



# Comets on the Carrousel

## Mercury's Little Brother Shows Off Its Muscles

BY GENE BOOTH

IT WAS RAINING again; it had rained 11 of the past 14 days. Yet, the rain, whether it came in squall torrents or in gentle drizzles, didn't have much effect—lap times at Daytona International Speedway were still hovering in the 112-mph range. The drivers bored relentlessly through sheets of water and roostertails from the car ahead to overtake record after record.

Hurricane Flora had been about to form up in the Caribbean when five Comet Calientes were flagged off at 8:30 A.M. Sept. 21. Fifty thousand miles at 100 mph was their objective, but 100,000 miles at 100 mph was hopefully expected. So was the inscription of the name Caliente throughout the Class C sections of the record books. Though the tropical windstorm grew and hovered offshore, affecting the wind and weather seriously at the track throughout the first weeks of the durability trial, the objectives were doggedly surpassed.

The rain did have benefits. Engines and tires ran a bit cooler, taking some of the strain off them. And the greater density of the damp air was an aid to carburetion.

Accelerating out of the pit road onto the rain-soaked track, however, is somewhat disquieting. Daytona, with its steeply banked, 31° corners, is a very fast track. Yet it takes a few laps at speed to regain confidence in the car and the road surface in the wet.

At speeds over 100 mph the rain washes upward over the windshield like ocean surf. The wipers, even operating at high speed, are unable to cause more than a momentary rift in the water. The track is a dark ribbon that fades into fog, except where the banked corners gradually loom up. A driver steers by the looming banks and by instinct, feeling for the groove he has determined is the easiest way to circumnavigate the tri-oval. Particularly in the rain, there is a very slight sensation of oversteer at

such speeds and suspension loads.

Under 80 mph, of course, a car is unable to stay up on the banking. It has to circle along the flat inner lane. Pulling up onto the steep banking then gives much the same feeling as a ride in a carnival's Loop-O-Plane; since the car's velocity is too low to overcome the downward pull, it is necessary to head back off the bank to the level and a Dutch-roll feeling is fleetingly induced.

Indeed, driving the Daytona track has much in common with flying. As the Comet roars off the relatively level straight into the banked corner, the feel is much like banking into a high-speed climbing turn in an aircraft. There is the sensation of additional body weight, pressing down and back in the seat cushions. The horizon shifts to a crazy angle and the natural reaction is to haul back on the steering wheel to "pull the nose up." If the driver doesn't "ride with the plane (car)" and instead leans



FORD MOTOR CO. PHOTOS

tween each pit stop for gas and service seem unending. For the drivers who are handling the chore, it is an unequalled opportunity, however. All are virtual unknowns, from various racing associations across the country, and out of the running as NASCAR point standings go. But for upwards of six weeks, the time Lincoln-Mercury Division has leased the track, they have been able to feel out one of the world's great speedways. These weeks of practice may well mean some of them will not be so unknown after the next Daytona race date, or the following one. It is practice, while both boring and exhilarating, which opens to them the many secrets hidden in such a track: the feel of rain-slick asphalt, the effect of buffeting winds, the fine technique of slipstreaming.

A blue Comet press car edges onto the track. Faster and more powerful than the test cars, this is the Caliente Rodger Ward uses to give newsmen 2-lap trips around the tri-oval during a mid-trial press conference. It tucks in behind the palomino-colored Comet and, with only inches separating front and rear bumpers, both cars pick up speed. A vacuum gauge mounted in the press car shows a drop, indicating less power is necessary to maintain the speed. In line behind, the press car helps both itself and the test car. Then, the test driver increases the spacing between cars to slightly over a foot. Immediately both cars are slowed and the vacuum gauge shoots up to an inch of mercury; more power must be applied to maintain the same speed.

Inching downward so that it rides off the left rear fender of the test car, the press car regains the slipstream benefits

but creates extra work for the test car driver. His car now has lost some of its directional stability and begins to show skitterishness. Both are still traveling at great speed, but the trailing car has inherited power from the leading car at the same time that it has started a death rattle in that same car.

The demonstration is momentary at best. The test cars must be at least 165 ft. apart, by regulation of the FIA (Federation Internationale de l'Automobile) which is sanctioning the records, and this rule and all others are enforced by NASCAR. The separation was actually about 300 yards.

There are enough hazards in just running in the wet, of course. One test car, as a sudden coastal cloudburst opened up, spun and slammed into the retaining wall. The crumpled left front fender was quickly pounded out and the suspension examined, but since there was no further damage, it was started again on the monotonous run.

Taking stock at 40,000 miles, one of the first plateaus of performance which L-M officials had in mind, there has been an almost complete lack of necessity for repairs. Some front anti-roll bar rubber bushings have been replaced and those, according to Andy Hotton, who prepared the cars, because different drivers insisted on setting the anti-roll bar for different loadings. One car needed a new rear axle oil seal. New spark plugs had been installed at 27,000 miles, primarily because Autolite was trying to find out more about its plugs. Other than that, fuel, oil, water and tire changes were the extent of service at the 25 to 40-sec. pit stops when drivers were changed every two hours. Chassis lubrication, where required, was per-

formed at the intervals specified in the owner's manual.

Preparation of the cars primarily consisted of modifying them to NASCAR specifications, i.e., welded-in roll cage, heavy gauge wheels, wired bolts, bolted doors, etc. Stock springs were used but an additional leaf was added to each rear spring because of the greater loads. Larger, stiffer shock absorbers were fitted and a strap was welded around the front upper arm to make sure the ball joint stayed in place. Trouble had been feared with the front wheel spindles but didn't materialize. Brakes, since they were hardly called upon during the trial, were stock. Hotton, whose Dearborn Steel Tubing Company designs and produces manifolds and headers in addition to other high performance products for Ford Motor Co., built up lightweight tailpipes for the cars. They quickly melted, however, and most of the run was made with exhaust coming directly out from the stock mufflers.

The cars were fitted with the newly offered 289-cu. in. V-8 engine, using a single 4-barrel carburetor (1.562-in. venturis) and the 3-speed manual transmission. The engines, built at Ford's Cleveland Engine Plant at Brookpark, Ohio, had mechanical valve lifters, larger oil pans, high performance camshafts, and alternators—all of which are factory options to the private buyer. Compression ratio was 10.5:1 in this engine, which (with 4739.6 cc) falls in International Class C of 3000-5000 cc, and American and National Class C from 183 to 305 cu. in.

Rear axle ratios of 2.70:1 were installed on the test cars which, with the 8.00-14 Firestone tires (Nylon 500 Pa-

trols, of police specification), permitted the 112-mph track speed at a mere 3600 rpm—200 rpm above the torque peak (312 lb./ft.) but way below the 271-bhp peak of 6000 rpm. This also resulted in an exceptional 12-mpg fuel consumption (dropping to 10 mpg in high winds). Although the stock 20-gal. fuel tanks would have sufficed with the every-2-hour pit stops, larger tanks were installed as a precaution.

Daytona places unique suspension loads on cars operating there. The weight of the car is multiplied by the centrifugal force as the vehicle hurtles around the banked curves, resulting in much greater spring loadings than the car was designed for. Despite the apparent smoothness of the track, it consequently seems paved with cobblestones. In addition, all repair parts and tools which might have been necessary were carried in two wooden boxes inside the cars, adding 350 lb. to the curb weight.

Tires, then, were carrying different pressures at each wheel to help equalize the forces working on the suspension. An early problem which Firestone was encountering was tire fatigue. Tire mileage varied from 1000 miles (on the white Comet which suffered an alignment problem after its meeting with the wall) to 10,000 miles, but wear was not the handicap. There is, after all, very little slippage against the road surface when the cars are at speed on the banks. But rubber fatigue made it the better part of valor to change the skins before 10,000 miles were clocked (although a tread check was standard at every pit stop).

When the fatigue problem was noted, a new tread compound was specified

for the next batch of tires and this solved that situation although the tire changes were still made at 10,000 miles "because of our conscience." The only other tire trouble was a blowout (without damage) to the palomino Comet, and the separation of a tread on the press car.

There had been one significant casualty up to this point: The red Caliente, one of five to start the run originally, had blown its transistor ignition early in the run. Hotton, turning a sow's ear into a silk purse, repaired and re-tuned this one for a re-run at even greater speeds, installing the stock 3.25:1 rear axle ratio.

With Iggy Katona of Willis, Mich., chief driver for the durability trial, at the wheel, the red Caliente was started on its way at 7 A.M. Oct. 8. Roaring around the track at 5500 rpm, the Comet had overshadowed the International Class C mark for 500 miles when the NASCAR flagman signaled the record at 10:45 A.M. It had been held by Bugatti, which earned it in 1936 with a 127-mph average, but now belonged (pending FIA approval) to Comet at 131.697 mph. Iggy pitted and Jack Shanklin of Indianapolis, Ind., took over, slightly reducing speed to pass 1000 miles at an average 129.847 mph—also wiping out a Bugatti mark.

The plan was for the red Caliente to continue for 9000 more miles, picking up records for speed which the other Comets missed in their quest for endurance. But at the engine speed it was turning, it was the only one on the track that was really working and as a result the engine blew at 2000 miles.

Undaunted, Hotton installed another

away from the turn, as one is naturally inclined to do, vertigo most certainly will result within a few quick laps. Coming down off the banked curve, at speeds over 100 mph, is just as abrupt as the entry. And at such speeds, it is an almost constant oscillation—tilt up on the right, drop down to level, tilt up, drop, ad infinitum.

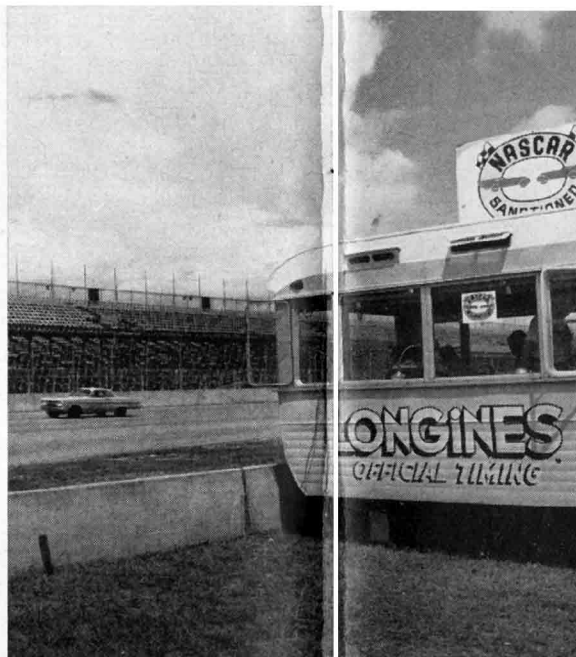
At top speed, the car lashes past the upper guard rail, barely half a lane away. Then comes the concrete and wire fence retaining wall just before the final turn into the main stretch, jutting overhead like a cage. In a soggy blur, the grandstands speed by—empty except for a small knot of locals who freely come and go because the track sits on city property and has much the same status as a public playground. Then the sudden lift onto the left wingtip and the loop-over onto the back straight.

On and on it goes, relentless and unending. The two hours required be-

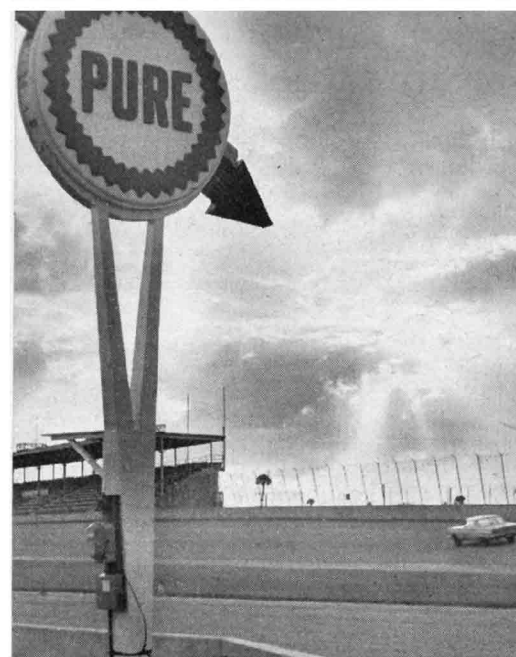
ROLL CAGE, wooden crates for spares and tools were installed in preparation for 6-week run.



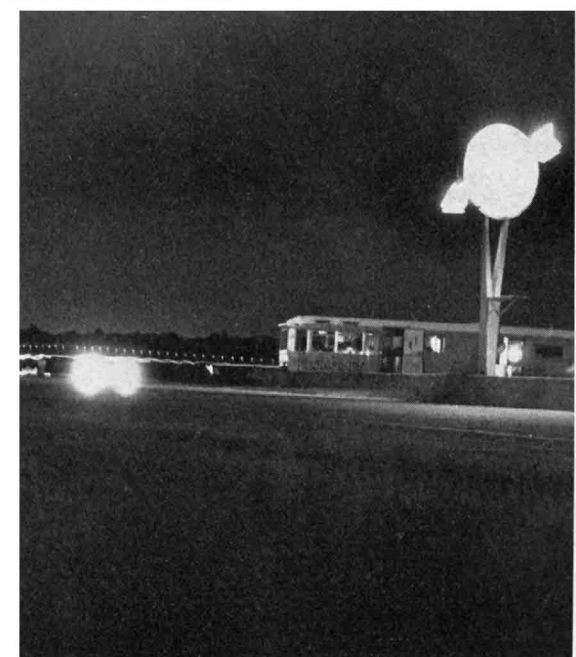
TIMES WERE recorded at Longines trailer by pit.



SETTING SUN shines through clouds as Comets bore onward at 112 mph for 80 laps between stops.



AFTER DARK, one Comet pits on call from 2-way radio control station.



# Comets



established the world, national and American speed records for the distance in the unlimited class with a 108.828 mph. The world mark, set by a Simca Aronde in 1957, was 70.31 for that distance; the national and American mark, 108.16 mph, was set in 1956 by a Ford at Bonneville. Average speeds were beginning to creep upward slightly and the total record list was eight World Unlimited Class, 19 International Class C, four American and National Unlimited Class, and 72 American and National Class C. A sampling of some of the records which Comet appropriated (all subject to FIA approval):

World's unlimited speed record: 108.597 mph for 14 days, as of Oct. 5, replacing a 106.55-mph average set by a 1957 Ford at Bonneville. That car also held 15 through 19-day records which toppled to Comet. At the end of six weeks, Comet would also replace Citroen and Simca Aronde from records for 20 through 42 days, set in 1932-33 and 1957 respectively. Over 50,000 miles, every 10,000 miles and 10,000 kilometers would mean Comet replaced one or the other French car which, at 100,000 miles, would add 11 more records. Total in this class: 40.

International Class C: Every mark over 10,000 miles belonged to Comet. The old record of 100.65 mph for 10,000 miles belonged to Jaguar, set in 1952. A 1937 run gave Matford-Yacco

the 15,000 and 20,000 marks, while an Austin Special set the 25,000 mark in 1934. Every 5000 miles passed after that meant a new mark never before recorded. (Matford-Yacco was a French car which had some Ford backing, incidentally; hence the "Ford" of Matford.) The Matford also held the records for 3-10 days, which Comet appropriated along with the 11 and 12 days mark which Austin Special had owned and the 13 through 16 days record which Hotchkiss set in 1929. Every succeeding day of the run, of course, went to Comet since there had been no such marks in the books after that. It was the same story in kilometers, obviously. Total possible at 100,000 miles: 76 records.

National Class C, Flying Start: Comet replaced records set by Danny Eames at Bonneville in a 1954 Dodge from 400 miles on, as well as one mark which Ab Jenkins retained (at 500 miles) from a 1937 run in a Cord 810. There had been no marks beyond 5000 miles recorded. In times, Eames retained the 1-hour mark at 105.95 but Comet took all the rest through four days, where the record book had stopped, and continued writing new entries.

National Class C, Standing Start: The same story. The record book used to end at 5000 kilometers, but Comet continued writing new marks after overcoming the Eames record at 104.80

**FRENZIED ACTION** in pits would have Comet refueled, tires and oil checked, windshield cleaned and driver replaced between 28 and 40 seconds.

engine and again started the car on its way. It again surpassed the Bugatti records, but at only 128 mph, and continued its relentless pursuit of its own 10,000-mile goal. It made it Oct. 16 with an overall average of 124.421 mph, good for 15 records. Ironically, however, Studebaker had returned to the Bonneville Salt Flats (see December CL) by this time, determined to rob Comet of that 500-mile mark before the ink dried in the record book.

Boring onward, around the clock and around the track, the other four Comets continued to amass records—more often now because none had existed before. Every fourth day was another 10,000 miles covered. While no time or distance cut-off had been set by the company, many L-M officials like Fran Hernandez, performance evaluation director, expected the four Calientes to go until the lease was up Nov. 2 before making the final pit stop.

At 50,000 miles, the lead Comet had



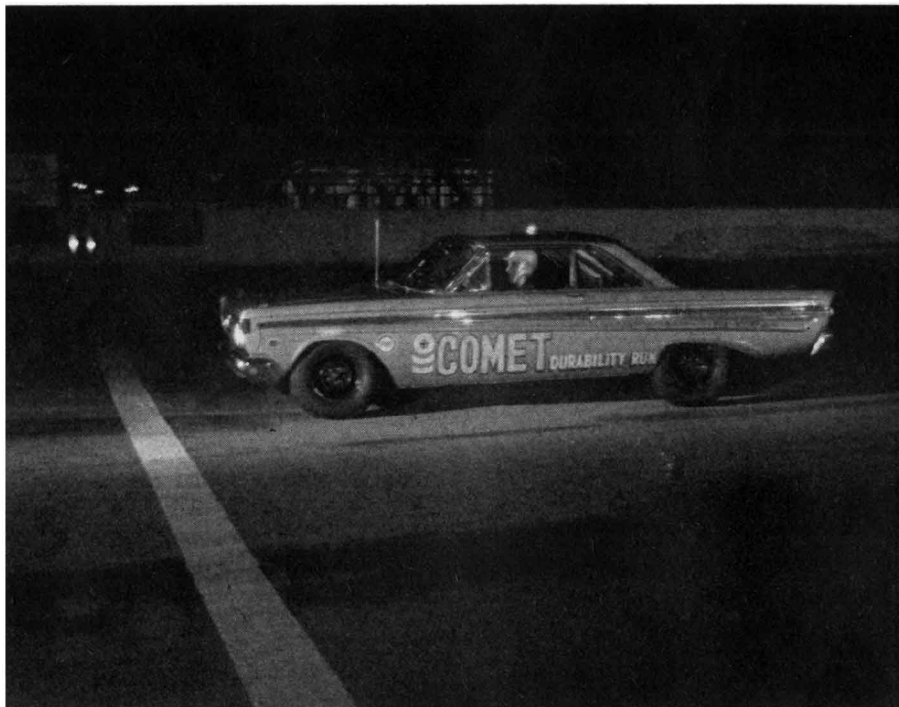
at 400 miles, of 104.49 at 3 hours, and of 104.10 at 1000 kilometers.

American Class C, Closed Car Division: Eames' marks started toppling at 25 miles, where Comet's 108.739 topped the old 105.97-mph figure. After 4000 miles and 5000 kilometers, there had previously been no marks. In time, all the Eames records fell, starting at 1 hour; after 4 days, there had been no records.

American Unlimited Class, Closed Car Division: Every mark past 50,000 miles and/or 17 days would be a new record.

National Unlimited Class: Every mark after 50,000 miles and/or 19 days would be a new record.

In the latter two classes, a 1957 Ford still owns most of the lesser time and distance records with speeds well over 108 mph. Nonetheless, it is obvious that the Comets had met their public objective of 100,000 miles at 100 mph and gathered in some laurels in the doing. The durability run proved that the 289 engine is indeed a reliable, sturdy, and long-lived powerplant under continuous high output—to a greater extent than previously believed possible. Although Hernandez revealed that the engine passed a 15,000-mile "feasibility test" in the engineering labs before the decision was made to stage the run, the successful passing of the 50,000-mile mark made further discussion of the engine's potential somewhat



**THROUGH CHILLY** Florida nights, drivers would use car's heater and listen to nearby broadcast stations to make chore easier.

academic. It was all the more remarkable in view of the high performance camshaft used and its effect on the valve train.

But there were more subtle consequences of the run. Nothing else could have removed the Comet, particularly

the Caliente, from the "economy car" category quite so forcefully. And the nation's second-largest automaker had served notice that high speed endurance was, in its view, not necessarily dangerous but was instead bold preparation for the future. ■

**NIGHT PIT STOP** was made here to change all four tires in addition to refueling. Stops were made every two hours around the clock for 20 gal. fuel, new driver.

