

Testing the NASCAR 410-bhp Ford Fastback



RALPH POOLE PHOTOS

RAY CRAWFORD, after he'd won the Carrera Panamerica (Mexican Road Race) in 1954, answered a question about the heredity of his 130-mph Lincoln this way: "Is it stock? I spent eight grand to make it stock."

Like those Mexico Lincolns, today's stock racing car is expensively "stock." It takes a whopping amount of prep-

aration to make an ordinary passenger ready for stock car racing. And it's the thoroughness of that preparation which puts the winners ahead of the pack.

Setting out to sample and record some exact performance data on one of these stock cars, *Car Life* rounded up driver Fred Lorenzen, a John Holman-Ralph Moody-prepared 1963

Ford Fastback and Riverside (Calif.) International Raceway for one of the most enlightening sessions of automotive testing we've had since GM banned the bombs.

Lorenzen, of course, needs little introduction—he was the leading money-winner on the '63 NASCAR circuit, is the No. 1 driver on the H-M "factory" team, and takes on those 400-500 mile

races like they were trips to the supermarket. Personable and capable, Lorenzen is an automotive Horatio Alger: From helper to mechanic to top driver in less than six years. At Riverside for the Golden State 400, Lorenzen took to the road course like a Cracker to grits, only to have a transmission failure early in the race knock him out of contention. Taking over a teammate's well battered car, he returned to circulating among the leaders, finally ended up 11th behind Dave MacDonald, another fine young driver who just happened to be driving an H-M team car, too.

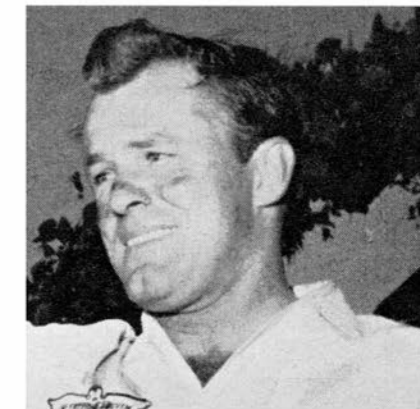
Lorenzen's abilities for straight-line performance? He does a good bit of exhibition dragging with Ford experimental Super/Stockers between races down South, and admits to being consistently around 11.9-12.1 sec. elapsed time. On our timed acceleration runs he amply demonstrated his skills by keeping engine rpm, clutch action and wheelspin at just the right balance for maximum performance. (A good driver is a good driver—whether he's on drag strip, round track or road course.)

The car, emblazoned with Lorenzen's personal No. 28 (he said it was the fourth or fifth No. 28 he'd had that season), was a prime example of what wins races on the big-money tracks. It had stiff springs and a taut chassis, close-ratio gearing and a thunderous big V-8, a no-nonsense look and the battle-scars to back it up.

It started life as a Ford Galaxie



TIRE BITE is marginal for drag starts, so clutch and throttle precision were required.



FRED LORENZEN, temporary test driver for CL, was high-money winner last season.

hardtop, with all the heavy-duty equipment that could be loaded aboard, including a 410-bhp version of Ford's Super Torque 427-cu. in. V-8 and a Borg-Warner T-10 4-speed transmission. The original price tag was around \$3200. This in itself is no bad combination for some invigorating performance work. But, to win those marathon races, it had to have a \$6000 tune-up by Holman & Moody.

To begin with, the new car is taken into the H&M shops and disassembled. Everything is taken off the frame and this basic structure is fitted into a special jig which guarantees that it will come out exactly on the specifications originally intended, i.e., stock. An interior roll-bar structure is welded onto the frame at this point, and it is de-

signed to add both beam and torsional strength. The result is sort of a rudimentary space frame. All frame and body joints are re-welded (full-length seams rather than just the production line "spots").

Suspension improvements are added before the body is placed back on the chassis, and these take the form of big new Ford ball joint spindles, springs, shock absorbers and anti-roll bars. Ten years ago, when NASCAR racing was just getting well under way, one of the chief causes for sudden retirement was a broken right front spindle. Now, virtually every manufacturer has catalogued options specifically designed for this sort of "heavy duty."

The stabilizer bars are adjustable, to allow the car to be trimmed to various

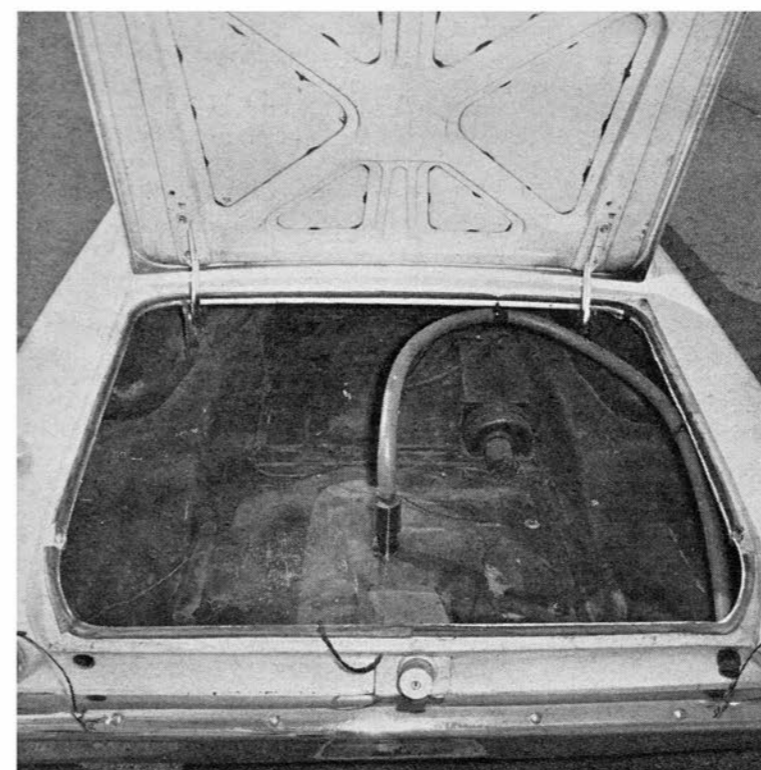
DRIVER'S VIEW includes oil and water temperatures, fuel and oil pressures, big electric tachometer and a reminder.



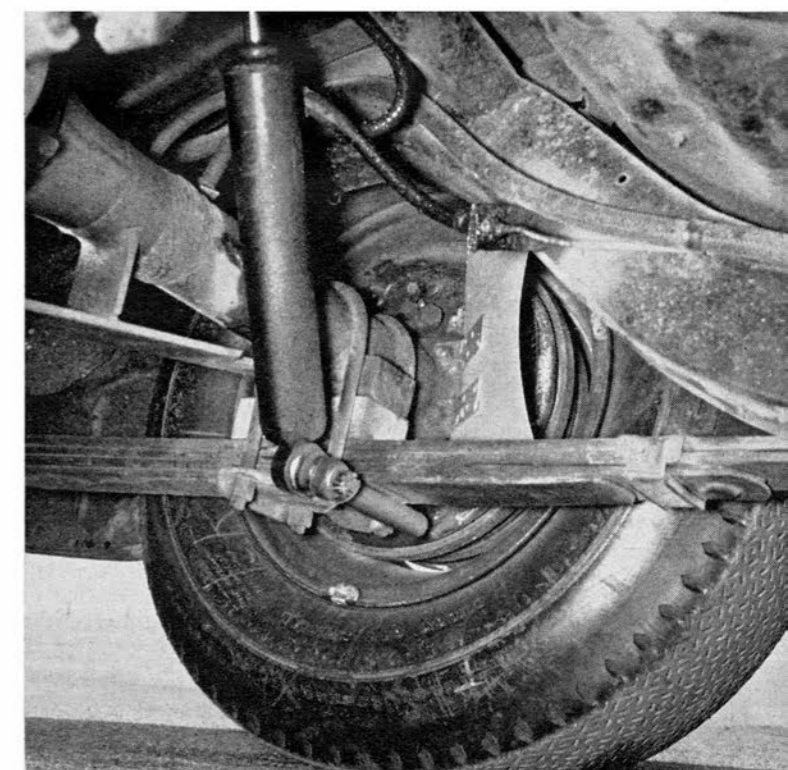
AIR CLEANER draws fresh cool air from cowl duct; tape on top of distributor keeps high tension leads from vibrating loose.

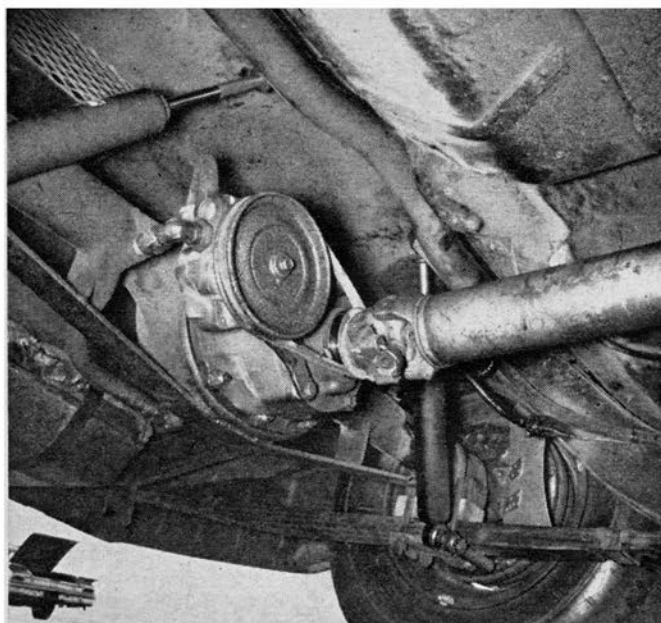


BIG TUBE vents the 21.9-gal. fuel tank. Box shape under loop is oil cooler and fan for the rear axle lubricant.

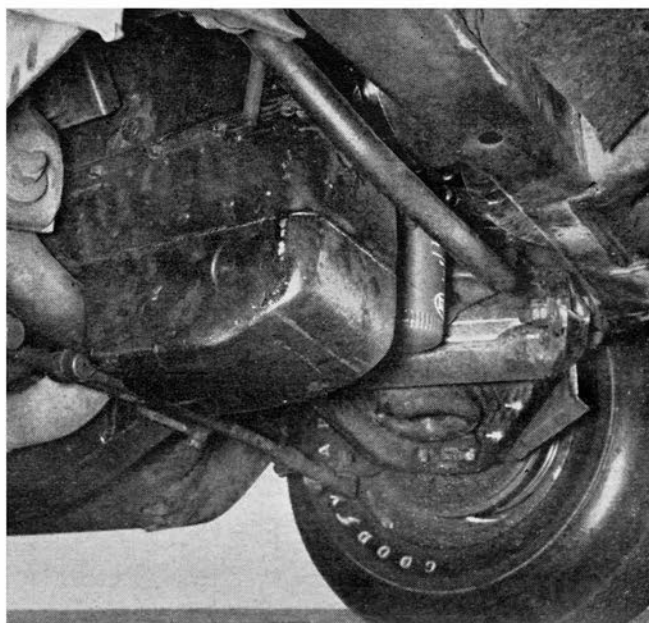


LOWERING BLOCKS drop the center of gravity of car and reduce spring travel. Behind spring is the air scoop to metallic brakes.





DRIVE-LINE PUMP circulates differential oil through a radiator-type cooler inside the trunk.

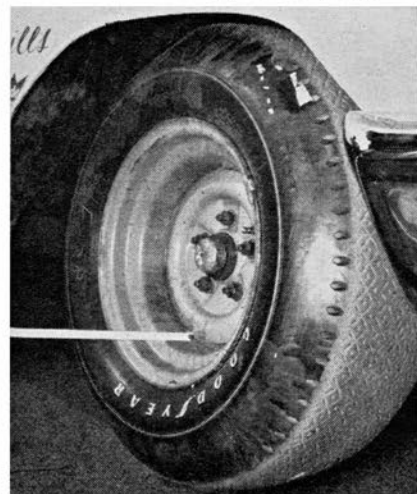


EXTRA DEEP sump on oil pump boosts capacity to over 10 qt., with extra oil cooling radiator up front.

Ford Fastback

track conditions and handling requirements (each driver has his own preferences). Both front and rear stabilizers are used, and both are considerably larger and stronger than one would find on any ordinary car. Adjustable rear

DEEP DISH wheels mount 8.20-15 tires. Center section is double-plated for safety.



spring shackles help in the chassis tuning, while changing the springs can also adjust the car to different conditions. For Riverside, equal-rate front coils were used, where at Daytona a far stiffer right-side coil is needed. The rear springs are 4-leaf HD units similar to passenger cars, but with all interspring material removed.

Shock absorbers are another story. Lorenzen ran Riverside on a set of Regal-Rides specifically calibrated for this sort of thing; at Daytona, they put Gabriel shocks on, which are a bit stiffer. New mounts, which extend into the engine compartment, allow more travel between bump and rebound.

The wheels have Holman & Moody's own special 8.5-in. rims, with double-plate center sections to prevent failure at the hubs. These mount Goodyear 8.20-15 Stock Car Specials (called "Gumballs" by those who ride on them), which are easily capable of lasting through 400 miles of road racing! Of ultra-low profile, these tires carried 50 psi inflation in front, 40 psi rear for Riverside. At Daytona a harder compound is used for the racing tires, which again will last the full length of the race. There, the inflations are 60

psi right front, 55 right rear, 45 psi left rear and 40 left front, to help compensate for the right-side loading placed on them by the continual left-hand turns.

Transmission and rear axle are "blue-printed," i.e., brought up to factory specifications. The engine (see "Horses for NASCARs," Page 26) is a separate development, but when they're through with it, the H-M prepared engines put out somewhere near 500 bhp (although the factory-listed rating is only 410 bhp). The important things are that clearances are generally increased, to reduce friction, and that the strongest available components are substituted.

The axle is changed to a full-floating type, for both durability and safety; positive traction devices are not allowed by NASCAR. An oil cooling system is attached to the differential, utilizing a power steering hydraulic pump driven off the driveline, and a radiator and electric fan in the trunk.

Engine oil is cooled by a front-mounted radiator, which holds an additional 1-2 qt. A tougher, thicker radiator replaces the standard unit.

A new gas tank is installed, to hold

21.9 gal. (NASCAR's limit is 22), hood and trunk locks fixed so that these panels won't depart the vehicle at high speed. Every possible nut is anchored with safety wire. A new instrument panel is added, with tachometer, oil temperature and pressure and coolant temperature gauges outstanding among the fittings. Doors are bolted shut and everything that could burn is removed.

With a 6500 rpm limit, the engine is geared through the final drive to suit the particular track. At Riverside, a 3.50:1 ratio was used, giving a maximum speed of 155 mph down the long back straight. At Daytona, a 3.25 ratio is substituted. Although 3.50:1 is not an optimum gear for accelerative performance (4.11-4.89s are more suitable), Lorenzen's judicious use of the clutch and gearbox still launched No. 28 in authoritative fashion. The 1/4-mile times were highly respectable, but the car really became impressive in the second and third 1/4-miles. Continuing



around the Riverside road course, we took the straights in wild, strong bursts of speed, the corners in unbelievable massive, four-wheel drifts. The handling qualities are those of the classic sports car—husky understeer at slow speed, changing to neutral steer in high-speed situations, with drift controllable by throttle. Cornering is brisk and clean.

The preparation outlined is some-

what standard for all racing cars, not just the round-trackers, and indeed, John Holman avows that he has to do a lot less to get a Ford ready to run than he's had to do with most other makes his firm has prepared. It must be pretty sound preparation, too—Ford has an unbroken string of eight straight victories in NASCAR races of 500 miles or longer, stretching back into the 1962 season. ■

CAR LIFE ROAD TEST



1963 FORD NASCAR Fastback

SPECIFICATIONS

List price.....	\$3200
Price, as tested.....	9200
Curb weight, lb.....	3715
Test weight.....	4055
distribution, %.....	54/46
Tire size.....	8.20-15
Tire capacity, lb @ 40 psi.....	6000
Brake swept area.....	381
Engine type.....	V-8, ohv
Bore & stroke.....	4.235 x 3.784
Displacement, cu in.....	427
Compression ratio.....	11.5
Carburetion.....	1 x 4
Bhp @ rpm.....	410 @ 5600
equivalent mph.....	134
Torque, lb-ft.....	476 @ 3400
equivalent mph.....	82

DIMENSIONS

Wheelbase, in.....	119.0
Tread, f and r.....	61/60
Over-all length, in.....	209.9
width.....	79.9
height.....	54.5
equivalent vol, cu ft.....	528
Frontal area, sq ft.....	24.2
Ground clearance, in.....	5.2
Steering ratio, o/a.....	19.0
turns, lock to lock.....	4.25
turning circle, ft.....	41.0
Hip room, front.....	16.5
Hip room, rear.....	n.a.
Pedal to seat back, max.....	38
Floor to ground.....	11
Luggage vol, cu ft.....	15
Fuel tank capacity, gal.....	21.9

GEAR RATIOS

4th (1.00), overall.....	3.50
3rd (1.31).....	4.58
2nd (1.67).....	5.84
1st (2.20).....	7.71

EXTRA-COST OPTIONS

Preparation for NASCAR racing by Holman & Moody, Charlotte, N.C.

PERFORMANCE

Top speed (6500), mph.....	155
Shifts, @ mph (manual)	
3rd (6000).....	110
2nd (6000).....	86
1st (6000).....	65

ACCELERATION

0-30 mph, sec.....	2.3
0-40.....	3.3
0-50.....	4.7
0-60.....	6.3
0-70.....	8.0
0-80.....	9.7
0-100.....	13.2
0-120.....	17.2
0-140.....	22.3
Standing 1/4 mile, sec.....	14.2
speed at end, mph.....	105

FUEL CONSUMPTION

Normal range, mpg.....	6-9
------------------------	-----

SPEEDOMETER ERROR

30 mph, actual.....	n.a.
60 mph.....	n.a.
90 mph.....	n.a.

CALCULATED DATA

Lb/hp (test wt).....	9.9
Cu ft/ton mile.....	155
Mph/1000 rpm.....	23.9
Engine revs/mile.....	2505
Piston travel, ft/mile.....	1580
Car Life wear index.....	39.5

PULLING POWER

70 mph, max. gradient, %.....	off scale
50.....	off scale
30.....	off scale
Total drag at 60 mph, lb.....	150

