DRAG RACING'S

COBRA MUSTANG

SUPER TUNING TIPS—PARTS FOR PERFORMANCE

MUSTANG

ULTIMATE WHEELS MACH I

Mustang Mach I for 1969 is coming on strong . . . . . Here's the inside story . . . groovy, swinging interior. You sit down in foam-padded, vinyl trimmed high back bucket seats. Your hands grab hold of Mach I's woodlike 3-spoke rim blow steering wheel and up front on the teak toned dash are the best cluster of Hi-Po instruments yet. Deep piled luxurious broadloom stretches from door to door. Sounds like a lot of car? It sure is. Fire it up and watch the shaker hood scoop twist up as you wap it to the gas a couple of times . . . in fact give it a run . . . go ahead, buckle up and give the new 428 Cobra Jet Engine with 4 speed transmission a long strong run. Too much power you say . . . So we were wrong . . . so you're the cooler type. Then we have the answer: The tough as nails 351 cubic inch engine with either four speed or automatic. Come on now, you're entitled to one big excitement in your life, so go ahead and pop a few eyebrows . . . It's about time you treated yourself to the wildest, neatest, toughest, smoothest, sassiest, gassiest, jazziest, car in the whole wide world . . . Mustang Mach 1. You can pick your own and add in Hi-Po options from a list as long as your arm, all designed to give you just the muscle you desire . . . So go ahead, fella . . . Mach it to yourself this year.

MUSTANG HORSEPOWER TO WEIGHT RATIOS

	302CID/220HP		351CID/250HP		351CID/290HP		390CID/320HP		NON-RAM* 428CID/340HP		RAM-AIR* 428CID/360HP	
	HP/WT Ratio	Stock Class	HP/WT Ratio	Stock Class	HP/WT Ratio	Stock Class	HP/WT Ratio	Stock Class	HP/WT Ratio	Stock Class	HP/WT Ratio	Stock Class
Mustang 2-door hardtop	14.20	M	12.90	K	11.24	H	10.44	F	10.13	F	9.56	E
Mustang 2-door fastback	14.31	M	12.99	K	11.32	H	10.52	G	10.20	F	9.63	E
Mustang 2-door convertible	14.70	M	13.34	L	11.62	I	10.79	G	10.45	F	9.87	E
Mustang 2-door MACH I	NA		13.50	L	11.76	I	10.76	G	10.30	F	9.73	E
Mustang 'GT' fastback	NA		13.23	L	11.49	H	10.64	G	–		–	
Mustang 'GT' hardtop	NA		13.14	L	11.41	H	10.57	G	–		–	

Note: The above horsepower to weight charts do not necessarily indicate engine or model availability but are listed for reference only.
*N: NHRA has refactored the 428CJ engine from 335HP to 340HP (non-ram) & 360HP (ram-air): Use these refactored ratings when calculating for drag classes.

MUSTANG ENGINE — MODEL AVAILABILITY

	302/2V	351/2V	351/4V	390/4V	Non-ram 428/4V	Ram-air 428/4V	*429/4V/HO
Mustang (All)	OPT	OPT	OPT	OPT	OPT	OPT	OPT
Mach I	N.A.	STD	OPT	OPT	OPT	OPT	OPT

*Limited prod. 1969½. Code: N.A. (Not available) STD (Standard) OPT (Optional at extra cost)

COBRA

SUPER WHEELS COBRA

So you say this is your year for a super car . . . Well, the Ford folks know just how you feel and they have put together about the wildest super machine since they invented the muscle car. Here's what you get: Your choice of 2-Dr. hardtop or 2-Dr. fastback, the 428 Cobra Jet Engine complete with 735 CFM Holley carb, close ratio 4-speed transmission with 11⅛" heavy duty clutch: You get the Cobra competition handling package with staggered rear shocks, high rate front and rear springs and a super large diameter front stabilizer bar . . . You get big 6" wide steel wheels with Polyglas, wide tread belted F/70/14 traction tires and to wrap things up outside, exposed safety hood-lock pins and of course, the Cobra fender mounted 'Venom' identification marks. How's that for a street machine at a low, low price . . . Sounds great you say . . . But you'd prefer a little tamer machine . . . well Ford's got your answer with the tough-as-nails 351 CID 4-BBL engine. In fact, you can drop a 428/351/390 or 302 engine under the hood of almost anything from a Fairlane 2-Door to a snazzy Torino, Torino GT, convertible, formal roof or wagon . . . any way you like your performance, Ford has the "Hot" idea.

See the specifications chart, then put your own package of power together, and get set for the most exciting high performance driving in your little old life.

FAIRLANE HORSEPOWER TO WEIGHT RATIOS

	302CID/220HP		351CID/250HP		351CID/290HP		390CID/320HP		NON-RAM* 428CID/340HP		RAM-AIR* 428CID/360HP	
	HP/WT Ratio	Stock Class	HP/WT Ratio	Stock Class	HP/WT Ratio	Stock Class	HP/WT Ratio	Stock Class	HP/WT Ratio	Stock Class	HP/WT Ratio	Stock Class
Fairlane 4-door sedan	14.38	M	13.14	L	11.32	H	10.85	G	10.42	F	9.84	E
Fairlane 2-door hardtop formal	14.45	M	13.20	L	11.37	H	10.90	G	10.47	F	9.88	E
Fairlane Ranchero	14.65	M	13.38	L	11.53	H	11.04	H	10.60	G	10.01	F
Fairlane '500' 4-door sedan	14.42	M	13.18	L	11.53	H	10.88	G	10.45	F	9.87	E
Fairlane '500' 2-door hardtop formal	14.49	M	13.24	L	11.41	H	10.93	G	10.49	F	9.91	E
Fairlane '500' 2-door hardtop fastback	14.70	M	13.42	L	11.57	I	11.07	H	10.63	G	10.04	F
Fairlane '500' Ranchero	14.68	M	13.40	L	11.55	I	11.06	H	10.62	G	10.03	F
Fairlane '500' 2-door convertible	15.37	N	14.01	M	12.07	J	11.53	I	11.02	H	10.45	F
Torino 4-door sedan	14.67	M	13.39	L	11.54	I	11.05	H	10.61	G	10.02	F
Torino 2-door hardtop formal	14.74	M	13.45	L	13.59	L	11.10	H	10.65	G	10.06	F
Torino 'GT' 2-door hardtop fastback	–		13.52	L	11.65	I	11.15	H	10.15	F	9.88	E
Torino 'GT' 2-door hardtop formal	–		13.33	L	11.49	H	11.00	H	10.01	F	9.45	D
Ranchero 2-door 'GT'	–		13.33	L	11.49	H	11.00	H	10.01	F	9.45	D
Torino 'GT' convertible	–		14.06	M	12.12	J	11.57	I	10.55	G	9.96	E
Cobra 2-door hardtop fastback	NA		NA		NA		NA		10.78	G	10.18	F
Cobra 2-door hardtop formal	NA		NA		NA		NA		10.60	G	10.01	F

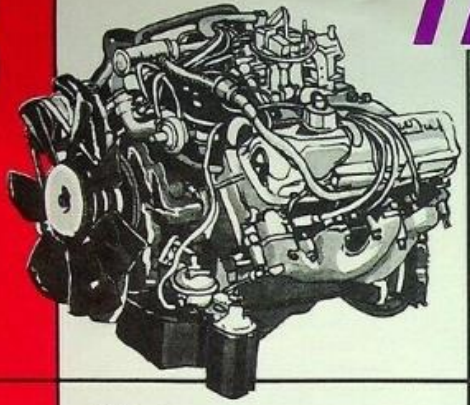
Note: The above horsepower to weight charts do not necessarily indicate engine or model availability but are listed for reference only.
*N: NHRA has refactored the 428CJ engine from 335HP to 340HP (non-ram) & 360HP (ram-air): Use these refactored ratings when calculating for drag classes.

FAIRLANE ENGINE-MODEL AVAILABILITY

	302/2V	351/2V	351/4V	390/4V	Non-ram 428/4V	Ram-air 428/4V	429/4V/HO
Fairlane	OPT	OPT	OPT	OPT	OPT	OPT	N.A.
Torino	*std(GT)	OPT	OPT	OPT	OPT	OPT	N.A.
Cobra	N.A.	N.A.	N.A.	N.A.	STD	OPT	N.A.

Three Great Engines

428 CID THE COBRA JET



Here is the engine that racing enthusiasts everywhere are talking about. Race proven from a long series of Super Stock victories, the 428 Cobra Jet Engine is definitely the Super Hot-Set-Up for 1969.

To create the HI-PER 428 CID, the engineers at Ford dipped into their bag of ultra-performance tested parts to come up with a Super-Strong engine that was both street easy and strip winning. The 428 is just that engine and since many of the Hi-Po parts were readily available from the 427 Big Gun engine, it is now possible to offer the 428 Cobra Jet as regular production without the high cost additive that comes from special tooling for limited production mills. Here's the inside story on the 428 Cobra Jet . . . On top is one giant 735 CFM Holley Carburetor mounted on a free breathing, cast iron intake manifold. High compression cylinder heads carry the deep breathing theme to the firing chamber with Huge valves—(2.09 inch intake & 1.66 inch exhaust). Intake valves are solid stemmed, high strength steel, exhaust valves are forged steel to withstand maximum heat tolerances. Valve springs are heavy duty to allow this engine to exceed 5500 RPM without encountering valve "float". In the camshaft department, the 428 Cam is one hefty, High-Lift Hustler, designed to meet the most exacting Hi-Po standards, and still be street easy.

Going deeper into the engine, the crankshaft is electronically balanced and constructed of "Nodular Controlled", high strength cast iron. Bearing journals are drilled to provide good lubrication at high RPM. Connecting rods are of the I-beam, double strength variety with aluminum pistons connected via full floating pins. The aluminum pistons feature 'dished with eyebrow' facings for proper valve clearance. For electrics, the 428 CJ features Autolite throughout including a new dual advance distributor for maintaining correct spark advance, and a 55 AH alternator driven by dual V belts. Last but not least, is the 428, new dual exhaust system with header-type cast iron manifolds featuring enlarged inside dimensions and carrying throughout the length of the system for better relief of burnt gases.

"RAM-AIR OPTION"

With this option, the hood scoop is made FUNCTIONAL on Fairlane models. When ordered on Mustang models, it includes a special 'through the hood' "SHAKER" scoop. Both installations utilize an air cleaner assembly with a vacuum-actuated bypass inlet valve mounted on the top. When the engine is operated at nearly full throttle, the vacuum motor opens the large air cleaner bypass valve and allows extra 'cooled' filtered air to flow directly into the holley 4 barrel carburetor.

351 CID THE TOUGH-AS-NAILS MIDDLEWEIGHT

For those looking for the ideal middleweight engine in '69, the 351 CID is definitely the 'GO-SET-UP'. Patterned after Ford's highly successful small block design, the 351 features such Hi-Po items as a large capacity Autolite Carb. torque-tuned free flow intake manifold and LeMan's GT-40 inspired heads with large area ports for deep breathing. The 351 nodular iron crank features king-size mains, insuring the ultimate in durability and reliability.

With its high-lift cam, oversize valves and low restriction cast iron exhaust manifolds, the 351 CID engine is the 1969 Middleweight giant, light in weight and loaded with the performance and economy you're looking for.

429 CID FORD'S NEW SHOTGUN BLUE CRESCENT ENGINE

The 429 CID Engine is Ford's latest and greatest creation in the world of High Performance engineering. Nicknamed the "Blue Crescent", this engine is designed to put the competition on the trailor. This is Ford's new 'Shot-Gun' mill with horsepower rated at 370. The engine will feature such great ideas as crescent-shaped combustion chambers, intake and exhaust ports that are larger than Huge and one Giant 735 CFM Holley Carburator . . . Sound interesting . . . Well, see your Ford Dealer for more details as they become available.

ENGINE SPECIFICATIONS

	302/2V	351/2V	351/4V	390/4V	428/4V	429/4V
Bore and stroke	4.00 x 3.00	4.002 x 3.50	4.002 x 3.50	4.052 x 3.784	4.132 x 3.984	4.36 x 3.59
Advertised H.P. at R.P.M.	220 @ 4600	250 @ 4600	290 @ 4800	320 @ 4600	335 @ 5200	370 @ 5000
Advertised torque at R.P.M.	300 @ 2600	355 @ 2600	385 @ 3200	427 @ 3200	440 @ 3400	440 @ 3200
Compression ratio	9.5–1	9.00–1	10.7–1	10.5–1	10.5–1	N.A.
Carburetor	2 BBL	2 BBL	4 BBL	4 BBL	4 BBL	4 BBL
Carb. CFM rating (cubic feet per minute)	287	356	470	595	735	735
Fuel	Regular	Regular	Premium	Premium	Super Prem.	Super Prem.
Exhaust	Single	Single	Dual	Dual	Dual	Dual
Camshaft (Duration and lift) Intake	266°–.368	256°–.418	256°–.418	256°–.438	270°–.481	282°–.500
Camshaft (Duration and lift) Exhaust	244°–.380	270°–.448	270°–.448	256°–.438	290°–.489	296°–.500
Intake valve diameter	1.788	1.849	1.849	2.037	2.097	2.285
Exhaust valve diameter	1.457	1.548	1.548	1.566	1.660	1.905
NHRA Minimum head C.C.	58.7	58.9	58.9	63.5	68	N.A.
NHRA Min. piston to deck clearance	.0015	.015	.015	.0005	.008	N.A.

AXLE RATIO AVAILABILITY

9" RING GEAR SETS

Ratio	Ford Part Number
3.00–1	C0AZ 4209 E
3.10–1	C4AZ 4209 L
3.25–1	B8AZ 4209 C
3.40–1	C4AZ 4209 M
3.50–1	B7AZ 4209 L
3.89–1	B7AZ 4209 N
3.91–1	
4.11–1	
4.30–1	
4.33–1	
4.44–1	
4.57–1	

DEALER INSTALLED

9" RING GEAR SETS

Ford Part Number	Ratio	Ford Part Number
C8OZ 4209 A	4.71	C4AZ 4209 P
B7AZ 4209 K	4.86	C4AZ 4209 AB
C8OZ 4209 B	5.14	C4AZ 4209 AC
C4AZ 4209 N	5.43	C4AZ 4209 AD
C3AZ 4209 H	5.67	C4AZ 4209 AE
C3UZ 4209 B		

NOTE: All 1969 351/2V, 351/4V & 428/4V CJ Engines come orig. equipped with 9" gears.

FINDING THE RIGHT COMBINATION

Finding the right combination for your 1969 drag race car is basically the same, be it a Pure Stocker or an all out Super Stocker. From the above charts, select the engine, and order the model choice that allows your car to fall into the correct Weight/Class you desire. Example: You have decided you want to run in F/Stock class and you want to use Ford's new 428 Cobra Jet Engine. By looking at the charts, you will find that the new Cobra Formal just makes it into the F/Stock class weight/horsepower limit with 10.01 pounds per horsepower. Regardless of the body style you select, here are a few Tips on the correct Drag options we recommend adding for maximum performance.

First is your choice of two great optional axle ratios of 3.91-1 or 4.30-1 with the Traction-Lock option. With these axles, you will receive, at no extra cost, Ford's new, oversize engine oil cooler, mounted up ahead of the radiator to keep your oil temperature at best operating condition. For all around driving, the 3.91-1 axle is recommended and seems to peak out just about right with stock tires. However, if it's Banzai performance you're looking for, then 4.30-1 Axle ratios are the positive way to GO. For more tips, read DRAG NOTES on the back page.

HOW TO CLASSIFY FOR DRAG RACING

Example: A 1969 Cobra 2-dr. hardtop formal with a 360 HP/428 RAM-Air Engine weighs 3603 lbs. (shipping weight). Divide the 3603 lbs. x 360 HP and you arrive at a HP. to WT/Ratio of 10.01. This falls into F/Stock. Or you may multiply the WEIGHT/RATIO (10.01) x the Horsepower (360) to estimate shipping weight (3603 lbs.). By using these systems, you can determine the drag classes for any engine/model combination you desire.

NHRA SUPER STOCK & STOCK CLASSIFICATION GUIDE

SS/CLASSES	WEIGHT TO POWER RATIO
SS/A & Automatic	0–5.99 lbs.
SS/B & BA	6.00–6.49 lbs.
SS/C & CA	6.50–6.99 lbs.
SS/D & DA	7.00–7.49 lbs.
SS/E & EA	7.50–7.99 lbs.
SS/F & FA	8.00–8.49 lbs.
SS/G & GA	8.50–8.99 lbs.
SS/H & HA	9.00–9.49 lbs.
SS/I & IA	9.50–9.99 lbs.
SS/J & JA	10.00 lbs. or more.

S/CLASSES	WEIGHT TO POWER RATIO
A/S & Automatic	7.50–7.99 lbs.
B/S & B/SA	8.00–8.49 lbs.
C/S & C/SA	8.50–8.99 lbs.
D/S & D/SA	9.00–9.49 lbs.
E/S & E/SA	9.50–9.99 lbs.
F/S & F/SA	10.00–10.49 lbs.
G/S & G/SA	10.50–10.99 lbs.
H/S & H/SA	11.00–11.49 lbs.
I/S & I/SA	11.50–11.99 lbs.
J/S & J/SA	12.00–12.49 lbs.
K/S & K/SA	12.50–12.99 lbs.
L/S & L/SA	13.00–13.99 lbs.
M/S & M/SA	14.00–14.99 lbs.
N/S & N/SA	15.00–15.99 lbs.
O/S	16.00–16.99 lbs.
P/S	17.00–18.99 lbs.
Q/R	19.00–20.99 lbs.
R/S	21.00 lbs. or more.

QUESTIONS AND ANSWERS ABOUT DRAG TUNING

Question 1. What is the cheapest modification I can make to go faster?

Answer — Select the right gear ratio for your engine-car combination the way it is set-up now. Just this one step will generally cut your E.T. by 1/2 to 3/4 second.

Question 2. What is the best gear ratio for the street?

Answer — The most commonly used is either a 3.91 or a 4.11 to one ratio. This gives you an acceptable combination of both street and strip performance.

Question 3. How far can I mill my heads without having to cut into the intake manifold?

Answer — .030 to .040 is generally safe. This will raise your compression ratio from 1/2 to 6/10 of a point.

Question 4. How much valve to piston clearance should I have?

Answer — On a manual transmission equipped car you should maintain .100 to .120. On an automatic .070 to .100 should be adequate. This is to allow for the inevitable RPM increase that occurs when power shifting a manual transmission.

Question 5. What is the best clutch and how should I adjust it?

Answer — We have had the best results using the Ford 427 pressure plate and disc. Part No. C3AZ-7563-C and C5AZ-7550-D with ½ to ¾ inch free play.

Question 6. How can I get top RPM with hydraulic lifters?

Answer — For all 332CID through 428CID series engines, (excluding 427CID), you should install adjustable rocker arms and 427 push-rods which provide higher valve lift. (B8AZ-6565-C and B8A-6564-B.)

Question 6, continued. To adjust lifters, back off rocker arm adjustment until clicking is heard then retighten 1/2 to 3/4 turn. This will increase RPM from approximately 4400 to 5200 RPM. On 260, 289, 302 and 351CID engines, simply adjust the rocker arms from zero to .002" clearance. This will usually increase RPM potential from 4400 to 5400.

Question 7. What is the cheapest way to eliminate rear axle hop?

Answer — Install bolt-on traction bars that clamp on to the front half of the leaf springs to provide good traction for most streetable cars. Staggered shock absorbers is the latest device for eliminating axle hop and can be installed on some early models at low cost. (They are standard on 4-speed 428CID 1969 Mustang and Cobra models.)

Question 8. What modifications do you make to your 4 speed transmission?

Answer — We normally cut the teeth off of the synchro rings and remove the detents from the shifting rails.

Question 9. What clearances do you use in an All-out Cobra Jet Engine?

Answer — Rod clearances should be .0025 to .003. Main clearances should be .0025 to .003 and cylinder clearances will vary from .008 to .011 depending on pistons.

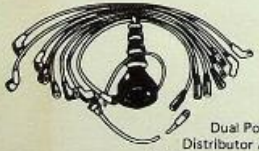
Question 10. Is the new external oil cooler a good option to add on my new or used Ford?

Answer — Definitely. By maintaining constant engine oil temperature, especially under hard driving conditions, the new Ford engine oil cooler is one of your best safeguards against engine failure.

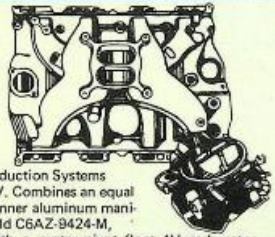
PARTS FOR PERFORMANCE

'NEW — OR — USED'

If you've already got a Ford, Torino, Fairlane, Cobra, Mustang, or Falcon, and you want to add to its muscle and maneuverability, come to the Performance Corner at your Ford Dealer's. Don't worry about fit or fitness, this is the same parts bin that Dan Gurney, A.J. Foyt, and Dave Pearson use. We don't have nearly enough space to show you all the high performance parts Ford makes, but here are a few of the most wanted items. If you don't see what you need, look in the Parts catalogue at your Ford Dealer's. He'll be glad to help you select the right pieces for your engine.



Dual Point Distributor Assembly. Two sets of points increase the effective cam dwell from 27° to 34°, giving high efficiency at high rpm. Points have high pressure springs which help prevent bounce. C5AZ-12127-E. Used with steel core Wire Set C5AZ-12259-C.



Induction Systems 4V. Combines an equal runner aluminum manifold C6AZ-9424-M, with a center pivot float 4V carburetor C8OZ-9510-AA. This manifold fits all late 390, 406, and 428 heads and 427 heads except low rise, high rise and tunnel port. Off-set carburetor location gives equal runner length for tuned induction, better high speed flow, plus good low end torque. Carburetor is rated at 735 cu. ft. per min., has air flow controlled secondary barrels.

Camshaft — High performance street and strip mechanical lifter. Fits 352 CID V-8 (1958-60); 390 CID V-8, 406 CID V-8 (all requires thrust plate C3AZ-6269-A), and 428 CID V-8. C3AZ-6250-AA requires the following additional parts: Mechanical Tappets C4AZ-6500-B. Push Rods B8AZ-6565-C. Adjustable Rocker Arm B8A-6564-B. Rocker Arm Shaft C3AZ-6563-A. 2 required per engine. These items fit all 390 CID V-8's.

FINDING THE RIGHT COMBINATION

DRAG NOTES: We recommend the new PolyGlas tires for those looking for maximum BITE in a Street tire. As well, two other options well worth reminding you about are Power Disc Brakes and Ford's new oversize 85 amp Battery which this year is located in the trunk for optimum traction ability.

If you're in the market for an automatic on your new car, then be sure and order the C-6 Automatic transmission which is set up to shift at about 5500 RPM. With this transmission, 5500-5700 RPM appear to be the ideal shift points for best elapsed times. 4-Speed shifters Note . . . Your own driving technique will indicate the best shift points for you but we recommend 5200 to 5300 RPM as a good starting point when shifting the 4-Speed.

Your Ford Dealer is now equipped to provide you with the latest up-to-date performance equipment and information that you may require. When it comes to performance and a complete list of Ford's High Performance optional equipment . . . Consult your local Ford Dealer.

LITHO IN CANADA 4 CA—1320—69

Ford

Speed belongs on the track or the strip, not on the street. Your Ford Dealer urges you to drive safely.