detail because unlike a Boss motor or a HiPo motor it was used in so many different applications and over several years. Not only Mustangs but also Cougars, Torinos, and Montegos. Different options could be added to the drivetrain like a manual or automatic transmission, with or without air conditioning, and with optional axle ratios. All of this affects how a motor is put together and detailed. The motor itself was officially rated at 335HP and 418 ft lbs of torque but the reality is the motor was producing about 411HP. Because of how versatile the 428 motor was it is considered one of the best power plants Ford ever produced - so much that eventually the Cobra Jet name was brought back and re-introduced in 2008 for the 40th anniversary of the release of the first Cobra Jet Mustang.

In March 1994 Mustang Monthly published an article by Bob Perkins that was one of the best detail articles written on the subject. That article like so many other of that time was mostly with black and white photos so here we will update that plus add some more in depth detailing items. Although not every single option and feature can be shown in this article this guide should serve as a good basis for some of the common detailing tips and tricks.





1 The first step in detailing a 428 Cobra Jet motor is to make sure you actually have one, versus a 390 or standard 428 block. It is difficult to decode one when installed in a car, but when it is out there is a few things to look for. One of the easier things to look for is the "C" that is sand cast in the back of the block as shown in the pictures here. This is typical for a Cobra Jet block. If you

see an "A" marked in the back of the block most likely this is a standard 428 motor that was used in Thunderbirds, Mercs and LTD's. If there is no marking at all it is likely to be a 360, 390 or 410 block. This can be summarized as follows:

- "A" scratch on rear bulkhead with standard crank saddle webbing: August 1965 - 1966
- "A" scratch on rear bulkhead with reinforced crank saddle webbing: March 1967 - June 1967
- "C" scratch on rear bulkhead with reinforced crank saddle webbing: June 1967 - March 1970

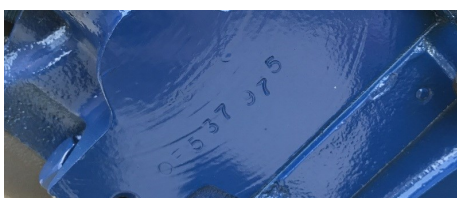


1a Of course another way to determine the correct block is the date code. This is cast into the block and visible right next to the oil filter adapter on the bottom of the engine block next to the oil pan as shown here. Date code should be a few months prior to the build date of the car at the most.



1b Nearly all FE blocks have a 352 that is cast in the front of the block. This first started with the 352 cu in engines in 1958 but was continued with the FE engines throughout its service life including the Cobra Jets.

2 Cobra Jet motors used a special cast iron head that can be identified with the engineering numbers C8OE-6090-N on the outside as shown here and with inlet ports for the thermactor system at each cylinder. These heads were used on all 1968 to 1970 Cobra Jet production cars that were built and always painted blue with the motor.

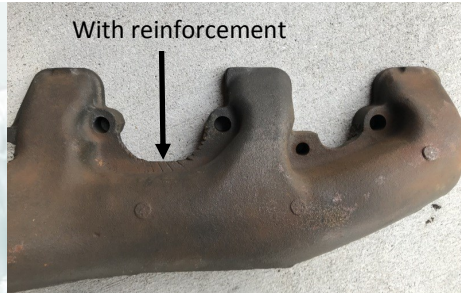
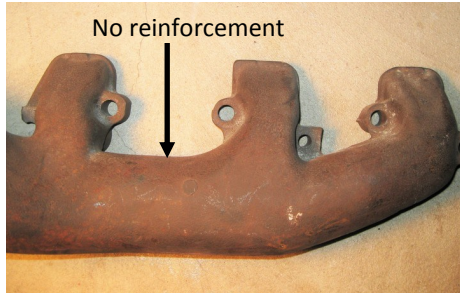


3 The VIN is typically stamped on the back of the engine block or on the back of the cylinder head. Before Jan 68 Ford stamped these for warranty purposes and then only on high performance motors. After Jan 68 it was stamped on almost all blocks or heads as part of Department of Transportation regulations against automobile theft.



3a The engine assembly date can be found typically stamped on one of the four flat spots near the cylinders with the most common being above the oil filter adapter. This will be dated after the casting date in a year, month, day, assembler last name initial, format.

4 Exhaust manifolds were a cast iron design and unique to the Cobra Jet motors. There is three different versions used between 1968 and 1970. The main difference in the manifolds during these years is in the passenger side manifold. Version 1 does not have additional reinforcement ridge at the front exhaust ports. Version 2 adds the additional reinforcement. Version 3 removes the need for an exhaust spacer. Manifolds should not have any blue overspray as they were not on the engine when it was painted.



Version 1. C80Z-9430-A Note the lack of reinforcements compared to the next version. Used from 1968 1/2 to early 1969 model year.

Version 2. C80Z-9430-C Note the addition of reinforcements compared to the previous version. Used from early 1969 model year to December 1969.

Version 3. C90Z-9430-C Removes the need for the exhaust spacer by machining the end to accommodate the H-pipe directly. Used from December 1969.

4a Exhaust manifold bolts used were a special design that used ramp lock washers and flat washers shown here with the flat washers being placed against the manifolds. Correct finish of this hardware as shown here.



5 A choke stove system was originally designed as part of the passenger side exhaust manifold. This worked by running metal lines from the exhaust manifold via the choke stove to the carburetor to help with cold start. The exhaust manifold had a mesh filter element and an end cap fitting running to the line. These were used until 1970 when a manual choke was then used and eliminated this automatic choke. Note the original asbestos wrap that was used on the warm air tube.



5a There was a design change in April 1969 that then added an additional input from the air cleaner to the choke stove system via an inline T that connected with an orange hose and the modifications you see here.





6 The water pumps used on the Cobra Jet motors are typically seen with two different casting numbers. C8AE-8505-H is normally seen on 1968 models. C9AE-8505-A is seen on 1969 and 1970 models. The difference being a larger internal bearing being used on the C9AE version. Both versions have date codes that are easily seen.

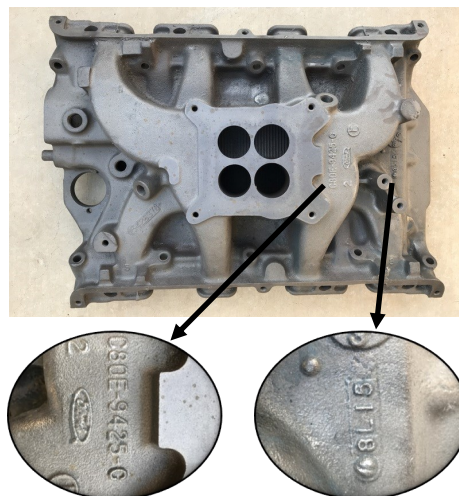
7 The paper engine ID tag was normally placed on the passenger front head on the flat area behind the smog pump. This tag identifies the engine and transmission combination that was pulled as a finished assembly to match the build sheet. This tag would have a "D" and not an "L" because the 390, 427 and 428 motors were assembled at the Dearborn Engine Plant.



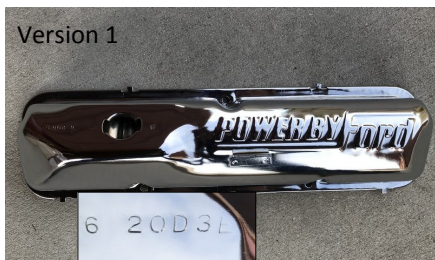
8 The metal engine ID tag was commonly placed under the coil bracket on the Cobra Jet motors. These tags were used by Ford from January 1964 to February 1973 on all its motors to identify them for production. Reading the numbers from top left to lower right would decode as 428 for the cubic displacement of the motor, 70 would be the model year (not calendar year), the next digit is the revision level (in this instance 7), the next series of number/letters is the production date of the motor (0 A = January 1970), and the last set of number is the engine code that would match the build sheet.



9 Original assembly line freeze plugs that were used are easily identified by the diamond logo in the center, although this logo is sometimes stamped on the back of the freeze plug and not visible when installed. These were serviced under part number C8AZ-6026-B and typically have a galvanized finish.



10 The intake manifold is cast iron and would be painted blue with the motor. The most common engineering number is a C80E-9425-C that would be cast in behind the carburetor mounting area. At the very back of the intake is the date code that would be in a Year, Month, Day format. This date needs to precede the build date of the car.



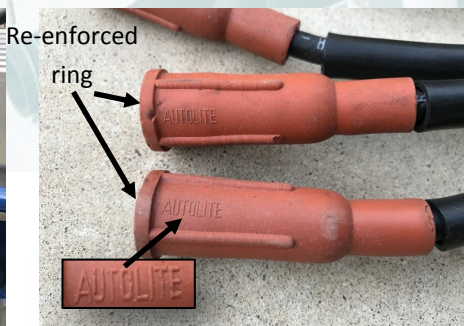
11 There was two basic versions of valve covers used on the Cobra Jet motors, plus one possible variant. Version 1 was the chrome valve covers that were used on 1968 and 1969 engine until February 14, 1969. These valve covers typically have a date stamp on them starting 1969 model year and are visible next to the oil breather area as seen above. Dates were in a month/day/shift format and did not include the year. After February 14 1969 a finned aluminum valve cover was used with the engineering number C9ZE-6583-A or C9ZE-6583-C which is stamped inside. The third version is an aluminum valve cover that has “428 Cobra Jet” stamped on the outside and was sold by Ford Motorsports as an accessory item. It has the engineering number C9ZE-6583-B stamped inside. It is possible that in some cases this valve cover was installed from the factory.



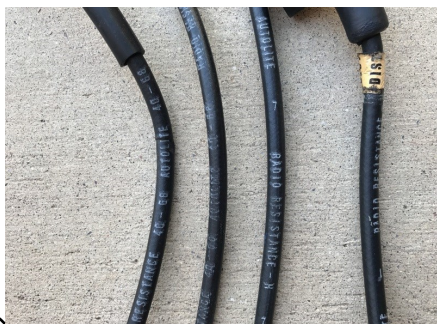
12 The chrome style valve covers used staples to hold on the valve cover gaskets. There was one staple used per tab—5 per valve cover.

13 An inspector OK stamp that was typically applied after engine hot testing was applied to the drivers side front valve cover as seen here.

14 Original valve cover gaskets themselves would be a cork style with a silver colored sealer on them that is visible on the areas where it sticks out.



15 Original spark plug wires had a protective sleeve that was meant to prevent any burns as the wires wrapped over the thermactor tubes. The end of the spark plug wires were orange and had AUTOLITE molded in and a unique re-enforced ring at the end of each boot. Each wire was dated coded according to the calendar year (68, 69 or 70) and the quarter (Q1 to Q4) and numbered for its respective position from 1 to 8.



15a Original spark plug wire boots at the distributor cap are all not exactly the same as some are molded different to give extra clearance—see photo of #3 wire that is different.



16 The correct original distributor cap has AUTOLITE cast into the top of the cap as shown here and is a black molded piece.



17 An original style distributor hold down (B8A-12270-A) is shown here with the correct installed position (tang's up) and a phosphate and oil finish held in place by a zinc hold down bolt and lock washer.



18 The correct style ignition coil bracket assembly. Note the position of the notch that fits against the intake manifold and the correct finish.

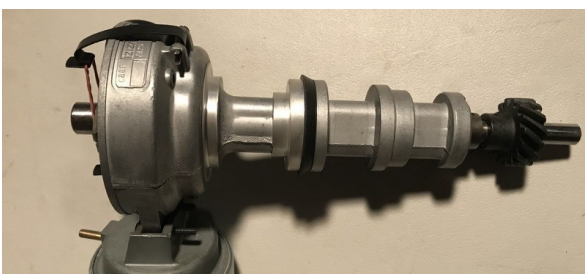


19 The original Autolite yellow top ignition coils used had an ink stamp that may or may not be visible when installed on the motor. The ink stamp would include a date code that is in a year, month, week, shift format as shown here.

Also, the correct orientation of the ignition coil is shown here. Here you can see the terminals are turned towards the drivers side valve cover.



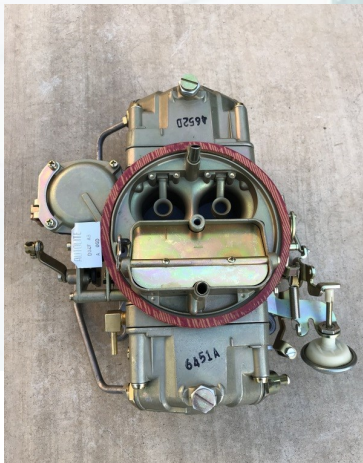
Transmission	1968	1969	1970
Manual	C80F-12127-D	C80F-12127-H	DOZF-12127-C
Automatic	C70F-12127-F	C80F-12127-J	DOZF-12127-G



20 The distributors that were commonly used in the Cobra Jets are listed here with the engineering numbers that would be stamped in them. All of them would be date coded in a Year/ Month/Day sequence and are stamped in such a way that they are only visible from the back of the distributor when installed. All distributors are single point design with the exception being the 1970 manual transmission which is a dual point distributor. Note the machined surfaces some of which are visible when installed on the motor. The distributor cap hold down clips would be a phosphate finish and not painted.

Model Year	Engineering Number	Holly List Number	Transmission AC
1968	C8OF-9510-AA	4174	Manual
1968	C8OF-9510-AB	4168	Automatic
1969	C9AF-9510-M	4279	Manual
1969	C9AF-9510-N	4280	Automatic
1970	DOZF-9510-AA	4513-1	Manual without AC
1970	DOZF-9510-AB	4514-1	Automatic without AC
1970	DOZF-9510-AC	4515-1	Manual with AC
1970	DOZF-9510-AD	4516-1	Automatic with AC

21 All Cobra Jet motors used a 735 cfm Holly carburetor originally from the factory. Refer to the chart for exact numbers and applications. This information would be stamped in the air horn in front of the choke plate. Date codes would also be stamped in the same area and are decoded in a year/month/week format. Example of 074 would decode as 1970/7th month/4th week. Note that for the months 0=October, A=November and B = December. There also would be a aluminum ID tag that is typically mounted on the passenger side of the carb on the choke assembly. Front metering block would be stamped and identified with a 5673, and the rear metering block would be identified with a 5671.



5673 front metering block



1970, 7th month, 4th week with list number ink stamped in air horn

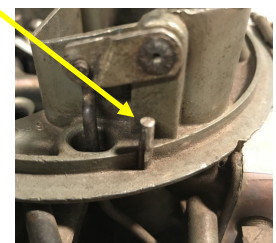


834 = 1968, 3rd month, 4th week



Original style square accelerator pump. Visible from front when installed and mounted on intake.

21a The early 1968 1/2 carburetors had a unique feature in that they had three locating pins around the air cleaner boss and mounting surface. You can see in the photos below what these look like on these rare carbs.





22 The motor mounts that attach to the engine block are a bare metal finish. The rubber insulators would be painted black and could have a yellow ID stripe on them - especially the service replacement DIZA versions we see today. Original C8 mounts would have a red stripe on them. The 69 and 70 convertibles used a different rubber insulator as specified in the parts books.

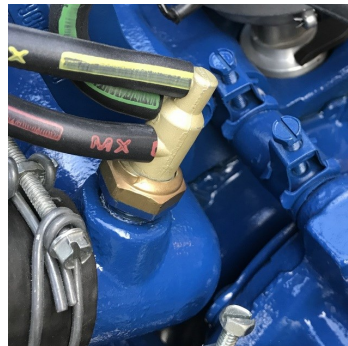


23 The oil pans used on the Cobra Jets have beveled edges at the rear of the oil pan as shown here. This gives extra clearance that is needed for the center link and tie rods and power steering ram. Date codes are typically on the bottom with a FoMoCo stamping as well.

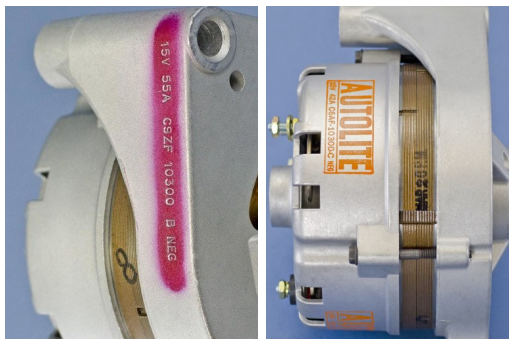
24 Original oil dipstick tubes are unique with the spot welds that they have for the attaching bracket and also with the FoMoCo that is stamped on that bracket as well. These would be painted blue with the motor.



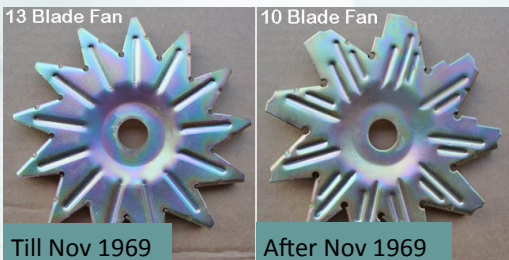
25 BF32 Autolite spark plugs is what Ford used on these motors originally. Spark plugs with a star on them were typically only seen till 1968. Later versions did not have this star.



26 The ported vacuum switch that is mounted in the thermostat housing was a C8AE-A version for 1968 and 1969 and a D0AE-A for 1970. The change over date was approximately Aug/Sept 1969. Date codes are a month year format with the middle character representing the manufacturing plant—H for Hanover IL and K for Kalamazoo MI. Note that the switch was installed on the motor when it was painted so could have some overspray on the lower section.



Die stamped (left) vs ink stamped housing



Till Nov 1969

After Nov 1969

Year Application	Amperage	Engineering number	Pulley single or double groove
1968 GT500 and GT500KR	42	C6AF-10300-C	Double
1968 AC no PS	55	C6TF-10300-E	Double
1968 AC and PS	55	C6TF-10300-F	Single
1969 w/o AC	55	C9ZF-10300-B	Double
1969 w PS and with AC	55	C9ZF-10300-C	Single
1970 w/o AC	55	DOZF-10300-C	Double
1970 w AC	55	DOZF-10300-C	Single



Rear housing detail showing the AUTOLITE stamping and the commonly referred "tear drop" center.

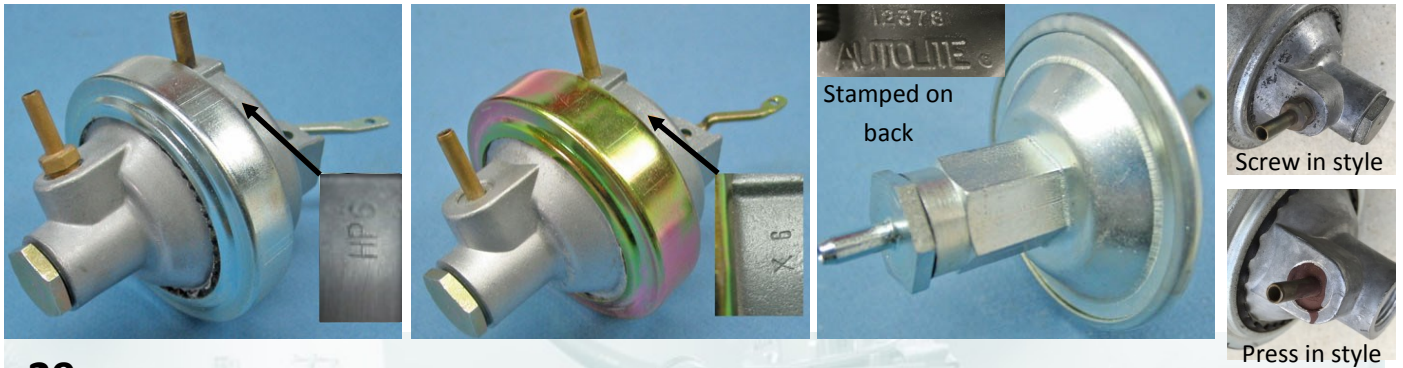
27 There were several different alternators that were used on the Cobra Jet motors as identified by the chart above. Most variations are with a 55amp output. Main features to look and identify in the housing is the AUTOLITE cast into the back as shown, although some of the early 1968 cars would have this case without the AUTOLITE. The alternator cases themselves were ink stamped with the engineering number until about February 1969. When they were ink stamped you would typically see two of the same ink stampings on the case in different positions. The color of the ink stamp helped to identify them as well with orange for 42amp and red for 55 amp. After February 1969 the engineering number was die stamped into the housing after the matched color was put there resulting in the letters and numbers not being painted over as shown. This was done to make it easier to read. Fan blades for the alternators changed as well with the 13 blade being used until about Nov 17 1969 and then the 10 blade being used after this. This was done because the 10 blade design was less noisy than the 13 blade design.



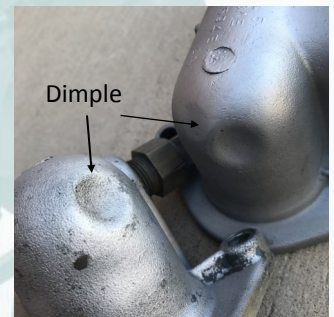
27a The double sheave pulleys actually changed from the 1968 to 1969 model year. The pulley used in 1968 was the C5AF-10A352-J2 and can be stamped on the front or back of the pulley. In 1969 this changed to the C9AF-10A352-C which is always stamped on the front face.



28 Note the thermostat bypass hose and clamps are painted with the engine, while the water pump inlet is not. This is a common overlooked detail on many restorations.



29 There is a few different distributor vacuum advances that were originally used on the Cobra Jets as shown above. Version 1 was used for 4 speed cars in 1968 and 1969 with its most distinguishable features being the silver band and the HP 6 stamped in the top. Version 2 was used on 4 speed cars in 1970 and had a gold band and the stamping X6 stamped in the top. Version 3 was used for all automatic cars from 1968 to 1970 and is cast on the back side with the numbers 12378 and AUTOLITE. There was also a design change that happened with version 2 around Oct/Nov 1969 in which the vacuum hose connector on the front changed from a screw in style to a pressed in style as shown.



30 Carb spacers used for 1968 and 1969 are a C8AZ-9A589-G and have no identifying marks except the word FRONT that is stamped into the tab on the front. In 1970 the design change added a rear port for the PCV system to attach the hose and changed the part to a D00Z-9A589-A. There is no markings on the 1970 version.

31 The original thermostat housings are easily identified by the engineering number cast on the front side which is a C8AE-8594-E. There is also a date code that would be stamped in the circle area to identify the year and month of manufacture. Other way to identify them is the dimple cast in the elbow area as shown.

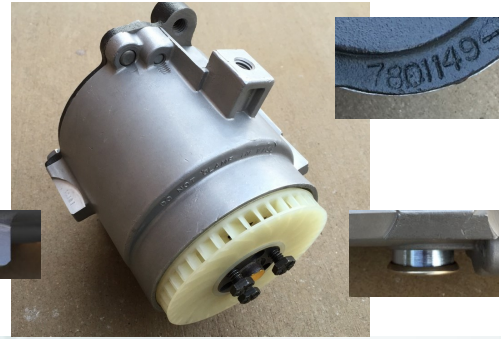


32 Oil sender units were different for cars with and without an oil pressure gauge. For those cars with an oil pressure gauge they had a zinc dichromate bulb type sender, while cars without a gauge had a green top oil sender as shown here.



33 All Cobra Jets used the same aluminum timing cover that would be identified with the engineering number C8AE-6059-B. In addition these are also all date coded with a year month format as shown here (June 1969).

34 All Cobra Jet engines shipped in the United States had a thermactor system (commonly called a smog system) to help reduce emissions. The heart of the thermactor system is the air pump (or smog pump). These are all date coded and can be easily seen on a Cobra Jet motor once installed. Date codes are read in a year, month, day, and shift format. Originals here had a pressure relief valve on the side of the pump and later do not. The only other identification for these is the casting number stamped on the back housing which is 7801149.



34a Visually one of the easiest components to spot is the air bypass valve assembly (or diverter valve). Originals will say CARTER and ST LOUIS, MO on the front, and FoMoCo on the back. A date code and engineering number will be stamped in the housing as well, although this can be underneath.



34b The smog tubes shown here are the left and right side and thread directly into the heads. Note these originals and how uneven the paint coverage was with runs from when originally installed when the motor was painted Ford Corporate Blue.



34c The mounting brackets used for the smog pump are shown here and consist of two brackets that would have been painted black. The larger bracket is also used as part of the alternator mounting and has an engineering numbers of C8AE-10156-A. The adjusting bracket was stamped C8AE-B. This is the same for all years.



34d Smog pump clamps that were used are identified with three number 7 Wittek clamps, and one number 9 Wittek clamps plus typically two tower clamps on the S hose. The photo here shows the exact position of the clamps as per the assembly manual. This was what shown but could have varied on cars. Clamps would be a zinc dichromate finish. The number 9 clamp was used on the canister bracket connection.

34e Note the small washer that is placed behind the smog pump adjusting bracket as a spacer. This was used on all cars except those with AC since they had an additional bracket that takes up that extra space. If the spacer is missing the smog pump will not line up properly.



34f The short smog hose (left check valve inlet hose) was marked different for 1968 as a C8OE-9B466-C engineering number. This changed in 1969 and 1970 as the hose was marked as a C9OE-9B466-A as shown. These hoses were date coded and can be seen in the lower picture as the 09288 would be decoded as September 28 1968. The hoses had a smooth texture and were not actually serviced as such. Parts books indicate to simply cut a length of hose from C8OZ-9B466-C as this was similar enough.



34g The long smog hose (right check valve inlet hose) would be marked with a C8OE-9B466-F engineering number and is also date coded. These are also date coded.



34h The S hose (air bypass valve inlet) was marked with engineering number C8AE-9F287-A and was typically installed with two tower clamps, but also could have one Wittek band clamp as shown.

34i Shown here is the most common smog pump pulley used for all cars from 1968 to 1970 marked as a C8AE-9C480-A. The only exception to this is cars with AC. In 1968 they used a pulley marked as C8AE-9C480-B and in 1969 and 1970 they used a pulley marked as C9OE-9C480-A. These pulleys had a wider groove in them to accommodate the wider belt needed to run with the AC compressor (JC belt).



34j Shown here are original service pieces for the nut and ferrule assemblies and the tubes that were used in the ports of the heads for the smog pump system.



34k The system used two check valves with one mounted on each side with each smog tube assembly. Original check valves have the FoMoCo stamping on them as shown.

2322 ENGINE - OIL PAN FILL LEVEL - REVISED

(Mustang - 428 CJ, 428 SCJ, Boss 302 - 1969-70
Fairlane - 428 CJ, 428 SCJ - 1969
Fairlane - 429 CJ, 429 SCJ - 1970)

Oil pan fill levels have been revised on subject engines from four quarts to six quarts. When changing oil and filters (customer expense), seven quarts of oil are required (add one extra quart for oil cooler package). It is mandatory that subject engines, which are operated at sustained high speeds, be checked for proper dipstick application (and modified if necessary) to insure compliance with the new specifications. Replacement of the dipstick is reimbursable on Form 1863.

Engine Application	Dip Stick Ident. No.	Correct Dip Stick Svc. Part No.	Class	Availability
428 CJ/SCJ	DOOE-6750-C	DDOZ-6750-C	B	OK
428 CJ/SCJ	DOOE-6750-B	DDOZ-6750-B	C	OK
Boss 302	DOZE-6750-C	DDZZ-6750-B	C	OK

WARRANTY STATUS: Reimbursable with the provisions of the Warranty & Policy Manual.
DLR CODING: Basic Number 6750 - Plot Form Code 38

35 The oil dipstick came in two different versions. The C70E-6750-A version was used till May of 1970. After that when a TSB was released new oil levels were recommended and the DOOE-6750-C version was used. Note the dipstick handles—the replacement style has a dimple.



36 Original fuel filters used on all Corajets was a C70E-9155-A. Notice the original paper sticker that is still in place to help identify this part. Reproductions of the sticker can be purchased today and is a nice detailing touch.



37 There were two different starters used. 68 and 69 motors used a C8AF-11001-A and 70 motors used a DOTF-11001-A. These are date coded as well with the example here being January 6 1969. The starters would be painted black except around the drive end and the bolt and hardware to attach the starter cable.



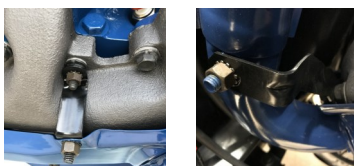
38 The starter wire is routed down under the engine at the engine mount with a single loop to hold it in place and away from the exhaust manifold. Note the protective sheathing as well.



39 The engine ground wire for 1968 and 1969 was on the back of the motor and connected to the firewall as shown. In 1970 this changed and was part of the negative battery cable. The tab connects to the voltage regulator as shown.

40 The negative battery cable is typically secured with a plain unmarked bolt as shown.

41 The original upper and lower radiator hoses had a unique "snakeskin" texture. The upper radiator hose could be marked with either a Mustang or Cougar engineering number as C8ZE or C8WE and the lower radiator hoses are a C9OE. The AY was the manufacture ID for Firestone. Notice the spring clamps are held in place with staples to keep them in place during installation. In 1968 tower clamps were used.



42 The heat shield and snorkel were painted blue but could be a different shade than the engine. Attaching hardware is shown at the exhaust manifold and the front.

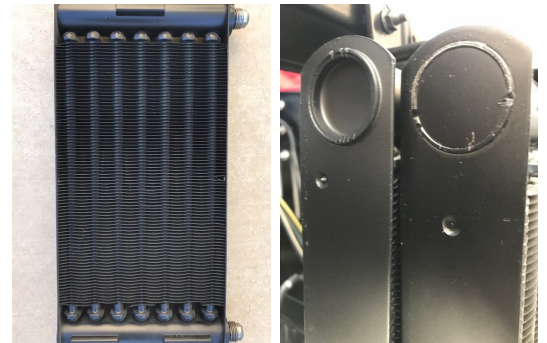
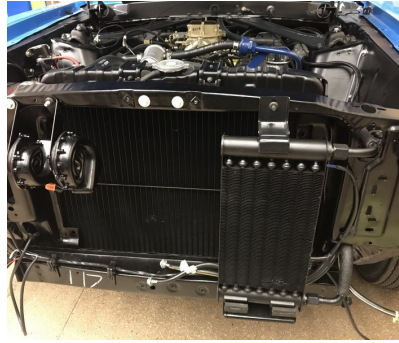


43 Two different breather cap elbows were used. In 1968 a metal elbow was used and then changed to a black plastic elbow as shown here. The original chrome breather caps had the word AUTOLITE stamped in them that is visible on the top surface when installed on the valve cover.



44 Original breather hose from the breather cap to the air cleaner assembly were date stamped. This one shown here is stamped 10289 which is October 28, 1969.

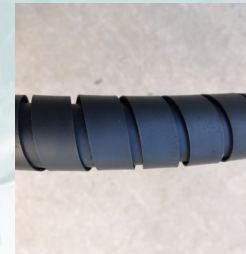
45 On cars that were ordered in 1969 and 1970 with the optional 3:91 or 4:30 rear axle ratio, Ford added a special package that was known as the Super CobraJet. This included different internals for the motor, but the noticeable pieces that are visible from the outside are listed here. The most noticeable feature was the front mounted



oil cooler. This was placed in front of the radiator as shown. The oil cooler itself has 7 tubes across and is two rows wide with 8 fins per inch. They also came with two different style freeze plug caps on the ends as shown here. Both styles are correct. The flow of oil and inlet of the oil cooler is actually on the bottom with the outlet of the cooler on the top.

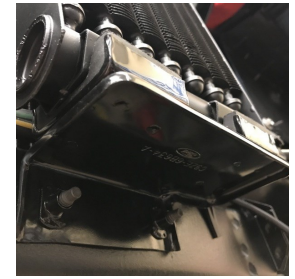


45a There were two different oil filter adapters that were used on the CobraJet motors. The normal adapter was marked with the engineering numbers C8AE-6881-A. The special adapter used on the SCJ motors was marked with a C9OE-6884-B. Both would be a bare aluminum as shown. The correct style gasket is shown and would not be painted with the motor.



45b The SCJ used a slightly different (longer) timing pointer as well because of the different harmonic balancer that was used. The SCJ timing pointer is a C9OZ-6023-A, while the normal pointer is a C9AZ-6023-A.

45c Original oil cooler lines for the Mustang and Cougars shown here. The hoses would be different for Fairlane and Torino. The ends of the hoses would be painted black at the oil cooler side and unpainted at the oil filter adapter side. Hoses are also date coded as shown. Note the texture of the hose wrap and also the color of the spiral protective wrap.



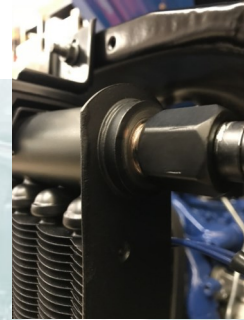
45d The SCJ option

used a different harmonic balancer and added a counter weight (hatchet) because of the different crankshaft that was used. Harmonic balancer is painted black and the counterweight would have blue overspray on it. Also all harmonic balancers are date coded as this example here is J9 which is September 1969.

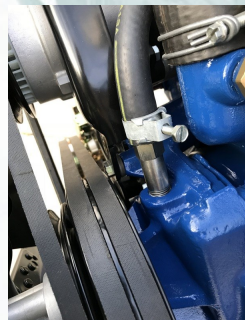


45e

The oil cooler was held in place with two special brackets that the Mustangs and Cougars used. The upper bracket was marked with a C9ZE-6B633-A and the lower was marked with a C9ZE-6B634-A engineering numbers. The photo on the left here you can see the

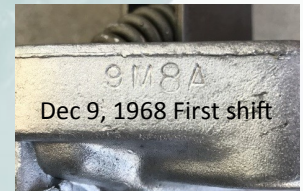


bare unpainted area around the oil cooler outlet as the originals had a cap there when painted.



46

Note the thermostat bypass hose and clamps are painted with the engine, while the water pump inlet is not.



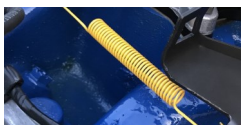
47

Fuel pumps are a Carter "X" style pump identified by the X cast into the front face as seen here. The casting number (4441S) and date code would be stamped underneath at the mounting flange.



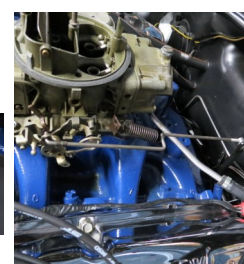
48

The throttle return bracket design changed each year. For 1968 it was a short L bracket that mounted under the carb stud. In 1969 it was a long bracket that fit under the two rear carb studs. In 1970 it was a bracket that mounted to the intake manifold itself. The return springs changed as well. In 1968 a black return spring was used, in 1969 a grey return spring was used until April 1969. Then after that a yellow return spring. The different colors indicated different lengths and coil tensions.



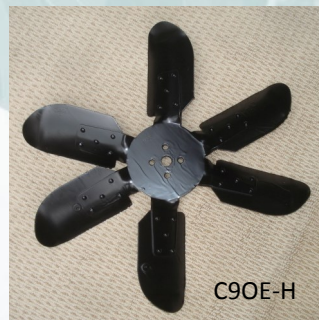
49

Original throttle cables in 69 and 70 had a metal spiral wrap and service replacements had plastic covering. The 69 cables are different from 70 in how they attach to the firewall. Note that the 68 motors used rods and no cable.



Year	Fan Number	Blades	Diameter	Center Diameter	Type
1968	C8OE-B	7	18 1/4"	2 3/8"	Fixed-Pitch
1969 CJ 1969 V-code SCJ (from April 1969) 1970 CJ with A/C	C9ZE-E	7	18 1/4"	2 5/8"	Fixed Pitch
1969 V-code SCJ (through March 1969) 1969 W-code SCJ some 1970 SCJ	C9OE-H	6	18"	5/8"	Fixed Pitch (no clutch)
1970 CJ and SCJ without A/C (from Sept 1 1969)	DOTA-C	7	18"	5/8"	Flex (no clutch)

50 With so many different configurations of CobraJet motors there were several different fans that Ford designed. Each one has a specific use as indicated in the chart. This would serve as a general guideline with build sheet information (if available) being the best way to confirm because of change over dates. The engineering numbers are stamped on the fan blades themselves, and they would be date coded as well (except for the C9ZE-E fans). The fans were dipped in black paint originally and would have runs in them as opposed to being sprayed. A fixed pitch fan was the most common used during these years with the exception being the flex fan used in 1970.



50a All of the fans listed above used a fan clutch except for the last two fans listed (C9OE-H and the DOTA-C) which used a fan spacer. Note the differences here between the original style spacers shown and the service replacements that were sold over the counter.



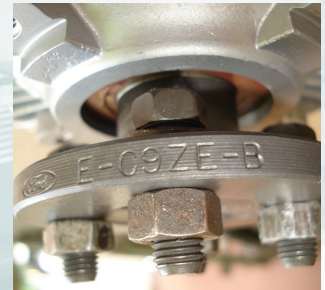
50b The C9OE-H fan spacer is shown here. Original assembly line style on the top is the thick version marked with Dorman logo and measures 1.36 inches in length. The service replacement is shown underneath which is marked C8YE-A and is 1.25 inches in length.



50c The DOTA-C fan spacer is shown here. The original assembly line style is also a thick style marked with the Ford logo in the center and with a C stamped at the base. The service replacement is marked with a C8AE-C and both the original and replacement measure 1.88 inches in length.

Year	Engineering number	Part Number
1968	C80E-B C80E-C	C80Z-8A616-B
1968 GT500KR and some early 1969	C80E-C	C80Z-8A616-B
1969 and 1970 , before Sept 1, 1969	C9ZE-B	C9ZZ-8A616-A
1970 after Sept 1, 1969	DOZE-A	DOZZ-8A616-A

51 With certain configurations Ford used a fan clutch. These would control the spin of the fan based on temperature and RPM's. These fan clutches are filled with an oil that is regulated by a spring/switch that regulates the flow of oil and then the amount of spin. The fan clutches have the engineering numbers stamped on the base as shown and can be seen when installed.



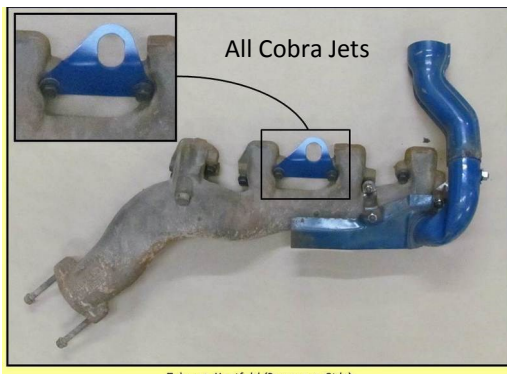
52 Original fuel pump gaskets were a white material and when installed on the motor you can see the edge of the fuel pump gasket—another detailing item that makes a difference on concours restorations.

53 Original belts on the motor from the factory could have ink stamped engineering numbers or embossed engineering numbers. Date codes would always be embossed on both version belts. Date codes were in a quarter/year format.

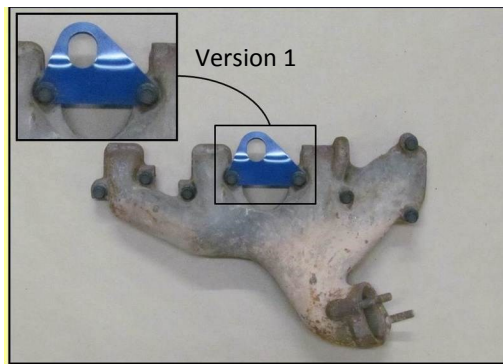


Version 2

54 Engine lift hooks were originally attached to the exhaust manifolds to help with engine installation. The passenger side lift hook was always the same and has no stampings. The drivers side has three different versions. Version 1 was only used on 68 Shelby's to help with valv cover interference. Version 2 was used in 1968, and version 3 was used on all other Cobra Jets. These parts were never serviced by Ford.



Exhaust Manifold (Passenger Side)



Exhaust Manifold (Driver Side)



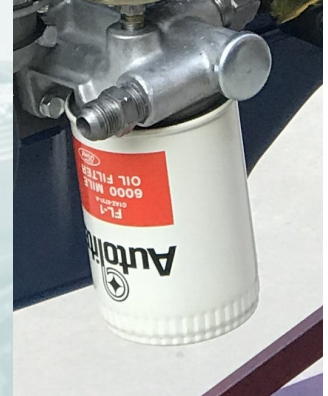
Version 3

C9ZE-7K004-B



55 Original PCV hoses in 1968 and 1969 were often painted blue with the motor and will have some overspray on them or be totally covered in paint including the PCV valve itself. The PCV hose design changed in 1970 so this is not normally seen on a 70 engine. Note the original rubber grommet used for the PCV valve with the C7AE-6A8920-A engineering number.

56 Original oil filters used by Ford was a FL-1 filter. 1968 production and most of 1969 cars would be a dual crimp style filter and then changed to a single crimp style in late 1969 production. Originals have date codes as shown, which in this case is Feb 4, 1970. Assembly line oil filters would be painted blue, but were not actually painted on the motor.



57 Ford Corporate Blue Paint information:

PPG Delstar Ditzler DAR-TCP 13358 (H) enamel
DXR 80 Delthane Ultra Urethane Hardener
Ditzler DX 265 Flattening Base (25% to 30%)
DTR-601 Reducer (HVLP gun x 2)



58 When the motor was painted it was typical that there would be blue overspray on the 4 speed bell housing and bolts since it was one assembly. The photo here shows an original bellhousing.



A special thanks to those fellow enthusiasts who have helped here with their knowledge and photos and ideas.....including of course Bob Perkins for his years of experience, patience, and guidance, Jim Woods for his great collection of photos, Jack Brooks for all things concerning alternators, Scott Fuller for his collection and photos of 68 cars, Dave Lochhead for his collection of NOS parts, Kerry Wortman for his years of research on engine block decoding, Bob Gaines for photo contribution, Chris Teeling and Scott Hollenbeck for their work with the 428 Cobra Jet site and many others in the Cobra Jet community.

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