

**How Ford
Silenced
the Critics,
Humbled
Ferrari and
Conquered
Le Mans**

PRESTON LERNER

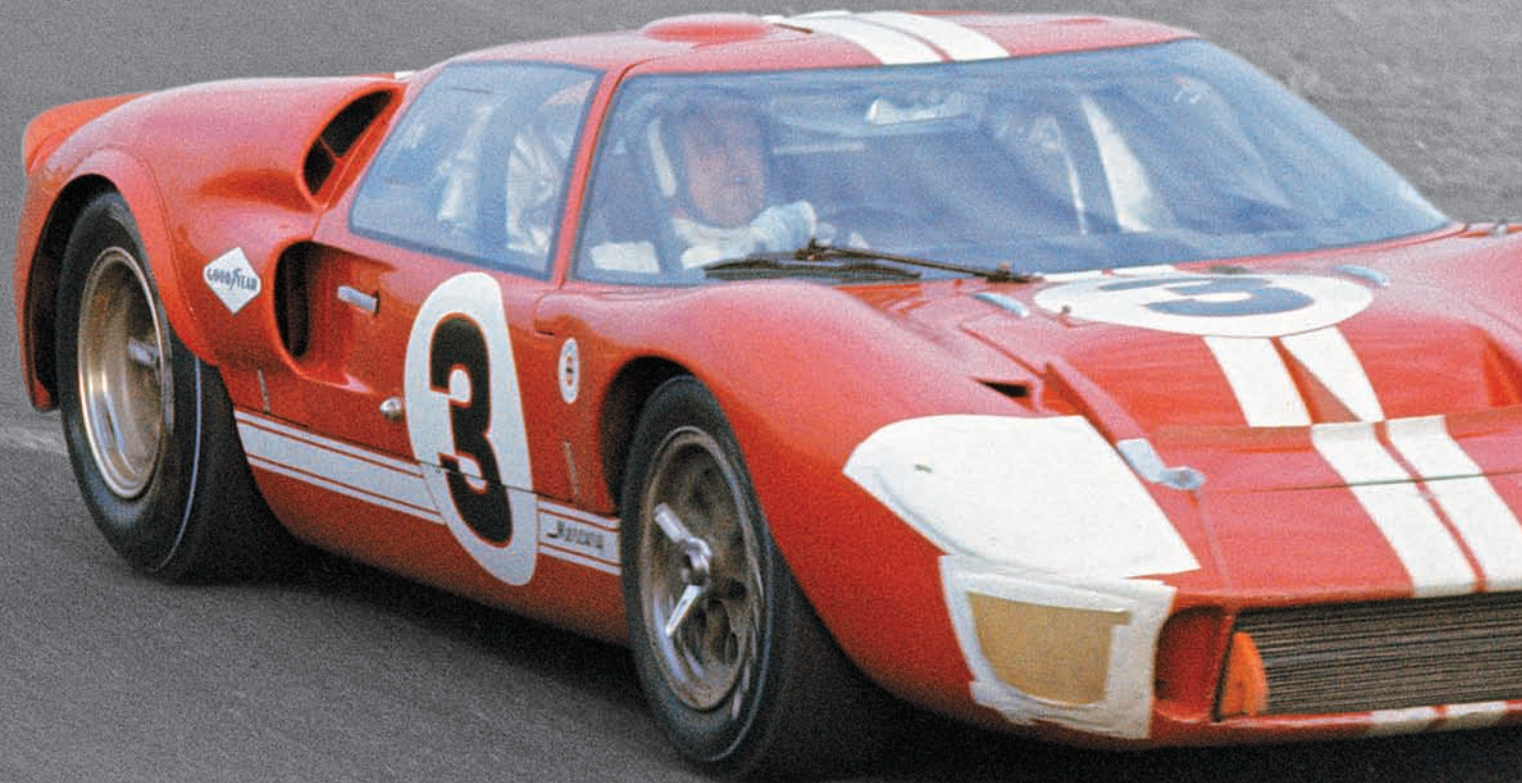
**PHOTOGRAPHY BY
DAVE FRIEDMAN**

FORD GT





F O R I



DOG EAT

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On the front cover: Ken Miles harries

Dan Gurney at the Mulsanne hairpin.

On the back cover: (top) As Henry Ford II

(dark jacket) finishes crossing the track after waving the starting flag, Dan Gurney

(the No. 3 car) makes his usual fast start;

(bottom) Bruce McLaren (not pictured)

awaits the word to climb into the cockpit as Eric Broadley (left, in the brown shirt)

looks on.

On the endpapers: (front) Shortly after Hill

pitted to turn over to McLaren, a radius rod

pulled out of the chassis. Later analysis

showed that a poor weld had caused

a bracket to fail. (back) Mike Parkes,

in a Ferrari 330 P4, harries Gurney in a

futile attempt to goad the American into

speeding up and breaking his car.

On the frontis: Bruce McLaren and Mario

Andretti strike an insouciant pose with

their spiffed-up Mark IV for the official

Ford's winner photo after the 24 Hours of

Le Mans in 1967.

On the title page: A. J. Foyt exits the infield

and climbs the banking at Daytona in his

overmatched Mark II during the 1967

season-opening 24-hour race.

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Introduction

THE DISASTER DIDN'T ARRIVE IN A SINGLE, HORRIFYING INSTANT, LIKE A bullet or a Freudian slip that couldn't be retracted. Instead, it unfolded slowly and inexorably, gathering force with agonizing inevitability—the death of a thousand cuts. Middle-aged men in boxy business suits had flown to France from their corporate offices in Dearborn, Michigan, to watch a hated rival be routed in battle. For years, Ferrari had ruled at Le Mans, home of the 24-hour race that was the world's toughest and most renowned test of automotive endurance. To defeat Ferrari, Ford Motor Company had assembled an armada of six cars, sleek and immensely powerful prototypes that were the fastest and most sophisticated sports cars ever built. Two of them, experimental models known as Mark IIs, were equipped with mighty 427-cubic-inch engines. They were driven by some of the finest drivers in the road-racing universe, and they were backed by technical resources and a budget of unprecedented dimensions. Earlier that season, a Ford had earned its inaugural win at Daytona. Now, in June 1965, Ford executives confidently expected that Ferrari would be humbled at Le Mans, a track where it had triumphed five years running, and Henry Ford II—Hank the Deuce himself, the man who'd greenlighted the program in response to a perceived insult from Enzo Ferrari—was here with his glamorous Italian wife to savor the changing of the guard.

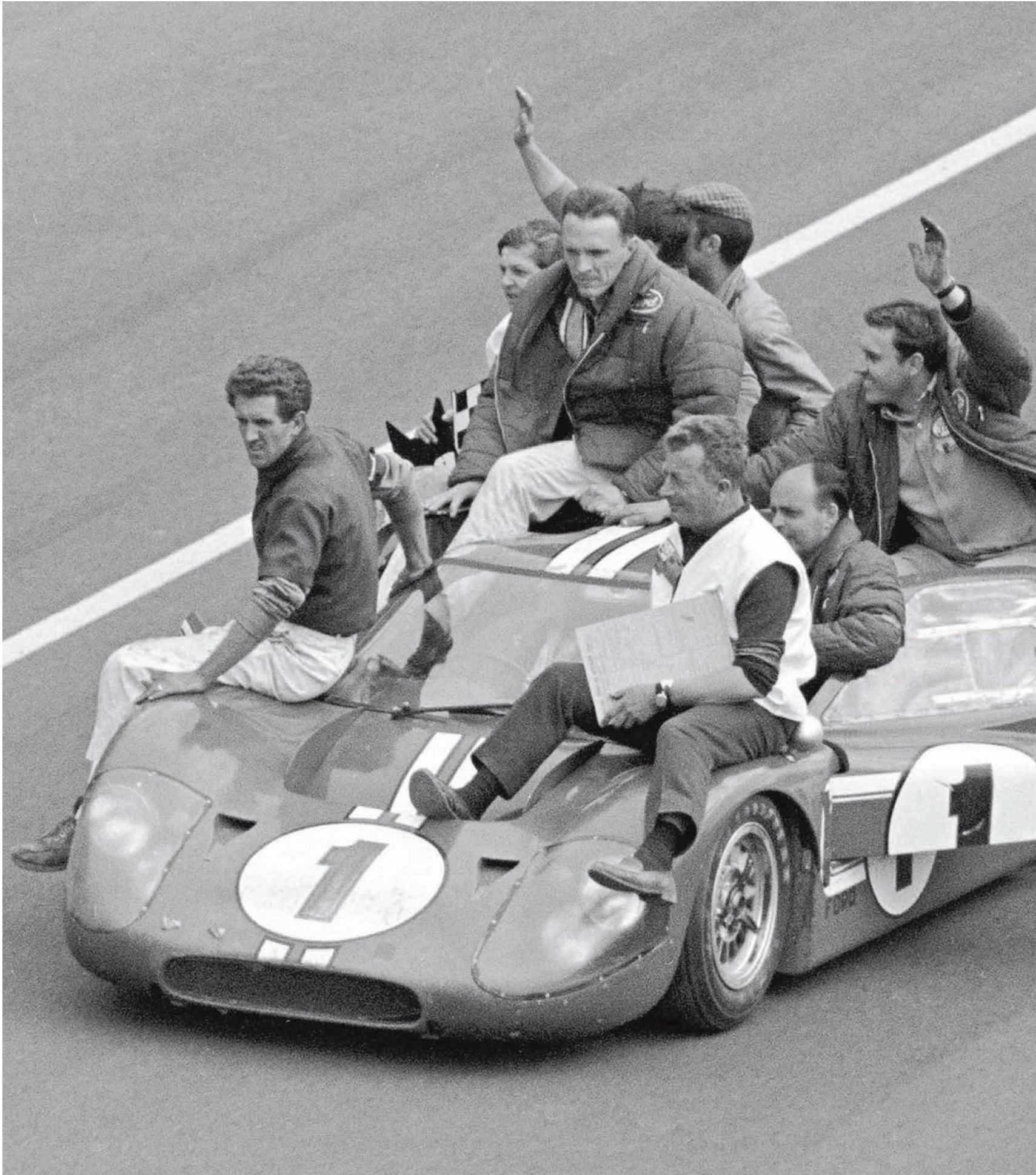
A Shelby American Mark II in the crisp blue-and-white racing colors of the United States had qualified on the pole, setting a new lap record while topping out at 213 miles per hour and averaging 141.37 miles per hour around the 8.4-mile-long Circuit de la Sarthe. At the start, the two Mark IIs swept into the lead and pulled away with disdainful ease. In the Ford camp, the mood was giddy. The Ferraris weren't merely being outrun. They were being outclassed. It was no contest, a men-against-boys mismatch. After 10 laps, the roadster entered by Ford France pitted with an overheated engine. A head gasket had failed. But this was the slowest of the Fords, so nobody was too concerned. Two hours later, two more cars stopped with blown head gaskets, and more than a few Ford fans began exchanging worried looks. After two more hours, a Mark II was parked with a dead gearbox. Shoulders slumped and frowns formed as the air started leaking out of the party balloons. The fifth car expired after six hours, the victim of another overmatched head gasket. And shortly before midnight, the second Mark II retired with a roasted transmission. The armada had been annihilated; not one car in the massive Ford fleet had lasted until Sunday morning. Driver Ken Miles, who could often be found reading a book between stints in the cockpit, called it “the greatest defeat ever suffered by a team in the history of motor racing.”

And yet, exactly one year later, Ford was back at Le Mans with an even bigger team, even faster cars, even better drivers. And this time, they delivered on the three-year-old promise to beat Ferrari, sweeping the podium with a 1-2-3 finish. The year after that, Ford returned again with a brand-new car called the Mark IV that had been designed, engineered, and built entirely in the United States. With two of the country's most famous homegrown drivers, A. J. Foyt and Dan Gurney, Ford conquered Le Mans a second time. It hadn't been easy, and it hadn't come cheap. In addition to millions of dollars, the costs also included the lives of two drivers who were killed during the company's arduous test program. But Ford had persevered. And when it walked away from Le Mans at the end of the 1967 season, it did so at the pinnacle of the sport.



Chris Amon leads at the start at Le Mans in 1965 in the No. 2 Ford GT, with Bruce McLaren (No. 1) moving up on the far right in the second Mark II. Both cars, along with all four GT40s in the Ford armada, expired before mid-distance.







John Wyer, who was intimately involved from the early days of the program and who continued to race GT40s after Ford had withdrawn from sports car racing, later claimed that it was only a matter of time before Ford achieved its goal. “There was, in my mind, never any doubt that Ford would eventually win at Le Mans,” he wrote. “I have always likened the Ford onslaught in sports car racing to the entry of the United States into World War II. From the moment the decision was taken the final issue ceased to be in doubt. The resources which could be brought to bear were too great for any potential opponent to resist in the long term. If one accepted this premise it became a question only of how long it would take, how much it would cost, and how many mistakes would be made along the way.”

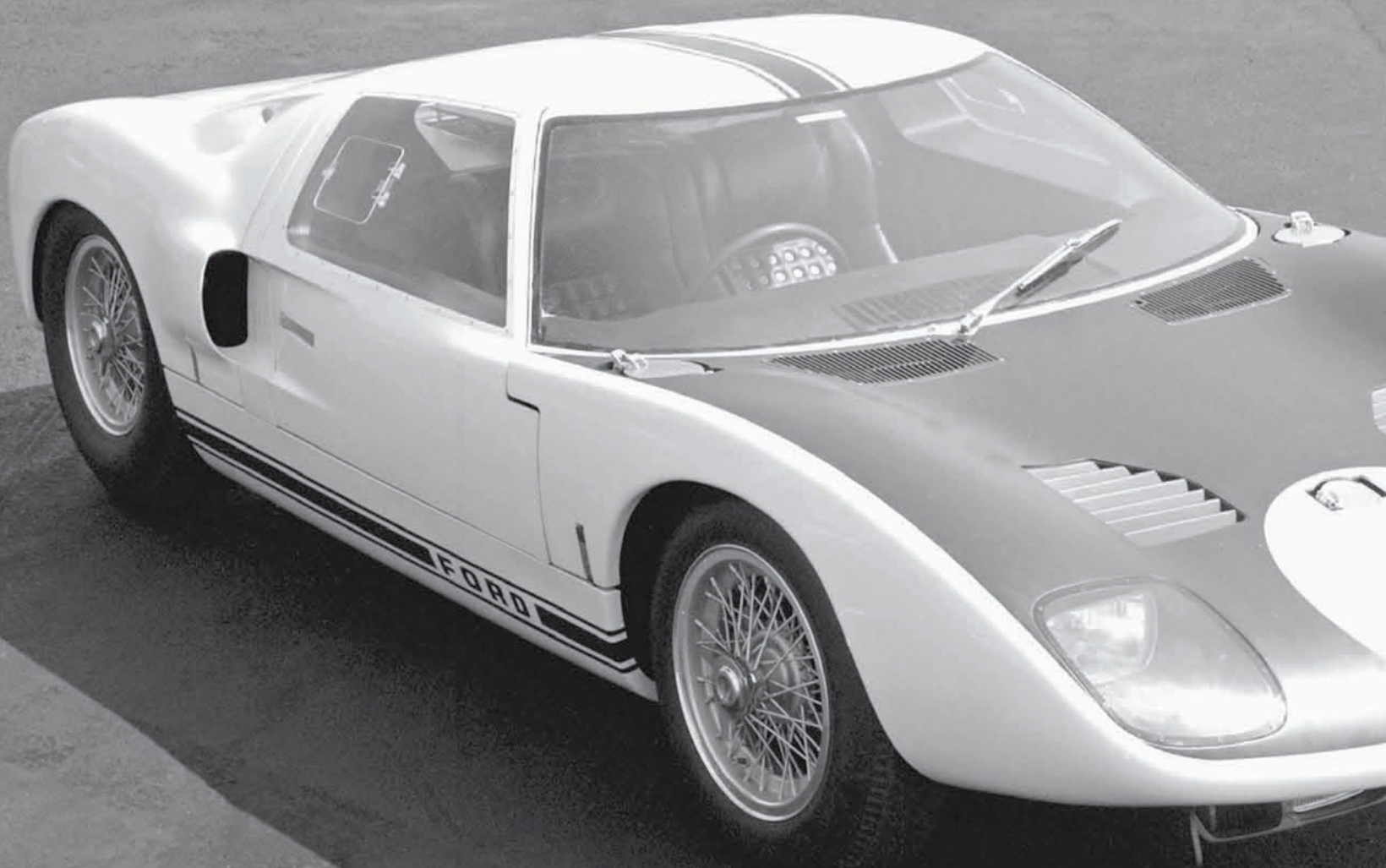
Of course, history always looks inevitable when it’s viewed through the lens of hindsight. But a more disinterested and clear-eyed assessment suggests that any number of insurmountable problems could have arisen. Henry Ford II could have lost interest. A moratorium on factory motorsports, similar to the American Manufacturers Association ban instituted in 1957, could have been reinstated. The rules for Le Mans could have changed. And so on. In any event, resources alone are never enough to guarantee victory. Ultimately, history is made by people, and the success of the Ford GT came down to the men who designed, built, maintained, and raced it.

Ford GT: How Ford Silenced the Critics, Humbled Ferrari and Conquered Le Mans isn’t the first book to recount how Ford triumphed at Le Mans. But most of the previous books view events through a prism that focuses attention on one aspect of the saga while blurring the others. Some tell the story of Ford’s corporate triumph. Others frame their accounts as a mano a mano struggle between Henry Ford II and Enzo Ferrari. British writers naturally celebrate the Englishmen who got the program off the ground and who continued to race the GT40 long after Ford declared the car obsolete. Many Americans celebrate the cut-and-paste spirit embodied by Carroll Shelby and his merry band of Southern California hot rodders. Holman & Moody, the centerpiece of Ford’s NASCAR program and the repository of the best in moonshine engineering, also has its supporters.

This book weaves all of these threads into a single narrative that encompasses the people, the politics, the technology, and the racing behind the factory-supported program that culminated in back-to-back wins at Le Mans in 1966 and 1967. It doesn’t claim to be a comprehensive history of the GT40. Roughly 134 chassis were built. Less than a quarter of them were raced by Ford Motor Company and its designated teams—Ford Advanced Vehicles, Shelby American, Alan Mann Racing, and Holman & Moody. Most of the other cars were bought and campaigned by privateers. Many of them had long and memorable careers, most notably the John Wyer GT40 that won Le Mans in 1968 and 1969. The larger tale of the GT40 is a wonderful story. But it’s not the story this book chronicles. By design, *Ford GT: How Ford Silenced the Critics, Humbled Ferrari and Conquered Le Mans* is limited to the high points—and low points—of Ford’s factory effort to win at Le Mans. The racing world had never seen anything like it. And to this day, every time an automobile manufacturer goes racing in a big way, the company owes its inspiration and its methodology at least in part to the template that Ford pioneered a half-century ago.

Dan Gurney rides on the roof of the Mark IV after he and A. J. Foyt—in the cockpit—drove to a historic all-American win at Le Mans in 1967, marking the successful end of Ford’s mission to humble Ferrari.

1



MAY 1963 – APRIL 1964

A GIANT AWAKENS

HOW DO YOU DEFINE THE PRECISE MOMENT WHEN A RACE CAR IS BORN?

When the first line of the design is drawn? When the first piece of metal is cut? When the car first sits on four wheels? When those wheels first turn under power? The first shakedown? The first test? The first race? The problem is especially acute when the car in question is the Ford GT, which was the product of a months-long Anglo-American collaboration involving designers, engineers, and craftsmen on both sides of the Atlantic.

Still, there's universal agreement about the specific episode that inspired the creation of the car—what screenwriters call “the inciting incident.” So fade in on a small ground-floor office in the modest Italian city of Maranello in the middle of May 1963. Close-up on a white-haired man, wearing tinted glasses, sitting behind an austere desk and exuding an imperious brand of charm. This is Enzo Ferrari, founder of the car company that bears his name. Although he sells high-powered, exotic sports cars to celebrities and the super-rich, he lives—and his company functions—primarily for racing. Grand Prix Ferraris have been a fixture on the Formula 1 circuit since the World Championship was inaugurated in 1950, and Ferrari sports cars have won four of the last five editions of the 24 Hours of Le Mans. But Ferrari himself is now 65 years old, and he wonders if his small factory can continue to thrive in an increasingly corporate world. So a few months ago, he let it be known through various envoys that he might—might—be willing to sell his company if the right price and corporate structure could be negotiated.

Sitting across from Ferrari is a young American, 40 years old, with a full head of meticulously parted black hair and horn-rimmed glasses that hint at his engineering sensibilities. This is Don Frey. A few years back, he'd helped orchestrate Ford's return to stock car racing. Now he's the assistant general manager of Ford Division, the largest unit in the Ford Motor Company corporate hierarchy, and he's here as an emissary for his boss, Lee Iacocca. The brilliant technocrat and the hard-charging marketer are two of the principal architects of Ford's Total Performance program, which seeks to use motorsports as a vehicle to overhaul the company's bland image. They've already funded the development of Carroll Shelby's hairy-chested Cobras and Colin Chapman's fast-but-fragile Lotus Indy 500 racers, and they're about to achieve everlasting fame for creating the wildly popular Ford Mustang. Meanwhile,

GT/101, the first of the Ford GTs, sits on the tarmac at JFK after being flown over from England, where the mechanics at Ford Advanced Vehicles (FAV) had thrashed for weeks to get the car finished in time for its debut in New York.





Above: Henry Ford II took Enzo Ferrari's rebuff as a personal affront—and as a corporate challenge—that spawned the Le Mans program. “Without him, none of this would have ever happened. No one else would have ever done what he did, and I can't foresee anything like our program in the mid-1960s ever happening again.” —Leo Beebe

Left: Like Henry Ford, Enzo Ferrari gave his name to and formed the foundation of his eponymous company. He was vain, domineering, and egotistical, but he got results.

Iacocca has set his sights on buying Ferrari. A brigade of Ford engineers and accountants has been dispatched to Maranello to study the physical plant and pore over the balance sheets. “They counted the screws, and they even checked our underpants,” the men in the shop joked. Based on their findings, company lawyers have drawn up dense contracts to create two new companies—Ford-Ferrari to design and sell street cars and Ferrari-Ford to run the racing program. The purchase price has been whittled down from \$18 million to \$10 million, and stories have been appearing in the press. Now, after more than a week of back and forth, Frey has arrived from Dearborn, Michigan, to observe the haggling. But Ferrari refuses to deal with anybody but Frey himself, so Frey unexpectedly—and unhappily—finds himself thrust into the role of sole negotiator.

The relationship between the two men has developed in the time-honored form of a movie bromance. Early on, their conversations were halting and stilted, thanks in part to Frey's less-than-fluent Italian and Ferrari's limited English. But they've bonded over long technical discussions and late-night dinners. (“He never started work before noon!” Frey recalled later with indulgent outrage.) Ferrari has taken Frey out for pulse-quickenning drives along the switchbacks in the hills above Maranello, one of them ending up with *il Commendatore* getting a speeding ticket from an unimpressed Italian policeman. While they talk, Ferrari doodles incessantly in an effort to blend the Ferrari and Ford logos. But now, the honeymoon seems to be over. A week into

Opposite, bottom: “Toward the end of the Robert McNamara era at Ford our cars were extremely dull and the dealers were very apathetic about the future. We had a very serious image...and [knew] the consequences that it was having on our corporate image and our vehicle sales. When McNamara left Ford, Lee Iacocca took over the position of general manager of the Ford Division. Iacocca wanted Ford to build performance cars that would appeal to the growing youth market and he wanted all of the free publicity that came from building those cars. We launched the Total Performance program in 1961.” —Don Frey

“Iacocca was also very gung-ho about going racing because he foresaw the commercial benefits that a racing program would bring to Ford's sagging image.” —Leo Beebe

Whip Ferrari's Ass

DON FREY WAS THE ASSISTANT GENERAL manager of Ford Division who served as Lee Iacocca's emissary during Ford's failed negotiations to buy Ferrari in 1963. Here he recounts those talks and the impetus they provided for what would become Ford's Le Mans racing program.

"In late 1962, there had been some general talk at Ford about possibly getting involved in long-distance racing. Ford's Le Mans racing program really got started in 1963, when I led a small team of Ford representatives to Modena, Italy, to negotiate the sale of the Ferrari factory to Ford Motor Company. Lee Iacocca had convinced Henry Ford that we should buy Ferrari, and we were sent over to meet with the Old Man. One of the people that Ford sent with me was a bean counter, but old man Ferrari wouldn't talk to him because he didn't like money guys; he would only talk to me because I was an engineer and he respected engineers. Eventually I became a committee of one on this project, which really pissed me off, but I really grew to respect that old fart even though he was an arrogant old bastard. We had negotiated the sale of the production car works ... and then we started talking about the purchase of the racing company, which was a completely separate company.

That went along for some weeks, and I remember our final conversation in Ferrari's office in Modena. I remember that Ferrari was sitting in a chair with a large portrait of his son Dino, who had died some years before, behind him. He spoke broken English, and I spoke broken Italian so we were able to communicate with each other fairly well. Ferrari stated that he wanted to race at Indianapolis, and he knew that Ford wanted to race at Indianapolis. Ferrari wanted to know who would be in charge of that racing program. When I told him that we would be in charge of the entire racing program, the negotiations came to an abrupt end. Ferrari was a cagey old son of a bitch, and I don't think he ever wanted to sell his company to us in the first place. After months of negotiations and hard work, Ferrari finally turned us down in May 1963. I came back to Dearborn and went to meet with Henry Ford and Iacocca so that I could tell them that the deal didn't work out. Ford, who'd become very interested in what was going on, got quite angry and said, 'All right, if that's the way he wants it, we'll go out and whip his ass.' That breakdown in negotiations with Ferrari was the real beginning of the Ford GT program."



Don Frey was Ford's point man for negotiations with Ferrari.



Frey's visit, Ferrari is bristling as the full implications of being owned by a huge multinational corporation are pressing down on him like a physical weight. Finally, inevitably, late on the evening of May 20, they come to an impasse as they chat in Ferrari's dimly lit office.

Five decades after the fact, it's impossible to say exactly how the scene played out. In years to come, Frey and Ferrari themselves told different versions of the story, and various underlings and journalists embellished the tale to make it even more dramatic. But all of the narratives follow the same general contours. So let's cobble together the best bits to create the most satisfying version of events.

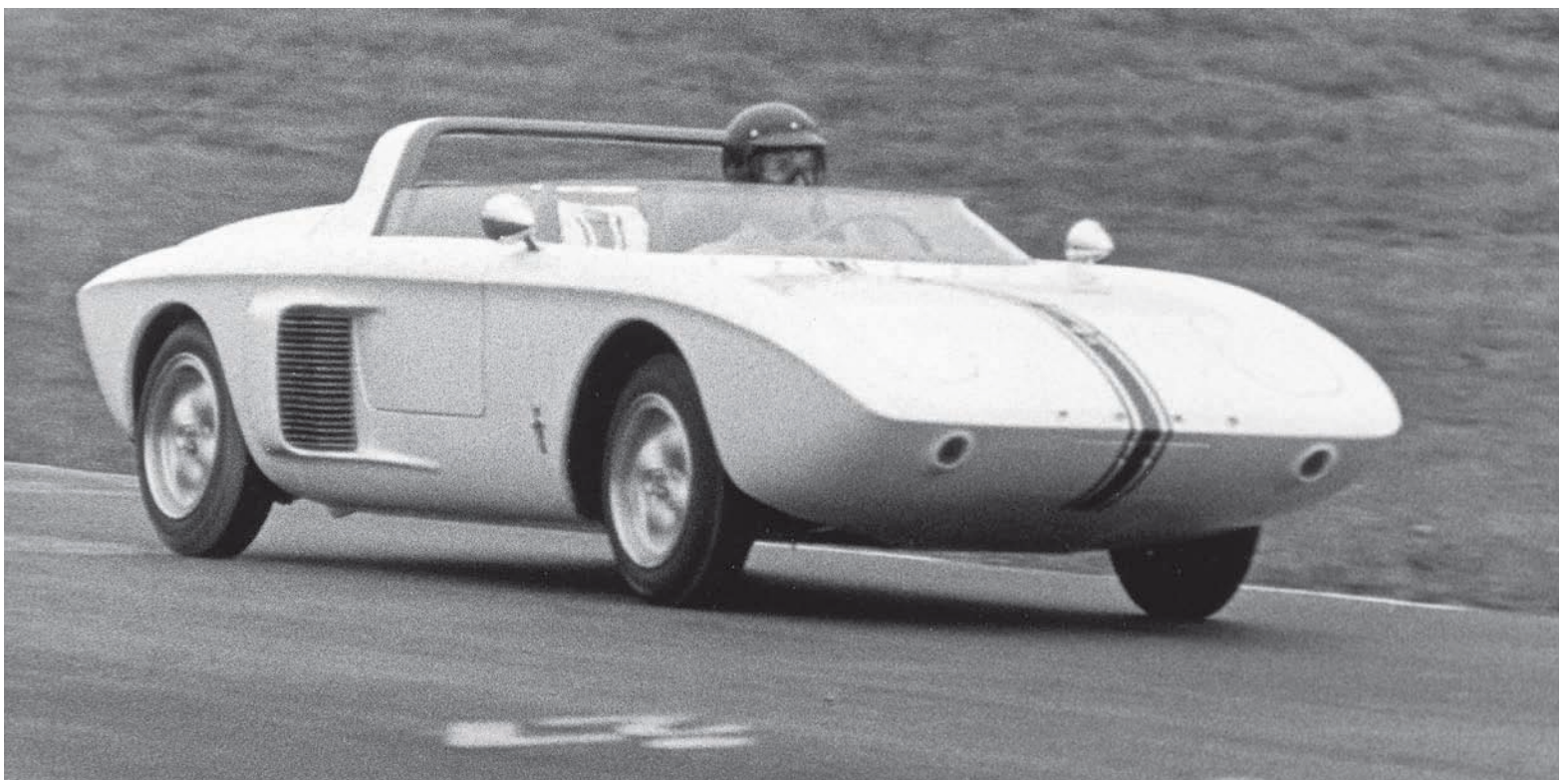
"*Dottore Ingegnere*," Ferrari begins, using the honorific because he likes and respects Frey, who does indeed hold a doctorate degree in engineering, "if I wish to enter cars at Indianapolis and you do not wish me to enter cars at Indianapolis, do we go or do we not go?"

Frey understands that this is no idle question. He realizes that Ferrari is anxious about the thought of losing his autonomy, and he's determined to be completely up-front about the corporate realities of becoming part of the Ford empire. "You do not go," Frey says without hesitation.



Left and below: Don Frey gives Dan Gurney instructions before a high-speed racetrack demonstration of the Mustang I at Watkins Glen prior to the US Grand Prix in 1962. Roy Lunn's work on the prototype earned him the job of chief engineer on the Ford GT program.

Opposite: Richard Attwood and David Hobbs race the Lola GT at Le Mans in 1963. Although gearing issues limited the car's top speed, its lightweight chassis, slick aerodynamic shape and powerful Ford engine pointed the way to the future of the Ford GT.



To which Ferrari responds with an operatic speech worthy of a Rossini aria: “My rights, my integrity, my very being as a manufacturer, as an entrepreneur, as the leader of the Ferrari works, cannot work under the enormous machine, the suffocating bureaucracy of the Ford Motor Company.”

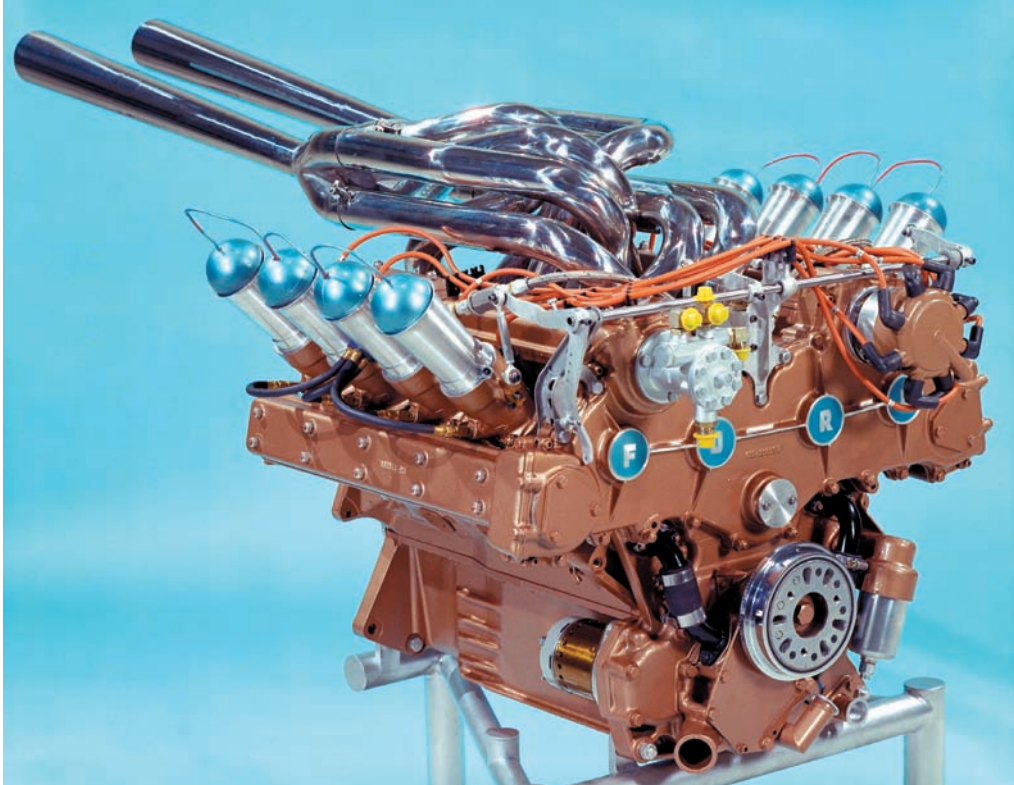
Or so one version of the story goes.

In later years, Ferrari himself claimed that an addendum to the proposed contract—which he said he hadn’t noticed until the night of May 20—“provoked the rupture of negotiations.” According to Attachment Number 17, Ferrari had to “obtain timely approval” from Ford before committing to any substantial expenditures of money. Ferrari insisted that this was a deal breaker. “So the Ford-Ferrari agreement went up in smoke in the space of five minutes,” he wrote. The tone of his recollection was dispassionate; he sounded more disillusioned than angry.

But his majordomo, Franco Gozzi, remembered Ferrari suffering a volcanic meltdown when he saw the translated text of Attachment Number 17. “But here it is written that if I want to spend more for racing I have to request authorization to do so from America!” Ferrari cried, according to Gozzi. “And when that was confirmed, the explosion gave way to a tirade that I had never seen or heard before in my entire life and have not done so since. Ferrari felt cheated, betrayed.” When Frey temporized, Ferrari “flew into a rage, shouting words than cannot be found in any dictionary. Then, having simmered down, he suddenly turned only to me: ‘Let’s go and eat,’ he said and got up from the desk, leaving the Americans intimidated, I would say even frightened.”

Frey, on the other hand, didn’t remember any histrionics. According to his more prosaic recollection, he got the news that the negotiations were over in a phone call from one of Ferrari’s attorneys. “We came close, but it was still a miss,” he said. “I also had the sense in the end that [Ferrari] couldn’t really bring himself to do it, and he was looking for some available out. He picked a good one.” Frey immediately returned to Dearborn with an ironic parting gift—an autographed copy of Ferrari’s memoirs. Iacocca wasn’t pleased by the rebuff, and neither was his boss, company chairman and CEO Henry Ford II. The eldest grandson of company founder Henry Ford, Hank the Deuce was every bit as autocratic as Enzo Ferrari. He’d grown up as American royalty, and two decades running one of the world’s largest and most powerful corporations had left him unaccustomed to hearing no for an answer. He hadn’t been especially eager to buy the Italian carmaker—that had been Iacocca’s pipe dream—but his temper flared when he realized that Ferrari had essentially given him the finger. “You go to Le Mans,” he told Frey after an awkward interrogation in a private dining room, “and beat his ass.”





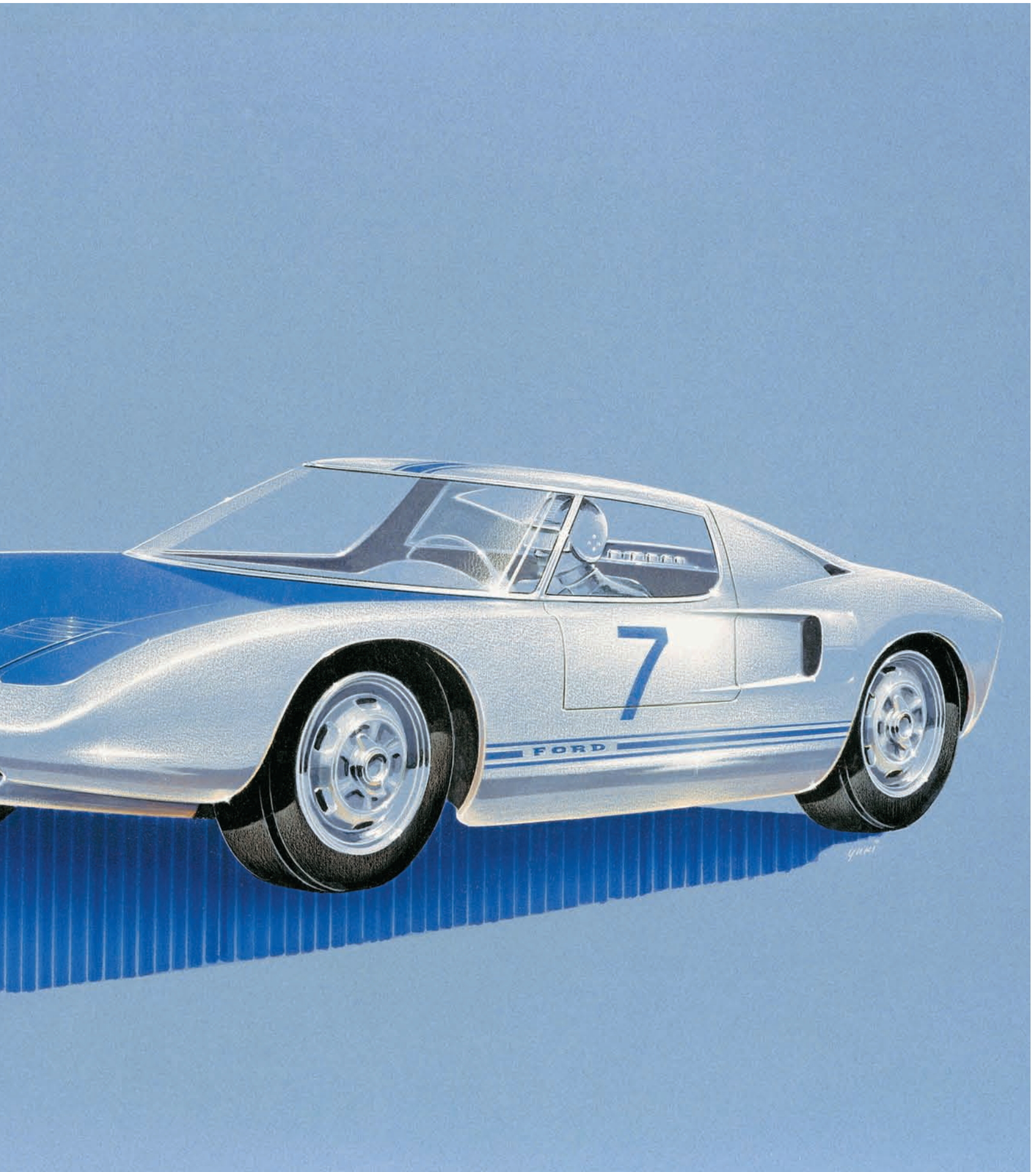
Above: The four-cam 255-cubic-inch Ford race engine won the Indy 500 in 1965, but the Ford GT made do with a pushrod derivative that was thought to be more robust and reliable for endurance racing.

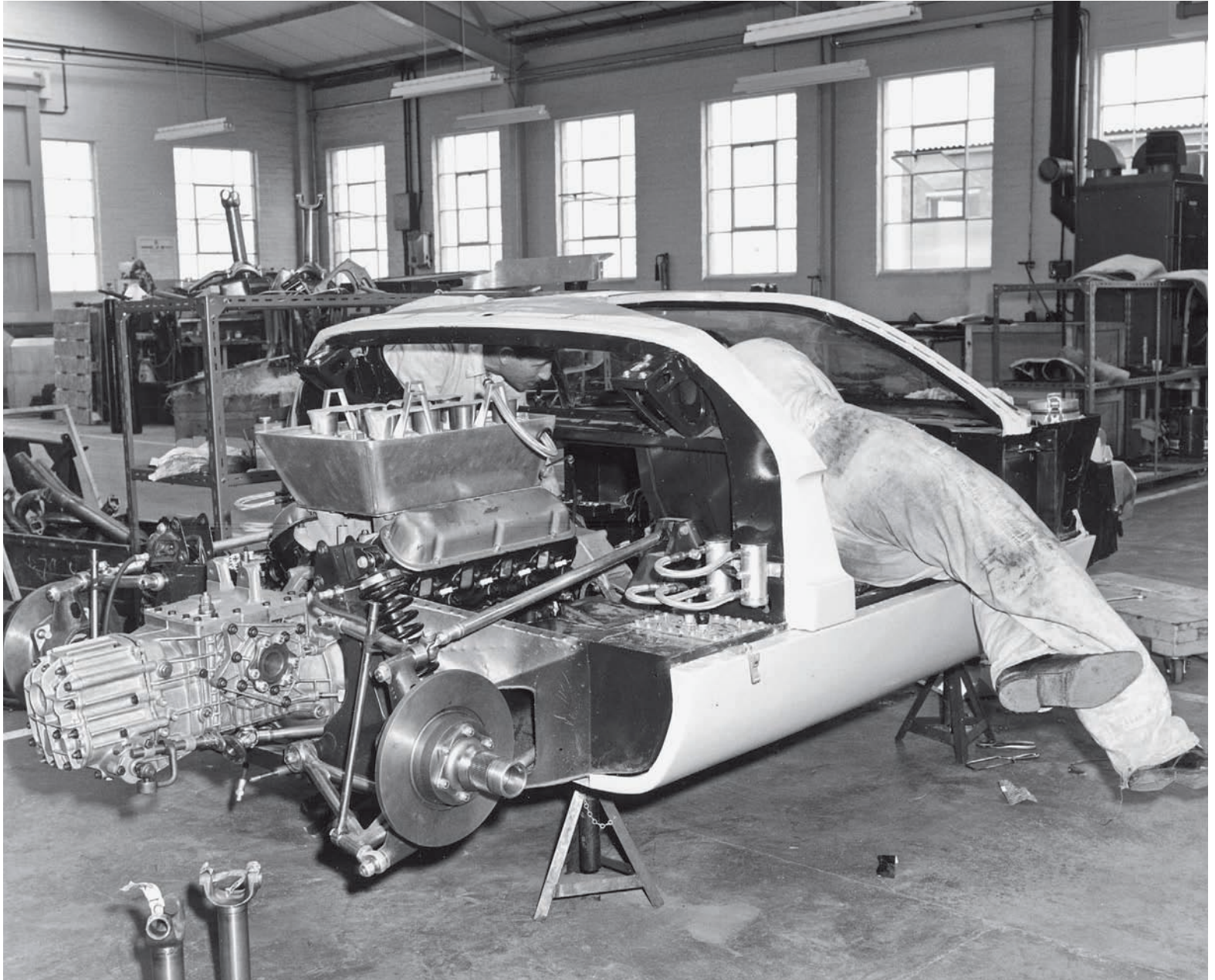
Right: This artist's rendering shows how the Ford GT was supposed to look. The finished product turned out to be remarkably close to this memorably swoopy image.

Or so Frey said later. And if it reads more like the fanciful line of a screenplay rather than the way it played in real life, well, sometimes a myth conveys a deeper truth than mere reality. Whether or not the Le Mans program was the product of Ford's personal animus for Ferrari, it's indisputably clear that the impetus for the race program came from the very top of the corporate hierarchy, and that's one of the major reasons it succeeded. Barely a week after the breakdown of negotiations with Ferrari, Ford took its first tentative steps down the road that would lead to a full-fledged motorsports effort involving the company's first-ever purpose-built race cars. During the next four years, Ford would commit more resources—more money, more manpower, more goodwill—to the quest to win Le Mans than any automaker had done before. And the company wouldn't quit until Ford had whipped Ferrari. Twice.

Of course, the fact that Ford succeeded shouldn't obscure how badly the odds were stacked against the company. Back in May 1963, virtually none of Ford's 350,000-plus employees had any professional experience at Le Mans. Some of the engineers, it's true, had been involved in NASCAR. But the only top-level engineer with any professional road-racing moxie was a transplanted Brit, Roy Lunn, who'd prepared a team of Aston Martins to run at Le Mans in 1949. After some notable successes at Jowett and Ford of England, Lunn moved to Dearborn, the Detroit suburb that's effectively Ford's company town, and eventually became the head of the Advanced Vehicle Department. Here, in 1962, he oversaw the development of the experimental Mustang I. Although it wasn't destined for production, the Mustang I was a tour de force featuring a V-4 engine mated to a transaxle in a two-seat roadster clothed in a futuristic aluminum body. What made the car relevant to the Le Mans program was its aerodynamic styling and midengine layout—two critical elements of the race car-to-be. Fittingly, American Formula 1 ace Dan Gurney had hot-lapped the car at Watkins Glen before the US Grand Prix in 1962.



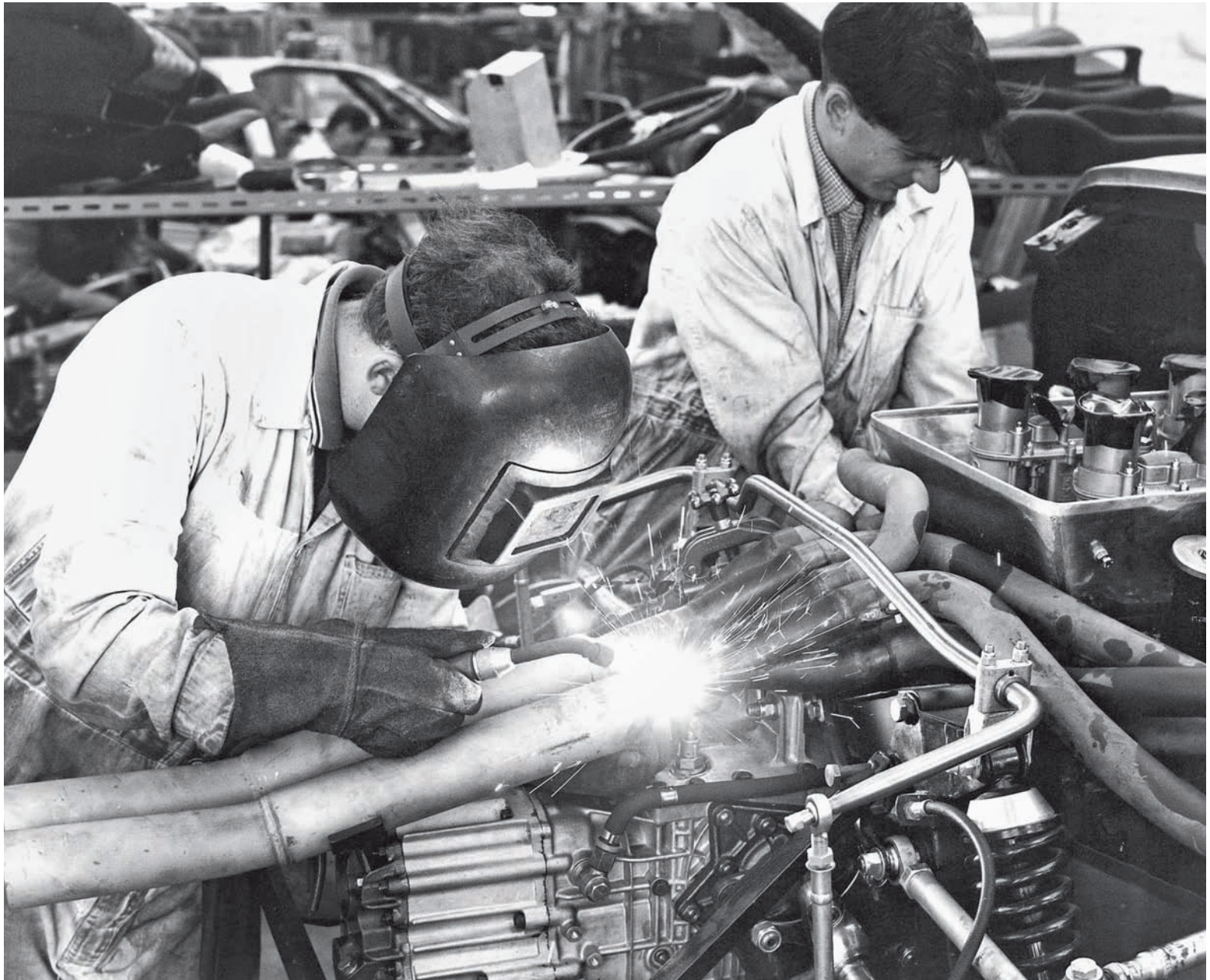




So in the 38-year-old Lunn, Ford had an intrepid and proven company man who could serve as chief engineer for the Le Mans program. (Not so coincidentally, he'd been part of the team of Ford employees who'd inspected Ferrari.) On June 12, after nine days of analysis, he produced a confidential memo outlining a breathtakingly grand vision for both a midengine race car (to be called the GT40) standing 40.5 inches high and a street car variant (the GT46) that was 45 to 46 inches tall. The object, he wrote, was "to create a high-performance two-seater sports car prototype that, if produced in low volume, would neutralize the Corvette image by substantially better performance and by surpassing it in style and feature appeal." Lunn and Frey presented a motorsports plan to Ford executives. It took the execs no more than five minutes to sign off on the program. The next 55 minutes were spent discussing marketing—the first disquieting sign, Lunn said, that Ford had no real understanding of the enormity of the challenge that awaited. "They were talking about winning in the first year," he said. "I said, 'We can go racing in the first year. We ought to be winning in *three* years.'"

The plan called for the design and construction of three prototypes to race at Sebring and Le Mans in 1964, with production of the sports car to begin by mid-1965. (As it happened, the

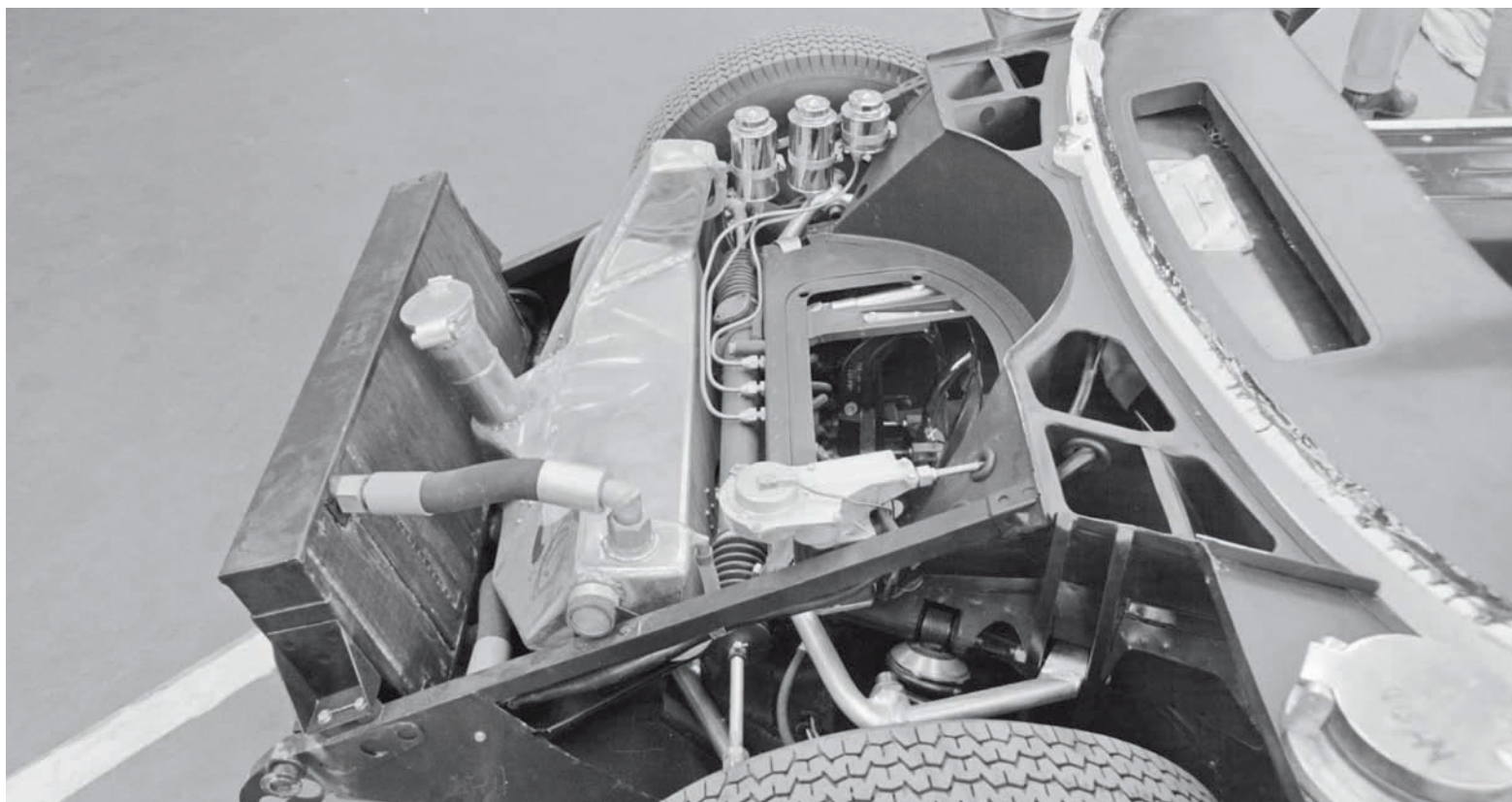
A rare photo of the first Ford GT under construction at Ford Advanced Vehicles in England shows the compact—but fragile—Colotti Type 37 transaxle.



Workers at FAV weld up the iconic “bag-of-snakes” exhaust system that became so well-known through the Ford GTs, Shelby King Cobras, and Ford Indy engines.

street car project was stillborn.) With Lunn at the technical helm, Ford approached the project much as it would any new car—by producing what’s known as a “package study” to formulate the rough dimensions, general shape, and overarching philosophy of the vehicle. The team decided on a wheelbase of 95 inches, a height of 40 inches, and an overall length of 156 inches. Like the Mustang I, the new car would feature a sleek body shaped by Ford stylists with a prow-like nose, a beveled tail, and large side scoops for midmounted radiators. Wind tunnel tests at the University of Maryland would later reveal several problems, so the radiator was relocated to the usual spot behind the front grill and the radical forward-hinging canopy was replaced with a pair of conventional doors. The engine would be a large pushrod V-8, originally developed for the humdrum Fairlane before being comprehensively overhauled to power the Lotus that had just raced competitively in the Indy 500.

A full-scale clay mockup was completed in June, but Ford lacked the resources to build the monocoque chassis to which the stunning body would be attached. In fact, no race shop in the United States was equipped to complete a project of this magnitude and sophistication in time for the 1964 season. So Lunn recommended that Ford find a partner in England, home to the



so-called *garagistas*, as Ferrari contemptuously described the British constructors who designed and built their own chassis but used customer engines and other off-the-shelf components.

The most prominent of the *garagistas* was Colin Chapman, whose Lotus single-seaters were the quickest cars on the F1 circuit. Chapman had already collaborated with Ford on an Indy car that finished second in the 500 in 1963. But Chapman was notoriously ambitious and mercurial, and some Ford executives believed, not without justification, that he wouldn't be a team player. The headhunters also considered John Cooper, whose Formula 1 cars had demonstrated the superiority of midengine design while winning world championships in 1959 and 1960. But Cooper Cars was rightly thought to be in decline. So the delegation from Dearborn zeroed in on a cramped shop south of London owned by a third *garagista*, Eric Broadley.

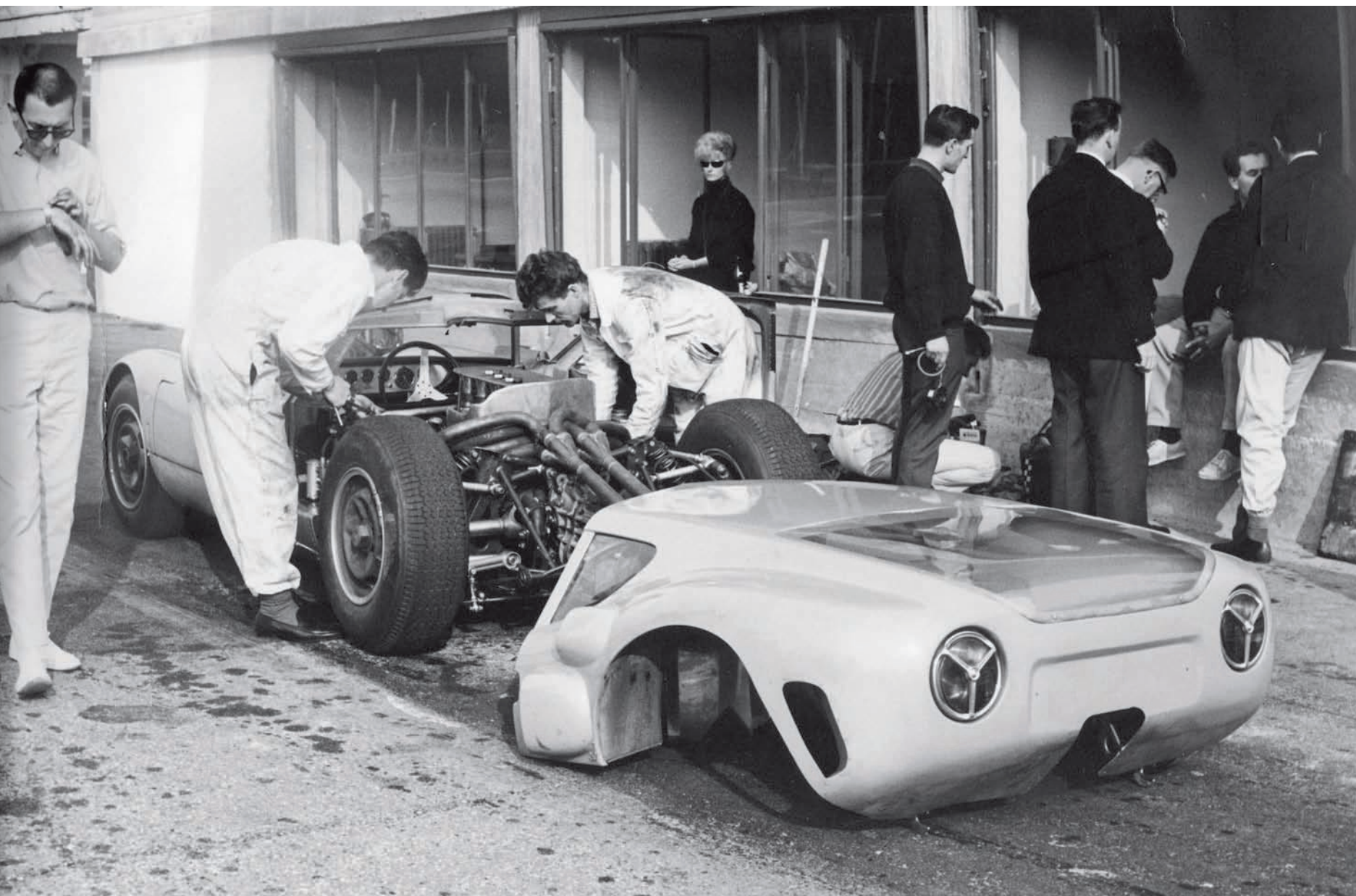
At the time, Broadley was 35 years old and little known outside the British motorsports world. Six years earlier, while holding down a “deadly boring” job in the construction trade, he'd built his own one-off formula car for hobby racing. The car was so successful that he formed his own company—Lola Cars—to sell simple, lightweight road-racing specials that competed against the Lotus 11. Only five years after hanging out his shingle, he was commissioned to produce an F1 car that his countryman John Surtees drove to fourth place in the 1962 World Championship. The following January, Broadley caused a sensation when his stunning Mk VI, often called the Lola GT, debuted at the Racing Car Show in London.

By this time, midengine race cars were commonplace in road racing. Although Enzo Ferrari—the most conservative of race car constructors—had mulishly resisted this newfangled trend for as long as possible, he'd finally won Le Mans the past June for the first time with an engine mounted behind the cockpit. But this Ferrari 250 P was very much a first-generation take on the midengine layout. The brand-new Lola GT, on the other hand, looked like model 2.0. The fiberglass bodywork, with a low nose and a long, high tail ending in a truncated overhang, established the paradigm for a new breed of sports racers to come. The chassis was an aluminum monocoque rather than an old-school tubular steel space frame. But best of all, at least from Ford's perspective, it was powered by a Ford V-8. So Broadley clearly understood, and had largely

Above: Detail of the front end. Over the years, several components would be relocated in an effort to produce more effective cooling. —Jean Charles Martha Photography Collection/Courtesy of The Revs Institute for Automotive Research, Inc.

Opposite, top: This is the only known image of the Lola-Ford test conducted at Monza in October 1963. At this time, the Lola GT was being used as a test mule for components that had been designed and built for the still-under-development Ford GT.

Opposite, bottom: Eric Broadley, the founder of Lola Cars, was hired by Ford executives who were impressed by his lovely midengine coupe, the Lola GT, a.k.a. Mark VI: “Our intention was to develop the Mk VI into a full-fledged racing car, but we would have had to raise considerable financing at that time, and I'm not sure how we could have done that. When Ford entered the picture in mid-1963, it was an answer to our financial problems so we went with it and sold them two cars. Looking back, our choice was a bit [of a] pity really, because the Ford GT, as a racing car, was a bit of a backward stab. The car was heavy and it was made out of steel, but it did become a good project and solved some of our money problems. Also it became a pretty good project to work on.” —Eric Broadley



overcome, the obstacles associated with fitting a large lump of Detroit iron inside a relatively small and highly aerodynamic package.

Ford hired Broadley, bought two existing Lola GTs to use for testing, and appropriated \$1.7 million to build four race cars. If the prototypes performed as well as expected, the company planned a limited production run. John Wyer, a tyrannical Englishman whose dour personality and notorious glare had earned him the nickname Death Ray, was enticed to quit Aston Martin to manage the program. Wyer was best known for ramrodding the Aston Martin race team—which included a charismatic driver by the name of Carroll Shelby—that had won Le Mans in 1959. It was Shelby, in fact, who'd recommended Wyer to Frey. By the end of the summer, Lunn and three other Ford engineers—Len Bailey, Chuck Mountain, and Ron Martin—joined Broadley and Wyer at the Lola shop in the London suburb of Bromley.

This was a dumpy little affair, with no dedicated design office, limited tools, and barely enough room for two cars. The Ford folks weren't impressed. Wyer found nicer and larger digs in the Slough Trading Estate, a huge industrial park near Heathrow Airport, west of London, and Wyer poached several of his old mates from Aston Martin to work as mechanics, fabricators, and machinists. Nevertheless, the Americans continued to have their doubts about the competence of

the British racers. Although they couldn't deny how inventive Broadley was, he wasn't a formally trained engineer, and they saw him as something of a bright but limited home-schooled race car builder. "He was a genius, but he couldn't manage anything," Lunn said.

Of course, the culture clash went both ways. "The one thing that really stuck in my mind were the manuals," recalled Tony Southgate, who served as Broadley's chief assistant before going on to a long and fruitful career as a race-car designer on his own. "Ford produced a manual for everything. If you wanted to know how to make a steering arm, for example, you consulted the manual for making steering arms. There was no deviating from the script. Well, motor racing is about as far removed from that as you can get. It's all about being adaptable and designing things from scratch, often in a hurry. I'm amazed Eric stuck it out as long as he did."

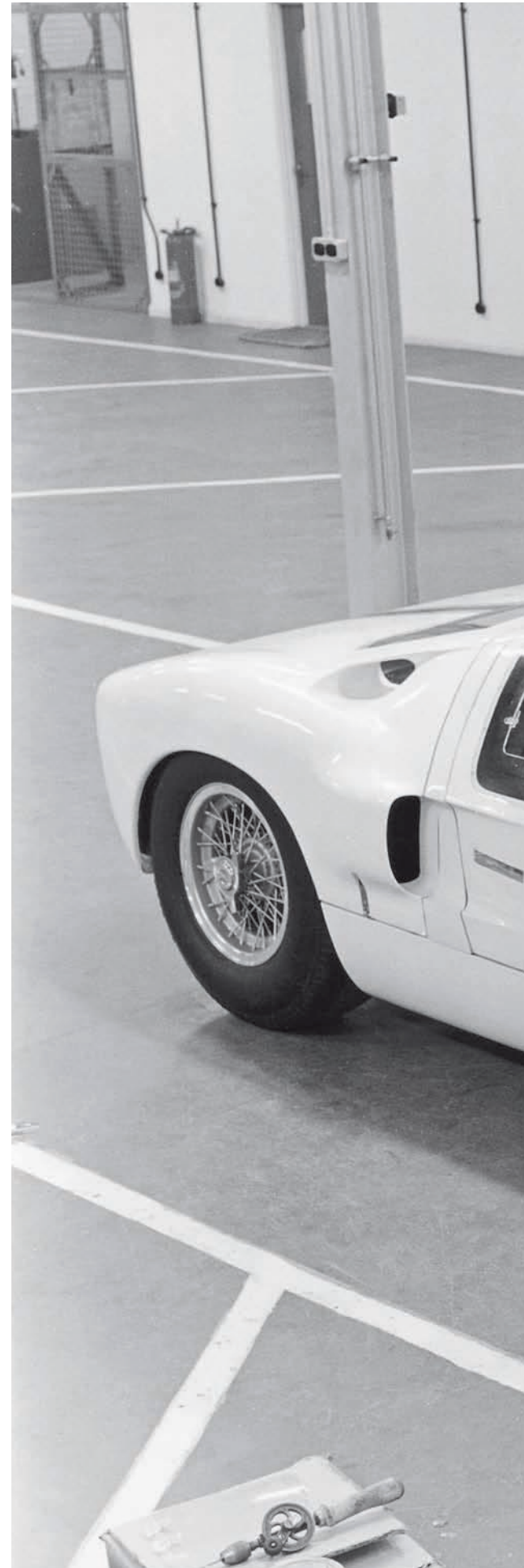
Broadley himself was equally scathing about Ford's input. "It all came to nothing because Roy Lunn got involved," he said. "As you would expect, Ford didn't have a clue about what was involved in a racing car—suspension, handling, aerodynamics. They just thought it was a matter of a big engine and a slinky shape. When the initial deal was made, I was going to control the design and the engineering, but Roy Lunn politicked it away from me."

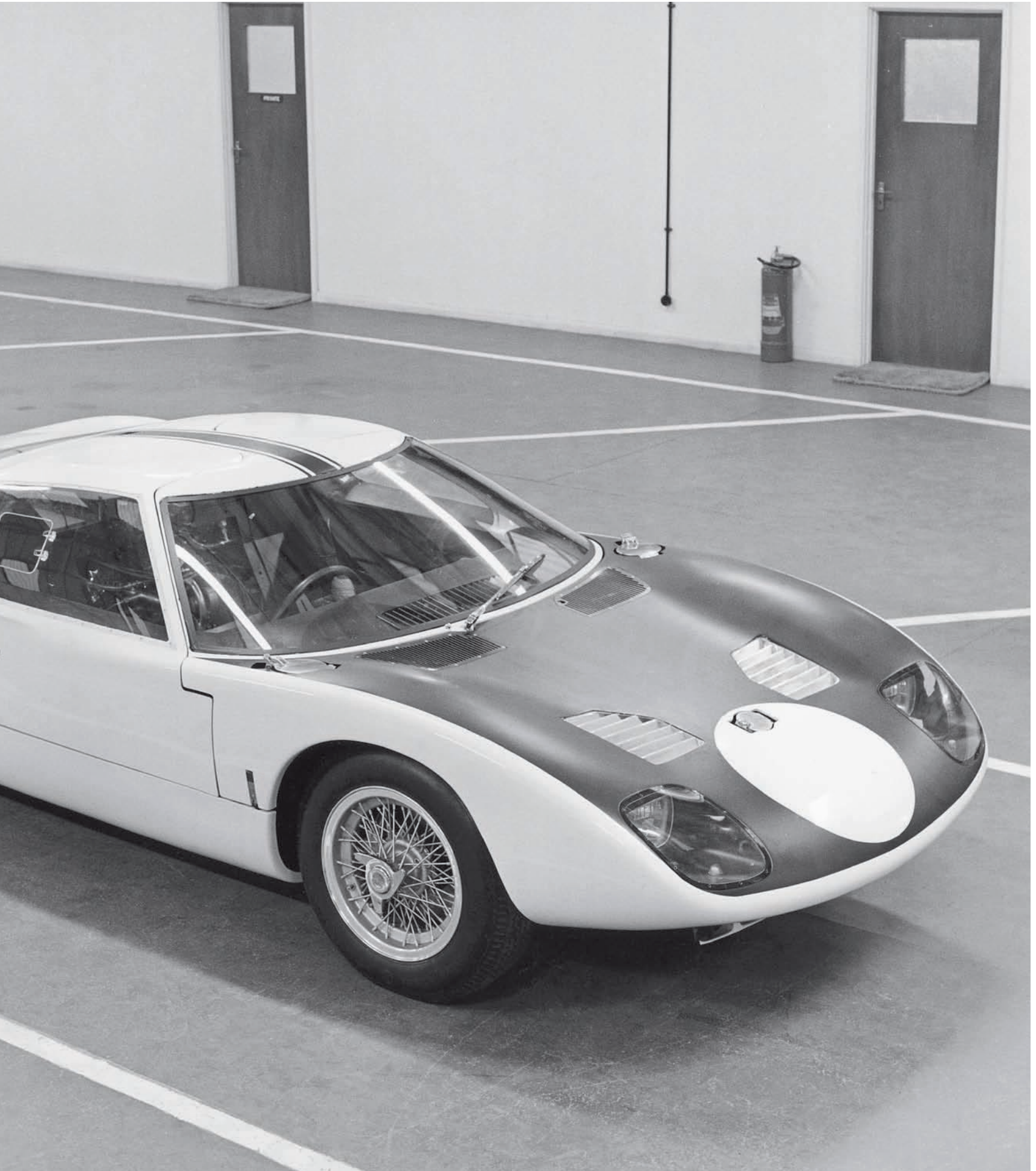
Component testing, using a Lola GT fitted with newly designed parts, began at Brands Hatch in late August 1963. Next, fresh hire Bruce McLaren drove the car at Goodwood. Although his eponymous race car company was just getting off the ground, McLaren was already a Grand Prix winner with a reputation as an exemplary test driver. When the fuel system failed, American Phil Remington—the legendary fabricator/mechanic/jack-of-all-trades who'd been lent to the program by his boss, Carroll Shelby—figured out what was wrong by wedging himself into the car while McLaren bombed around the circuit. "I was in the passenger side with two gas cans, one to pick up fuel and one to dump it out," Remington said. "That was scarier than hell. Bruce thought it was really funny."

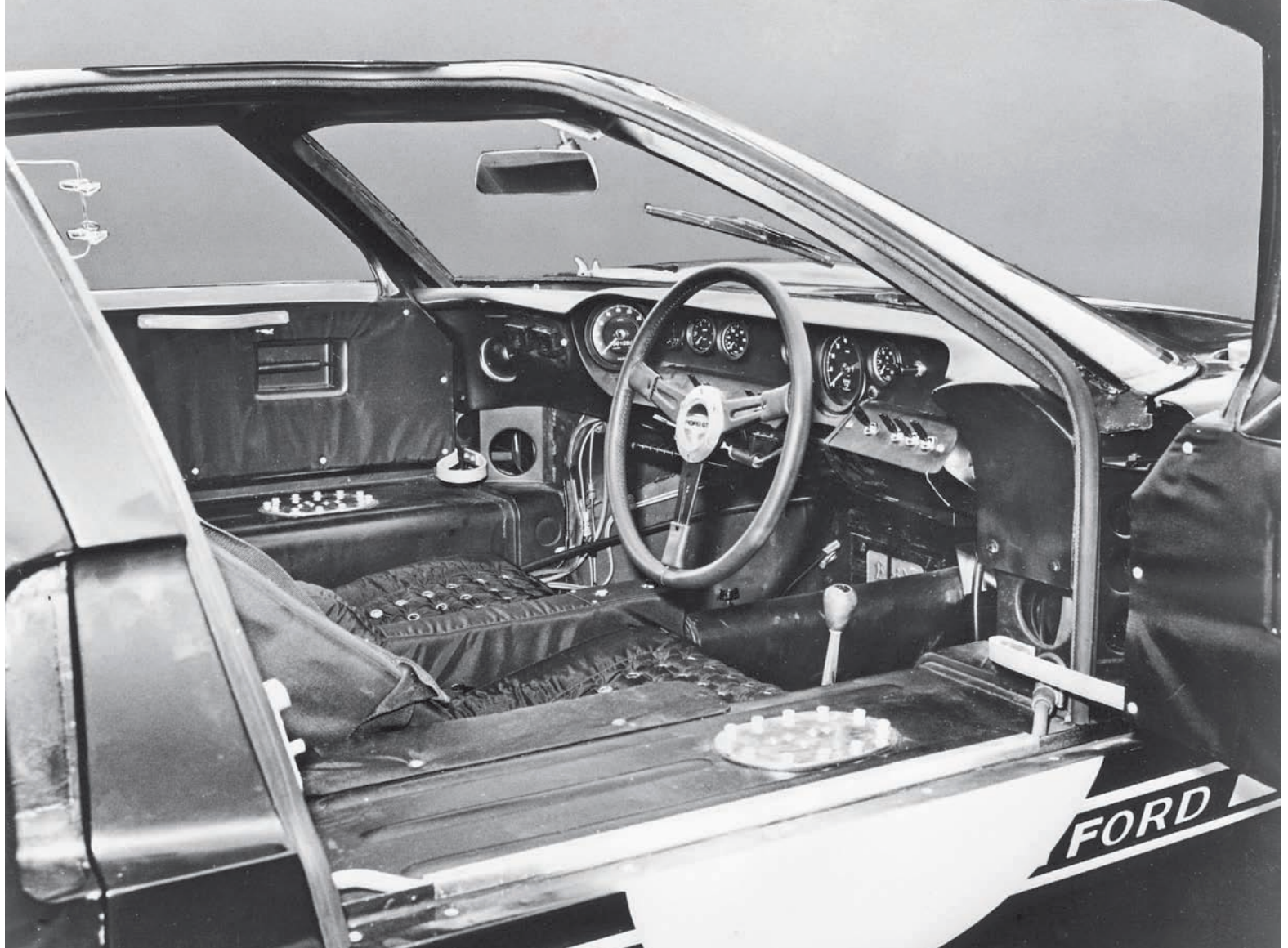
After final tests of the Ford-modified Lola at Snetterton and Monza—where Remington worked after-hours in a local machine shop to repair bodywork that had sheared off at high speed—work began in earnest on the new car. It's now commonly believed that the GT40 was little more than a warmed-over Lola GT. But Wyer and Broadley, neither a fan of the Ford bureaucracy, independently rebutted this claim, and an objective comparison of the two cars reveals substantial differences between them. The body, for example, was incontrovertibly the work of Ford Styling; Wyer saw a clay model of the Ford GT in Dearborn before Broadley was hired. ("I thought it was the most beautiful and functional car I'd ever seen," he wrote.) The Ford chassis, too, was clearly a departure from the Lola model.

While both cars featured central monocoques, Broadley had opted for a lightweight structure featuring aluminum and magnesium and a fiberglass roof. Lunn, on the other hand, insisted on more conventional sheet steel measuring from 0.024 to 0.028 inches thick for the entire structure, which allowed it to be fabricated with conventional brazing and spot-welding. The Ford also featured significantly more cross-bracing behind and underneath the seat, which was stationary. (As with the Mustang I, the pedals were adjustable.) A pair of 21-gallon fuel cells were sunk within box-section door sills on either side of the cockpit. Front and rear subframes provided support for the body, radiator, quick-lift jack, and other ancillary components. The weight-conscious Brits were aghast at the heft of the chassis, which weighed more than 300 pounds. (The Ford ended up being more than 200 pounds heavier than the Lola.) As it happened, weight would be one of the car's major shortcomings, the extra pounds contributing to chronic brake woes. But the chassis proved to be extremely strong and durable, achieving more than 10,000 lb-ft/degree of torsional rigidity. In any event, an

The first hastily completed Ford GT, chassis GT/101, ready to leave FAV. Although the finished car looks much like the artist's rendering, virtually every body panel had been changed by the time it won its first race.







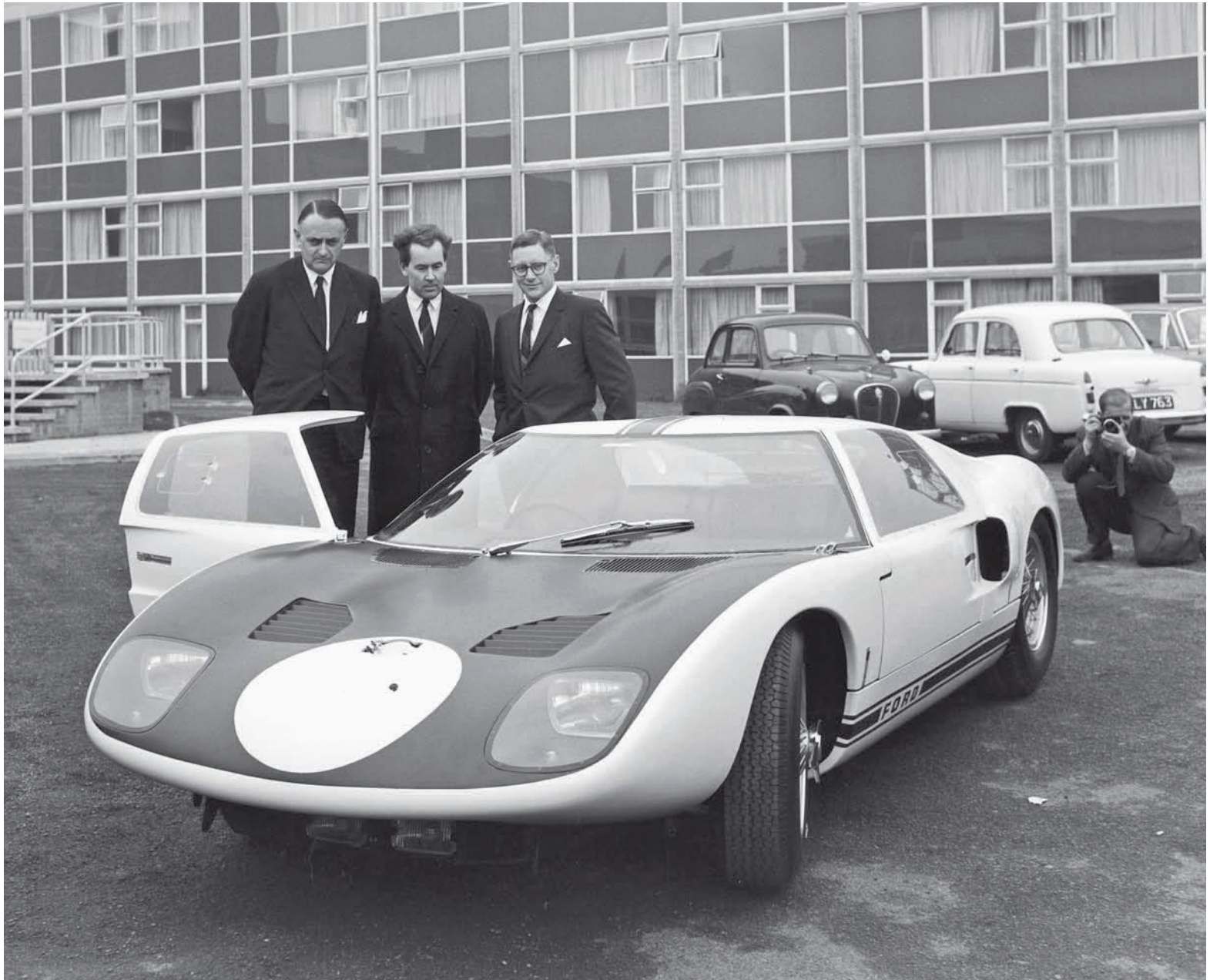
aluminum monocoque would have been overmatched when, in coming years, Ford went to a larger, heavier, more powerful big-block engine.

The fully independent suspension followed common race car practice. At the front were unequal-length A-arms, though the upper wishbones were unusually short because of the shape of the footwell and position of the spare tire. At the rear, matched pairs of trailing arms and unequal-length lateral arms served effectively as double wishbones. They were augmented with the standard complement of coil springs, tube shocks, and anti-roll bars. What was unconventional about the suspension was geometry specifically designed to limit squat on acceleration and dive under braking. This was the product of a collaboration in Dearborn between Ford suspension guru Klaus Arning, who had patented a four-link independent rear suspension back in 1958, and Chuck Carrig, a computer whiz fresh out of the University of Michigan.

Carrig had developed a FORTRAN-based computer program—PG 1493—for a vacuum-tube IBM 704 that took up an entire room. It calculated X, Y, and Z coordinates of ball joints, wheel centers, ground contact points, and so on. Arning sought out his help while he was developing the geometry for the new prototype. “He asked if I could develop a similar program for a four-link independent rear suspension that would give not only a printout but also graphs of wheel motion,” Carrig said. “I developed the general approach for calculating the four-link IRS on a Friday evening on the back of several bar receipts at the Brass Rail in Detroit.”

PG 1493 spawned a revolution. “It allowed you to input all the suspension pick-up points and then the program would run through its jounce and rebound travel and generate all the points of the curve—camber change, caster change, toe-steer, anti-dive, anti-squat—the whole nine yards.” explained Ford engineer Ed Hull, who later oversaw the development of the Ford J-Car while using Carrig’s program. “Once you had the results, you could finesse the design by moving

The impeccably detailed and finished cockpit of the GT looks more like an airplane than a race car. Ford was particularly proud of the perforated seats and “flow-through” ventilation system.



John Wyer, Eric Broadley, and Roy Lunn (left to right) stand next to GT/101 during a press preview at Heathrow Airport in April 1964, immediately before the car was flown to John F. Kennedy Airport in New York City.

a couple of points and resubmitting it to the computer. This procedure would be repeated until you achieved the desired results.”

Rack-and-pinion steering was a natural choice, with a 16:1 ratio that produced 2.5 turns lock to lock. Brakes were the usual Girling racing calipers. In the beginning, the rotors were solid cast-iron discs, measuring 11.5x0.5 inches. But the brakes hadn’t been designed for a vehicle sporting as much mass as the Ford GT, and they ended up being upgraded on what seemed to be a perpetual basis. The team chose 15-inch wheels, 6.5 inches wide at the front and 8.0 inches at the rear. The original plan was to use Halibrand-style cast-magnesium wheels, but brake cooling was marginal, so the prototype was fitted with Borrani wire wheels instead. Ford was especially proud of the ergonomically advanced cockpit design, which featured unusually comfortable and supportive seats and an impressive-looking aircraft-style instrument panel. But the much-ballyhooed “flow-through ventilation” system turned out to be overhyped—the cockpit was something of a heat sink—and other leading-edge technology such as retractable headlights, inboard rear disc brakes, and a one-off transmission failed to make the final cut.

The Engineer

“BEEN THERE, DONE THAT” COULD HAVE BEEN ROY LUNN’S motto. Few automotive engineers can boast careers as influential as his. Although he’s best known for the Ford GT, that was just one accomplishment on his resume.

Born in London in 1925, Lunn studied aeronautical and mechanical engineering before working on the design of gas generators for the first jet aircraft. After a brief stint at AC Cars (which later supplied the chassis for Carroll Shelby’s Cobras), he led the design, build, and preparation of a team of Aston Martin DB2s that raced at Le Mans in 1949. Next, still only 24, he was named chief designer of Jowett Cars. There, he designed a pioneering plastic-bodied vehicle and was the co-driver in a class-winning Jowett Jupiter in the R.A.C. rally.

Lunn then joined Ford of England, rising to passenger car product planning manager and helping bring the 105E Anglia to market. But the corporate culture was too conservative for his taste. So after one of his innovative ideas was shot down, he told his wife, “We are emigrating to America!” And so they did in 1958, with Lunn landing at Ford Motor Company.

His first project, a groundbreaking front-wheel-drive car called the Cardinal, never made it into production, though it became the basis of the Ford Taunus in Germany. His Mustang 1 also failed to get beyond the concept car stage, but it got him in on the ground floor of the Ford GT project. He was there until the end of the Le Mans program, then ramrodded

the development of the Ford Mustang Boss 429 at Kar-Kraft. After leaving Ford, he landed a job as technical director at Jeep.

Lunn was instrumental in the creation of the XJ version of the Jeep Cherokee, whose novel unibody construction made it the first modern sport-utility vehicle. He also developed the AMC Eagle, which was the first American car with four wheel drive. He was later named president of the Renault Jeep Sport subsidiary, where he fulfilled the Sports Car Club of America’s request for an inexpensive road-racing vehicle. The so-called Sport Renault was later fitted with four-cylinder Ford engines. Now known as the Spec Racer Ford, it’s the most popular purpose-built road-racing car in America.

Lunn ended his corporate career as vice president of engineering at AM General just as the company was ramping up production of the HMMWV, better known as the Humvee. Later, a civilian version dubbed the Hummer was offered to the public. The oversized gas guzzler eventually became a potent symbol of wretched excess. But by that time, Lunn had embarked on a new career as an author promoting—ironically—the notion of sustainable design.

His first book was titled *Oil Crisis: Sooner Than You Think!* Then came *Globalization: A Worldwide Quest for a Sustainable Future*. At 89, still alert, he continued to work regularly at his drafting table in Florida, but he was no longer concerned about next season’s race car. “I’m looking 30, 50, even 100 years into the future,” he said.

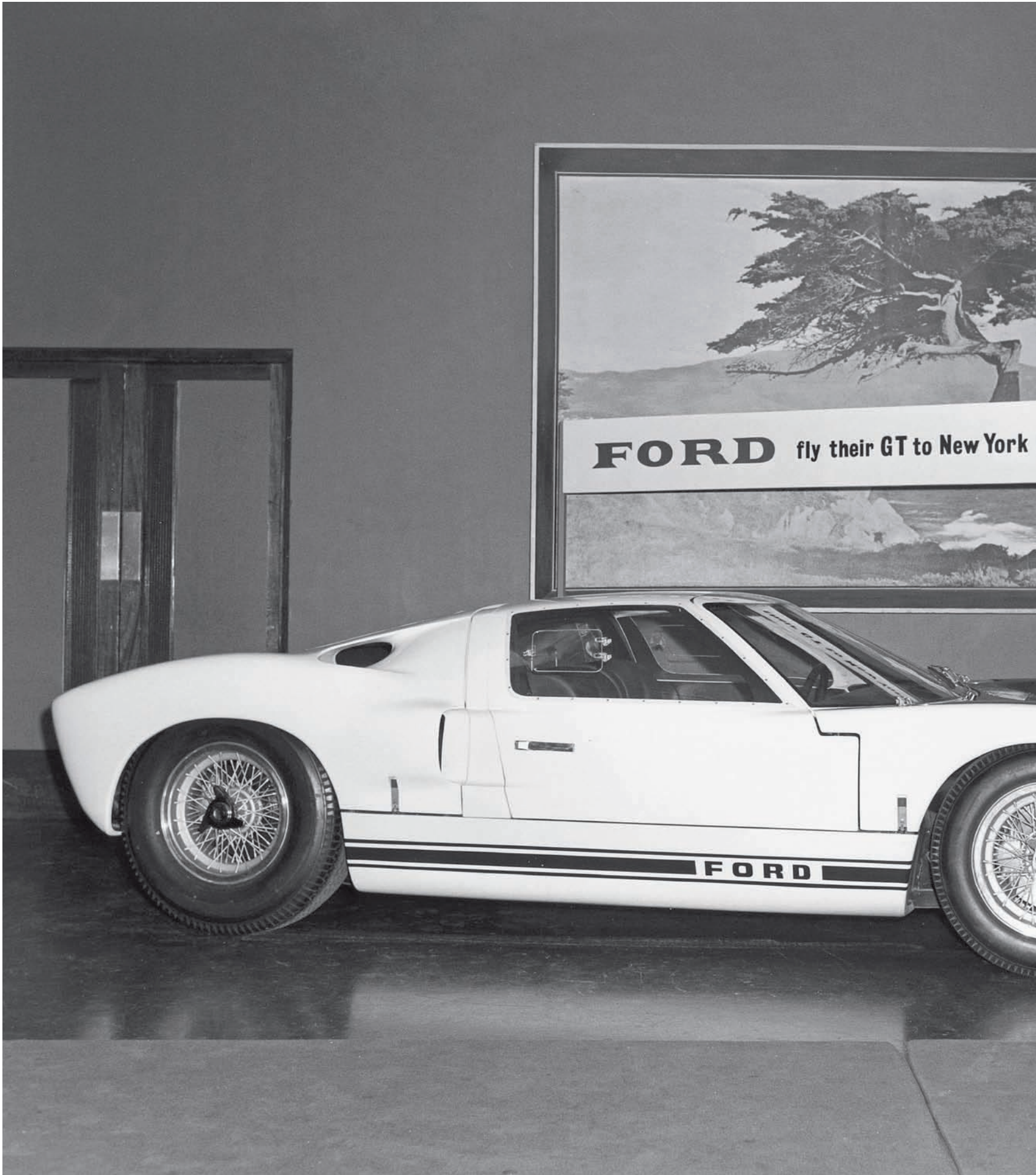
Roy Lunn, at back in white shirt, tie and sunglasses, holds court in the pits at the Nürburgring, before the Ford GT’s first race while John Wyer, in the blue shirt, with his back to the camera, listens in.

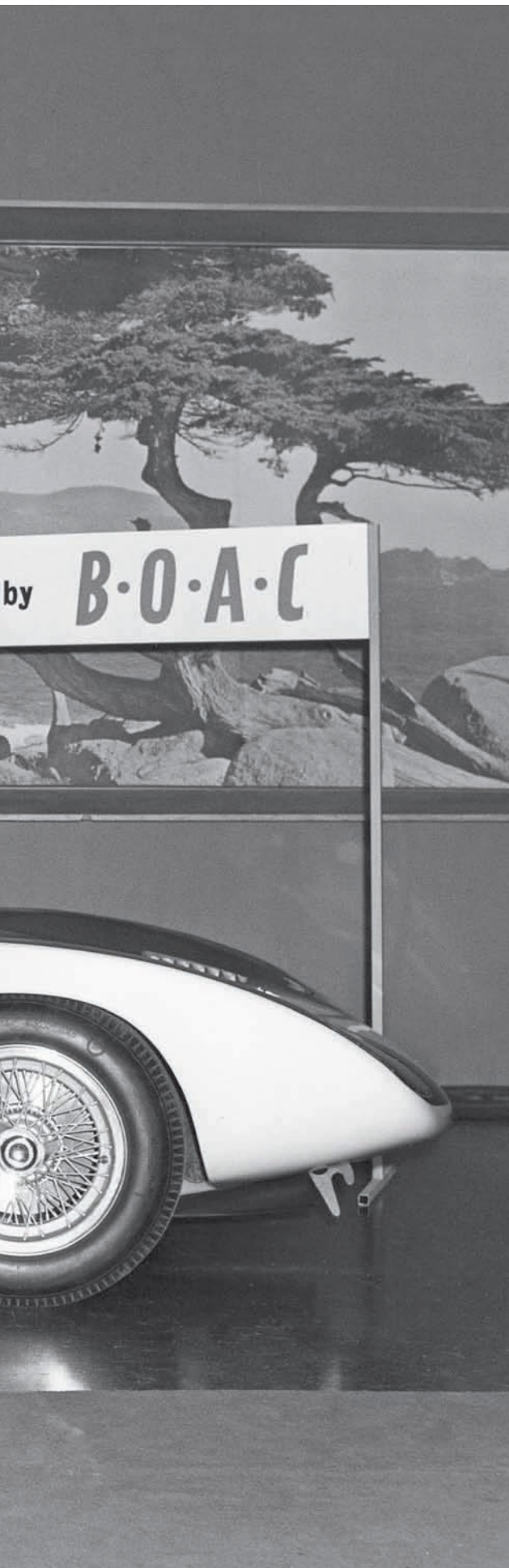




The prototype is disgorged from the cargo hold of a BOAC airliner at JFK before being spirited off to a local Ford dealership so it could be fettled before meeting the press in New York City.

Ford had plenty of options on the engine front. Although Shelby was already winning races with the 289-cubic-inch (4.7-liter) engine in his Cobras, the GT team decided to leverage the success of the recently proven Indy car engine. Like the Cobra motor, this had started as a 260-cubic-inch Fairlane engine, but the bore was reduced to displace 255 cubic inches, or 4.2 liters, to meet Indy regulations. To trim excess weight, it was built out of aluminum rather than cast iron, and the original pushrod architecture used in 1963 was replaced with a four-cam valvetrain in 1964. For the GT, which was designed for endurance racing, Ford decided that longevity was more important than power, so the engine builders reverted to the less sophisticated but theoretically more durable pushrods. Other alterations were made to accommodate the pump fuel required in road racing. Frustrating tests with Hilborn fuel-injection inspired Ford to use a four-barrel 48-millimeter Weber carburetor. Even in a detuned state, the engine made 350 horsepower at 7,000 rpm and 275 lb-ft of torque at 5,600 rpm. The engine was mated to the same four-speed Colotti Type 37 transaxle found in the Lola GT, not because it was so efficient—it would prove to be disastrously overmatched by the V-8—but because it was the only available unit. Based on simulations, engineers forecast a top speed of more than 200 mph.





When the project began, Ford had hoped to enter the prototype in the 12 Hours of Sebring—America’s premier endurance race—in March 1964. But progress was slower than expected as Lunn and Broadley fought over control of the project. In January, Lunn reported that the build was running “well behind schedule.” Plans to enter Sebring were scrapped, and the 24-hour race at Le Mans in June became the principal red-letter date on Ford’s calendar. But even this wasn’t quite as far off as it seemed. Since Le Mans posed so many unique challenges, the organizers traditionally closed the public roads that served as the race circuit for a test weekend in mid-April, and the clock was running.

The final body mockup wasn’t completed and shipped to the UK until late October. The first chassis—just the center section, with none of the subframes or components attached—was delivered on February 1. (Like all subsequent chassis, it was built by Abbey Panels in Coventry.) This didn’t leave a lot of time to finish building the car, much less test it before heading to France. Then, in mid-March, Wyer received a call from Frey, requesting that the prototype be publicly unveiled in New York City on April 3, the day before the International Auto Show began in midtown Manhattan. Wyer was horrified, but Frey told him that the order had come directly from Iacocca and it was non-negotiable. By this time, the team at Slough was working 10- to 12-hour shifts, seven days a week. As the tension mounted, the relationship between Lunn and Broadley frayed to the point that they stopped speaking to each other even though they occupied adjoining offices. An exasperated Wyer served as an intermediary.

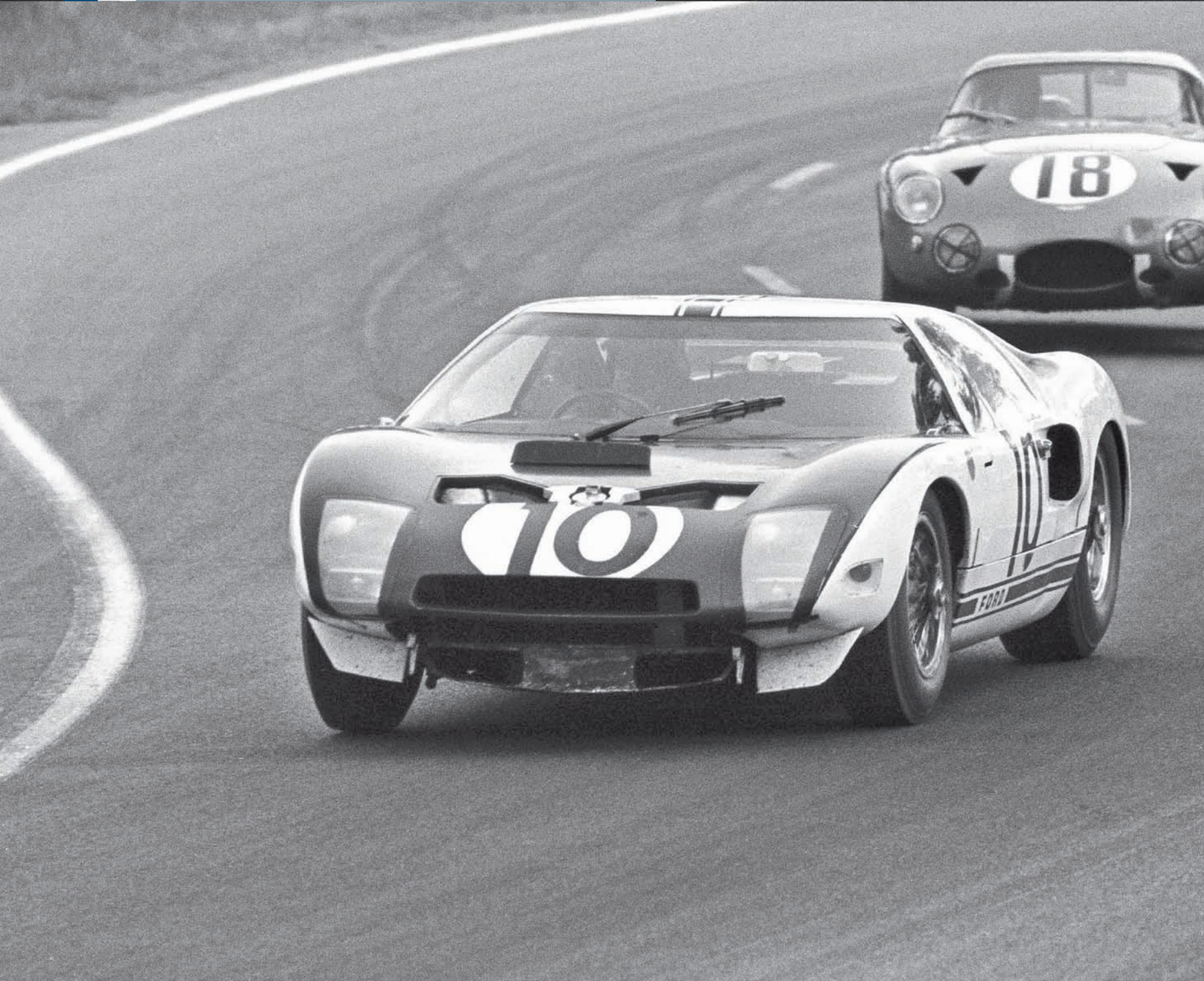
The first car wasn’t finished until April 1. The next morning, after the British press got a sneak peak, it was loaded onto a BOAC airliner at Heathrow and flown to the recently rededicated John F. Kennedy International Airport in New York. After being spiffed up at a local dealership, the prototype—bearing chassis number GT/101—was delivered to Essex House, an Art Deco high-rise hotel overlooking Central Park South. The following morning, with Lunn and Wyer fussing over it like proud parents, the car was unveiled at a press conference attended by Ford executives and business journalists.

The Ford GT—that’s how it was billed when it debuted—was impossibly low and satisfyingly sleek, with bodywork that seemed to have been shrink-wrapped around the frame. The shark-like nose and deep vents near the rear wheels gave the car an aggressive, almost predatory appearance. Like the Le Mans racers campaigned by Briggs Cunningham, it was painted in the national colors of the United States—white with blue trim. A bare, white roundel provided an accent on the dark blue hood, while blue racing stripes ran down the roof and along the rocker panels. “We wanted you to see the Ford GT first because it’s an American manufacturer’s car,” Iacocca told the press, glossing over the fact that he, too, was seeing it for the first time. “The Ford GT is more than a car. It’s a test of Ford engineering skill and ability. In going into GT racing, we feel we are accepting the toughest challenge presently available to the minds and talents of motor-car builders.”

It would have been hard for anybody at Essex House not to come away from the press conference believing that he’d just seen the future of sports car racing. But the future, of course, doesn’t always arrive on schedule.

Ford’s new wire-wheeled world-beater sits in the lobby of the Essex House, where it was formally unveiled on April 3, 1964, during a press conference before the New York Auto Show.

2



APRIL 1964 – DECEMBER 1964

BABY STEPS

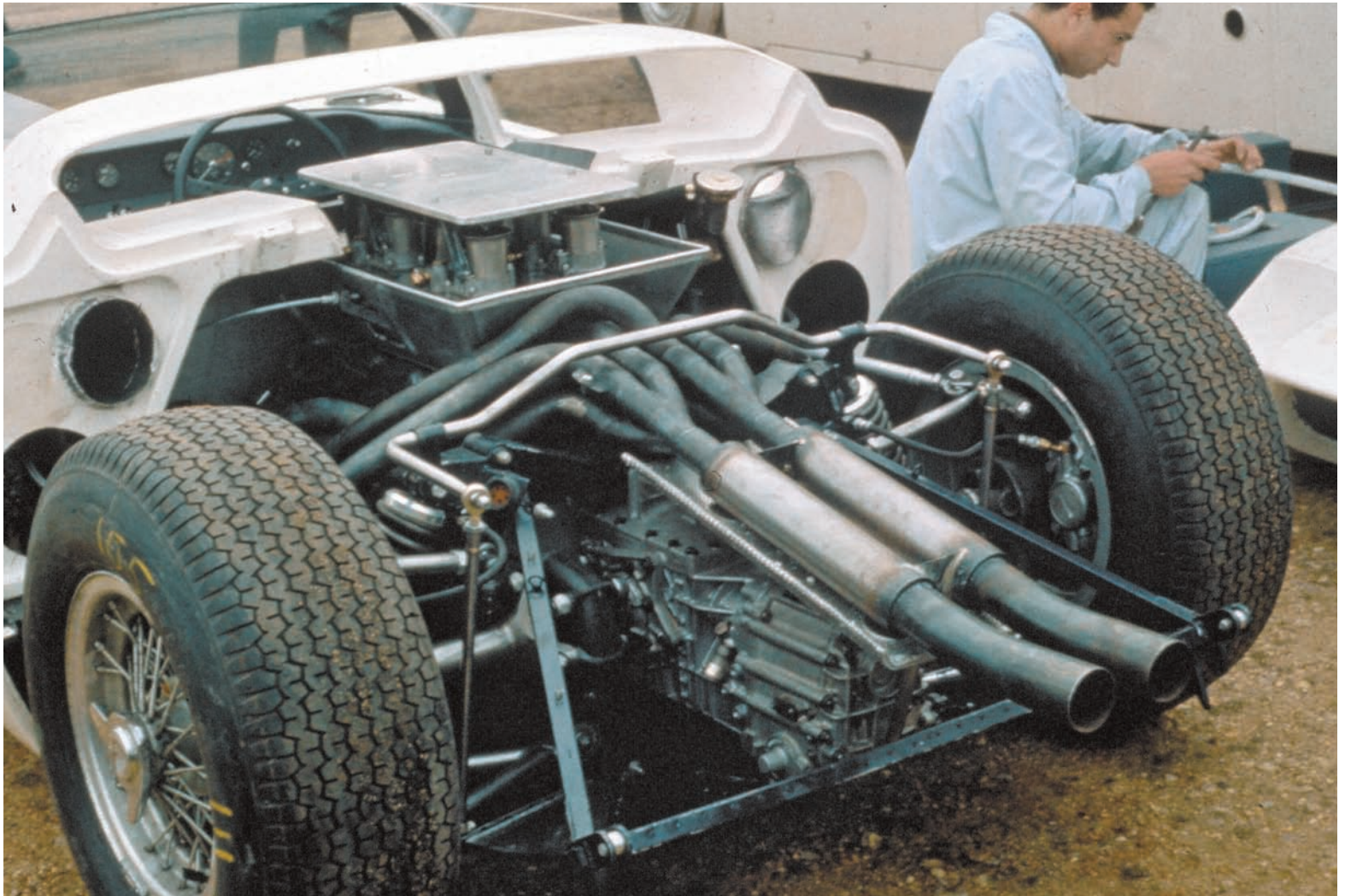


IT WAS SPRING AT LE MANS—MID-APRIL 1964—BUT IT FELT LIKE WINTER, with a frigid wind whipping across the front straight and rain sheeting down from a leaden sky. The mood was even gloomier in the Ford pits than it was out on the track. Delegations from Slough and Dearborn were on hand to witness the public racetrack debut of the Ford GT. The 24 Hours of Le Mans was contested on a circuit consisting almost entirely of tree-lined two-lane highways, which prevented race teams from conducting private tests before the race. So, each year, the Automobile Club de l'Ouest arranged to close the roads for an official test weekend, typically in April, and the major players usually showed up to gauge the performance of their new cars. With the factory Ferrari team here testing as well, Ford had a yardstick to measure the progress of the Ford GT.

There was no doubt that the new American cars *looked* fast—sleek and purposeful and far more Space Age than the retrograde Ferraris. But they were woefully unprepared for high-speed testing on the fastest and most dangerous circuit in road racing. The car that had been shown to the press by a preening Lee Iacocca in New York City two weeks earlier—chassis GT/101—had logged a few hundred unimpressive shakedown miles before being shipped to France, but GT/102 was finished so late that there hadn't even been enough time to detail it with racing stripes. Much more worrisome was the instability of the cars, which were a visible handful on the slick track. After a door blew open on the Mulsanne straight, a disgusted Roy Salvadori pitted to report that GT/102 was "handling appallingly and lifting badly on the Mulsanne straight even though we were not gunning the cars but had revs in hand and were feathering the throttle." Salvadori was a pro's pro who'd won Le Mans in 1959, sharing an Aston Martin with Carroll Shelby for John Wyer. But today, he was thoroughly spooked by the handling of the fastest car he'd ever driven. "The GT40 was well capable of over 200 on the Mulsanne straight," he wrote, "but we were frightening ourselves at around 165–170 mph!"

Bruce McLaren was racing his own car at Aintree this weekend, so for the Le Mans test, Ford France had nominated native son Jo Schlesser to drive GT/101. Schlesser was already middle-aged by racing standards, and his career had been marked by more spectacular crashes than noteworthy successes. But he'd driven creditably in a Cobra at Daytona and

Phil Hill blasts through the Esses at Le Mans in 1964 while setting a new race lap record at an average speed of 131.38 mph. The big Fords were the class of the field—while they lasted.



Sebring earlier in the year, and he'd earned a reputation for being very, very brave. Too brave, as it turned out. While Salvadori was parked in the pits complaining about his car, Schlessler slithered off the road at 150 mph at the Mulsanne kink, a gentle bend taken flat-out in a properly handling chassis. Schlessler was shaken but unhurt—in fact, he tested a Cobra a few hours later—but the car was destroyed. Assorted bits and pieces were strewn along 100 yards of nearby roadway.

The next day, the rain stopped, but the track was still damp, and Salvadori wasn't eager to get back in his car. But American drivers Phil Hill and Richie Ginther, who were slated to drive GTs in the upcoming 24 Hour race, had just arrived to see the car in action, so Wyer cajoled Salvadori into running a few cautious laps to encourage them. Salvadori completed his first lap at a conservative pace, then laid into the throttle at the start of the Mulsanne his second time around. He tiptoed through the kink, then flew—literally—over the hump just before the brake zone for the 35-mph right-hander at the end of the straight. The car landed crabwise. Correcting furiously, Salvadori managed to get it straightened out. But a wheel locked up under hard braking for the corner, and he crunched the nose against a concrete barrier. That was the end of Ford's Le Mans test. Final score for the weekend: Two days. Two cars. Twenty-six laps. Two wrecks. One write-off and one fixer-upper.

Eric Broadley believed the problem was aerodynamic, but Roy Lunn insisted there was something wrong with the rear suspension geometry. This wasn't the first time, nor would it be the last, that progress was slowed by a conflict between formally trained engineers and practical racers on the ground. In fact, internal squabbling ended up being par for the course for the duration of the Le Mans program. Later on, Dearborn skirmished with Shelby American, and

The business end of the Ford GT at the Le Mans Test weekend, April 1964. This was the car's public racetrack debut. It didn't go well.

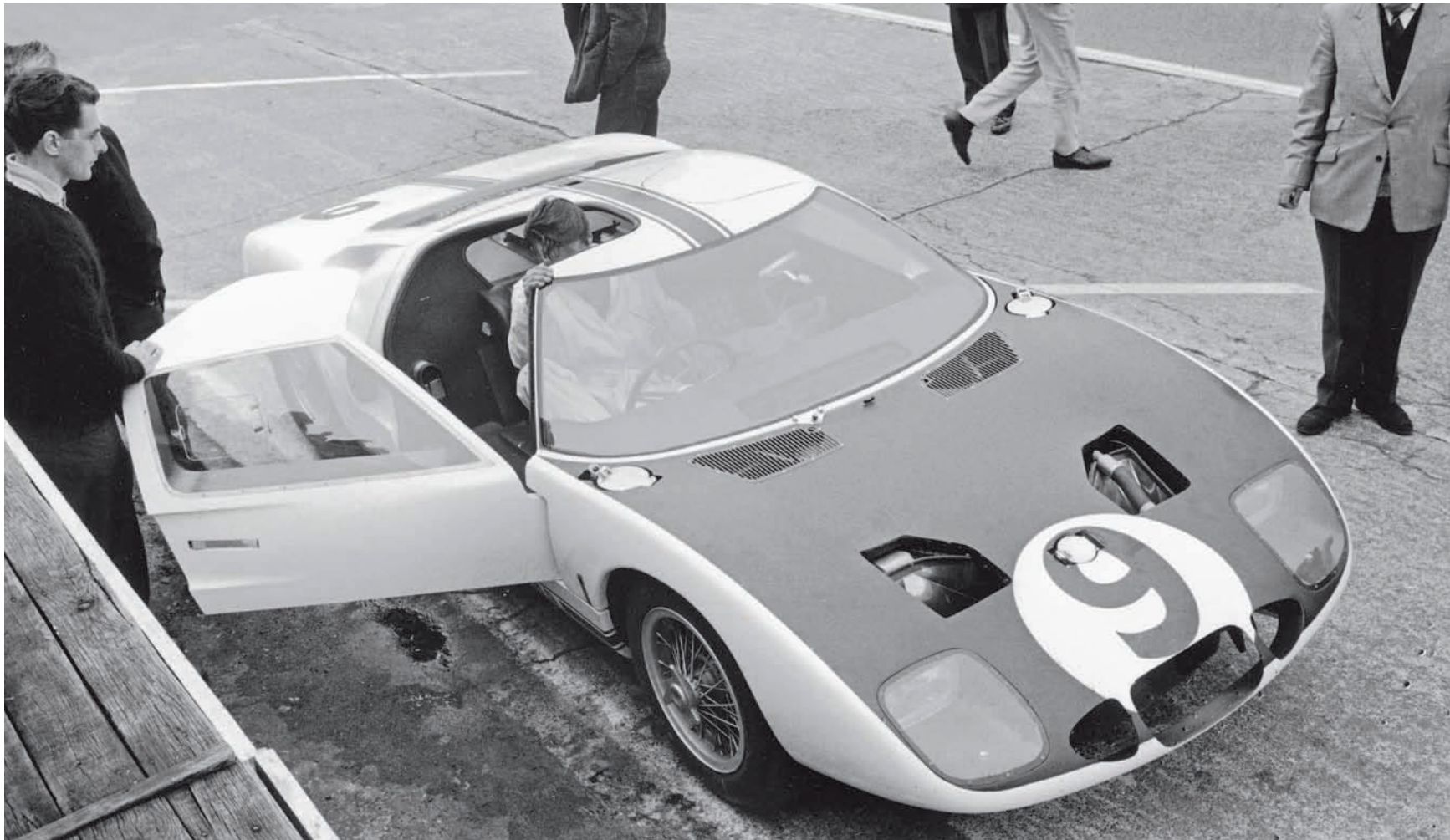
later still, Shelby American fought turf wars with Holman & Moody. But this creative tension came with benefits as well as drawbacks: it kept any one faction from taking control of the operation. In that respect, the Ford GT was developed more like a production car than a racing thoroughbred. And as much as critics complained about the many meetings and compromises, the labored bureaucratic process provided the checks and balances that prevented the program from going down any disastrous rabbit holes.

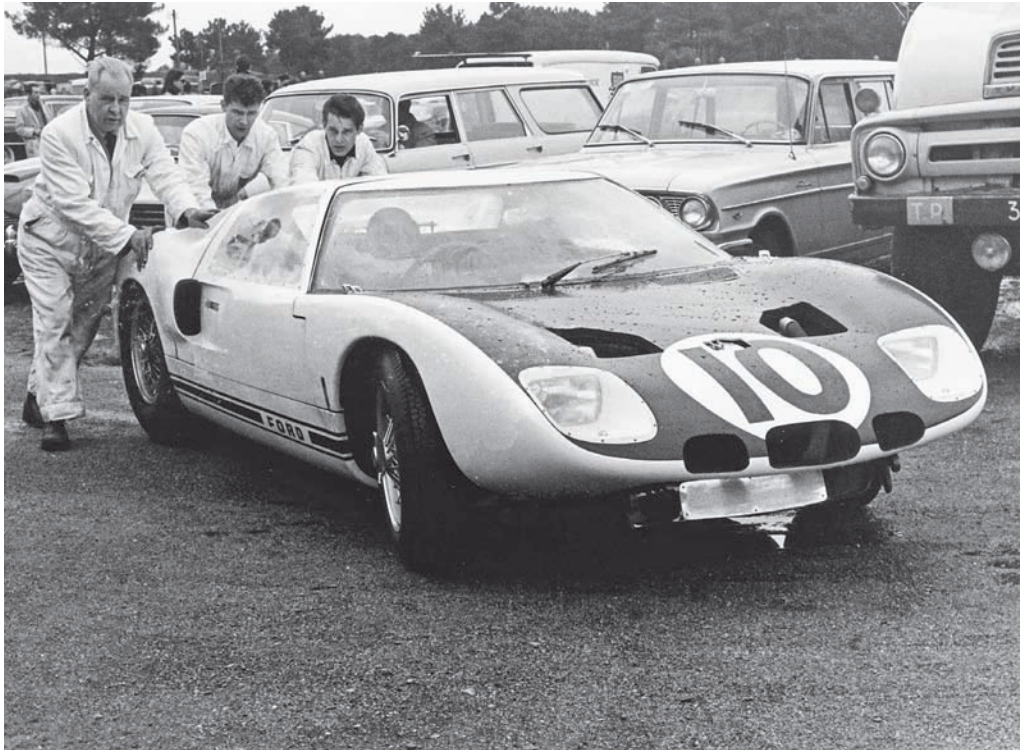
The surviving Ford was hurriedly patched together back at Slough. The next week, Salvadori and McLaren exercised the repaired car at MIRA, a high-speed test track run by the Motor Industry Research Association. At an extrapolated 200 mph, engineers discovered that the GT was developing 313 pounds of rear wheel lift, far more than early simulations had forecast. No wonder, they realized, it had been so eager to swap ends at high speed. "That's when I realized that we were plowing new ground," Lunn said. "We weren't designing a fast-moving car. We were dealing with a low-flying airplane. That was aerodynamics showing its lovely head."

The solution was obvious—reshaping the back end of the rear deck into a ducktail spoiler. Testing showed that a 3-inch spoiler generated negative lift—what's now called downforce—at the rear wheels while paradoxically reducing drag. McLaren and Salvadori could feel the effect while cornering as slowly as 70 mph. Better still, the modified car now exhibited hands-off stability at 170 mph. Additional experimentation showed that a 6-inch spoiler produced 191.6 pounds of rear downforce but at the expense of increased drag. A 4.5-inch spoiler, on the other hand, generated 131.8 pounds of negative rear lift with virtually no effect on drag. In this form, the bodywork exhibited a slippery coefficient of drag of 0.41.

After another test at MIRA and two more at Goodwood, the Ford team felt confident enough to enter the car in the ADAC 1,000 Kilometers at the Nürburgring. The good news was that

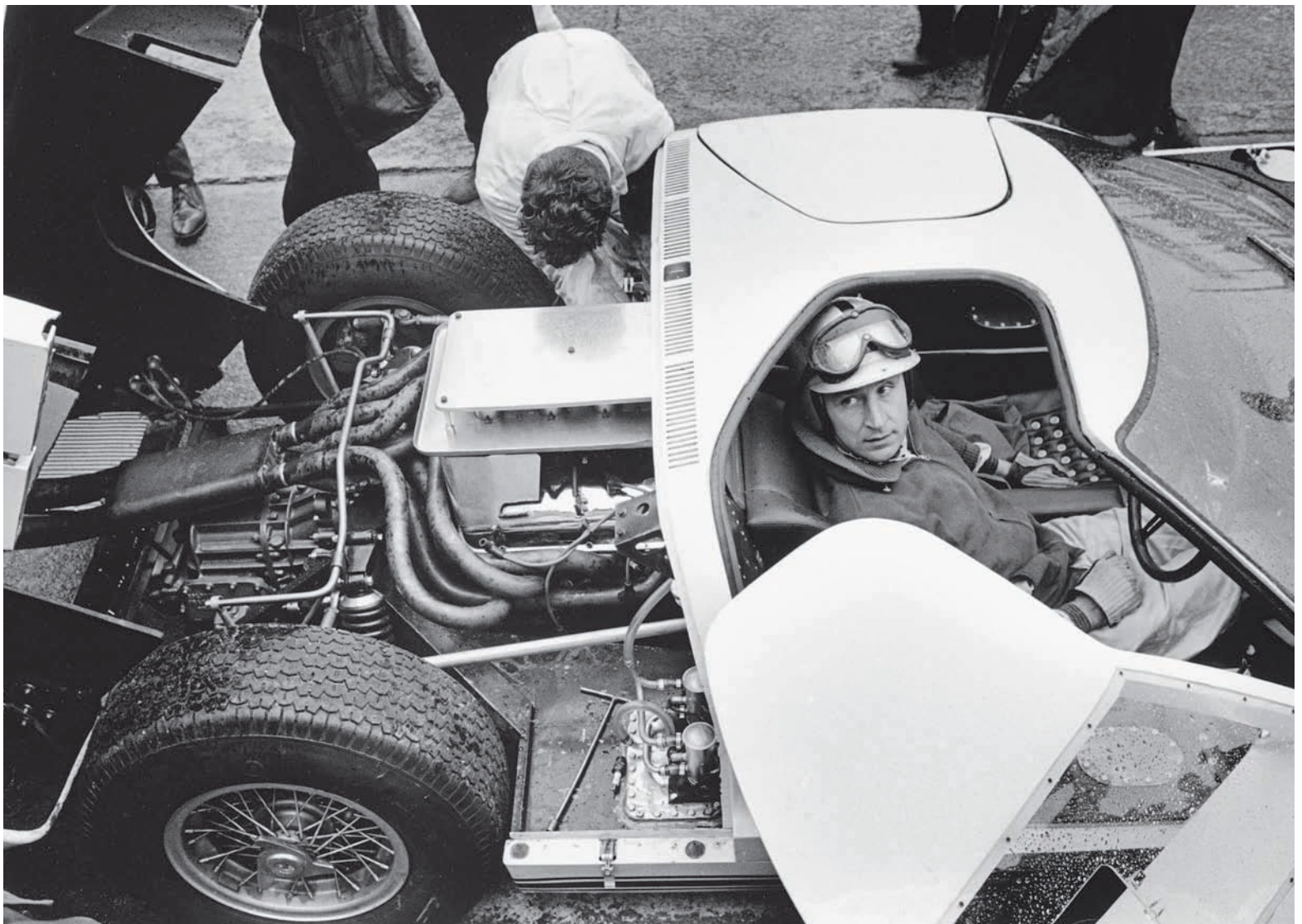
GT/101, which had been displayed at the Essex House three weeks earlier, is about to take to the track. The sleek shape that had wowed the press was about to cause huge handling problems at high speed.

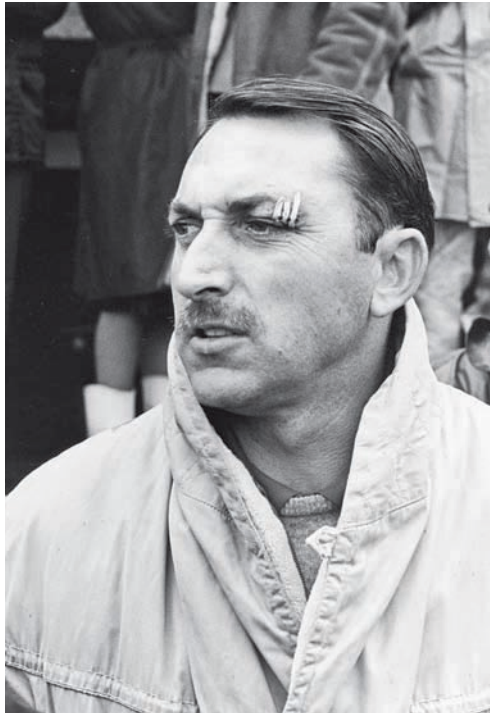




Left: GT/102 was finished so late that there hadn't been time to apply racing stripes. But a crude lip spoiler was added in a futile attempt to tame the dreadful handling.

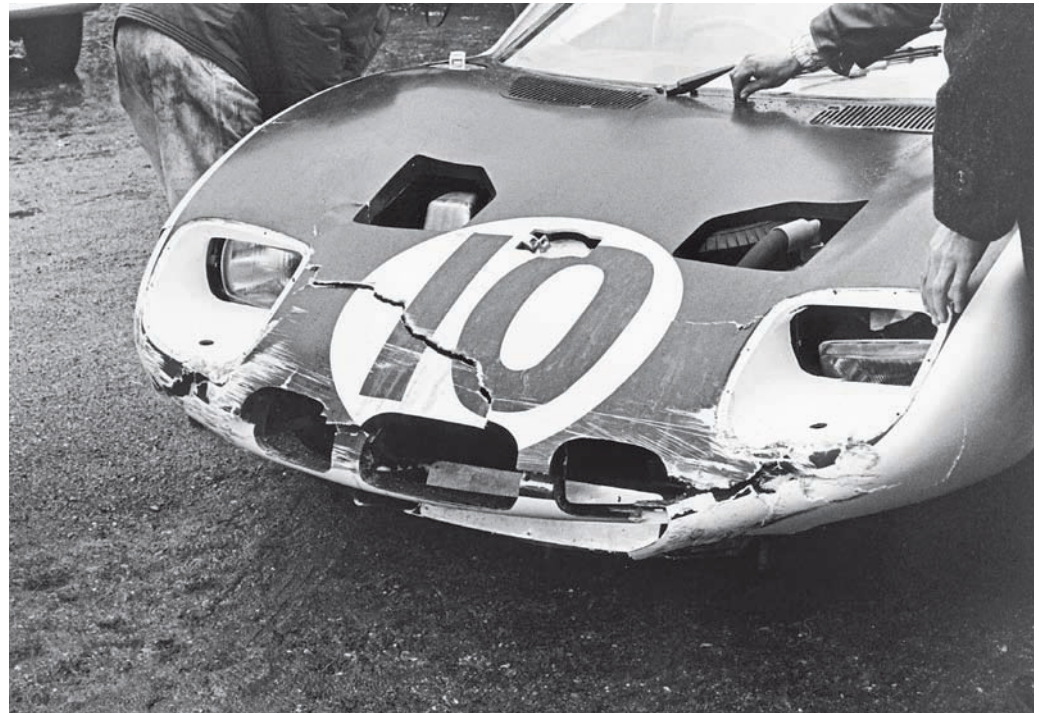
Below: Roy Salvadori does not look happy as he sits in the pits while changes are made. "I was involved with that project from the very beginning, and it got off to a very bad start. That car was extremely bad during our first tests. The body shape was completely wrong, and it was bloody dangerous, terribly dangerous in the beginning. No one would listen and nothing was happening to improve the situation. Wyer and Ford were just saying there was nothing to worry about and they would fix it, but they didn't have to drive the damn thing. Until we put spoilers on the car, it was completely uncontrollable. We proved that at the Le Mans test weekend when we wrote both of those bloody cars off. It was then that I opted out of that program to save my life." —Roy Salvadori





Above: Jo Schlesser shows off his battle scars after totaling his car when he slithered off the road at 150 mph while trying to get through the kink on the Mulsanne straight. But he was brave enough to test a Cobra a few hours later.

Top, right: Salvadori locked up his brakes and crunched the front end into a concrete barrier at the end of the Mulsanne straight. Ford ended the Le Mans test with not one but two wrecked race cars, one of them a write-off.



McLaren would share the driving duties with Hill, who was the most accomplished road racer the United States had ever produced. Driving for Ferrari, Hill had won Le Mans three times in 1958, 1961, and 1962. He was also the first American to win a Formula 1 Grand Prix, and he was the only American to have been crowned F1 World Champion. Hill was notoriously high-strung, and he was on the downward slope of a long and estimable career. But even if he was no longer a top-tier F1 driver, he was still plenty quick in a sports car, and he understood the nuances of endurance racing like few drivers before or since.

The bad news was that the team was racing at the Nürburgring, which was an infamous car breaker. The Ford GT had been designed for Le Mans, with its billiard-smooth roads, ultra-long straights, and fast, sweeping turns. The 'Ring featured several high-speed sections. But the serpentine 14.17-mile-long circuit, completed in 1927 as a German public works project, also incorporated 174 turns of every imaginable variety. Some stretches were torturously bumpy and, at several points on the track, cars were launched into the air at triple-digit speeds. If a car had a flaw, any flaw, the Nürburgring would expose it. Fittingly, the racetrack would bare its fangs during practice when two drivers in much less powerful cars were killed in separate accidents.

The other obstacle facing Ford was the quality of the competition. International sports car racing was built around a class structure, with entries categorized mostly by the size of their engines. Some classes required that a minimum number of cars had to have been built before a model could be homologated and allowed to race. But at the top of the totem pole was the prototype category, which featured no limits on engine size or production numbers. Basically, anything went as long as the minimum weight was exceeded. Prototypes were the fastest and sexiest cars in sports car racing, the ones that competed for overall victories, and Ferrari was the 800-pound gorilla in the prototype class. This year, it looked stronger than ever.

The entries at the Nürburgring included three 275 Ps, which were upgraded versions of the 250 Ps that had dominated in 1963. Like all Ferraris, the 275 Ps were defined primarily by their jewel-like engines—3.3-liter single-overhead-cam V-12s with dry-sump lubrication and a gleaming array of six Weber carburetors. They were rated at 320 horsepower at 7,200 shrieking rpm. This was 30 horses less than the relatively clunky and significantly larger Ford V-8, but the 275 P was more than 150 pounds lighter than the GT, so the cars were roughly equal in the power-to-weight department. (Surprisingly, the Ferrari boasted significantly more torque than



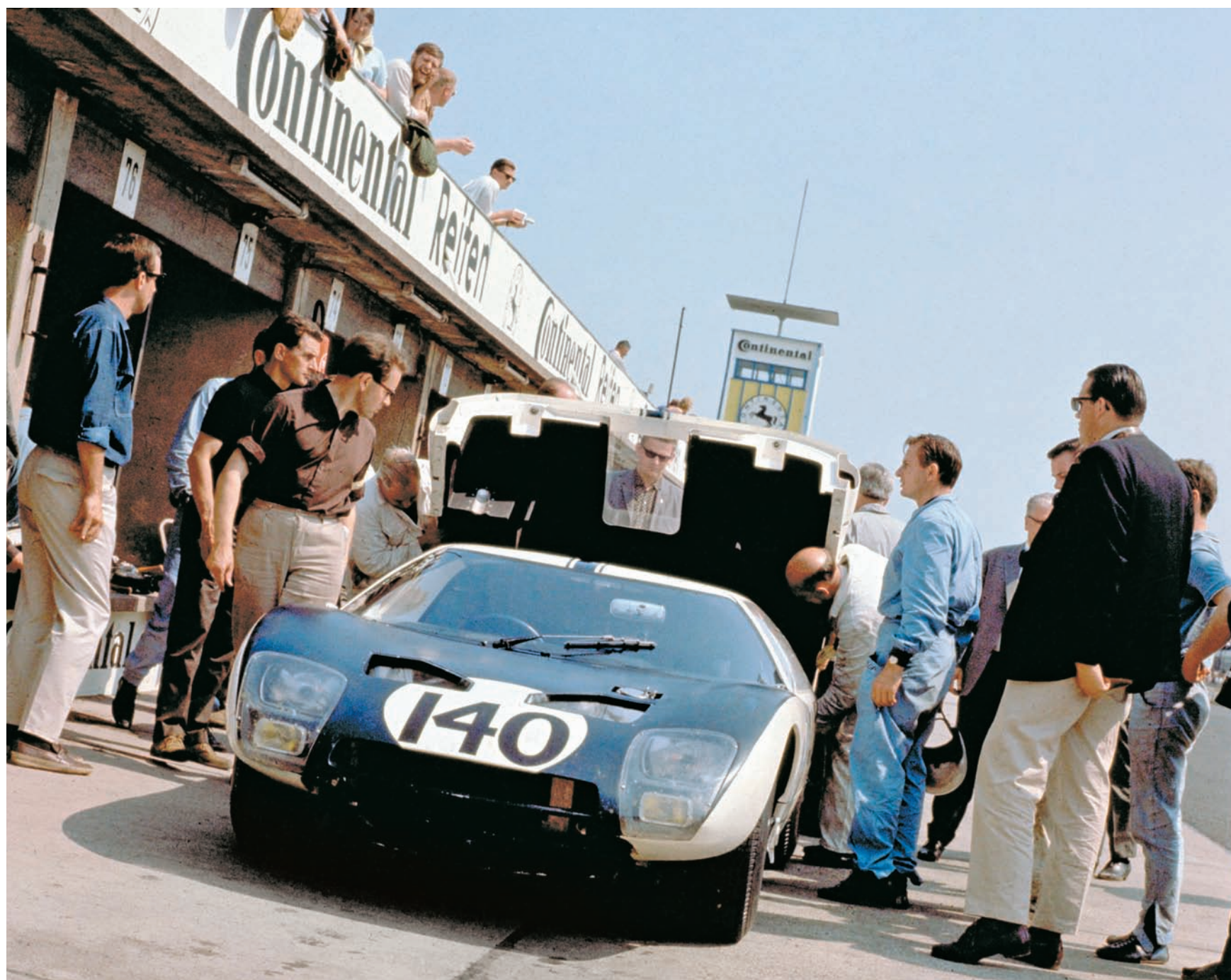
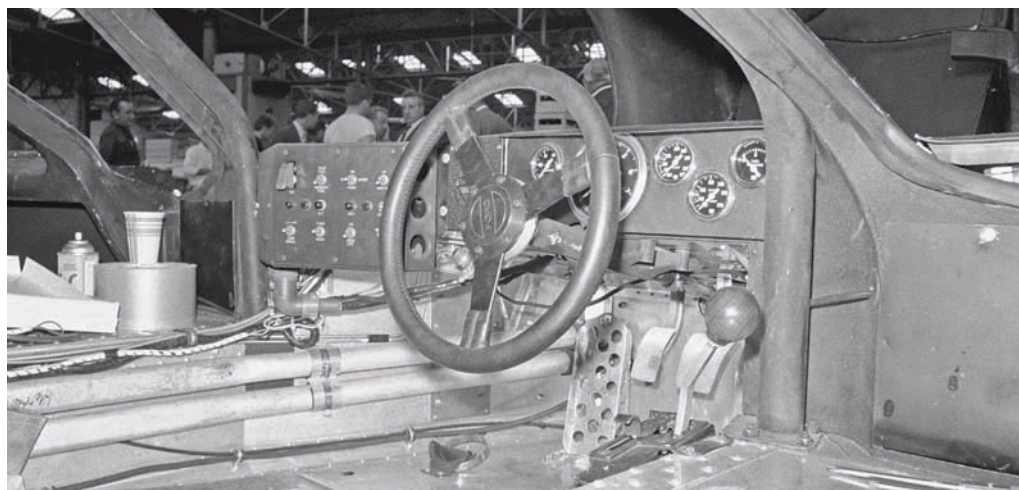
the Ford.) Because of its open bodywork and relatively unsophisticated aerodynamics, the 275 P couldn't match the terminal velocity of the GT. But it was nimbler, accelerated faster with its five-speed gearbox, and was equipped with much better brakes. Advantage, Maranello.

The Ferraris also benefitted from a stellar driver lineup. Sharing the first of two factory entries were British ace John Surtees and Italian Lorenzo Bandini. Surtees had earned the nicknames "Fearless John" and "Il Grande John" while winning seven motorcycle world championships for MV Agusta. Two years earlier, in his second season of full-time automobile racing, he'd finished fourth in the F1 championship in a Lola designed and built by Eric Broadley. By the time the 1964 season was over, Surtees would become the first—and last—man to win world championships on two and four wheels. Bandini wasn't in his class, but he was a front-line Grand Prix driver alongside Surtees on the Ferrari F1 team. Italians Ludovico Scarfiotti, who'd co-driven the Le Mans—winning Ferrari with Bandini the previous year, and sports car specialist Nino Vaccarella were in a second factory prototype. There were also two more F1 drivers—1962 World Champion Graham Hill and 1961 US Grand Prix winner Innes Ireland—in a third 275 P, which wasn't officially entered by Ferrari but was a works car in all but name.

In May 1964, Ford entered GT/102 in the ADAC 1,000 Kilometers at the Nürburgring. The drivers were Phil Hill, seen in the background, and Bruce McLaren, foreground.

Right: GT/102 was repaired at Slough after Salvadori's wreck. Although it was only the second car built, the cockpit already looks more businesslike than the one in GT/101.

Below: Bruce McLaren (right, in the blue driver's suit) waits for the order to climb into the cockpit. Eric Broadley (left, in the brown shirt) is a very interested observer.



Americans at Le Mans

LIKE MANY EARLY AUTOMOBILE RACES, THE 24 HEURES DU Mans was created as a venue to showcase not merely the speed but also the durability—and, in this case, the headlights—of passenger cars. The inaugural event was organized in 1923 by the Automobile Club de l'Ouest, or ACO, which was known even then for its idiosyncratic rules and autocratic leadership. The ACO had already been responsible for arranging the first French Grand Prix around Le Mans, a small city in central France. For the endurance race, the ACO laid out a roughly triangular circuit comprised of public roads. Nearly a century later, the race still follows the same general layout, still starts in the mid-afternoon on a Saturday in June, and still poses an unparalleled test of driver endurance and automotive fortitude.

Although the first race was almost exclusively a French affair, Le Mans quickly attracted international automakers looking to polish their image by excelling in international competition. Bentley established its reputation by winning five times between 1924 and 1930, while Jaguar matched this feat during the 1950s. Ferrari won six consecutive races from 1960 to 1965, Porsche amassed 16 victories between 1970 and 1998, and Audi has dominated since 2000. Nowadays, this Le Mans heritage is essential to each marque's DNA.

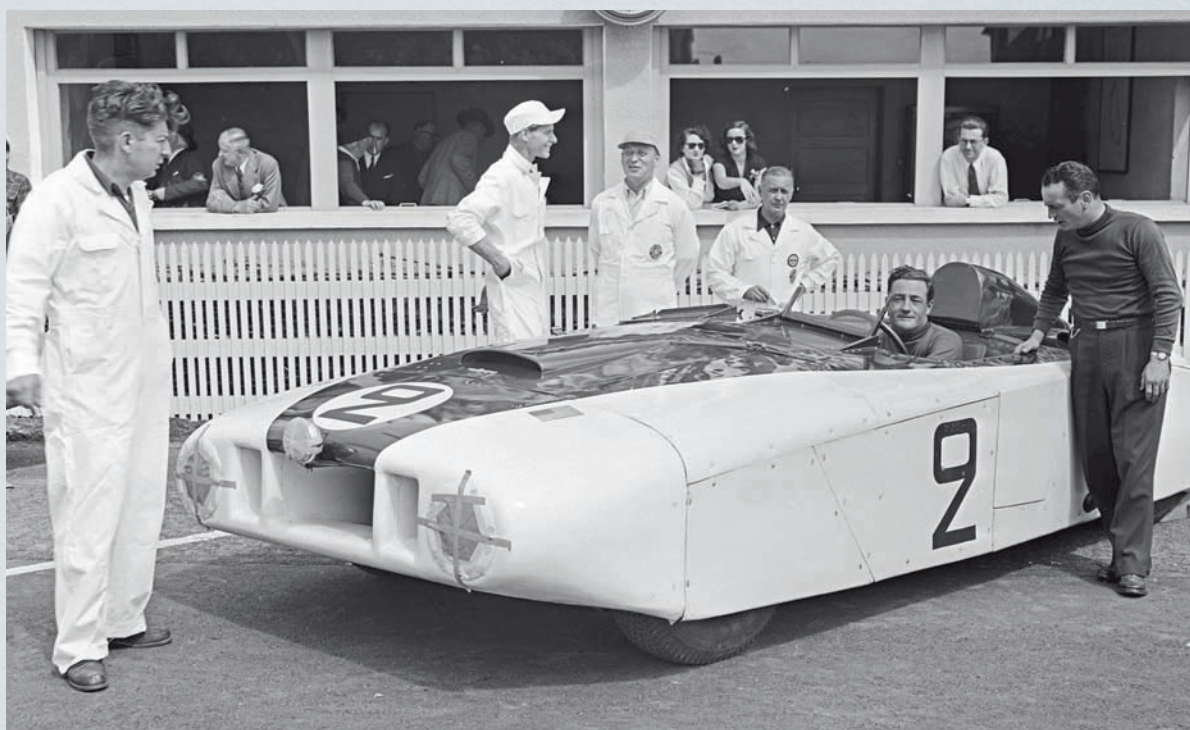
American manufacturers were latecomers to Le Mans. A handful of American cars were raced by French drivers, starting with a Chrysler in 1925 and a Willys-Overland in 1926, but the best the Yanks could manage during the prewar years was finishing third and fourth in 1928 (Chrysler) and fifth in 1929 (Stutz). The first Ford to race at Le Mans was a British-built, 10-horsepower roadster that finished 692 miles behind the race-winning Bugatti in 1937. But things changed after World War II thanks to sportsman extraordinaire Briggs Cunningham.

In 1950, Cunningham delighted spectators by showing up with a pair of hulking Cadillacs, one a largely stock Series 61 coupe and the other fitted with crude aerodynamic bodywork that caused the French to dub it "Le Monstre." During the next five years, he returned with a series of scratch-built Cunningham sports cars powered by Chrysler Hemis and Indy-bred Offenhausers. Although his cars never finished better than third at Le Mans, a C-4R won the 12 Hours of Sebring in 1953—the first victory by an American car in a major international road race since Jimmy Murphy won the French Grand Prix in a Duesenberg in 1921. (That race was held at Le Mans, coincidentally, though not on the 24-hour circuit.)

After Cunningham's retirement and the short-lived Ford and Chaparral programs of the 1960s, the only American manufacturer to tackle the prototype class has been Don Panoz, who used Ford V-8s in a loud but quixotic attempt to win Le Mans during the 1990s. But Chrysler and General Motors have returned to Le Mans in recent years to compete in production-based GT classes, where Dodge scored three class wins with the Viper and Chevrolet notched eight more with the Corvette.

American drivers have also enjoyed plenty of success at the Circuit de la Sarthe. No fewer than 13 have claimed victory at Le Mans. The first, in 1949, was Luigi Chinetti, a naturalized American citizen better known as the US Ferrari importer and founder of the North American Racing Team, which fielded several of the Ferrari prototypes that raced against the Ford GT. Phil Hill, who gave the Ford GT its racing debut in 1964, was one of three three-time winners. (Hurley Haywood and Al Holbert are the others.) But Dan Gurney and A. J. Foyt are the only Americans to have won Le Mans in an American car—a Ford GT Mark IV in 1967.

American sportsman extraordinaire Briggs Cunningham entered two Cadillac Series 61s at Le Mans in 1950. Here, he sits in the rebodied chassis dubbed *Le Monstre* by delighted French fans. —Smith Hempstone Oliver Archive/Courtesy of The Revs Institute for Automotive Research, Inc.





During a wet practice tire change, Eric Broadley and John Wyer can be seen at the front of the car. The Parkes/Guichet (83) Ferrari GTO is pitted behind them.

Practice opened badly for the Ford. Although the spoiler helped plant the rear end, Phil Hill and McLaren experienced front-end lift, which was an especially scary phenomenon around the 'Ring, with its grab bag of jumps, blind corners, and daunting sweepers. Further slowed by incorrect gear ratios, they ended the first day nearly a minute behind Surtees. But the Ford showed its potential on Saturday, when Hill got down to a 9:04.7—nearly seven seconds slower than Surtees but well under the existing lap record and faster than all of the other Ferraris. Oh, and the Ford sounded even better than it looked. “The exhaust note is all lean meat,” Henry Manney, *Road & Track’s* idiosyncratic columnist, wrote in his race report, “and if the ad boys could get it onto paper they would sell Fords like Jack-the-Bear.”

Phil Hill was uncharacteristically sunny going into the race. “From the start I liked the GT40,” he wrote later. “I think of the hardships we put up with at Le Mans in the old, open race cars, particularly at the 1958 race when it seemed like it might never stop raining. And by 1964 we were encapsulated in this delightfully dry GT car with windshield wipers and a demisting system that worked. The instrument panel was logically laid out and the seats quite comfortable, which makes a tremendous difference in a long-distance race. And all this in a mid-engine GT car with reliable, predictable handling.”

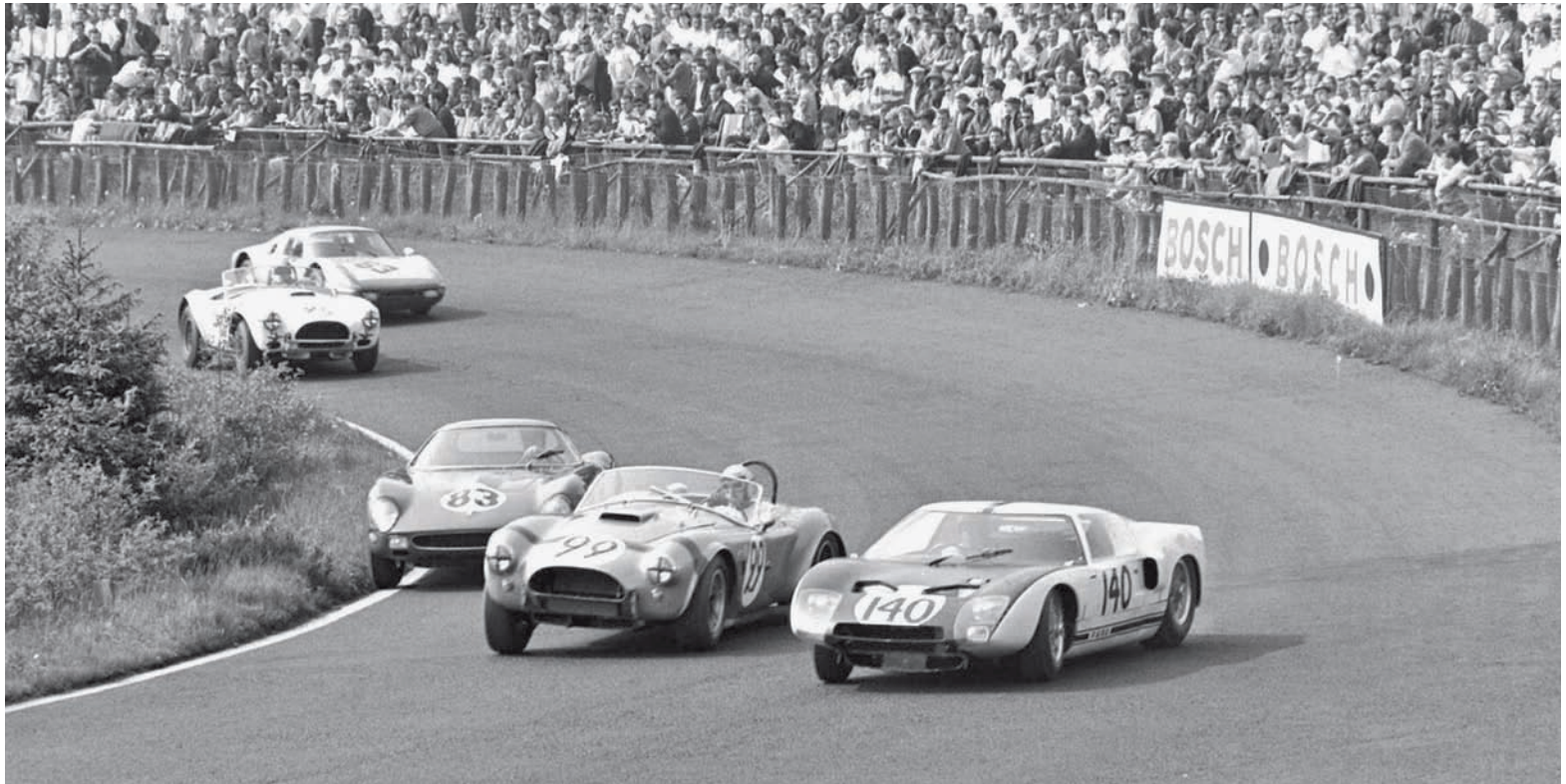
But Surtees was blissfully unconcerned about the Ford. “I didn’t expect it to offer much in the way of a threat on race day,” he wrote. Sure enough, he sped into the lead after the Le Mans-style start. Phil Hill was delayed climbing into his coupe and fastening his seat belts. But when



Above: Hill and McLaren compare impressions in the paddock while Lunn takes notes on the hood and Wyer gazes into the engine bay.



Left: Phil Hill was the most successful road racer in American history, but he'd won his Formula 1 World Championship and earned three victories at Le Mans driving for Ferrari. Starting in 1964, he became the handsome face—and designated ace—of the Ford GT program.



Hill was delayed at the start. But he stormed through the field—passing Schlesser's Cobra—while chasing the leaders, and he made it up to second before being slowed by gearbox problems.

he finally took off, he nearly took a race official with him during a vicious powerslide out of the pits, and he finished the first lap in an encouraging second place, 21 seconds behind Surtees. He stayed there until the gearbox started acting up. This was a common occurrence. The Colotti Type 37 had been developed for the Indianapolis 500, where drivers rarely changed gears, rather than road racing, where they shifted gears constantly. As a result, from the beginning, the transaxle was the Ford GT's most formidable weakness.

Phil Hill was fourth behind a trio of 275 Ps when he pitted a quarter of the way through the race. As soon as McLaren settled into the cockpit, he found the transmission jumping out of gear. After four laps, he trundled slowly back to the pits like a wounded soldier limping home at the end of a lost war. Broadley dove under the car and saw that a radius rod had ripped away from the chassis. Game over. A postmortem revealed that a bad weld had caused a suspension bracket to fail. Subsequent analysis showed that other welds also needed reinforcement. And even if the suspension had survived the pounding around the Nürburgring, the gearbox surely would have failed before the race was over.

Still, the Ford team was upbeat despite the DNF. After all, teething problems were to be expected. But in its first outing, on a circuit that highlighted its flaws, the GT had demonstrated the pace to compete with Ferrari. In theory, at least, the only thing standing between Ford and a checkered flag was reliability. With only three weeks before Le Mans, GT/102 was shipped back to Slough and repaired again. Meanwhile, two new cars were finished and debugged at MIRA. GT/103 was identical to the first two cars, but GT/104 featured 24-gauge sheet metal rather than the customary 22-gauge in an effort to trim weight from the chassis.

American car magazines weren't sure what to make of the Ford GT. The ones that promoted agile imports from Europe tended to damn it with faint praise, suggesting that it was little more than a Lola derivative carrying the brand of the country's most boring car company. According to a waspish report in *Road & Track*, "Apart from the engine and one or two very minor items, it would appear to have been built in England by Englishmen and designed in America by Americans led by an Englishman." But the Brits were stoked by the promise of the Anglo-American project, though they naturally accentuated the Anglo portion of the collaboration. The French,



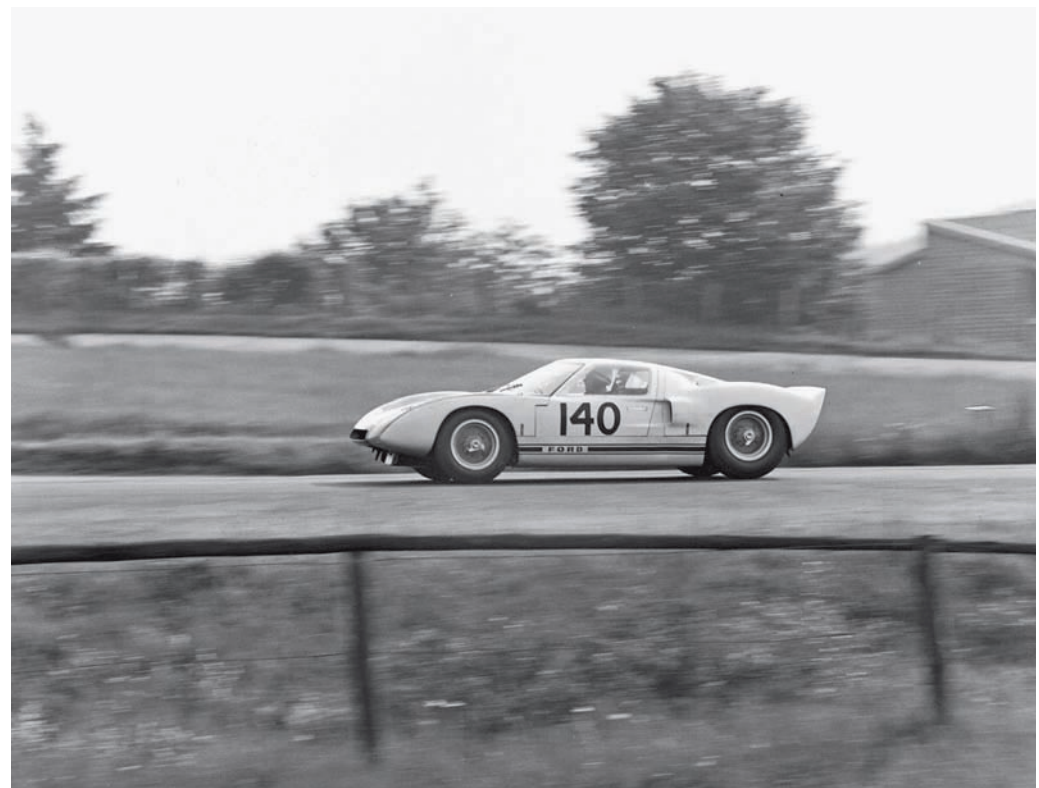


bored by years of Ferrari domination, were equally eager to see a rebel topple the existing order. “For many weeks it had been impossible to buy a place in any of the permanent tribunes—even at £7 a shot!” Gregor Grant reported breathlessly in *Autosport*.

The Circuit de la Sarthe in Le Mans was the most famous racetrack in Europe. It was also the most dangerous. The pit straight had been widened after the gruesome tragedy of 1955, when a car flew into the crowd and killed more than 80 spectators. Other than that, the course hadn’t changed since 1932. It was defined primarily by the 3.5-mile-long blast along Route Nationale 158, popularly known as the Mulsanne straight, which was the longest wide-open-throttle stretch in circuit racing. But each corner had a name that resonated with diehard race fans: the banked left-hander called Indianapolis; the slow right-hander at Arnage; Maison Blanche, or White House, where the cars came into the view of spectators sitting along the front straight; the fast sweeper under the Dunlop Bridge, just past the pits; the twisting Esses; the slow, tricky right-hander at Tertre Rouge, where overeager drivers inevitably overcooked it and spent hours digging their beached cars out of the sand. The fast cars averaged more than 130 mph around the circuit. But speed was only part of the equation. Enduring for 24 hours was the challenge.

With a three-car team and a phalanx of executives from Dearborn, the Ford operation overflowed Wyer’s preferred digs at the Hotel de Paris in La Chartre-sur-le-Loir, about 30 miles from Le Mans. Since the Nürburgring, the cars had undergone a variety of detail changes, most notably to the ducting that routed air to the cockpit and a chin spoiler under the grille. Ford’s program of ongoing upgrades, though commonplace in modern motorsports, was unusual during the 1960s. Back then, cars pretty much sat in garages between races, and modifications, if any, were made on the fly during race weekends. But Ford was committed to a feedback loop that relied on

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Above: Phil Hill on the gas on the kind of circuit they don’t make anymore.

Left: Shortly after Hill pitted to turn over to McLaren, a radius rod pulled out of the chassis. Later analysis showed that a poor weld had caused a bracket to fail.

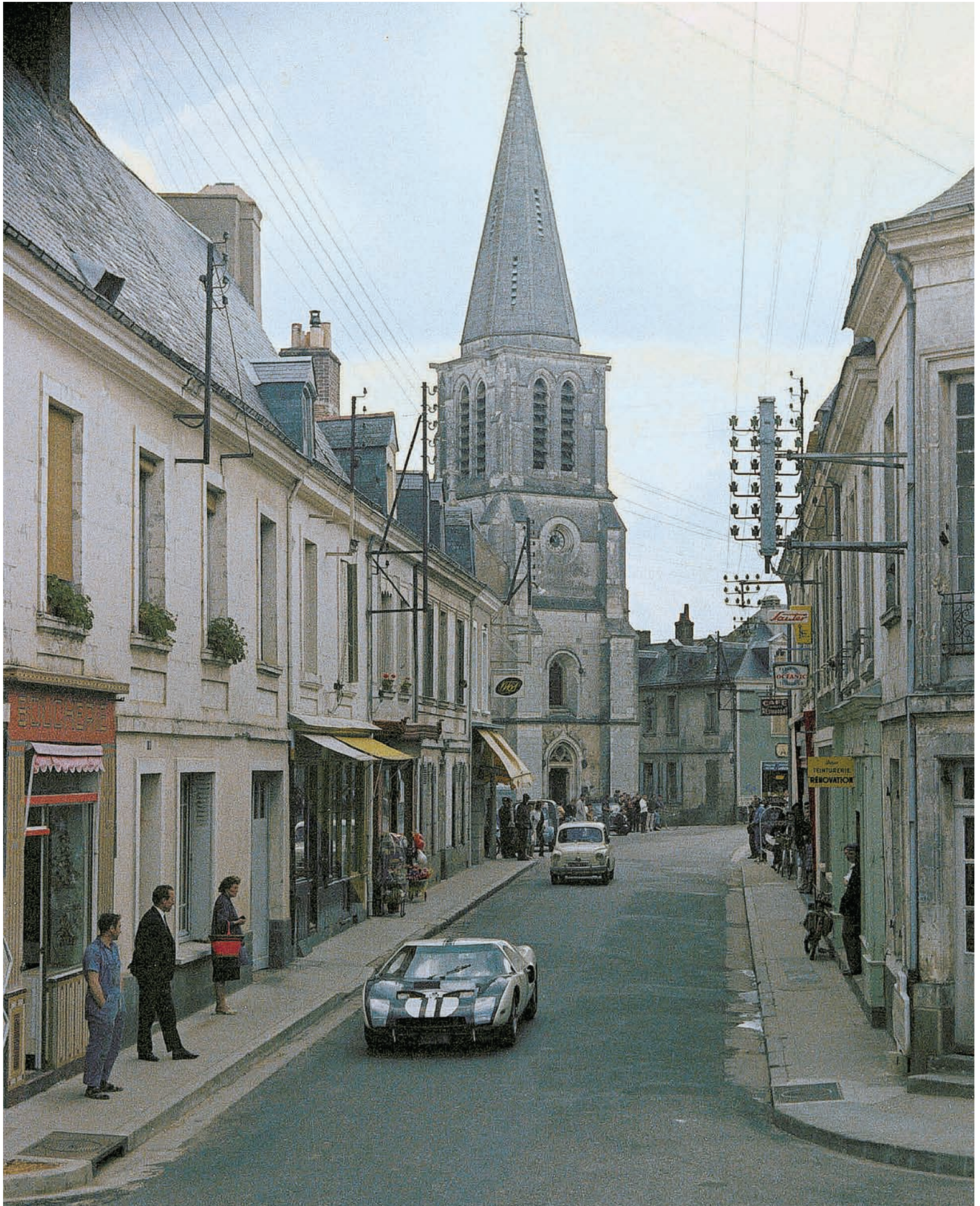


Above: Wyer preferred to stay at the Hotel de Paris, about 30 miles from Le Mans, and the cars stayed with him.



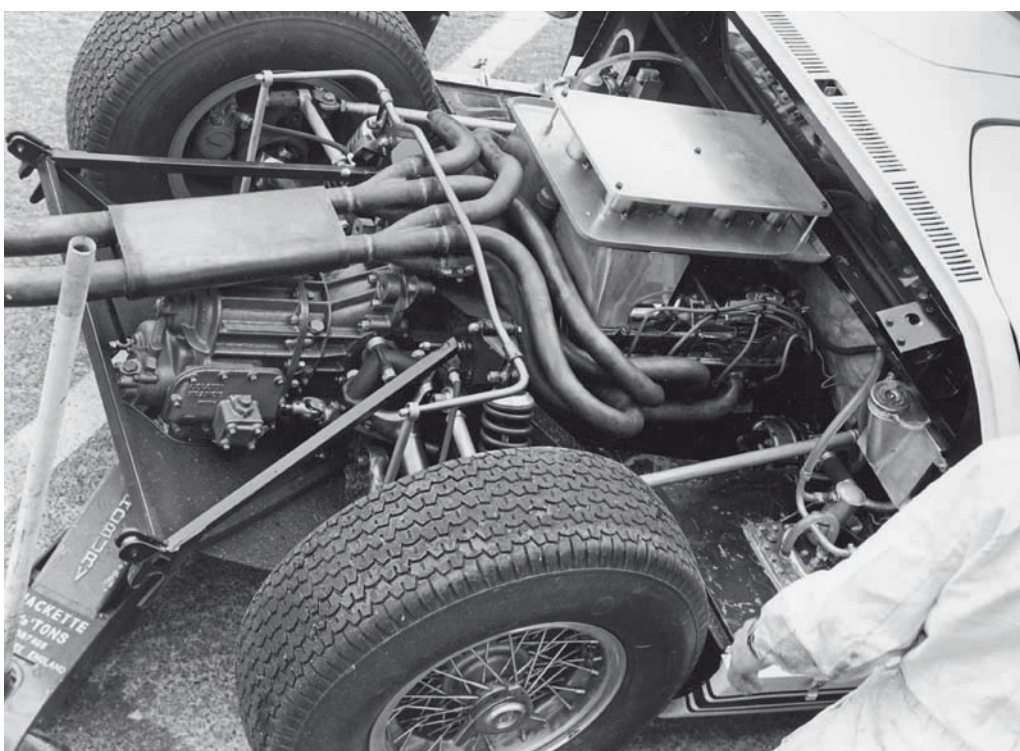
Left: Scrutineering at Le Mans is always a long, drawn-out affair. The Hill/McLaren Ford GT, last seen at the Nürburgring, is on the lift as ACO officials crowd underneath for a look.

Opposite: Race cars navigate the streets of Le Mans en route to the track. This is racing as it was, not as it is today.





Above: At Le Mans, Ford planned to run three cars for the first time—the two cars tested there in April and a new one completed just in time for the race. Mike Teske Archives/Ford Motor Company



Left: The engine bay of the Ford GT is exposed in the pit lane during practice. Various minor changes to the car were made during this time.

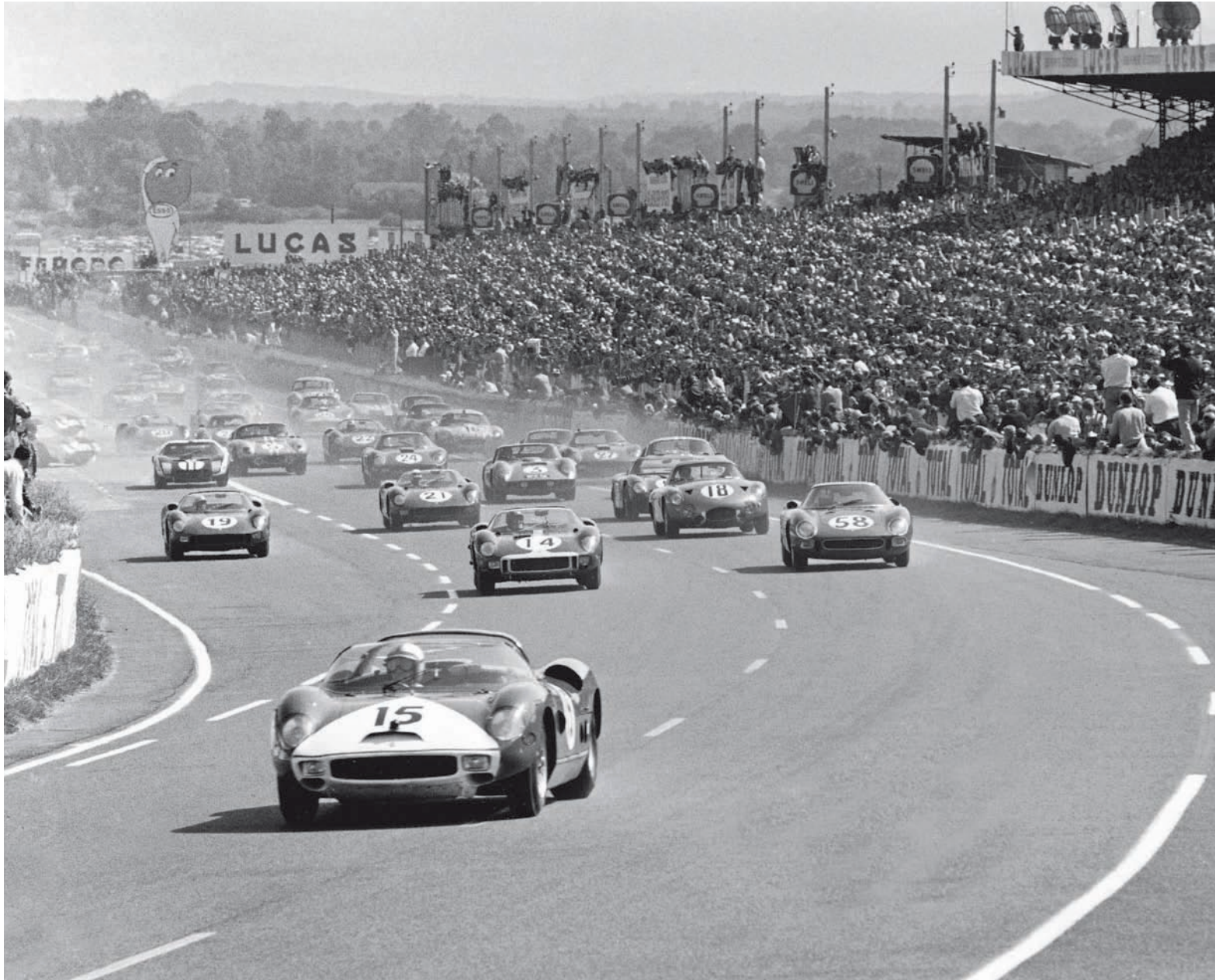
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constant testing, and rarely did a GT appear in identical form in consecutive races. At Le Mans, certainly, the Fords looked unlike anything else in the 55-car field.

Ferrari recognized the threat and reacted accordingly. Three 330 Ps, with enlarged 4.0-liter engines rated at 370 horsepower, 20 more than the Fords, were entered along with three factory 275 Ps and a pair of privateer 250 LMs. Surtees wrung out his V-12 during night practice and shattered the lap record by nine seconds. The Ford team made no serious effort to claim the pole. The crew-cut Ginther—like his friend Phil Hill, a Southern Californian and former Ferrari F1 driver on the downside of a long and proud career—qualified second, 3.3 seconds behind Surtees but said he could have gone five seconds quicker. Hill was gridded fourth, a tick behind Ginther. Young Brit Richard Attwood, drafted after Salvadori backed out of the Ford program in the interest of self-preservation, started ninth in a car he was sharing with Schlesser.

The weather was cool but blessedly dry when a German prince, Paul Metternich, dropped the French Tricolor at the traditional starting time of 4:00 p.m. Saturday. As expected, the trio of 330 Ps went straight to the front, leading the field under the Dunlop Bridge and through the right-hander at Tertre Rouge like the world's loudest scarlet-red train. But as the Ferraris screamed

Pedro Rodriguez bursts into the lead in his Ferrari 275 P at the start of the 24 Hours of Le Mans in 1964. Five minutes from now, Richie Ginther, on the far left in No. 11, will be in the lead.





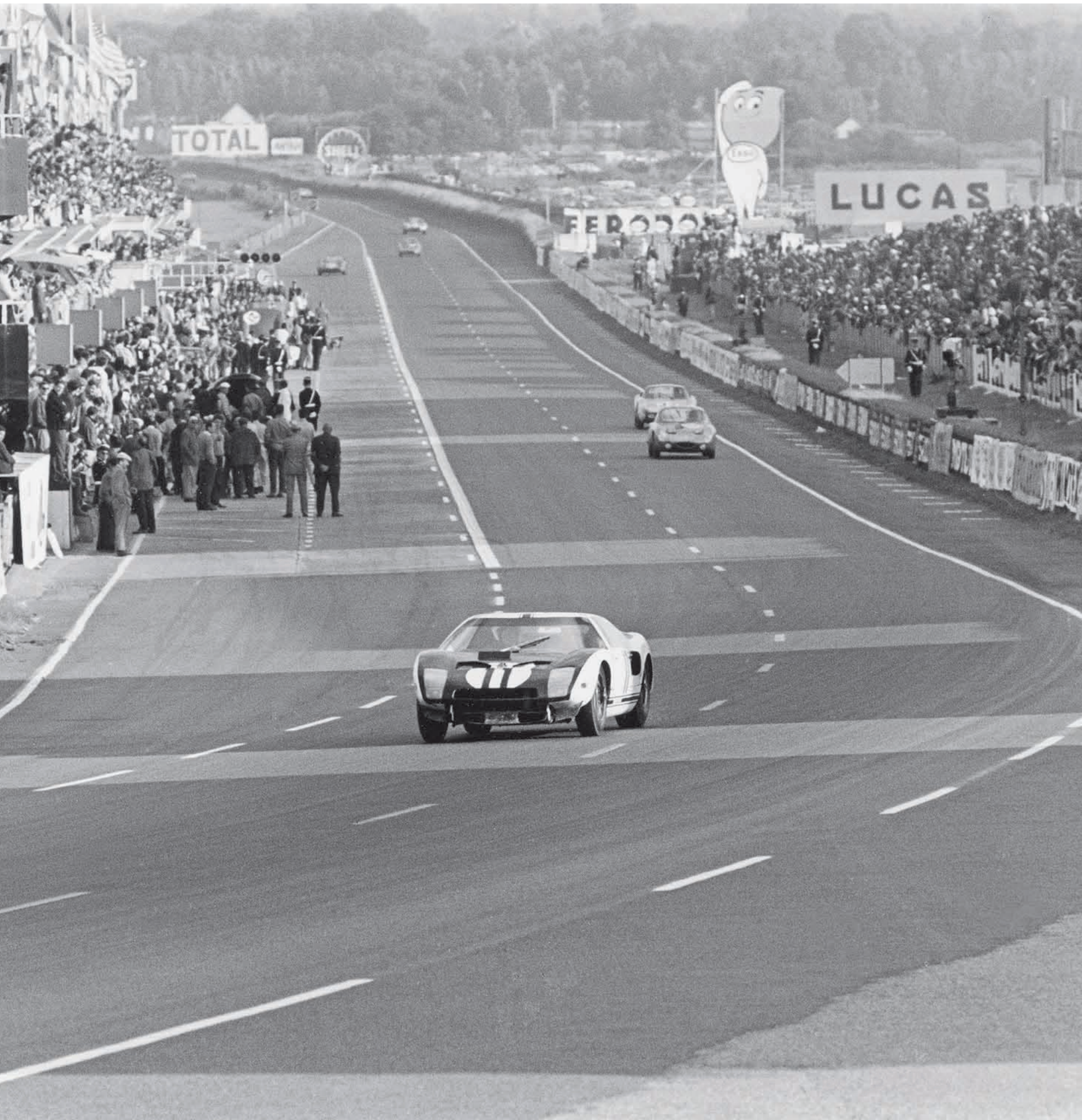
down the Mulsanne straight on Lap 2, the race took a dramatically unscripted turn. The car in fourth place—a great white shark with bold blue markings—pulled out of line. Ginther later reported that he saw 7,200 rpm in the draft, which theoretically translated into 207 mph. (Officially, the Fords were clocked at 191.4, 189.5, and 186.4 mph, but those figures understated their true terminal velocity.) GT/103 breezed past all three Ferraris and swept majestically into the lead, and, once there, Ginther pulled away effortlessly. After three laps, he led by five seconds, by 14 seconds after Lap 5, by 32 seconds after Lap 10, by 40 seconds after the first hour.

Ginther lost the lead when he pitted at 5:42 p.m. (When he vaulted out of the car, he asked his nonplussed crew, “Well, for God’s sake, isn’t anyone going to ask me how the car went?”) The Fords were thirstier than the Ferraris, and refueling them took longer because each of the two fuel cells sunk into the door sills had to be filled separately. But Masten Gregory, another American with loads of international road racing experience, immediately got up to speed after taking over from Ginther and had the car back in the lead after three hours. Then the Colotti box, the GT’s Achilles’ heel, started acting up. Before long, Gregory could find only first and second gears, and he was forced to retire. By this time, Attwood had already abandoned the third Ford, GT/104, after a fuel line spec’d with the wrong material allowed gasoline to drip onto the engine, which burst into flames. So even before nightfall, only one car was left.

Phil Hill had been the last driver to get away from the grid, 70 seconds behind the leaders, because his car wouldn’t start, and he made five pit stops during the first hour until a blocked carburetor jet was diagnosed as the cause of a persistent misfire. With the jet cleared, GT/102 was the fastest car on the track. Running at a Grand Prix pace, Hill and McLaren climbed up the BP scoring pylon—twenty-third after four hours, eighth after seven hours, sixth after eight hours,

Above: Richard Attwood, in GT/104, leads the Maserati Tipo 151 of Andre Simon and Maurice Trintignant early in the race. The Fords were the fastest cars at Le Mans.

Opposite: Ginther gave Ford more than 90 minutes of glory as he led imperiously from lap 2 until his first pit stop. But Le Mans is all about the 24th hour, not the first.





fifth by 1:00 a.m. “As far as I was concerned,” McLaren wrote in his diary, “my four-hour stint from midnight into the early hours of Sunday morning was the best 500 racing miles I’ve ever covered.”

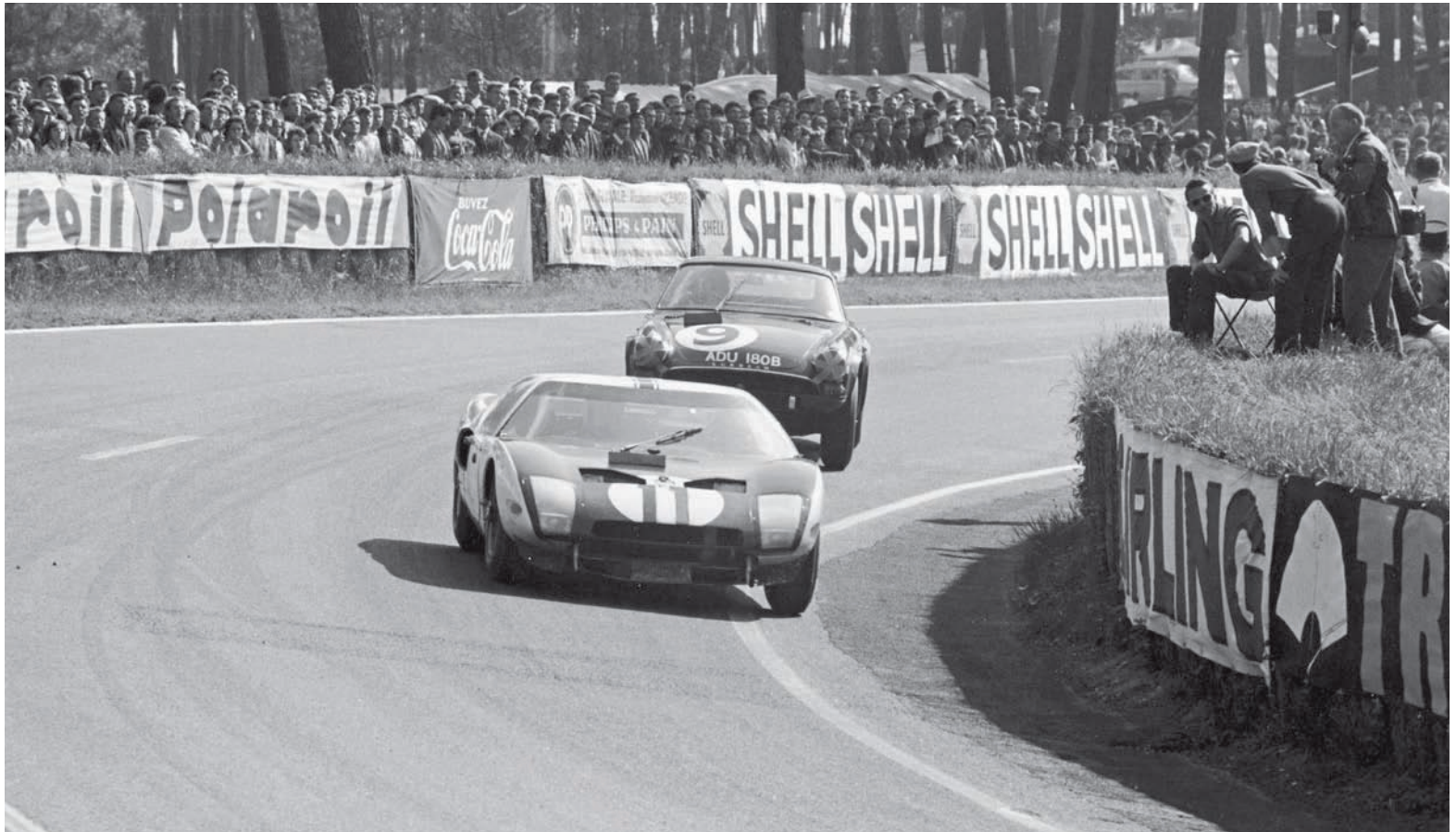
The night was brutally cold, and dawn showed fog hovering above the track surface. Still, on Lap 187, Hill clicked off the fastest race lap in Le Mans history—3:49.2 at an average speed of 131.38 mph. But about 5:30 a.m., his Colotti went kerplooey, and the last of the Fords was dead. Ferraris finished 1-2-3, with a Cobra Daytona Coupe entered by Shelby American fourth overall and first in class. Although all three Ford GTs had DNFed, they’d made a powerful statement. “Maybe America didn’t hammer any nails in Ferrari’s coffin this time, but we threw a scare into him,” Shelby said after the race. “Next year, we’ll have his hide.”

Not everyone in the Ford camp shared his optimism. The following morning, team members were summoned to the Hotel de Paris to meet an unfamiliar Ford functionary named Leo Beebe, who’d just been placed in charge of all of the company’s considerable racing operations. Wyer, who was to clash with him on numerous occasions (and who lost most of the battles), uncharitably described Beebe as “a tall, craggy individual” with “a beady eye,” who “looked and sounded like an Evangelist missionary. If he had a sense of humor, it was not evident.”

Beebe was 46. He cut an imposing figure, befitting a former athlete who’d starred in baseball and basketball at the University of Michigan, and he was partial to large, expensive cigars.

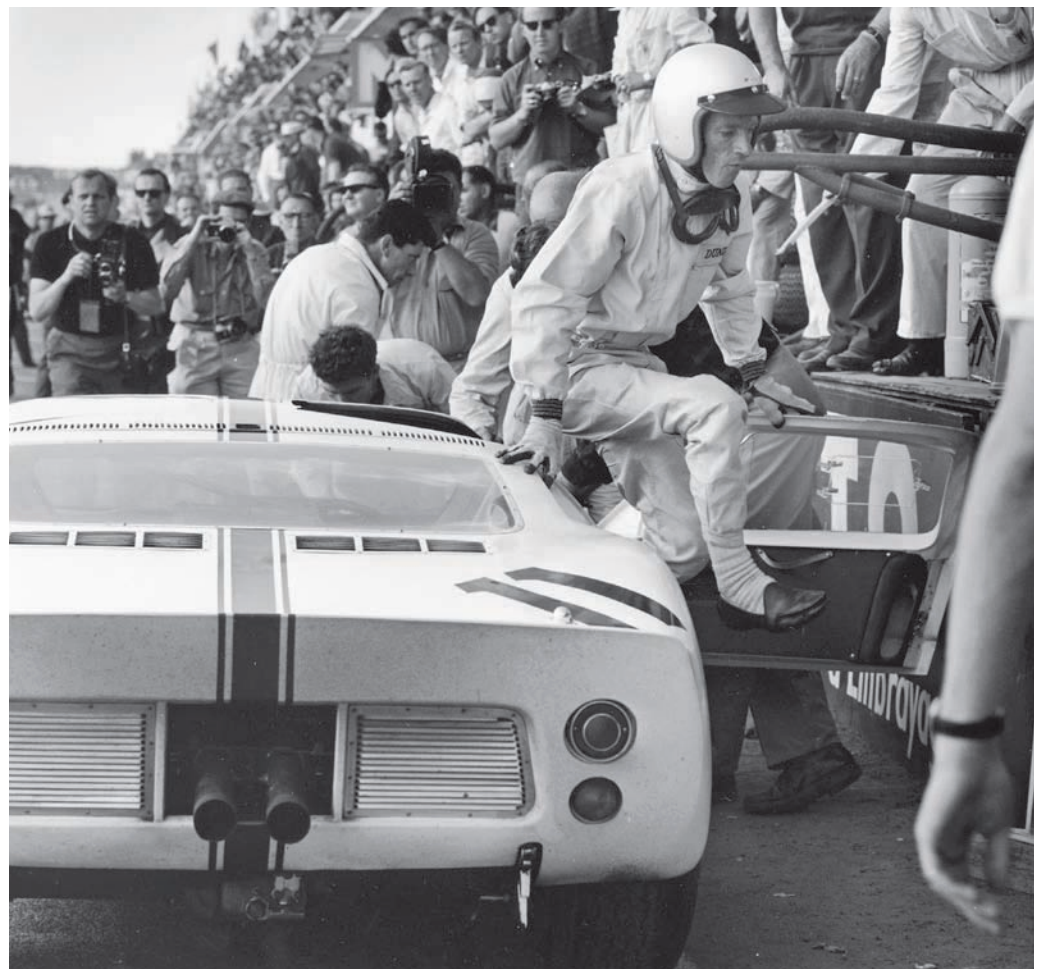


Above and top: The Hill/McLaren and Attwood/Schlesser GTs run in parade formation through the Esses.



Above: The Ginther/Masten Gregory GT leads a Sunbeam Tiger through the Esses.

Right: Ginther vaults out of his car so Gregory can do his first stint. Before too long, Gregory had the Ford back in the lead.





Left: A mechanic works on the gearbox of the Ginther/ Gregory car. The Colotti transaxle was the Achilles' heel of the Mark I; two of the three Fords would succumb to gearbox maladies at Le Mans.

Opposite, top: The Attwood/Schlesser GT leads a Cobra Daytona Coupe driven by Bob Bondurant and Dan Gurney and the Simon/Trintignant Tipo 151 as they exit Tertre Rouge and accelerate onto the long Mulsanne straight.

Opposite, bottom: Attwood makes way for Schlesser. During Attwood's next stint, a wrongly spec'd fuel line sprang a leak, causing an engine fire that forced him to abandon his car.

He'd met Henry Ford II during the Deuce's brief stint in the navy during World War II. Beebe later joined Ford Motor Company and proved to be the consummate organization man—tough, efficient, and intensely loyal to his CEO. In 1964, he was the company's European marketing manager in Brussels when Iacocca tabbed him to run the racing program. At the time, this consisted not only of the Ford GT but also the four-cam Indy engine and a NASCAR stock car program. "Just win Daytona, Indianapolis, and Le Mans," Iacocca told him. "That's all you have to do." Looking back, Beebe said wryly, "Well, that was a hell of a challenge."

Addressing weary team members at the Hotel de Paris, Beebe began with what was to become his signature catch phrase: "I don't know anything about racing." This wasn't a self-effacing icebreaker; it was the absolute truth. He'd never seen a race before attending the Indy 500 the previous month. Nevertheless, he knew enough to be dissatisfied with the performance of the GT, and he was eager to see the cars race again in the upcoming 12-hour enduro at Reims. Wyr was mortified. Reims was only two weeks away, and the car that had gone up in flames at Le Mans was too badly damaged to repair in time. But Beebe was adamant. So the team returned to Slough and started thrashing. A new and untested car, GT/105, was completed. Because no 255-cubic-inch Indy engine was available, it was fitted with a racing version of Ford's proven iron-block 289. The 4.7-liter motor made more horsepower than the 4.2, but it also added weight.

Reims was a roughly triangular course in the heart of French champagne country that, like Le Mans, featured smooth pavement and long straights. In theory, it should have played to the strengths of the Fords. Ginther, McLaren, and Attwood qualified 2-3-6, but this wasn't nearly as impressive as it sounded. After sweeping the podium at Le Mans, Ferrari hadn't bothered to send



the factory team or its fastest cars to Reims, choosing instead to make do with second-echelon 250 LMs, and Surtees still nabbed the pole. Meanwhile, Attwood was out-qualified by Dan Gurney in a Cobra Daytona Coupe running in a lower, production-based class.

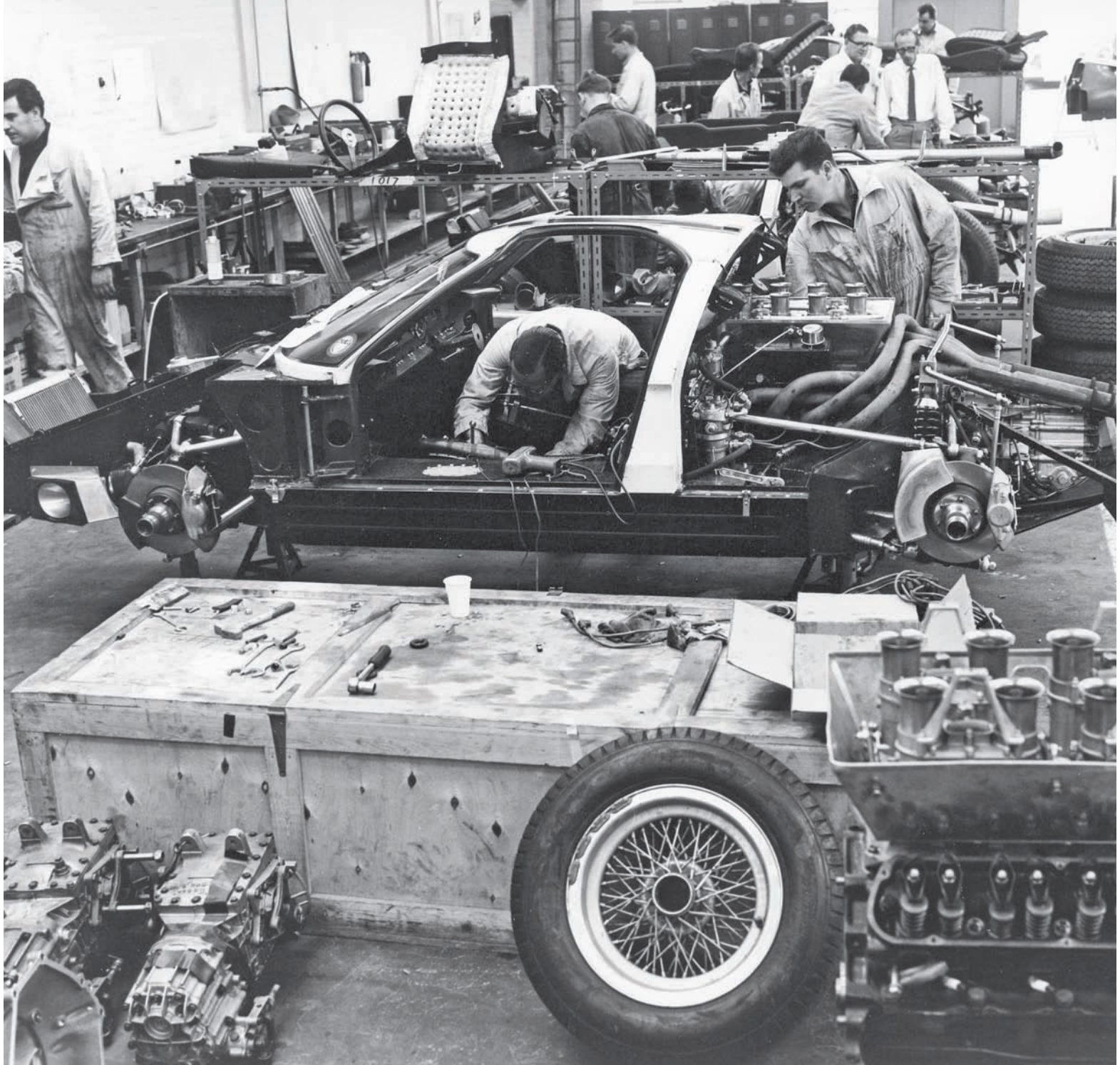
The race was even more dispiriting for the Ford team. Cars left the starting line at midnight, and none of the three GTs saw the sun rise. Ginther ran second until his crown-and-pinion gear exploded after 90 minutes. Attwood did a fine job early in the race—"The car was a dream to drive," he said—but his co-driver, Schlessler, was a distant third when he pitted at 4:10 a.m. with a broken transmission. Phil Hill's car, which had lost 20 minutes in the pits while a clutch return spring was replaced, retired in a shower of sparks and a cloud of smoke after his engine grenaded a half-mile past the pits. As if that wasn't bad enough, the brake rotors on all three cars had been glowing red-hot through the wire wheels during the entire race and clearly wouldn't have lasted to the finish. There was nothing wrong with the calipers, which were standard Girling race gear, but the brake pads and solid, cast-iron rotors obviously weren't durable enough to stop a monster as fast and heavy as the Ford GT during endurance races.



Above: Le Mans is magical after dark, but the Fords didn't benefit from any of the fairy dust. Two cars were gone by the time the sun went down, and the third failed shortly after it came back up.

Right: Fans catch a good nap wherever—and whenever—they can during the long race. Note the old portable radio hanging on the fencing.





Back at Slough, two of the Le Mans cars were overhauled and a brand-new chassis, GT/105, was completed with a Cobra-style cast-iron 289 because none of the aluminum Indy engines were available.

The team now had three races under its belt. None of the seven entries had reached the finish. Only one had made it past half-distance. The Colotti transaxle had proven to be catastrophically overmatched. The brakes were inadequate. About the rest of the car, it was impossible to say because no entry had lasted long enough for all of the deficiencies to be catalogued. Although Lunn and Wyer had warned Ford executives not to expect success during the first year, these failures predictably caused some finger-pointing back in the States. "We were amateurs, and our first effort at Le Mans was a joke," Don Frey said. "It was absolutely terrible." The company shelved plans to run the cars in the American races at Bridgehampton, Riverside, and Laguna Seca during the fall. Instead, the team would focus on development and reliability testing.

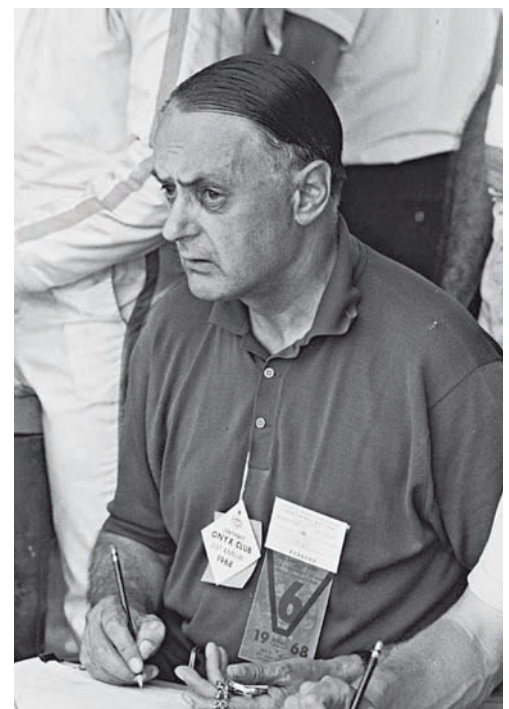
Meanwhile, there were even bigger changes on the organizational side. To start with, Broadley was out. At the end of June, he signed a one-year contract, backdated one year, that relieved him of any additional obligations to Ford. (The split was amicable, and Broadley applied the lessons learned from the Ford GT to the design of his much-loved Lola T70.) At the same time, a new company dubbed Ford Advanced Vehicles was created to oversee production of the GTs. Although FAV was a wholly owned subsidiary of Ford of Britain, it was

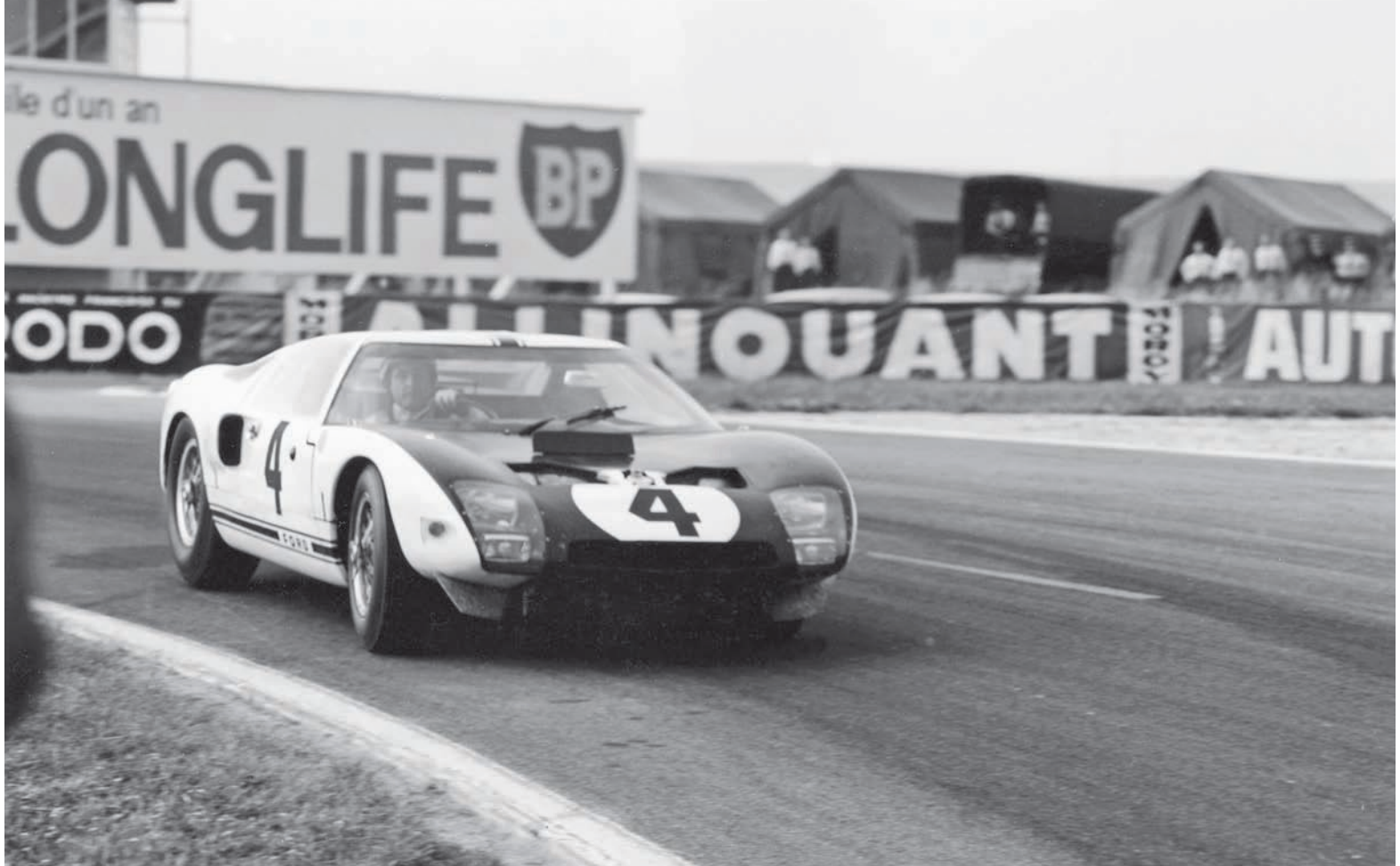


functionally and financially the responsibility of Ford Division back in Dearborn. One of the company's directors was Walter Hayes, a former Fleet Street journalist who'd climbed the public relations ladder at Ford. As a confidante of Henry Ford II, Hayes gave FAV a little extra juice. Also, Wyer hired John Horsman as his right-hand man. The immensely competent Horsman would stay with the program through the wins at Le Mans in 1968 and 1969. FAV retained responsibility not only for the race program but also for building 50 GT40s that were to be sold to privateers.

The Ford engineers returned to the States with the exception of Englishman Len Bailey, who remained in the UK. Lunn believed that the race program, with its convoluted trans-Atlantic chain of command and subject to the whims of the sclerotic Ford Motor Company bureaucracy in Dearborn, lacked the agility it needed to succeed. "I always had the philosophy that the best thing you could do was to create a skunk works where you take a few enthusiasts with passion and you give them the wherewithal—including money and access to what they need in a big company—and the freedom to operate like a small company," he said.

Lunn persuaded Frey to contract with a small prototyping firm called Kar-Kraft, which had been established by local SCCA racer Nick Hartman on the top floor of his father's machine shop. Supported by Ford financing, Kar-Kraft later moved to an 18,000-square-foot brick building in Dearborn. Several Ford engineers, designers, and technicians were assigned to work there on various projects related to the GT, while others moonlighted on an unofficial basis. Before long, a Kar-Kraft team was



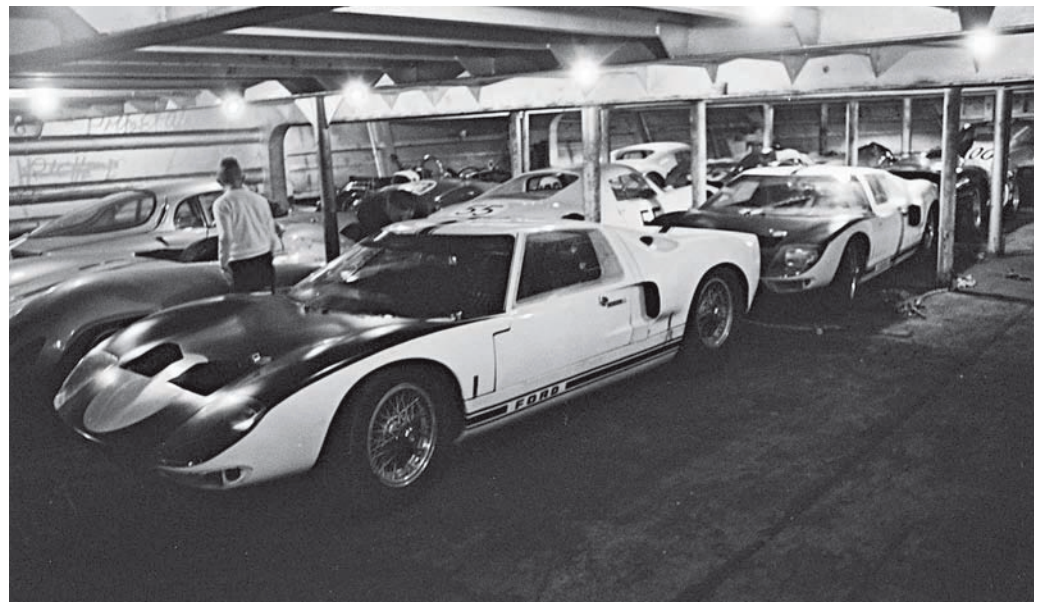


Above: Hill qualified third at Reims, but he and McLaren lost lots of time with a clutch problem and were running well back when the engine exploded. So the Fords maintained their perfect non-finishing record.

Right: For the Nassau Speed Weeks, cars were shipped from the US mainland to Nassau in a World War II LST. The Ford GTs shared the ship's hold with a motley collection of interesting race cars.

Opposite, top: At Reims, Ginther qualified second and maintained his position until the transmission blew early in the race. Attwood and Schlesser also retired with gearbox issues.

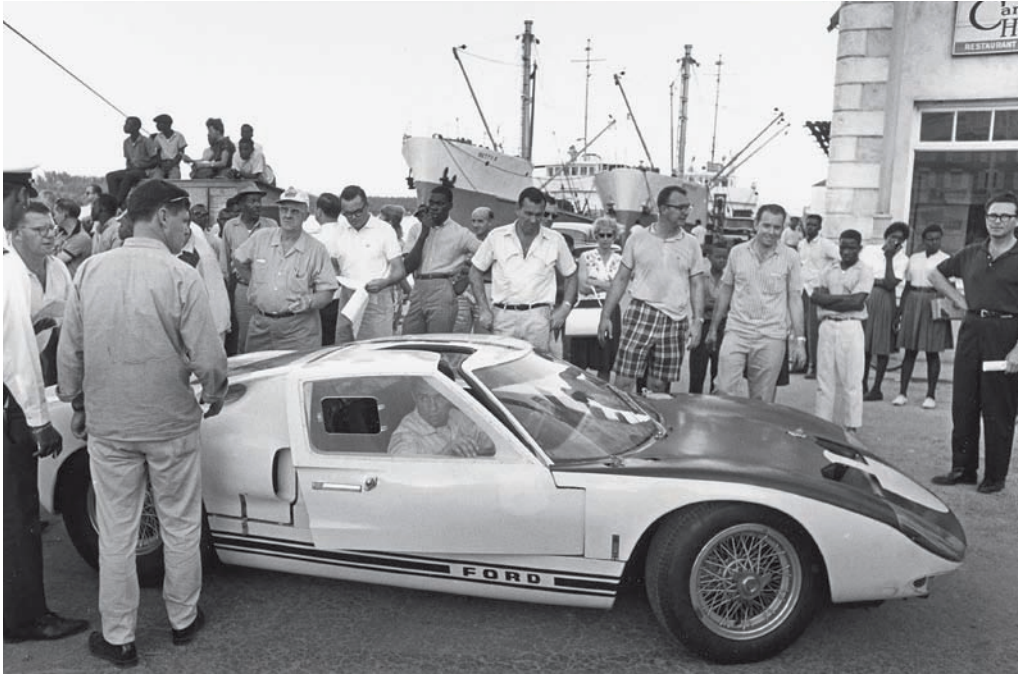
Opposite, bottom: John Wyer helped put the original Ford GT on track in 1964, and he oversaw its final victories in Le Mans in 1968 and 1969.



shoehorning a big-block 427-cubic-inch engine into a Ford GT—an experiment that eventually led to the birth of the Mark II and, ultimately, victory at Le Mans.

For the next three months, FAV tested virtually once a week at MIRA and Goodwood. In October, the team took two cars to Monza, where GT/102 was totaled when the throttle stuck wide open on the approach to the Curva Grande and driver John Whitmore scythed through a stand of providentially immature trees at 170 mph. Wyer, in keeping with his Death Ray persona, blamed Whitmore for not keeping the Ford on the road. Attwood, on the other hand, thought it was a miracle that Whitmore hadn't been killed. "It looked like an airplane crash—just unbelievable destruction," he said. "I always told myself that if I ever had a big shunt, I'd rather be in a Ford GT because it was so strong."

Despite this setback, Wyer felt the team was making progress. So he was annoyed when he was ordered to prepare two cars for Nassau. The Nassau Speed Weeks were the brainchild of



flamboyant American entrepreneur Sherman “Red” Crise, who’d created a unique end-of-the-season bacchanal-cum-race program in the Bahamas. The prospect of balmy weather, epic parties, and substantial prize money usually drew an odd but entertaining mix of professional and gentleman drivers in sports cars that, in many cases, didn’t fit into existing classes. The race had no international standing, and Wyer thought a foray to Nassau was a colossal waste of resources. “To me, this was the final imbecility,” he wrote. Horsman was even more dismissive of the decision to race in the Caribbean. As he put it: “The only reason to send cars there was an excuse for the Ford executives, of which there were many, to have an expenses-paid trip with their wives to a warm climate for a few days.”



If so, it was a vacation in hell. By this time, both cars had been fitted with iron-block 289s because 255 Indy engines were in short supply. But the new motors didn’t improve the cars’ performance. In the five-lap prelim, McLaren hurtled off the track when a lower ball joint in his front suspension came loose. (Subsequent analysis showed that the wrong size washer had been fitted, and three FAV mechanics were fired.) Hill at least finished the race, but he was outrun, humiliatingly, by Roger Penske’s gaudy Corvette Grand Sport. McLaren’s car was damaged beyond immediate repair, so Hill was the only Ford GT driver to compete in the big Tourist Trophy race. He was again chasing Penske when his head gasket failed.

The big winners of the weekend were the Grand Sport and the Chaparral, both supported by General Motors. Being embarrassed by GM products in front of a full complement of

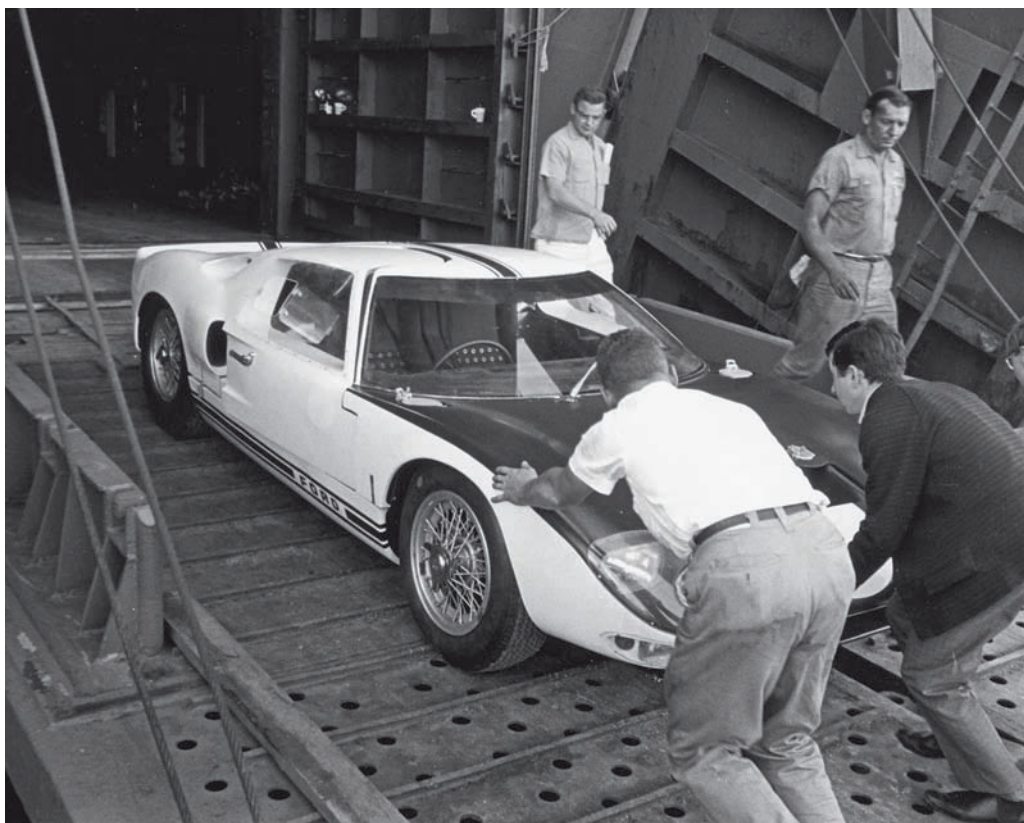
Top: John Horsman (far right, in a black shirt) was Wyer’s right-hand man. He and an FAV mechanic endured a hellish trip with a pair of GTs from England to Montreal to New York to Miami and then to Nassau.

Above: A thoroughly disgusted Wyer helps push a Ford off the dock. He hated the idea of racing in Nassau, which he called “the final imbecility.”

high-ranking Ford executives was the cherry on top of a season-long sundae of fiascos. After the race, Beebe convened a team meeting. “I don’t know anything about racing,” he began with his usual homily, “but there is one thing that has become increasingly apparent to me in the past few months—you don’t either!”

Wyer was stripped of responsibility for the race program, though he and FAV were left in charge of building production GT40s and supporting the privateers who bought them. But for 1965, the GTs would be raced by Shelby American. So it was up to Carroll Shelby, Ford’s in-house snake charmer, to deliver on the Deuce’s command to whip Ferrari’s ass.

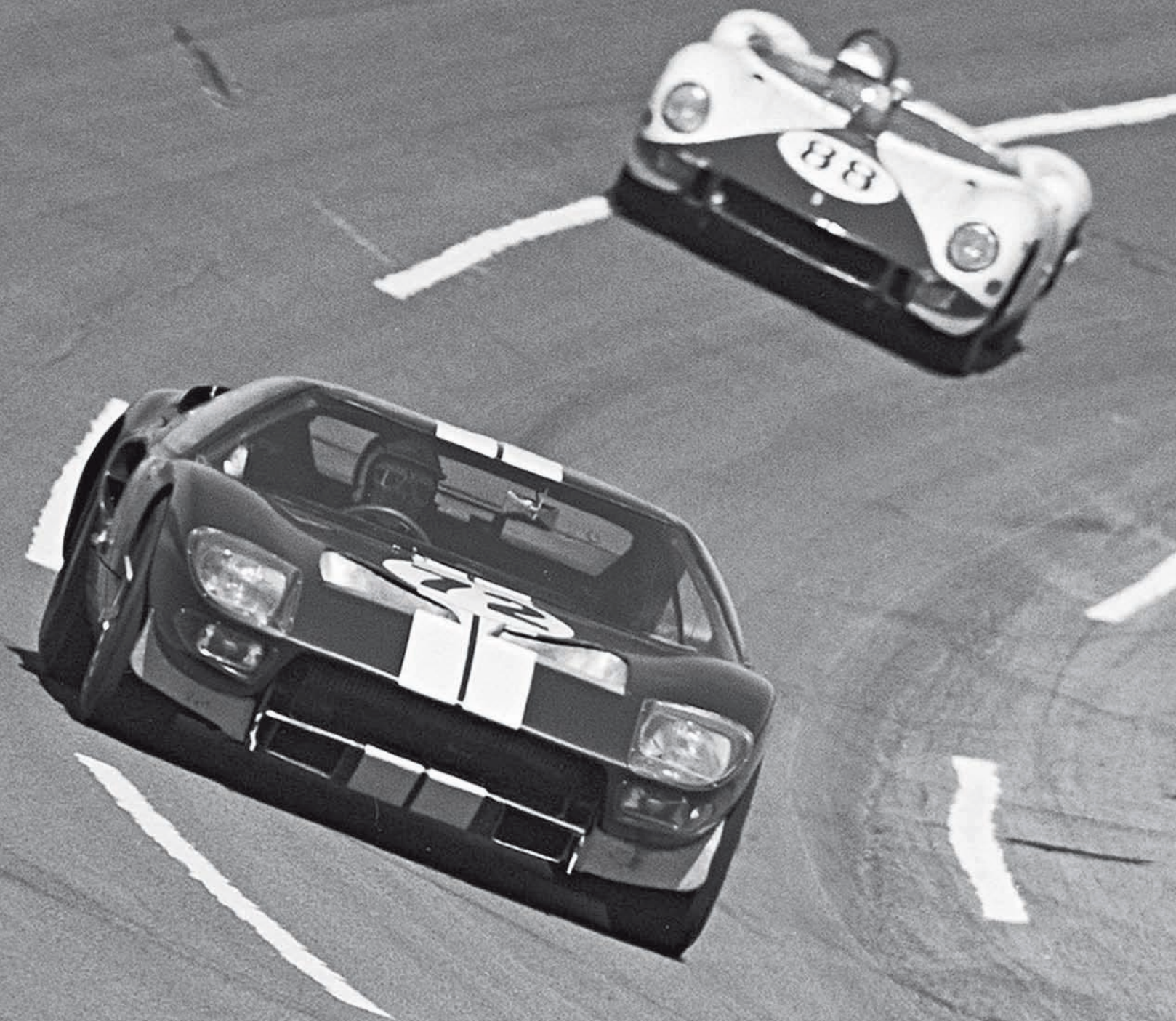
It was a job that Shelby relished.



Above: Bob Johnson, in a Cobra, and Roger Penske, obscured in the Corvette Grand Sport, outran the Ford GTs at Nassau—Phil Hill in No. 91 and Bruce McLaren in No. 97. McLaren crashed in this race, and Hill broke in the next. After this dispiriting performance, the racing program was taken away from Wyer and given to Carroll Shelby.

Right: After the race, the cars returned to England before being shipped to California and beginning a new chapter. According to the official Ford postmortem: “Because of the failed objectives, we must accelerate our original plan to transfer the Ford GT racing program to Shelby American.”

3



DECEMBER 1964 – MAY 1965

ONE WIN, MANY LOSSES

A NEW ERA FOR THE FORD GT DAWNED ON AN UNCHARACTERISTICALLY dreary Southern California morning—dark, cold, and rainy—in mid-December at Los Angeles International Airport. A TWA air freighter disgorged one of the two cars that had raced at Nassau a few weeks earlier, and Bob Bondurant took delivery for Shelby American. The second car arrived at LAX a few days later. Both of them looked like they'd been ridden hard and put up wet, which, in fact, they had. After breaking during the races at Nassau, they'd been left out in the rain, then shipped by sea to New York and flown across the Atlantic to FAV before being dispatched to California. "They were a mess," Shelby American mechanic John Ohlsen said. "Those two cars were totally used up." One chapter of the program had ended, and another was about to begin.

In switching from FAV to Shelby American, Ford was choosing not only a different organization but also a contrasting vibe. FAV was the creation of John Wyer and it reflected his severe, uncompromising English personality. A self-described realist, Wyer could content himself with the knowledge that events had shown his advice—not to expect easy victories, not to race at Reims so soon after Le Mans, not to bother with Nassau—to be spot-on. "The concept of an independent organization, 3,500 miles from Dearborn, never worked quite correctly," Wyer said. "I might even say that it didn't work at all." But Ford executives had started to perceive his realism as pessimism, and they wondered if FAV's failures had been self-fulfilling prophecies. Still, there was more to it than that. America is a country that prefers the sunny spirit of the eternal optimist. Carroll Shelby had been an outstanding race car driver in his day, and he was a successful entrepreneur. But most important of all, he was a world-class salesman. And like most great salesmen, what he was selling, first and foremost, was himself.

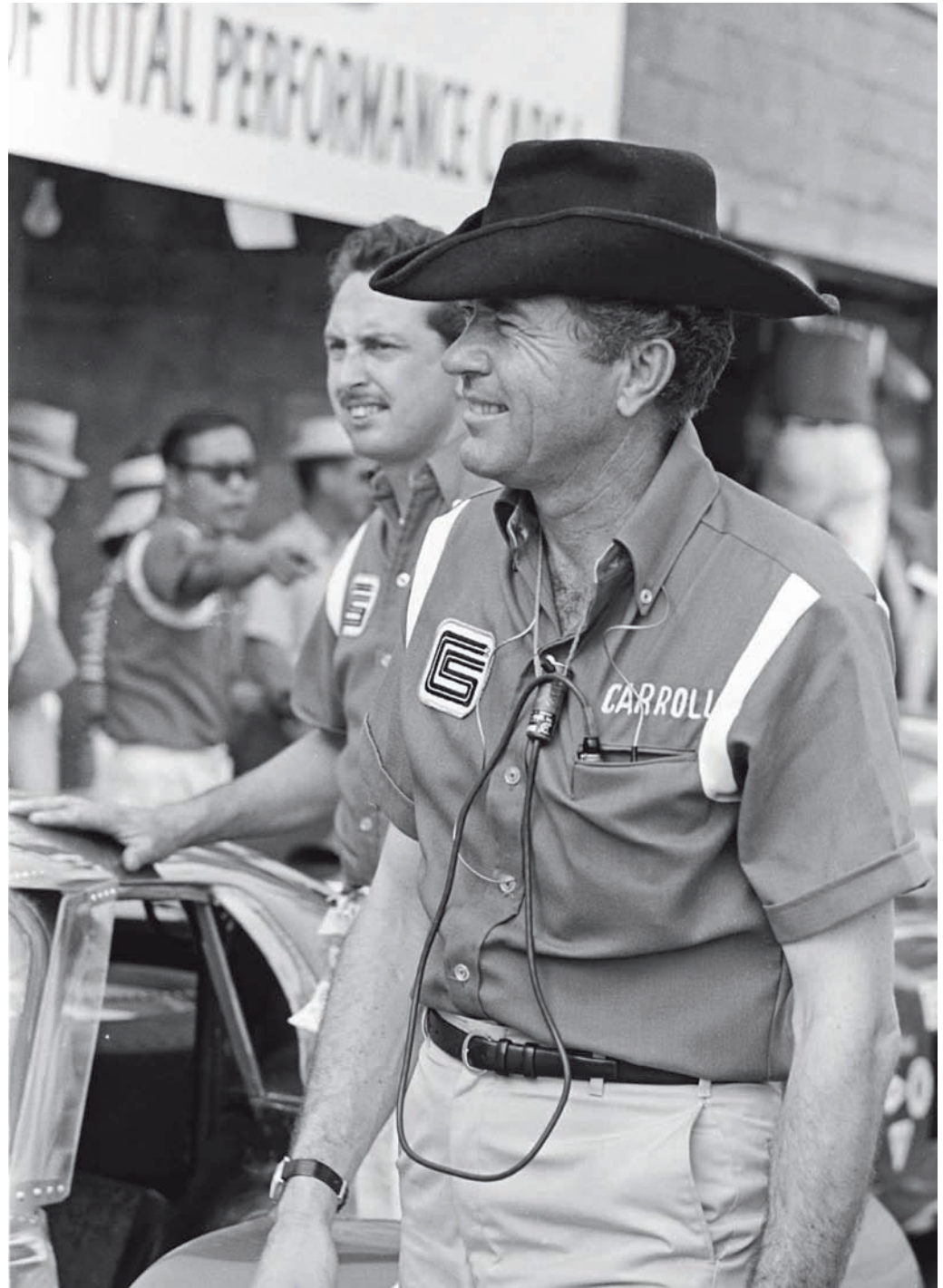
Homer Perry, who later oversaw Ford's Le Mans test program, first met Shelby in 1961 while he was working for Ford engineer Dave Evans. "He'd come to us to try and get a couple of engines for his yet-to-be-built Cobras," Perry said. "Christ, the way Carroll

At Daytona in 1965, Bob Bondurant had no troubling pulling away from Walt Hansgen's Ferrari 330 P. But Dan Gurney was disappearing from the field in a Lotus 19B powered by an experimental 325-cubic-inch Ford V-8.

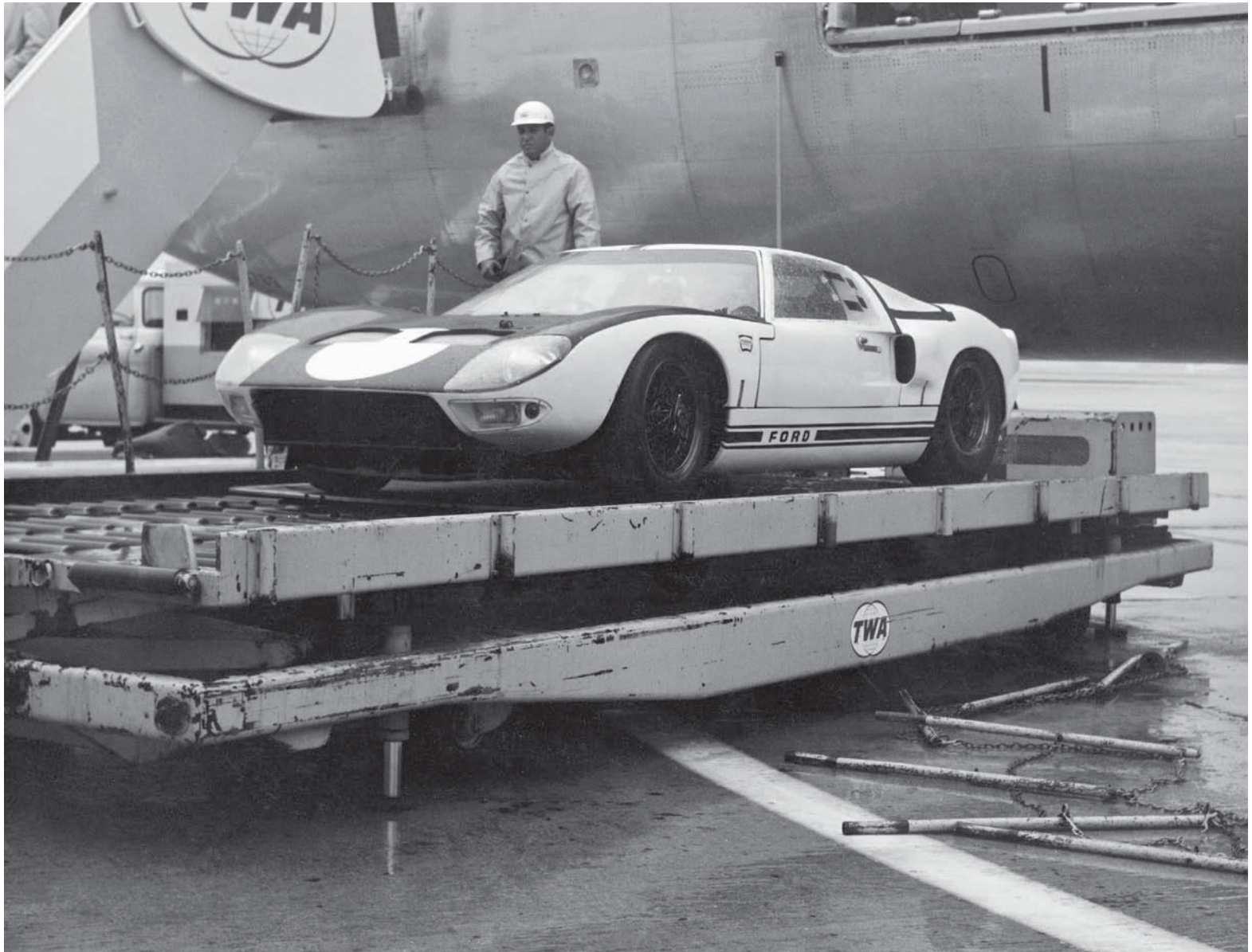
talked you would've thought he was a damn millionaire. We gave him a couple of engines, and Frey, Evans, and I were shocked to find out later that he was broke. We never really expected to see him again because he didn't have any money."

Shelby was 41 years old, handsome as a matinee idol, with a dazzling smile that made women swoon and a brand of laconic charm that made men want to be his best friend. He'd been born in a small town in East Texas, the son of a rural mail carrier, and although he went on to live a cosmopolitan life, he never lost his companionable Texas drawl. He served as a flight instructor in the army air corps during World War II, then went broke as a chicken farmer. He started road racing in the early 1950s, just as the sport was getting off the ground in the United States. Early on, running late for a race, he showed up at the track in a pair of bib overalls. They caused such a stir that he made them his signature. In 1954, he became one of the first Americans to race in Europe after he was spotted by Wyer and added to the Aston Martin roster for Le Mans. But unlike his great rival, Phil Hill, Shelby didn't aspire to drive for a works team in the hopes of earning job security, an international reputation, and a paltry paycheck. No, Shelby was in it for the money, so he ran most of his races for rich American benefactors with hefty bankrolls and exotic cars. Yes, he was a mercenary, but he was also damn fast. He was twice named *Sports Illustrated's* Driver of the Year, and in 1959, wearing bib overalls, he won Le Mans in an Aston Martin shared with Roy Salvadori.

Heart trouble forced Shelby to retire from driving after winning the USAC road racing championship in 1960. For years, he'd dreamed of building a sports car that would humble Enzo Ferrari. Of course, this was a fantasy shared by countless would-be-but-never-were carmakers. But in 1961, he came up with a plausible plan of attack. AC Cars, a venerable British roadster constructor, had just lost its engine supplier. Meanwhile, Ford had just introduced a new V-8. Shelby romanced an engine out of Evans, mated it to the old AC chassis, and dubbed the mongrel a Cobra. After building a prototype, he relentlessly promoted it by lending it out to automotive journalists, repainting it between each test drive to con them into believing that he'd already begun production. The glowing publicity prompted Ford to back the project in a big way. Once he had his foot in the door in Dearborn, Shelby got involved in the more lucrative production-car side of the business, lending his expertise to the Mustang GT350, which was popularly known—to Ford's chagrin—as a Shelby Mustang.



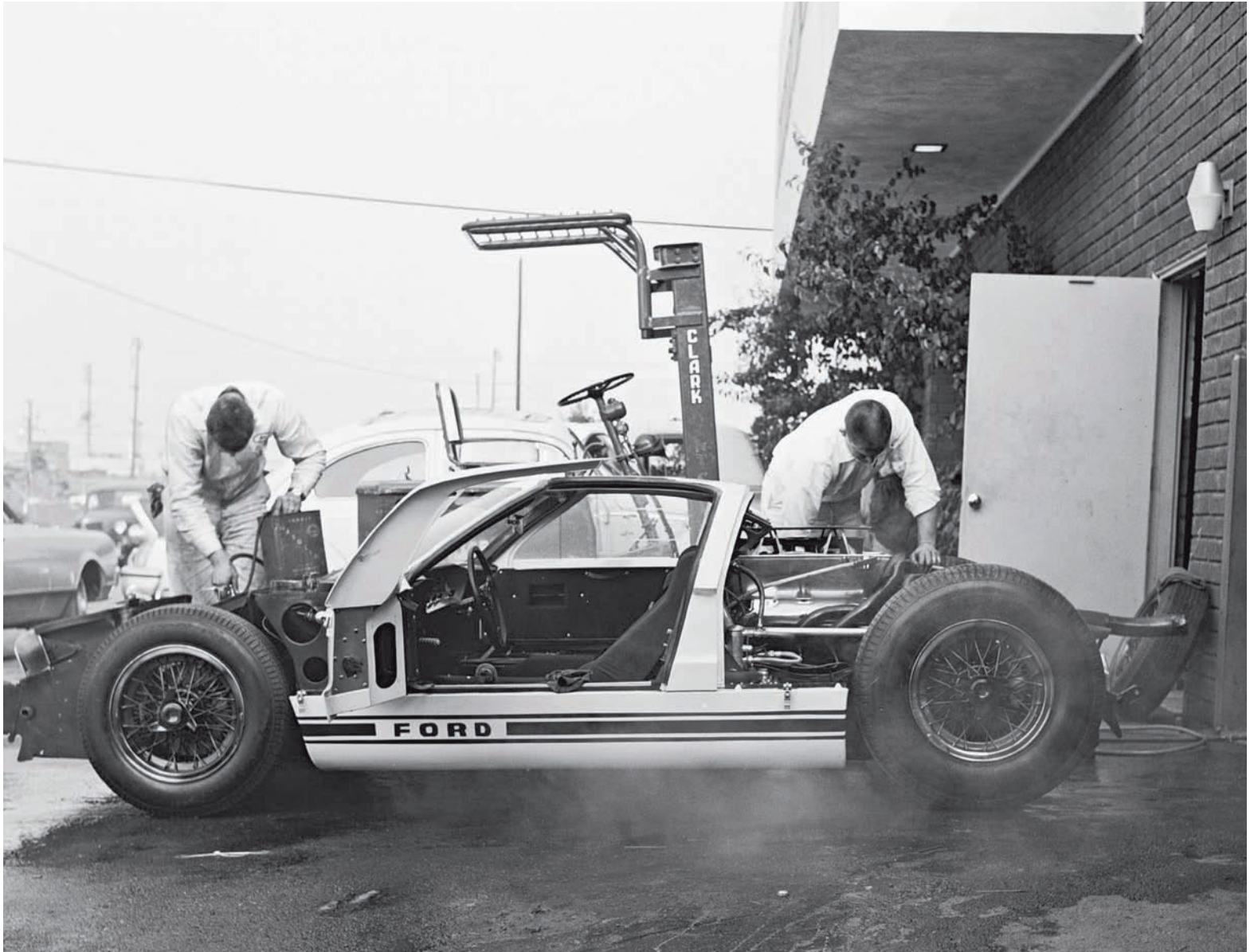
Carroll Shelby was the right man in the right place for the Ford GT program. Full of moxie and charisma, he was a brilliant salesman who was also smart enough to hire the right person for the job and give him the freedom to do it.



It was a cold and rainy day when the first Ford GT arrived at LAX in late December 1964. Bob Bondurant took delivery of the car for Shelby American.

Although the Cobra was sold for street use, its *raison d'être* was racing. In 1963, its first full season, it crushed the competition on the American racing scene. The following year, Shelby raised his sights and went international. The Cobra was quicker than the Ferrari 250 GTO in the Grand Touring category, winning its class at Le Mans and failing to sew up the championship only because Enzo Ferrari conjured up some political chicanery at the eleventh hour. It was, in many respects, the old story of naïve Americans being schooled by Old World Europeans. But the team had learned its lessons, and by the end of 1964, Shelby American was a well-oiled, battle-tested motorsports machine. In a few months, it would move to a cavernous facility adjacent to LAX. As new employees were hired to ramp up production of street cars, the organization became more corporate and lost some of its band-of-brothers camaraderie. But when the first Ford GTs arrived, Shelby American still occupied a relatively cramped shop in Venice, a funky waterfront suburb of Los Angeles, where Lance Reventlow had built the fearsome Scarab race cars that took the fight to Ferrari in the late 1950s.

Shelby American was very much a product of Los Angeles, which was the closest thing the United States had to a motorsports mecca. Shops in Southern California built race-winning Indy cars, dragsters, stock cars, midgets, sprint cars, even the first off-road buggies. Plus, the region was the heart of the soaring aerospace industry, which meant that it drew skilled craftsmen



from all over the world to work on everything from airliners to supersonic fighters to space capsules. Shelby was able to cherry-pick a team filled with veterans and virtuosos. At the top of the food chain was chief engineer Phil Remington, who was known even then to be a legend in the making. To run the GT program, Shelby hired Carroll Smith, who essentially invented the job of race engineer. Team manager Al Dowd, recently retired from the coast guard, kept the trains running on time. Plus, there were a host of top-notch fabricators, machinists, engine builders, and all-purpose mechanics who would later fan out into every corner of the racing world.

The Shelby American guys weren't just talented. Like Shelby himself, they had an independent can-do attitude that formed the foundation of the SoCal hot-rod ethos. "Carroll wasn't the type to sit around and wait for things to happen," Smith said approvingly. "He made things happen, and he hired the kind of people who made things happen. That's why we were so successful. John Wyer had gotten too conservative while he was running the Ford GT program in 1964, and that cost him the program. He wasn't willing to take the chances and make the needed changes in order to make that program a winner."

Although this has become the commonly accepted narrative, it unfairly minimizes the contributions made by Wyer and FAV. "We had developed the cars considerably after Le Mans," Horsman said. "We were forever finding new things that were going wrong, and all that work

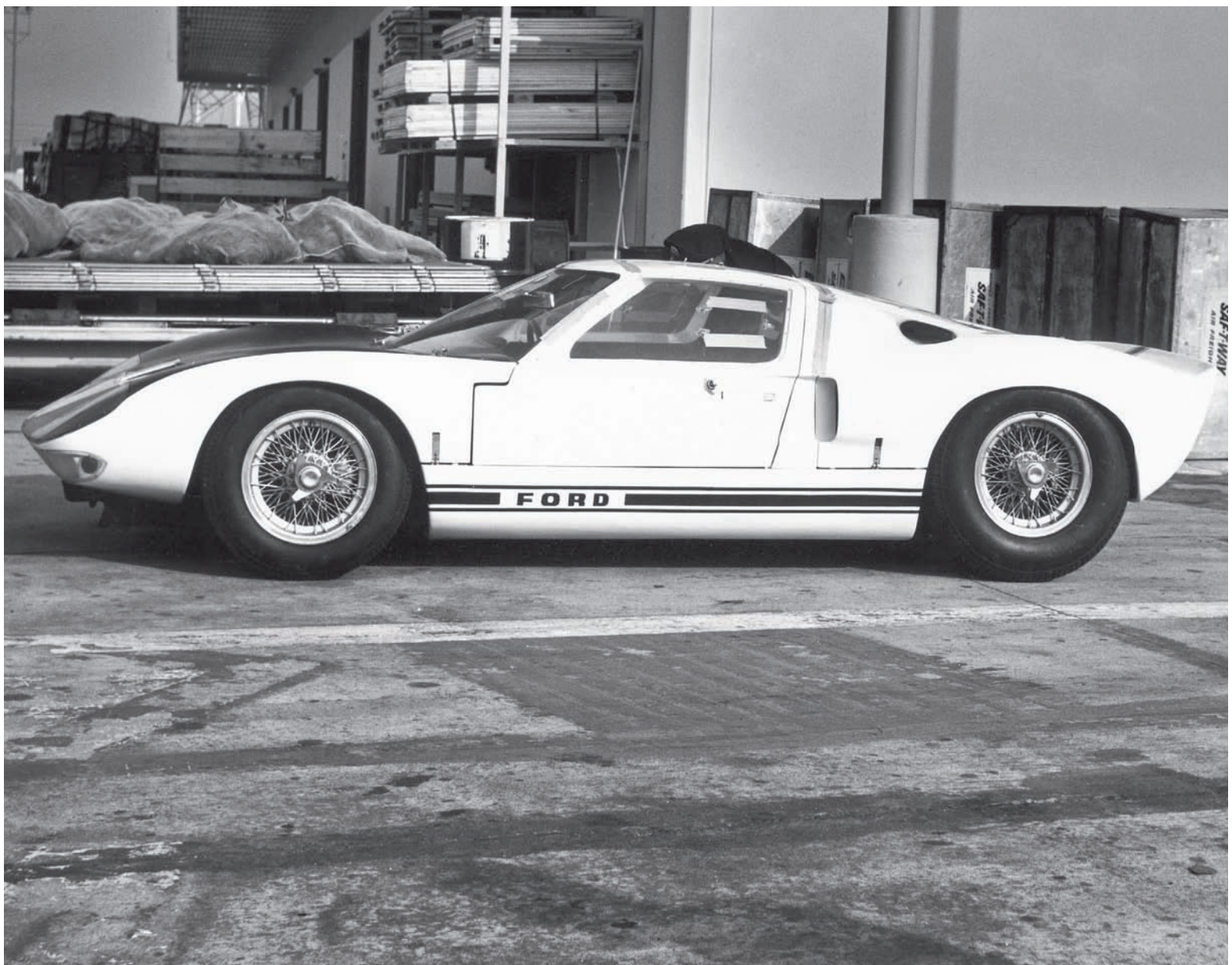
As soon as the car arrived at the Venice race shop, crew chiefs John Ohlsen (left) and Frank Lance started cleaning up the grime left over from the races in Nassau. "Frank and I had to start work immediately because we had so much work to do and there wasn't much time to do it before Daytona." —John Ohlsen

was provided to Shelby on a plate. So when he got the cars, they were pretty good.” That said, Horsman acknowledged that FAV wasn’t able to compete with the personnel Shelby had at his disposal. “Shelby’s strongest asset was the people who worked for him and their background in the aircraft industry and building race cars themselves,” he said. “They didn’t just know how to weld or work on suspensions. They could do it all.”

As soon as the first car was delivered to Shelby American, it was thoroughly cleaned and repainted in team colors—dark blue with white stripes. Then, it was loaded on an open trailer and pulled out to Riverside International Raceway. Built in 1957, Riverside was the premier road racing circuit on the West Coast. The racing season began with a NASCAR event for stock cars, sponsored by *Motor Trend*, and it ended with the country’s most lucrative sports car race, sponsored by the *Los Angeles Times*. With a 1.1-mile-long back straight, several tight corners, and the daunting, high-speed Esses, Riverside was perfect for testing. Since it took the Shelby crew only an hour or so to get there, they tested constantly at the track. Chief test driver Ken Miles had already logged thousands of miles at Riverside, so he was the natural choice to shake down the Ford GT. After his first few hot laps, he pitted and told the crew, “It’s bloody awful.”

This was classic Miles. A transplanted Englishman who’d driven a tank across France during World War II, he’d retained his scathing British wit more than a decade after moving to

It was warm, sunny, and dry when the second car arrived at LAX. But it, too, needed a thorough going-over after the fiasco in Nassau.



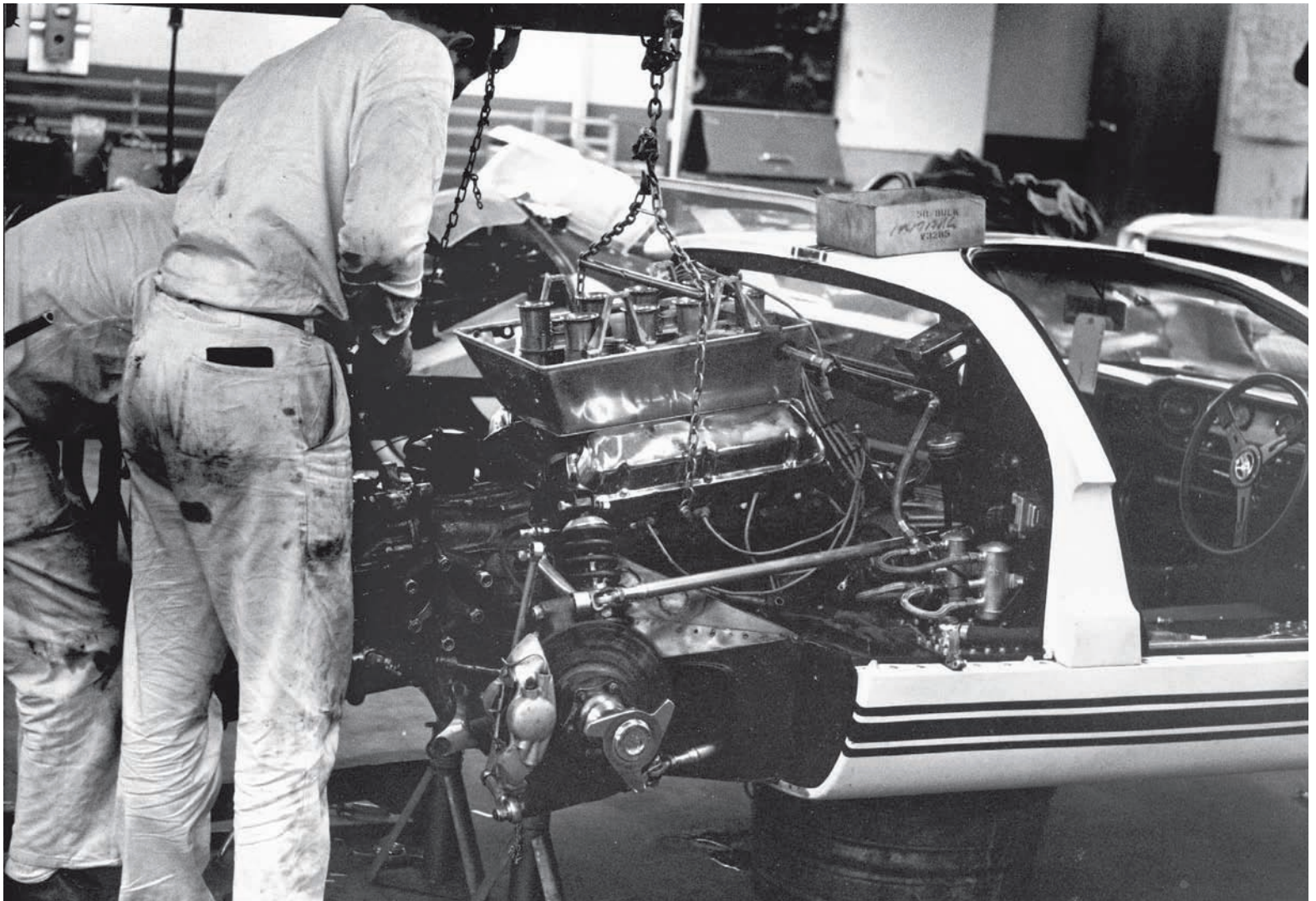
the States. Even his friends agreed that he could be aloof, arrogant, fiercely independent, and brutally sarcastic—major reasons, no doubt, it took him so long to land a major-league ride. He'd settled in Southern California in 1951 as the service manager for the local MG importer and immediately went racing. He dominated small-bore classes on the West Coast with a pair of self-built MG specials known as the R-1 and the felicitously named Flying Shingle. Later, he was so nearly unbeatable in Porsches that, according to legend though not strictly true, he won 49 races in a row and finished 60 consecutive races without a DNF. He was 44 years old when Shelby hired him to drive the Cobra. Lean and hawk-like, with a wicked sense of humor, Miles kept himself in impeccable shape, and he loved to demonstrate how much fitter he was than his younger rivals. Miles was the most successful Cobra driver in the country. But he was, if anything, even more valuable to Shelby as a test driver.

"After a test session at Riverside," recalled Lew Spencer, who raced against Miles in Morgans and then with him at Shelby American, "you could ask him what his oil pressure was in Turn 6, and he'd say, 'Which part? The beginning, the middle, or the end?' He was *that* good." Smith, who was hard to impress, was equally taken with Miles' skills. "He could tell you exactly what the car was doing, he could drive the car at the limit almost endlessly, and he had the ability to analyze the effect of changes very quickly, in two or three laps," he said. "That's so important during a test session. You can't afford to waste an hour out there while the driver tries to sort things out."

After Miles' first test drive at Riverside, the Shelby American crew embarked on a makeover of the two GTs. There were about two months to go before Daytona. But nobody in Venice was

Opposite: With a new engine and a fresh Shelby paint job, the car was rushed to Riverside for its first test run. Bondurant and Ken Miles would take the first laps. The car still wore Borrani wire wheels at this point, though they would soon be replaced with magnesium Halibrands.

Below: As soon as the cars were cleaned, they were fitted with Shelby-spec iron-block 289s. Proven in the Cobras, the 4.7-liter V-8s were rated at 385 horsepower, but they were significantly heavier than the aluminum 255s that FAV had used.



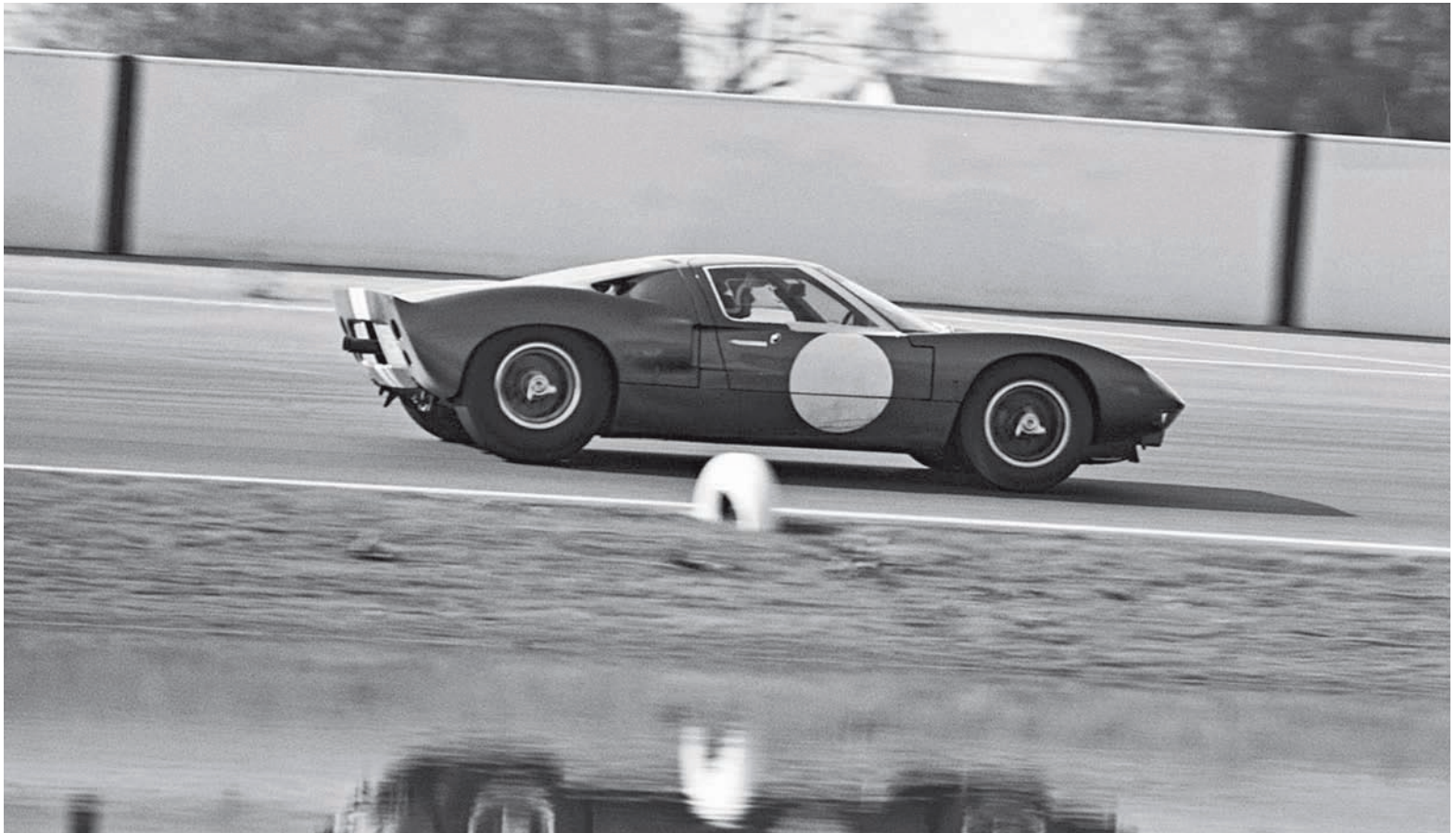


Ken Miles joined Shelby American in January 1963 and became one of the company's most valuable assets. Race winner, test driver, shop manager, and jack-of-all-trades—that was Miles in a nutshell.

worried. “We can react to a suggestion—we can do something—right *now*,” Miles explained. “We don’t have to go through elaborate procedures of putting through formal design changes. If we decide we don’t like something, we take a hacksaw and cut it off. Practically everything we do is a panic operation. But, if anybody can do it, we can.”

The Borrani wire wheels were junked in favor of wider cast-magnesium Halibrands, 8.0 inches at the front and 9.5 at the rear, and fat Goodyear tires were mounted in place of the skinny Dunlops. A few pounds were saved by using lighter-weight fiberglass body panels. By this time, Ford had given up on the pushrod version of the 255 Indy engine and decided against fitting the GTs with four-cam motors, so Shelby American installed its own race-proven, iron-block Cobra 289s. These were rated at 385 horsepower, or 30 more than the 4.2s, while adding about 100 pounds. Contemporary reports say that Remington trimmed 60 to 75 pounds by going to a wet-sump oiling system, though, confusingly, it’s not clear that FAV ever raced a dry-sump version of the 289.

At the time, Ford owned a Newport Beach subsidiary called Philco Aeronutronic, which was an aerospace contractor to NASA and the air force. Aeronutronic engineers accompanied the cars to Riverside and Willow Springs International Raceway, a grandly named but rudimentary club track about two hours north of Los Angeles. There, tests were conducted with primitive on-board computers and cotton tufts taped to the cars to analyze aerodynamic efficiency, and the bodywork was modified to improve airflow. Further tests in the Ford wind tunnel in Dearborn found that the equivalent of 76 horsepower was being lost through poorly designed internal ducting. So Remington rerouted the ducting to minimize the losses. Also,



the oil and gearbox coolers were moved from the front to the rear, on either side of the transaxle, which created space for a larger radiator, and the brake ducts were improved to provide more cooling to the rotors.

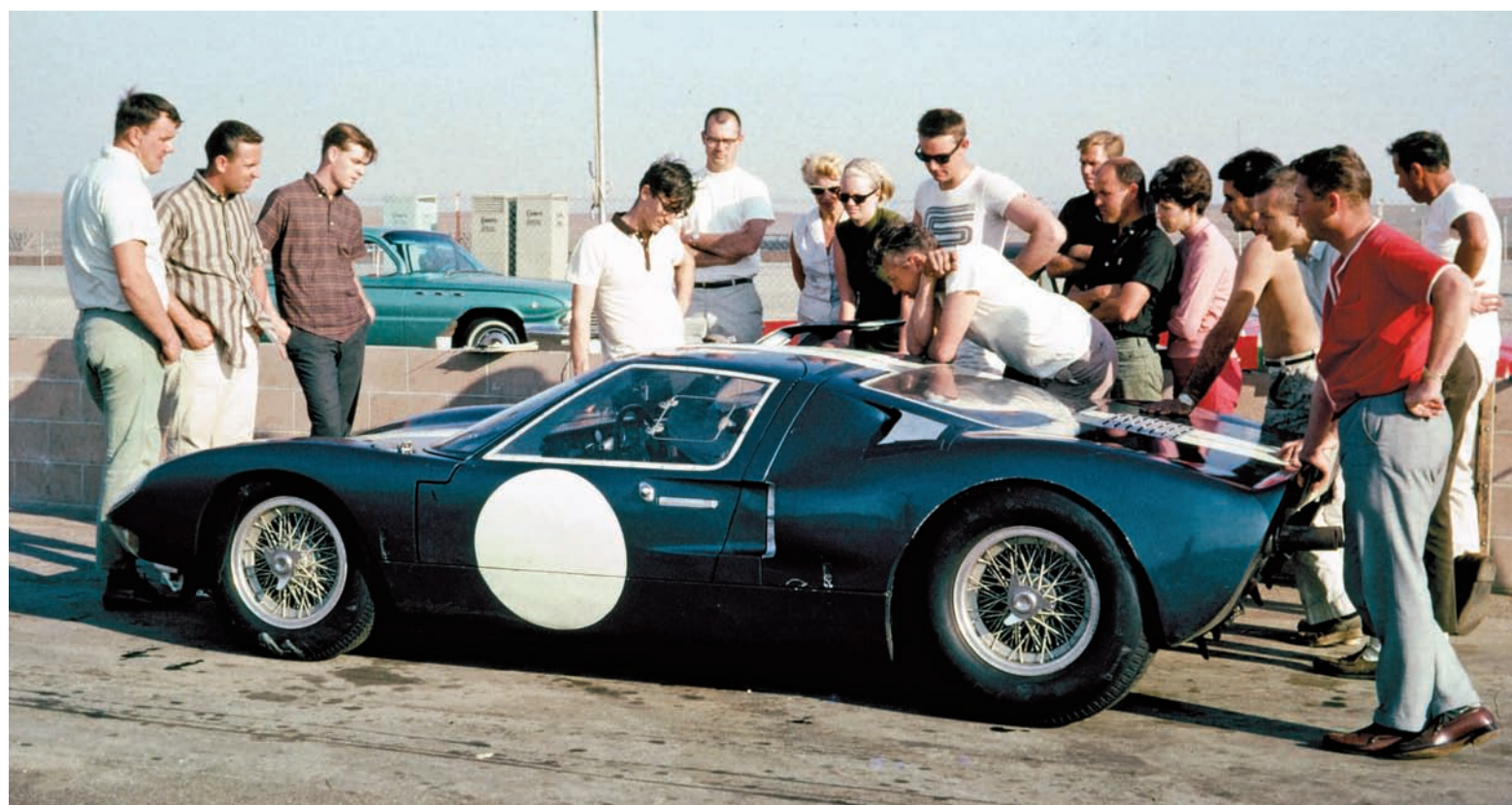
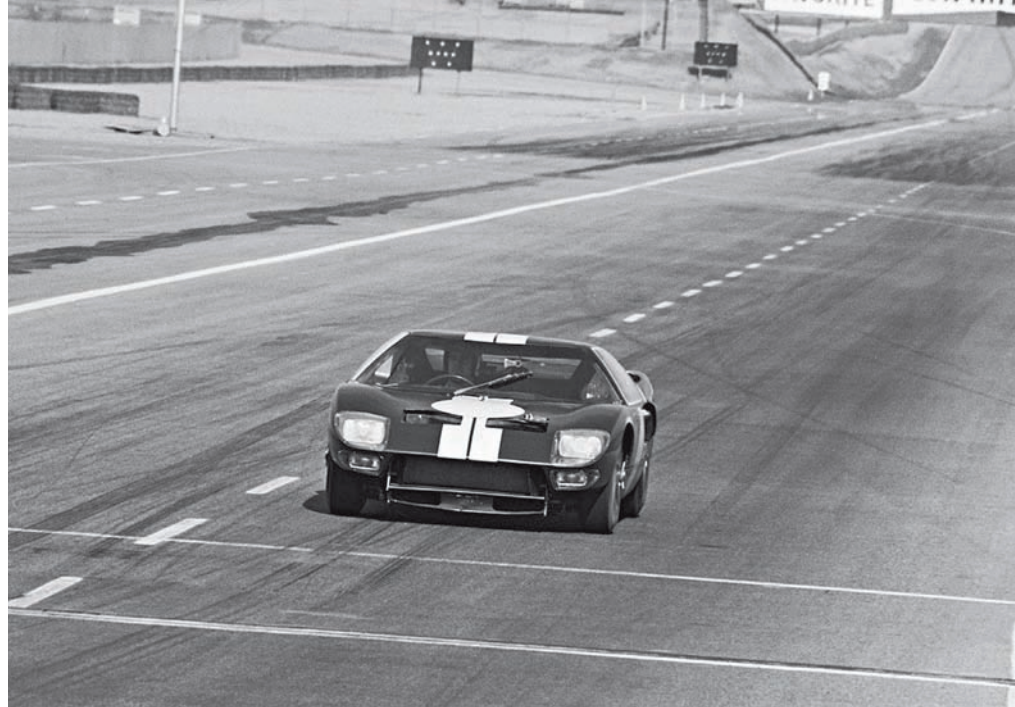
New gearboxes had been ordered from ZF in Germany, but they wouldn't be available for several months. Meanwhile, the Colotti transaxle case was fitted with Ford-built helical gears and an upgraded crown and pinion. During testing at Riverside, the cars exhibited an unpleasant combination of understeer *and* oversteer. Miles told magazine editors that the solution was simple. "[The cars] had been taken apart and put back together so many times that the design settings had gotten lost," he said. "So when we reset the suspension to the original specifications, the cars improved enormously. This was our first job—to get the car back where it had started from." In fact, the cars were tested constantly, and each session produced incremental improvements. "Phil Remington is the father of making things work," Bondurant said. "We would come back from Riverside at 4:00 or 5:00 in the afternoon, and he'd say, 'I'll have it ready for you tomorrow morning.' By the time we left for Daytona, the car was quick and it handled good."

With its suspension-pounding high bank and Mickey Mouse infield section, Daytona International Speedway was nobody's idea of a great road circuit. But the Daytona Continental 2,000 Kilometers—which translated into roughly 12 hours—was the opening race on the championship calendar in 1965, so the field was reasonably strong. For reasons known only to him, the inscrutable Enzo Ferrari chose not to enter the race. But he sent John Surtees, his star driver, and several factory engineers as well as the newly developed 330 P2, which, despite the name, was more than a new-and-improved 330 P. The engine had gone from two cams to four—it made 410 horsepower at 8,000 rpm—and the chassis was now a semi-monocoque with its rear suspension derived from the F1 car. The car was entered by the quasi-works North American Racing Team (NART), run by New York City—based Ferrari distributor Luigi Chinetti. NART also had an upgraded 330 P for American road-racing veteran Walt Hansgen and Englishman David Piper.

Bondurant rounds Turn 9 and heads up the front straight at Riverside International Raceway during Shelby American's first test of the Ford GT.

Right: Bombing down the long back straight at Riverside, at least the car sounded great. As for the handling, however, Miles said “It’s bloody awful.”

Below: Phil Remington leans over to debrief Miles after a run at Riverside. John and Jean Ohlsen stand behind Rem while John Morton has his hand on the front fender.



The two Fords—GT/103 and GT/104—were bedeviled during practice by understeer in the infield and front-end lift on the banking until Ginther came up with the idea of fixing chin spoilers on either side of the radiator inlet, which planted the nose. Also, because the Kelsey-Hayes ventilated rotors were cracking, the team reverted to solid Girling discs. Surtees claimed the pole by 1.2 seconds over Bondurant, who was paired with Richie Ginther. Miles was third, sharing the car with moonlighting Indy car driver Lloyd Ruby, while Hansgen was fourth in the second Ferrari. But the star of the race turned out to be a wild card—Dan Gurney in a much-modified Lotus 19B entered by the team Gurney had started with Shelby, All American Racers.

Tall, blond, and good-looking, with a male-model smile and a personality so winning that *Car and Driver* had mounted a fanciful “Dan Gurney for President” campaign the previous year, Gurney was the fair-haired boy of American racing. Two years earlier, he’d been the catalyst that got Ford involved in the Indy 500. The next year, he’d won two F1 Grands Prix, and the previous



month, he ran away and hid from the NASCAR regulars in the stock car race at Riverside. Gurney was as fast if not faster than any sports car driver in the world. So Shelby had stuck him in an extremely light but antiquated Lotus equipped with an experimental Ford V-8 stroked to 5.3 liters, or 325 cubic inches (actually 327, but Ford chose not to use this number to avoid confusion with the better-known small-block Chevy), and ordered Gurney to play the role of rabbit.

Unlike Le Mans and Sebring, Daytona began with a rolling start. Bondurant powered away from Surtees on the back straight and led as the 43-car field crossed the line to end Lap 1. Then, disaster. "I hadn't listened very well at the driver's meeting, and I thought we were supposed to do two laps at speed around the oval," Bondurant said. "I was flat out through Turn Four when I realized that the course markers had been put out across the oval signaling that we would make the turn into the infield. I thought, 'Oh, shit, I'm never going to stop.' And I didn't. It was one of my most embarrassing moments."

By the time Bondurant recovered, Gurney had vaulted into the lead. Once he got there, the rabbit outran the hounds for nearly 800 miles. Along the way, both NART Ferraris retired with deranged suspensions. Gurney was five laps clear of the field when his motor expired with a holed piston. A few minutes later, when Bondurant pitted from the lead to hand over to Ginther, the starter died, and it took 27 minutes to replace it, pushing them back to sixth. Miles and Ruby, who'd been circulating at a reduced pace to preserve their brakes, took the checkered flag in GT/103, while Bondurant fought back to finish third. This was not only the first win for the Ford GT—referred to as a GT-40, with a hyphen, in a *Road & Track* story—but also the first time one of the cars had finished the race. With this victory, Shelby had validated the decision to pull the Le Mans program from Wyer and FAV.

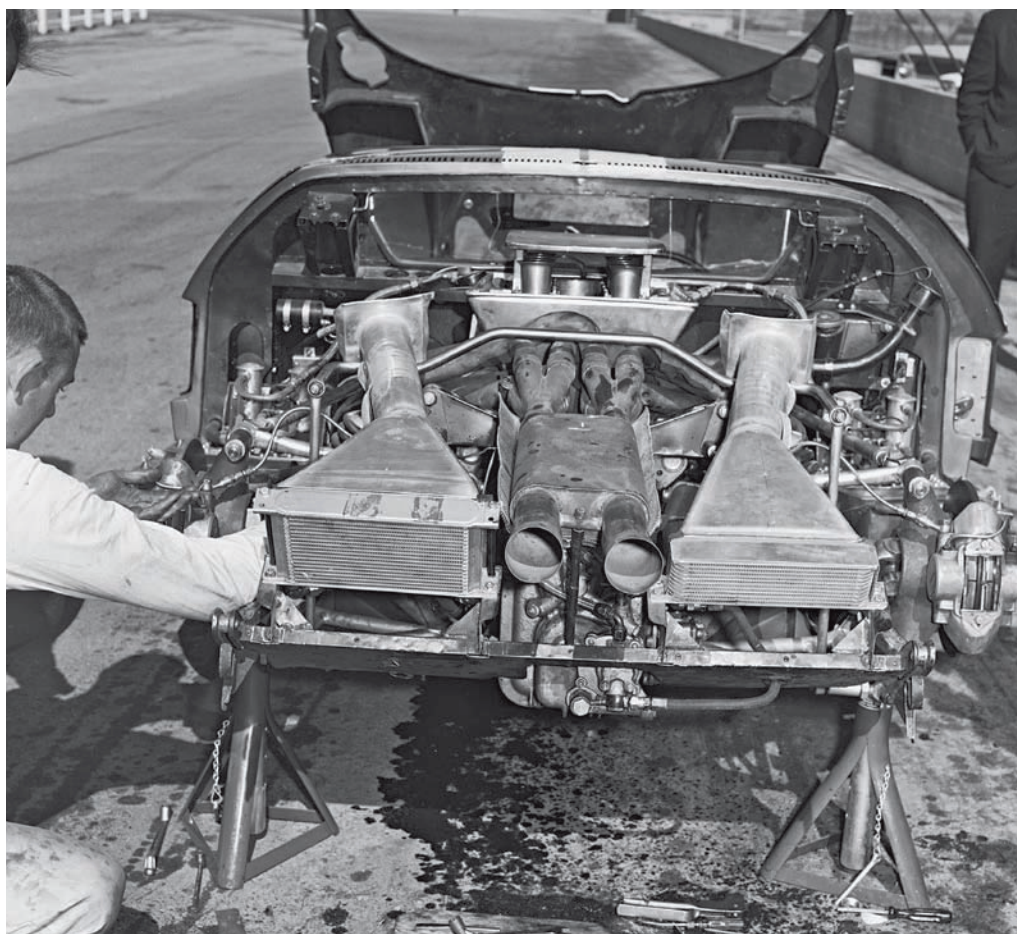
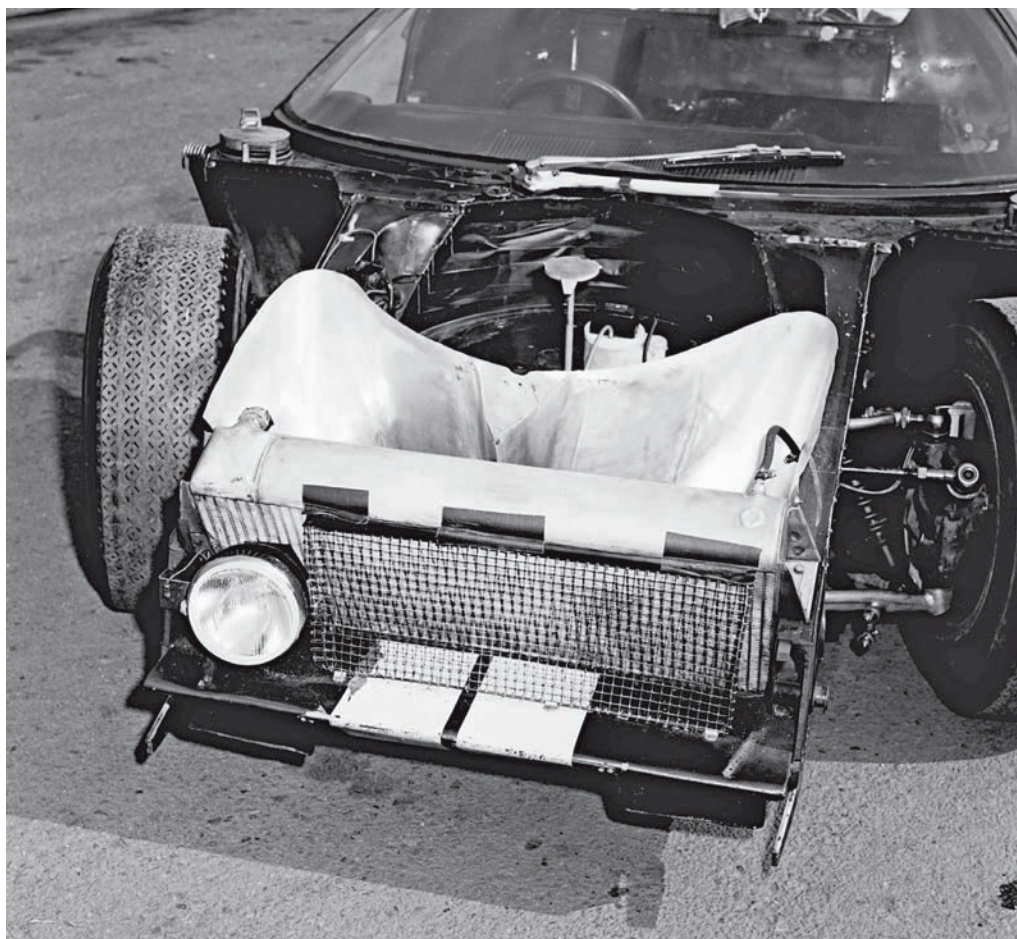
With the help of aerospace engineers from Ford subsidiary Philco Aeronutronic, Shelby American conducted "tuft tests" at Willow Springs International Raceway to improve the aerodynamics of the car.

continued on page 74

Right: Moving the oil and gearbox coolers from the front to the rear created room for a larger radiator. The internal ducting was also revised after wind tunnel tests in Dearborn. “When we took over the GT program from the English, we weren’t afraid to cut and hack, and that’s how we transformed those cars into winners in eight weeks.” —Carroll Smith

Below, left: The wire wheels were replaced by wider cast-magnesium Halibrands that not only looked bitchin’ but also saved weight. At the same time, Shelby American junked the skinny Dunlops used by FAV in favor of fatter Goodyears.

Below, right: No longer a show piece, the engine bay shows the relocated oil and gearbox coolers. Although the stock Colotti transaxle case was still used, it now housed Ford-built helical gears and an upgraded crown and pinion.



The Soul of the Machine

“PHIL REMINGTON IS THE BEST FABRICATOR IN THE WORLD, and that’s not his strong point. His strong point is his incredibly intuitive feel for machinery. Where there is a problem, by the time other people realize it, he’s already made six fixes.”

Race engineer Carroll Smith happened to be the source of that particular quote, but it could have come from just about anybody who worked with Remington during a remarkably long, varied, and fruitful career that stretched from flathead lakesters to the radical DeltaWing.

Consider, for example, the words of Peter Brock, designer of the Cobra Daytona Coupe at Shelby American: “We had some really good guys in the shop. *Really* good. And some of them could do some things as well as Phil. But he could do *everything* well, and he was unbelievably fast. He set such a high standard that it was difficult to work with him.”

And Bill Eaton, longtime Shelby American and All American Racers stalwart: “Phil is a human generator. I’ve never seen him get tired mentally or physically. And there doesn’t seem to be a bottom to his ability. Phil can do it all. He can rig a spring latch for a door and he can build an entire car body. He’s not just a fabricator; he’s an artist.”

And Dan Gurney, the founder of AAR: “Rem is a remnant of an age of American ingenuity. It doesn’t matter what you’re talking about, he can

do it. Tell him what’s wrong and he creates a solution. So many overnight fixes come to mind that I don’t even know where to begin. He’s just a great unstoppable force of nature.”

Remington was an essential cog in the Ford GT machine from the beginning to the end. He was in charge of installing the engine in the original prototype, and he was primarily responsible for the modifications that transformed the unloved J-Car into the invincible Mark IV. “Without him, the program would have been an unbelievable failure,” said gearbox guru Pete Weismann, who worked on transmissions at Kar-Kraft.

A native of Southern California, Remington grew up in the cradle of hot-rod civilization. As a teenager, he joined the Santa Monica Low Flyers, whose talented members included drivers Phil Hill and Richie Ginther; fuel-injection wizard-to-be Stu Hilborn; Jim Travers and Frank Coon, who formed the famed Traco engine shop; and cam-grinding maven Jack Engle. He served as a B-24 flight engineer in the Pacific during World War II and, after returning home, set a class record on the dry lake at El Mirage in a Model A Ford with a flathead V-8.

After that, he seemed to be everywhere. He shaped metal on Indy cars with fabricating legends Lujie Lesovsky and Emil Diedt. He did pioneering work in fiberglass—which he hated—and built a clever sports



Phil Remington (center) was a motorsports legend and one of the few non-drivers who were celebrated as heroes as much as Dan Gurney and A. J. Foyt.



Above: Remington was raised in Southern California in the cradle of hot rod civilization, and he continued to work on cutting-edge race cars virtually until the day he died, in 2013, at 92 years of age.

Left: Remington is caught in a rare contemplative moment. It was unusual not to find him hard at work on one project or another. And when he was, he usually worked harder and faster than anybody.

car for millionaire sportsman Sterling Edwards. He race-prepped midgets for another wealthy playboy, Howard Keck. He worked on engines with Eddie Meyer, the brother of three-time Indy 500 winner Louis Meyer. He even spent a year on an around-the-world program put together by Ford to promote its 1958 line of trucks.

Remington eventually ended up in Venice, California, at the shop where a team of all-stars assembled by Lance Reventlow—yet another rich automotive benefactor—built the Scarabs. He helped create the first, and thus far only, genuinely American Formula 1 car. Later, he almost single-handedly built the last of the Scarabs, a tidy midengine sports racer similar to the Lotus 19.

When Reventlow shuttered his Scarab operation, Carroll Shelby took over the shop. “I just changed payrolls, I guess you could say,” Remington said. A few weeks later, when Billy Krause broke a rear hub carrier while leading at Riverside in the Cobra’s maiden race, Remington picked up some forging blanks from Ted Halibrand—another old hot-rod friend—and fabbed up a set of new ones. These served as the prototypes for the production hub carriers, which, by the way, never broke again.

Remington’s role in improving the Ford GT has been well documented—everything from troubleshooting the original fuel system to developing a quick-change system for the brake pads to overhauling the bodywork of the J-Car. There was virtually no component that he didn’t improve in one way or another.

“It was my job to build the X-1, and there were no drawings, and we were way, way behind,” Eaton recalled. “About 3 o’clock on the day before it was getting ready to leave, I still hadn’t gotten around to the roll bar. When Phil found out, he really laid into me. Then he took off his jacket and rolled up his sleeves and said, ‘You weld and I’ll hammer.’ We were gas-welding aluminum, which is pretty painful. I had to pre-flux the rods and clean everything off after each one. He was working the power hammer, and he made the parts so fast, I could hardly keep up with him. The whole shop stopped to watch us.”

After the Le Mans program ended, Remington did a brief stint at Holman & Moody before finding a home in Southern California with Gurney at All American Racers. He had a hand in every AAR product, from championship-winning Indy Eagles to all-conquering Toyota GTP cars to the unconventional Alligator motorcycle. He continued to work full time into his 90s, not merely sitting at a desk and reading the newspaper but donning a blue shop apron on a daily basis and building parts for the DeltaWing that raced at Le Mans in 2012.

By then, Remington was taking blood thinners, which discouraged the wounds caused by inevitable nicks from closing. But he didn’t let it slow him down. He’d simply shove his bleeding finger in a bucket filled with water used to quench fresh welds and bind the cut with Super Glue. The last tool he made was a device that pulled his zipper up and down so he could get dressed for work.

Phil Remington died on February 9, 2013. He was 92.

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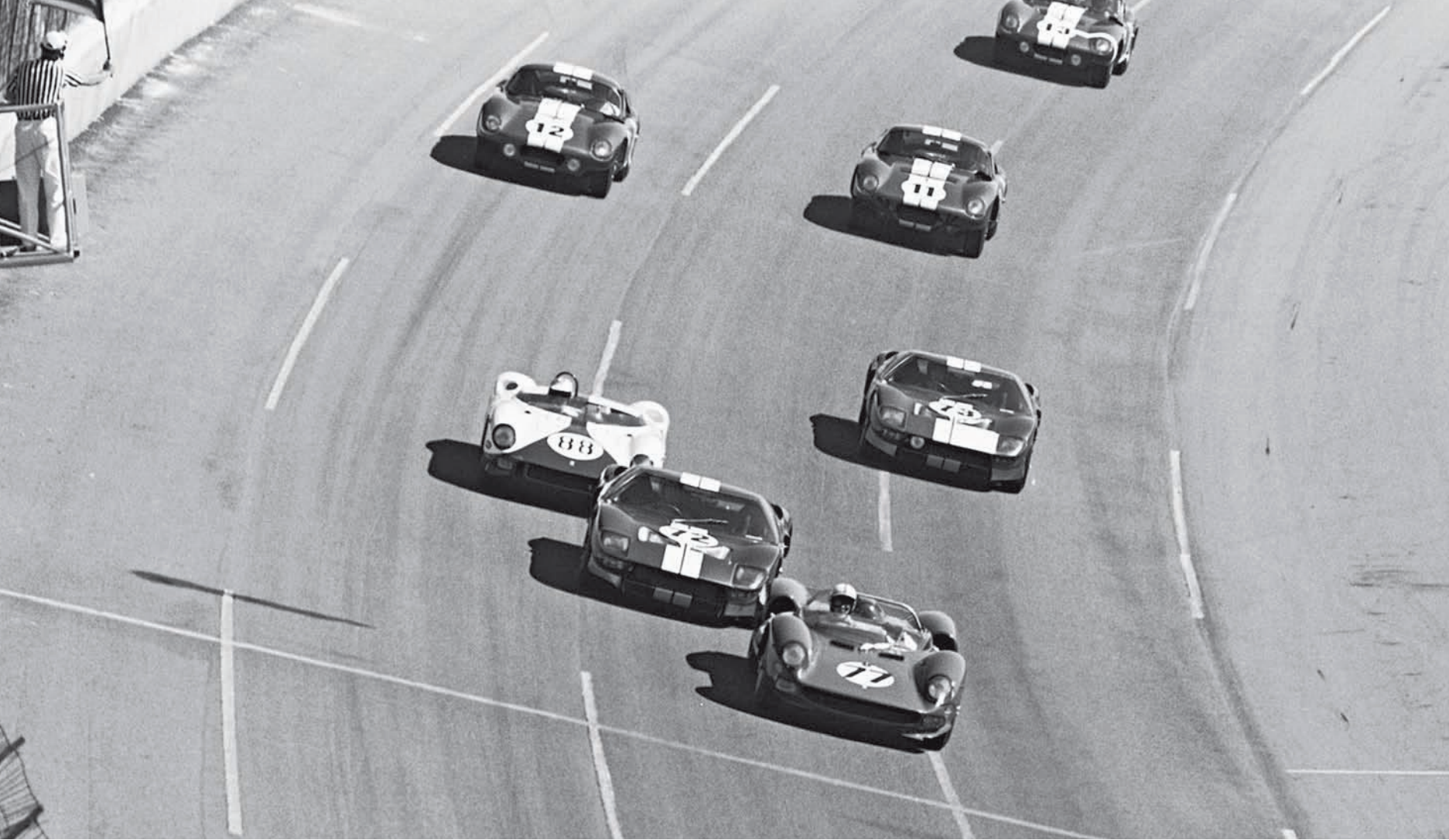
The 12 Hours of Sebring was only a month away. Contested since 1952 on a bumpy airfield circuit smack-dab in the humid heart of Florida, Sebring was the oldest American race on the championship schedule. But race promoter Alec Ulmann ran the event like his own fiefdom. To goose spectator interest, he invited Jim Hall to enter his innovative Chaparrals even though the cars didn't fit remotely into any existing championship category.

Born to West Texas oil money, Hall had earned a mechanical engineering degree from Caltech and done a year racing F1 in Europe before returning to Midland and creating the Chaparral empire. He had a private test track—Rattlesnake Raceway—behind his shop and a secret conduit to General Motors R&D. In 1963, he built the revolutionary Chaparral 2, which was the first car to feature a composite monocoque tub. The next year, Hall and the Chaparral 2 dominated the US Road Racing Championship. Sebring was to be the car's first race in serious international competition. But since it made at least as much horsepower as the Ford GT while weighing about 700 pounds less, it was the odd's-on favorite.

Ford saw the writing on the wall. "An outright win would appear possible only in the unlikely event that all major contenders experience trouble," an unnamed analyst wrote in an internal memo a week after Daytona. The major issue was the brakes, which were so fragile that the cars would have to be driven conservatively simply to make it to the finish. "In summary, therefore, it is the opinion of the GT and Sports Car Department that avoidance of a tarnished

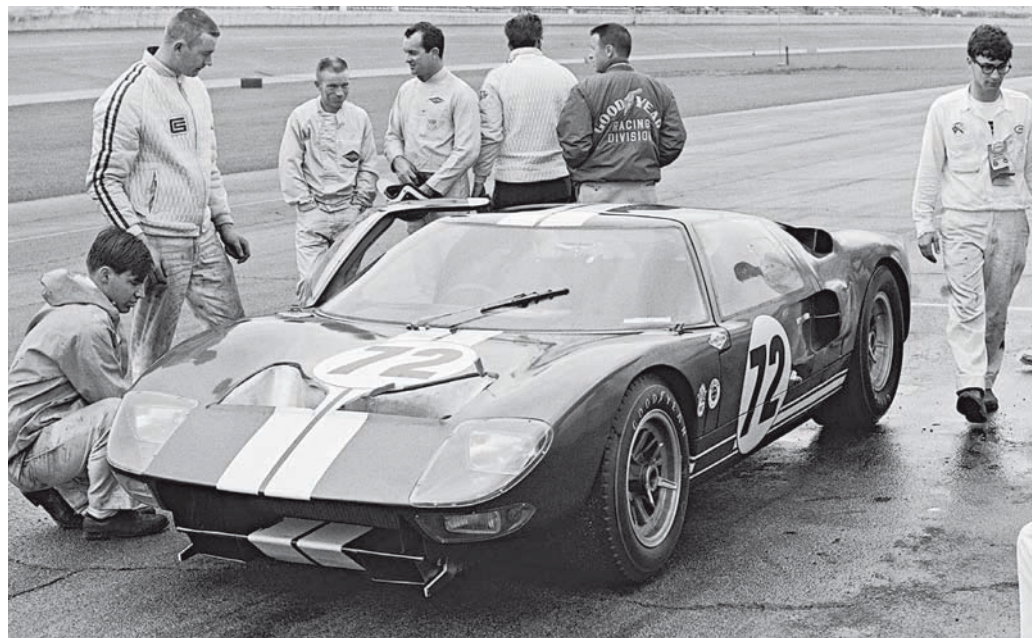
The Ford GT shared by Bondurant and Richie Ginther sits in the infield at Daytona International Speedway before the 2,000 Kilometers. "No one will ever know how much development and time went into those cars from the time we got them until we won at Daytona."
—John Ohlsen.





Above: At the start, pole-sitter John Surtees heads the field in his brand-new Ferrari 330 P2, but Bondurant is about to blow past for a short-lived lead.

Right: Practicing in the rain at Daytona finds the No. 72 car in the pits as Ginther and Bondurant discuss track conditions. Ohlsen stands near the front of the car while Morton walks toward the pit wall.



Sebring performance, coupled with improved chances to win at Le Mans and Reims, will outweigh the risk of generally adverse comment because of our not running Ford GTs at Sebring. Carroll Shelby concurs in this opinion.” In other words, he was recommending that Ford take its ball—or cars—and go home.

Braver souls higher up the corporate ladder prevailed, and the cars that had run at Daytona were entered at Sebring, with Bruce McLaren replacing Ruby and Phil Hill subbing for Bondurant. Ferrari, on the other hand, chose not to take his lumps, and neither the factory team nor NART

materialized, though a trio of second-echelon 330 Ps and several other privately owned Ferraris showed up. As expected, the race was a rout. Hall's white Chaparrals qualified 1-2, light-years ahead of the field. The Fords were 3-4, but 10 seconds off the pole. Gurney was fifth in the Lotus 19B, now fitted with a conventional 289. Next on the grid, coincidentally, was the new Ford-powered Lola T70, Eric Broadley's answer to the Ford GT.

It was nearly 100 degrees and humid as a sauna when the race was flagged off. Ginther led the first lap in GT/104 but pitted immediately because, it turned out, the brand-new Halibrand wheels had been machined improperly and were contacting the brake calipers. Over the next few hours, the car's suspension progressively disintegrated, and the Ginther/Hill car was out early. On the track, though Gurney stayed close for a while, Hall's Chaparral walked away from the competition. He was seven laps clear of the field at the half-way point, when threatening black clouds converged over the circuit. At 5:25 p.m., Sebring was hit with a deluge of biblical proportions—six inches of rain in 15 minutes. The winds were so powerful that the Good-year blimp seemed to levitate nose up. The track flooded, leading to the preposterous sight of spare wheels and tires floating down pit lane. While the rain raged, the leading Chaparral sat in the pits for 10 minutes, like a customer waiting for a take-out order. The windshield wiper broke while McLaren was in the Daytona-winning car. But he soldiered on, and he and Miles moved up after the rain stopped to finish a distant second, four laps behind the Chaparral. So Ford finished first in class, but nobody considered Sebring a victory.

The European season was scheduled to begin in two weeks with the Le Mans Test. The Sebring cars went straight from Florida to the FAV shop in Slough, where they were hastily repaired and refreshed before being shipped to France. Meanwhile, FAV prepared two other cars for the test weekend. GT/105, last raced at Reims the previous year, became the first Ford to be retrofitted with a ZF 5DS25 gearbox, which Wyer had ordered from Germany to replace the trouble-plagued Colotti. Another Wyer initiative was the construction of four roadsters, which he thought would be more agile and easier to drive on technical circuits such as the Nürburgring and the Targa Florio. One car had been tested briefly at Silverstone, and a second had been shipped to Venice. A third open car, GT/111, was sent to Le Mans. Like the other FAV car, it was dressed in wire wheels.

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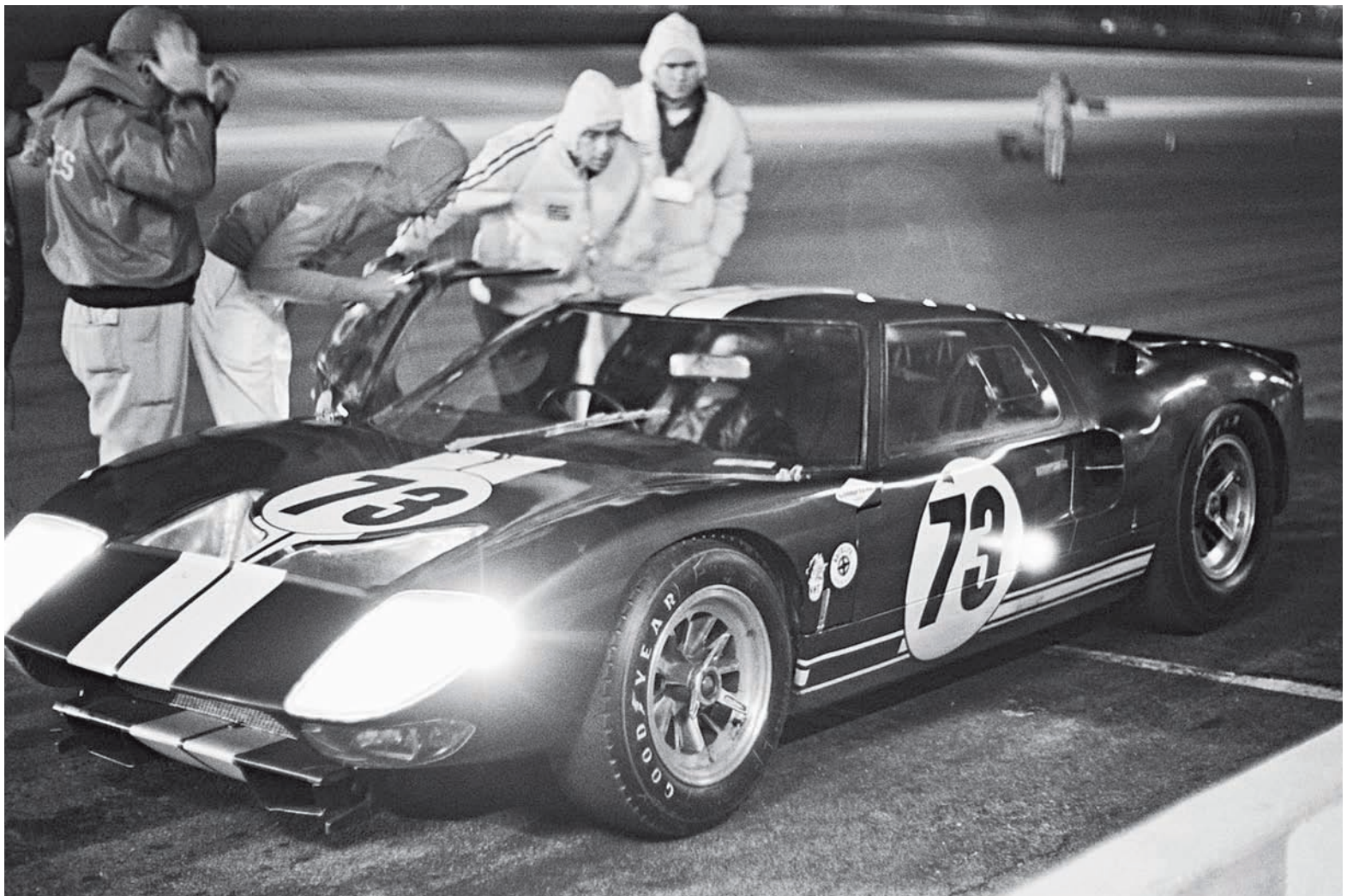
Top: Miles is flat-out on the banking of Turn 4. Even though he and Ruby had to baby their brakes to reach the finish, they continued to extend their lead. Note the chin spoilers added during practice to control front-end lift.

Above: Miles appeared to be leading on the track, but Gurney, in No. 44, was decimating the competition in his little white Lotus—until his motor expired with a holed piston late in the race.



Right: Miles exits the car with a big grin on his face during a planned pit stop while leading the race.

Below: The final night pit stop as the race nears its end. It gets cold at Daytona in February.



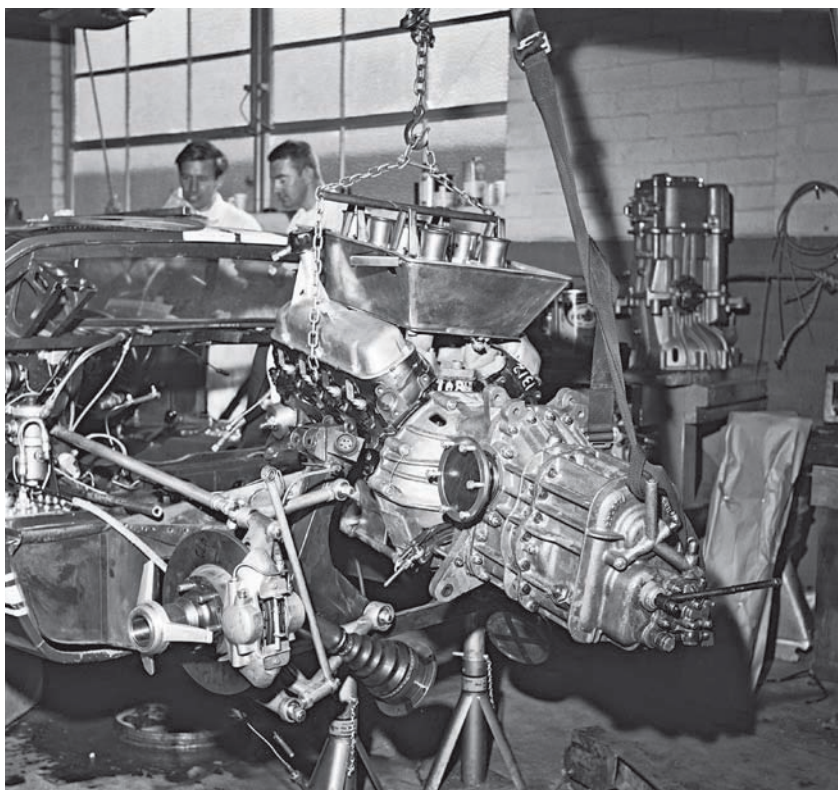


Right: A new engine awaits installation back in Venice after the race at Daytona before being shipped to Sebring. Note the rear suspension and the overmatched brake system.

Below: The race at Sebring begins with the traditional Le Mans start. The white Chaparrals qualified 1-2. The Ford GTs started 3-4, but this is as close to the lead as they would get during the next 12 hours.

Opposite, top: Ford GT nabs its maiden victory in Shelby American's first outing. Miles, Shelby, Ruby, Leo Beebe, and Ray Geddes (left to right) celebrate the win. Bondurant and Ginther finished third despite a 27-minute-long pit stop to replace the starter.

Opposite, bottom: On the morning of the 12-hour race at Sebring, Shelby outlines the team's strategy with drivers and mechanics.







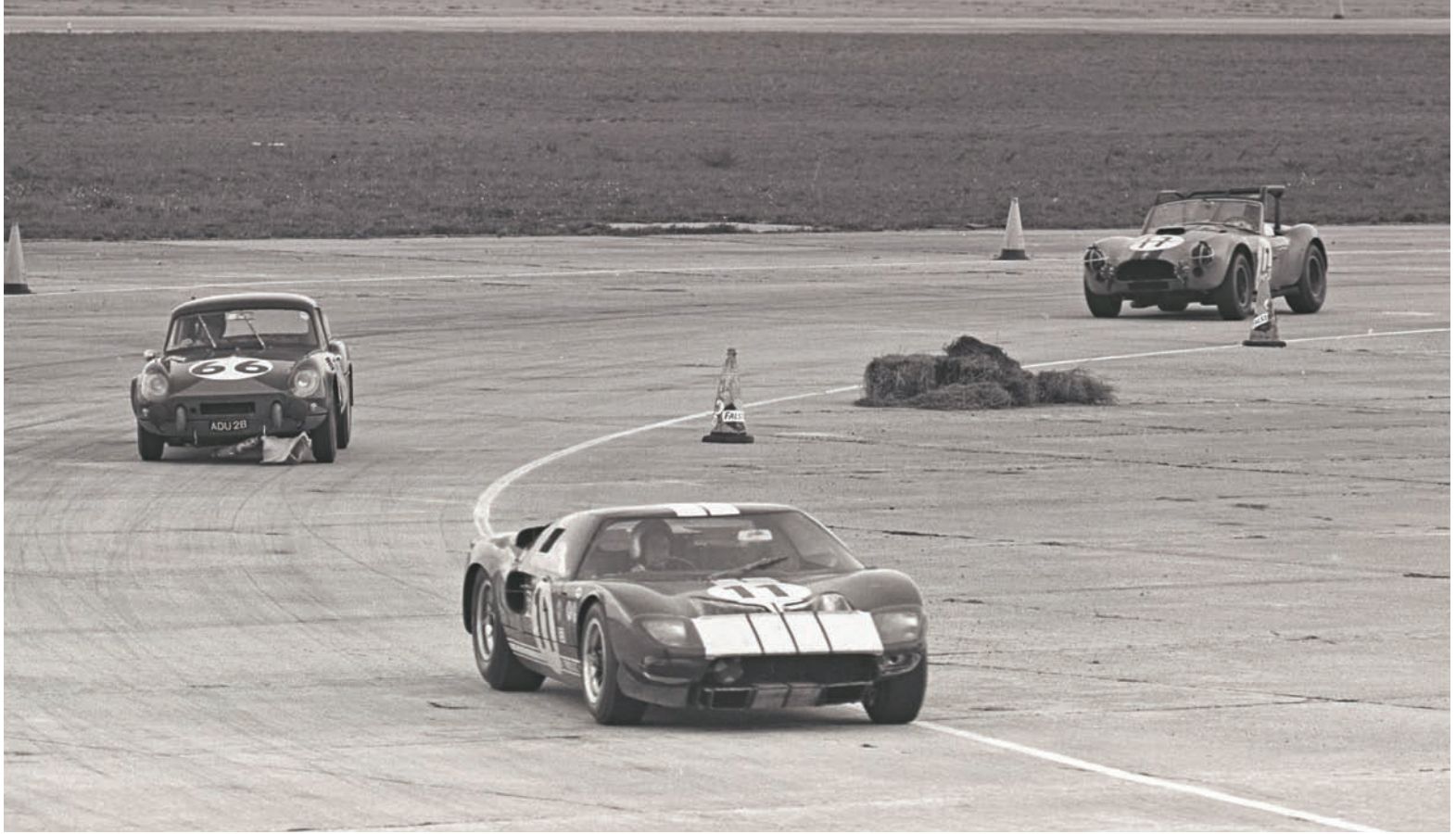
Above: Miles and Bruce McLaren couldn't compete with the Chaparrals, but they soldiered through fierce rain to finish second overall and first in class. "It surprised me to see how competitive the GTs felt. It [was] obvious that the Shelby team had done a great deal of work on the cars. The handling, braking, and acceleration were greatly improved by the bigger tires and wider rims. Some re-ducting around the front end improved both the brake and engine cooling. The Achilles' heel, the gearbox, while still not exactly a delight to use, was at least reliable with the Ford-made ring and pinion." —Bruce McLaren

Left: Ginther led the first lap but pitted immediately because the wheels had been machined improperly, causing the brake calipers to rub against them. He and Hill DNF'ed early after their suspension failed.

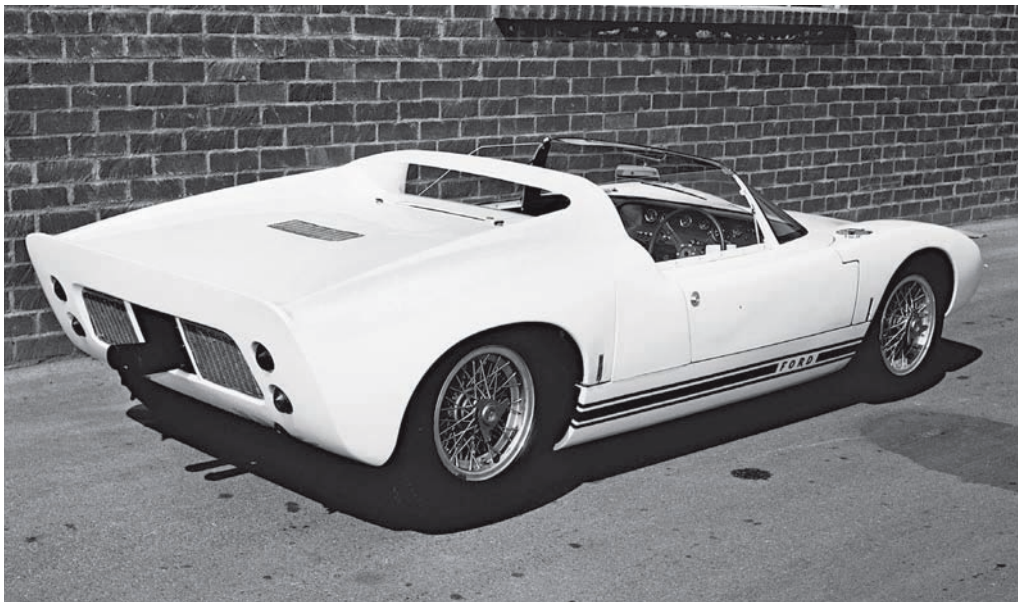
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Ford worked out the bugs in the new cars at Le Mans during a gloomy test weekend marred by the death of American driver Lucky Casner. The team also experimented with various aerodynamic appendages—canards, fins, spoilers, even noses. Shelby American had brought over a long, bulbous sheath that slipped over the existing nose like a prosthetic device. It looked like a bad gag gift, and it didn't work particularly well. But FAV had brought an alternative nose designed by Len Bailey, the Ford engineer who'd stayed on in England when Roy Lunn returned to the States. Testing later showed that it reduced the coefficient of drag from 0.41 to 0.35, which was worth the equivalent of 60 horsepower at 200 mph. Eventually, it would be adopted as the nose for all GT40s and Mark IIs.

Surtees was easily the quickest in his Ferrari 330 P2. Ford's mediocre performance proved to be a sign of things to come. At the end of the month, the championship circus moved to Milan. The Autodromo Nazionale Monza, built in the middle of a lush, tree-lined park in 1922, was the spiritual home of Italian motorsports. Each year, legendarily rabid fans known as *tifosi* turned up in huge numbers to root for Ferrari, and the Italian marque didn't disappoint, sweeping the first four positions during qualifying. Despite being fitted with fresh engines, GT/103 and GT/104 could qualify no better than fifth (Miles and McLaren) and eighth (Italian Umberto Maglioli and New Zealander Chris Amon, McLaren's young protégé). In 1965, the race was run on a circuit that combined the bumpy banking with the traditional road course. To the delight of the *tifosi*, it was a Ferrari runaway. Both Fords kept bottoming out on the banking. Maglioli crashed when his suspension broke. Miles and McLaren were third, four laps behind a pair of Ferraris in a race that lasted only 100 laps.



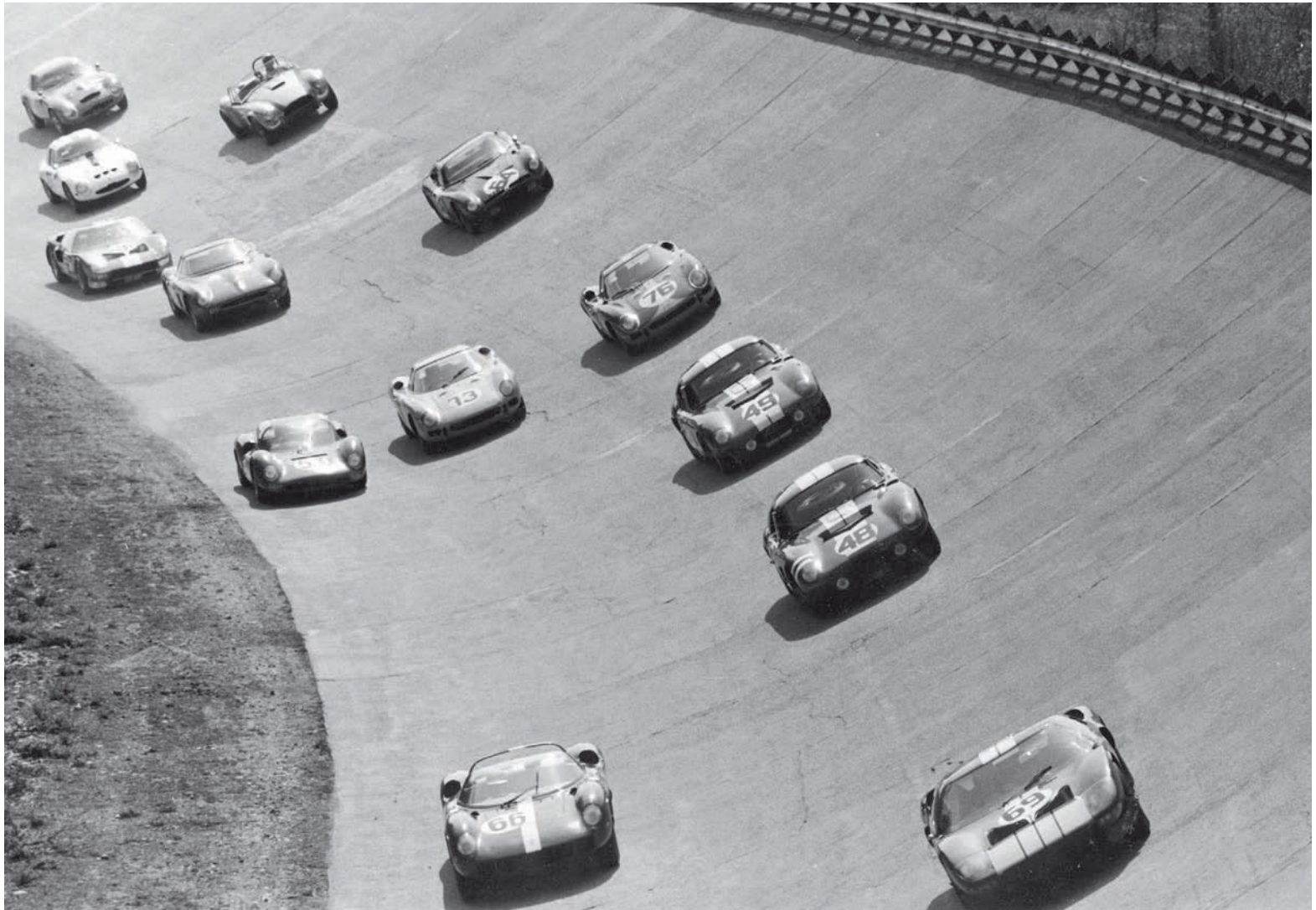
Above: McLaren leads the Bob Tullius/Charlie Gates Triumph Spitfire (No. 66) and the Graham Shaw/Dick Thompson Shelby Cobra (No. 17) across the old airport circuit at Sebring.



Left: GT/108, the first of four Ford GT roadsters ordered by John Wyer, arrived at Shelby American in March 1965. Although it was tested at Riverside and featured in *Sports Car Graphic* magazine, it never raced.

Next up was another Italian race where the Fords seemed even more likely to fail. The Targa Florio was the last genuine road race on the international calendar. Contested on tortuously twisting mountain roads and running through several small towns in Sicily, it favored light, nimble cars and drivers with local knowledge, and the Ford team had neither. To maximize the chances of success, the open car that had been tested at Le Mans—GT/111, now painted light green and fitted with a ZF gearbox—was prepared. The drivers were to be Bondurant, who'd run the Targa the previous year in a Cobra, and John Whitmore, who'd raced there two years earlier in a Mini Cooper.

Almost from the start of the race, the engine was running on seven cylinders, and the floor of the cockpit was slick with leaking oil. Still, Bondurant was third when he handed over to Whitmore after three 45-mile laps. Halfway through the race, a three-eared center-lock spinner flew off one of the Halibrand wheels. Italian comedy ensued. The wheel came loose, bounced into the air, and demolished an overhead line for an electrified railway before bounding into the



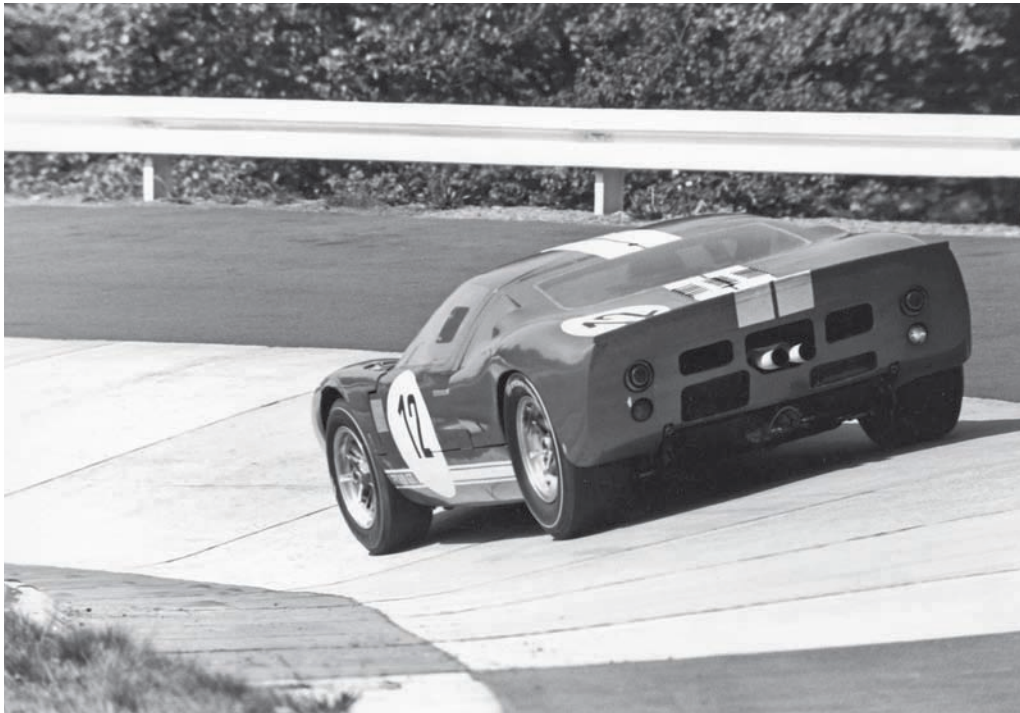
Top: The Miles/McLaren Ford leads a large group of cars on the banking at Monza. But the faster Ferraris are already well ahead and pulling away, leaving the GT a distant third.

Above: Even in roadster form, the Ford GT wasn't the best car for the course known as the Targa Florio. But Bondurant, partnered by John Whitmore, gave it his best shot. *Bob Bondurant Collection*

countryside. A policeman waded into the crowd and, after a heated argument, reclaimed the spinner from an opportunistic fan. Meanwhile, Whitmore laboriously pulled out the spare tire and, with several onlookers holding up the car, fitted it to the GT. Back in the pits, a damaged front anti-roll bar was disconnected, causing massive oversteer.

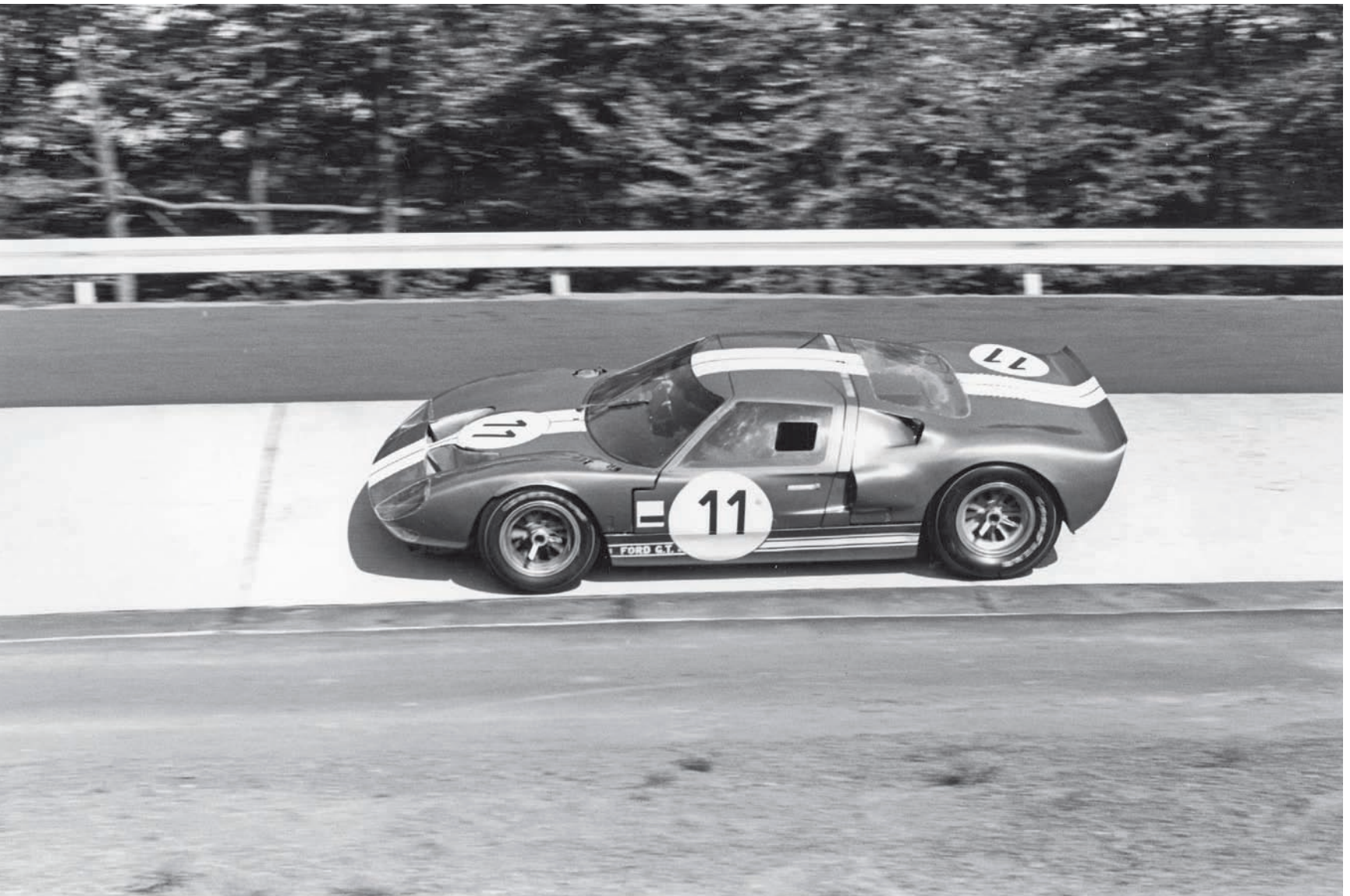
Bondurant made it to Lap 9, one lap from the finish, when he slid off the road on gravel and loose asphalt that hadn't been there the previous lap. "I hit a kilometer marker so hard, it broke the seat belt, shoved the front end in, and put me up on two wheels," Bondurant said. The right side of the right-hand-drive car slid along the pavement with the nose a few inches from the pavement before landing on all four wheels. "I went back into the village and had a beer. When Carroll Smith found me, he said, 'Where's the car?' I told him, 'You don't want to see it.'"

After the Targa Florio, the team decided to give Spa a reprieve to concentrate on the Nürburgring, where the GT had made its debut one year earlier. Shelby American brought its tired Daytona/Sebring cars. GT/104, basically unchanged, was shared by Amon and Ronnie Bucknum, another SoCal road racer who was also running a Honda in Formula 1. Hill and McLaren were in GT/103, which had been modified to accept a 5.3-liter engine. For Whitmore and Richard Attwood, FAV entered the last of the roadsters, GT/112, equipped with a new ZF transmission but old Borrani wire wheels. Ford France entered a fourth car for Frenchmen Maurice Trintignant and Guy Ligier. Although it wore the older wheels and 1964-style livery, it was one of the first production cars completed by FAV. As such, it used a different chassis nomenclature—GT40P/1003.



Left: At the Nürburgring, Hill and McLaren ran second to Surtees until a halfshaft snapped on the seventh lap. The extra grunt of the experimental 325-cubic-inch engine was thought to be the culprit.

Below: The Chris Amon/Ronnie Bucknum entry was equipped with a standard Shelby 289-cubic-inch engine. It finished eighth after being slowed by a misfire and then a long delay when Amon missed a pit signal, ran out of gas, and had to push the car a mile back to the pits.





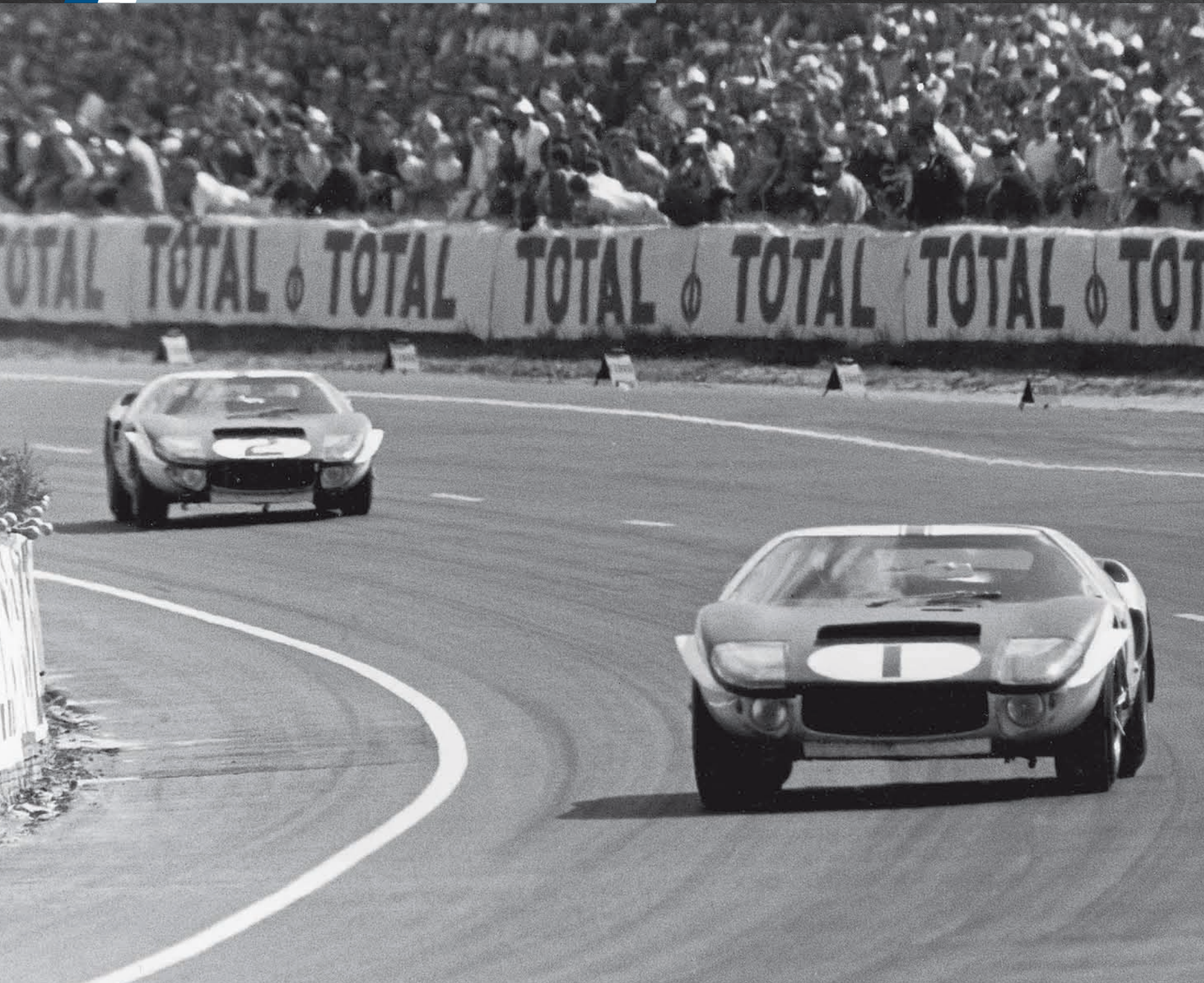
The Hill/McLaren Ford rests in the pits.

During practice, the extra power of the 325 twisted the driveshaft in GT/103. Even worse, Hill went only a few ticks quicker than he'd gone the previous year and qualified fourth behind a trio of Ferraris. The next two Fords were fifth and sixth, while Trintignant was ninth, a discouraging 24 seconds off pole. In the race, only Hill had the pace to run near the front; he was 20 seconds behind Surtees when a half-shaft snapped. The engine mounts failed in both the FAV and Ford France cars. Amon, whose car had been running on seven cylinders all race, missed a signal to pit and ran out of fuel. He manfully pushed the car nearly a mile—uphill—to the pits, where McLaren was hustled into the car. McLaren lapped slowly until the misfire magically cured itself. As it turned out, a broken plug lead had been shorting on the engine. With the problem solved, the Ford was as quick as the Ferraris, but McLaren had lost so much time that the car could finish no better than eighth.

To this point, the European season had been underwhelming and most observers had been unimpressed. "As so often happens with big corporations where the lines of communication are spread over several oceans, [Ford was] caught in a high state of unpreparedness and [the GTs] arrived little better than kit cars," Henry Manney wrote in *Road & Track*. "There didn't seem to be enough mechanics to go around, and these poor devils had already gone several nights without sleep when they got to the 'Ring. As if this wasn't enough, there seemed to be some doubt what sort of tires to wear, gearboxes were playing up, and team boss Carroll Smith looked more and more as if he had been drug through a knothole backward. For a race equally as important as Le Mans, it was definitely not the way to run a railroad."

Le Mans was only a month away. But Ford had a secret weapon up its sleeve. Now, the question was whether it would blow up in the team's face.

4



MAY 1965 - JUNE 1965

BIG BLOCK, BIG HOPES



IN MID-MAY, WHILE MOST OF THE SHELBY AMERICAN TEAM WAS IN ENGLAND

recovering from the Targa Florio and preparing for the Nürburgring, Ken Miles and Phil Remington flew to Detroit. Roy Lunn and the crew at Kar-Kraft had put together an experimental vehicle they called the X-car. Almost a year earlier, FAV had delivered chassis GT/106 to Dearborn so Kar-Kraft could try to squeeze a big-block 427-cubic-inch motor into the engine bay. But the installation hadn't been completed until now, and this was to be the car's first test. Neither Remington nor Miles expected much. After all, power had never been the GT's problem. No, the big issue had always been weight, and the 427 was about 150 pounds heavier than the 289.

For the past two days, the car had been shaken down at Ford's low-speed ride-and-handling test track by "Gentleman" Tom Payne, a 41-year-old club racer—celebrated locally for racing in a business suit—who'd driven Cobras to wins in several SCCA races. But now the dog-and-pony show had moved to the Michigan Proving Ground in Romeo, 90 minutes north of Detroit, where the X-car would be tested on the high-speed, 5-mile banked oval. In the late morning, despite a wicked crosswind, Payne got the car up to 180 mph. Miles was impressed enough to take a few familiarization laps before the crew broke for lunch. After a sandwich, Miles returned to the cockpit. He took his time getting up to speed. Shortly before 4:00 p.m., he announced that he was going to "let it out a little." Next time on the track, he stunned himself and everybody else by cutting a lap at an average speed of 201.5 mph, maxxing out north of 210 mph.

"What does everybody think?" Lunn asked when the session was over.

"That's the car I want to drive at Le Mans this year," Miles said.

Thus began the most acrimonious debate of Ford's Le Mans program, as proponents of the 7.0-liter, 427-cubic-inch monster fought a contentious battle with advocates of the 4.7-liter, 289-cubic-inch V-8. This is a controversy that rages to this day, with some people claiming that the small-block could have won Le Mans while others contend that the big-block was a necessary upgrade. The only surprise, really, is that the argument didn't begin

After the start at Le Mans in 1965, the big-block Fords ran away from the field. "During the first two hours, Chris Amon and I enjoyed some real motor racing in the 7-liter Fords. We both had to resist the temptation to make those electrifying opening laps a real carve-it-up sprint." —Bruce McLaren

sooner. It's unclear who deserves the credit—or blame—for the proposal to stuff the 427 in the Ford GT. But there's no question that the idea was, at least in retrospect, a no-brainer.

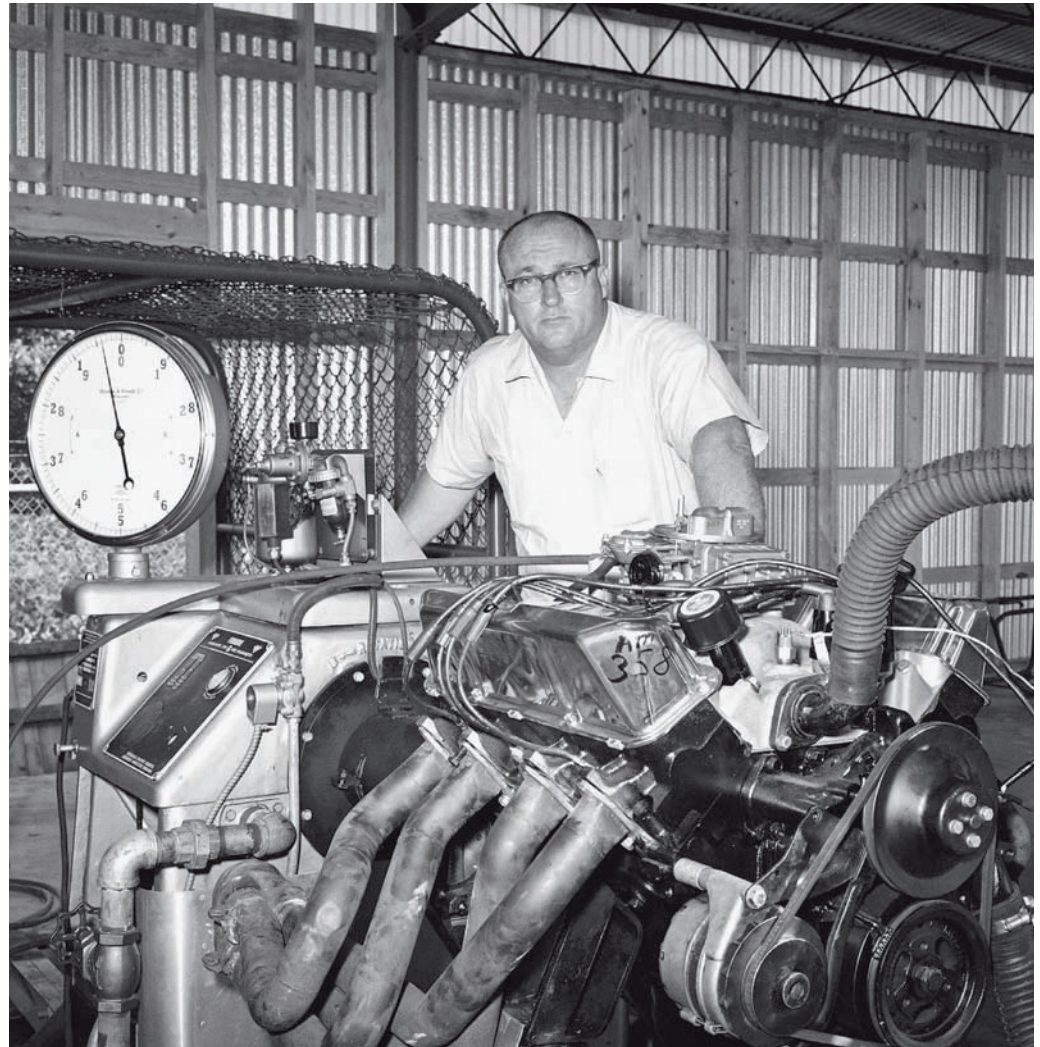
Ford had introduced the FE line of push-rod V-8s in 1958. When it debuted, it came in 332-, 352-, and 361-cubic-inch forms, but the hefty cylinder block allowed plenty of room for the bore and stroke to grow. During the next two decades, Ford's "wedge" motor—named for the shape of the combustion chamber—would be configured as a 390, 406, 410, 427, and 428, and it was found not only in cars and trucks but also in buses, boats, and industrial pumps. The 406 was developed in 1962 for stock car racing, but it was trounced by GM products. So for 1963, Ford enlarged the bore to displace 427 cubic inches, or 7.0 liters, which was the maximum permitted by NASCAR. (Technically, the swept area was only 425 cubic inches, but Ford figured that bigger was better even when it came to the engine's name.) In addition to the race motor, the 427 was sold in milder form as motivation for muscle cars of the era. A high-performance side-oiler version was also fitted to limited numbers of Shelby Cobras.

In its original form, the 427 race motor incorporated a low-rise intake manifold. For 1964, the breathing was improved with a high-rise manifold that required a bubble in the hood, but this was eventually outlawed by NASCAR (as was a single-overhead-cam motor known as the "cammer," which went on to glory in drag racing). So by 1965, Ford had settled on a medium-rise side-oiler, so called because an oil galley was machined into the left side of the block to keep the crankshaft main bearing journals well lubricated at high rpm. In stock-car form, a 427 with a compression ratio of 12.0:1 made 525 horsepower at 6,400 rpm. It was so dominant that it would win 49 of the 55 races on the Grand National schedule in 1964.

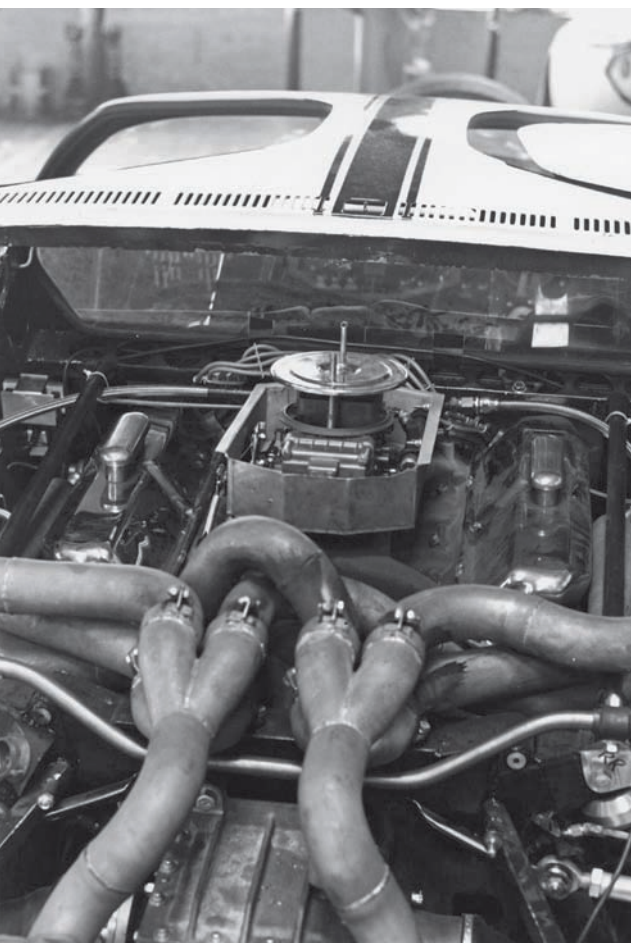
The big-block engines used at Kar-Kraft had been prepared in Charlotte, North Carolina, by Holman & Moody. This made perfect sense since Holman & Moody was Ford's analog for Shelby American in stock car racing. But the motors weren't detuned versions of the NASCAR engines. Ford instead chose to go with a lightweight, 425-horsepower 427 that had been developed for the Cobra. Simulations showed that, with the big motor, a GT ought to be able to lap Le Mans at between 3:30 and 3:35. The previous year, Richie Ginther had been the fastest Ford qualifier at 3:45.3

Chassis GT/106 and GT/107 had been delivered to Kar-Kraft with 289s early in the summer of 1964. Several months passed before the engines were pulled so work could begin on the big-block installation. Even then, progress was glacial. "At the outset," Lunn wrote later in a Society of Automotive Engineers paper, "it should be emphasized that the exercise was intended to generate information for a future model, and there was no intention of racing the car."

At the time, Kar-Kraft's top priority was developing a replacement for the fragile Colotti gearbox. It was decided to use the heavy-duty gear cluster from Ford's synchromesh four-speed

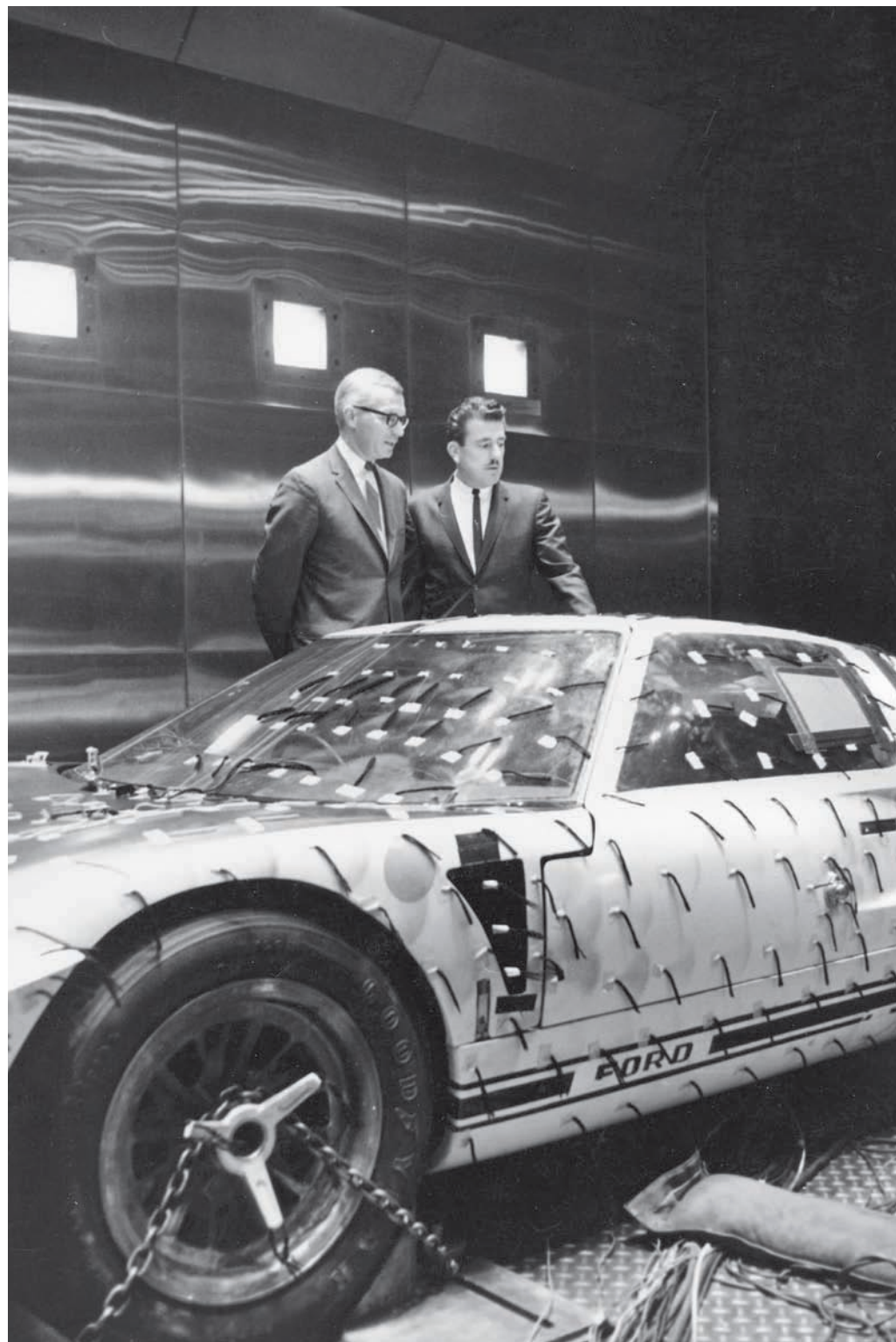


In later years, the 427s would be built and dyno'ed in Dearborn before being installed in race cars. But the first two big-blocks came from Holman & Moody. Here, company co-founder John Holman stands next to the V-8 behind so many stock car victories.



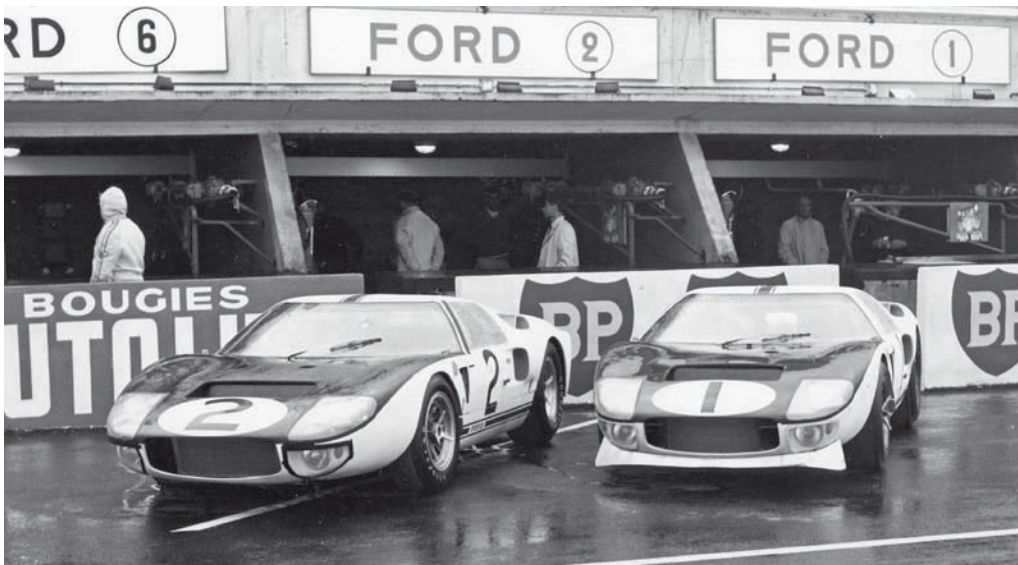
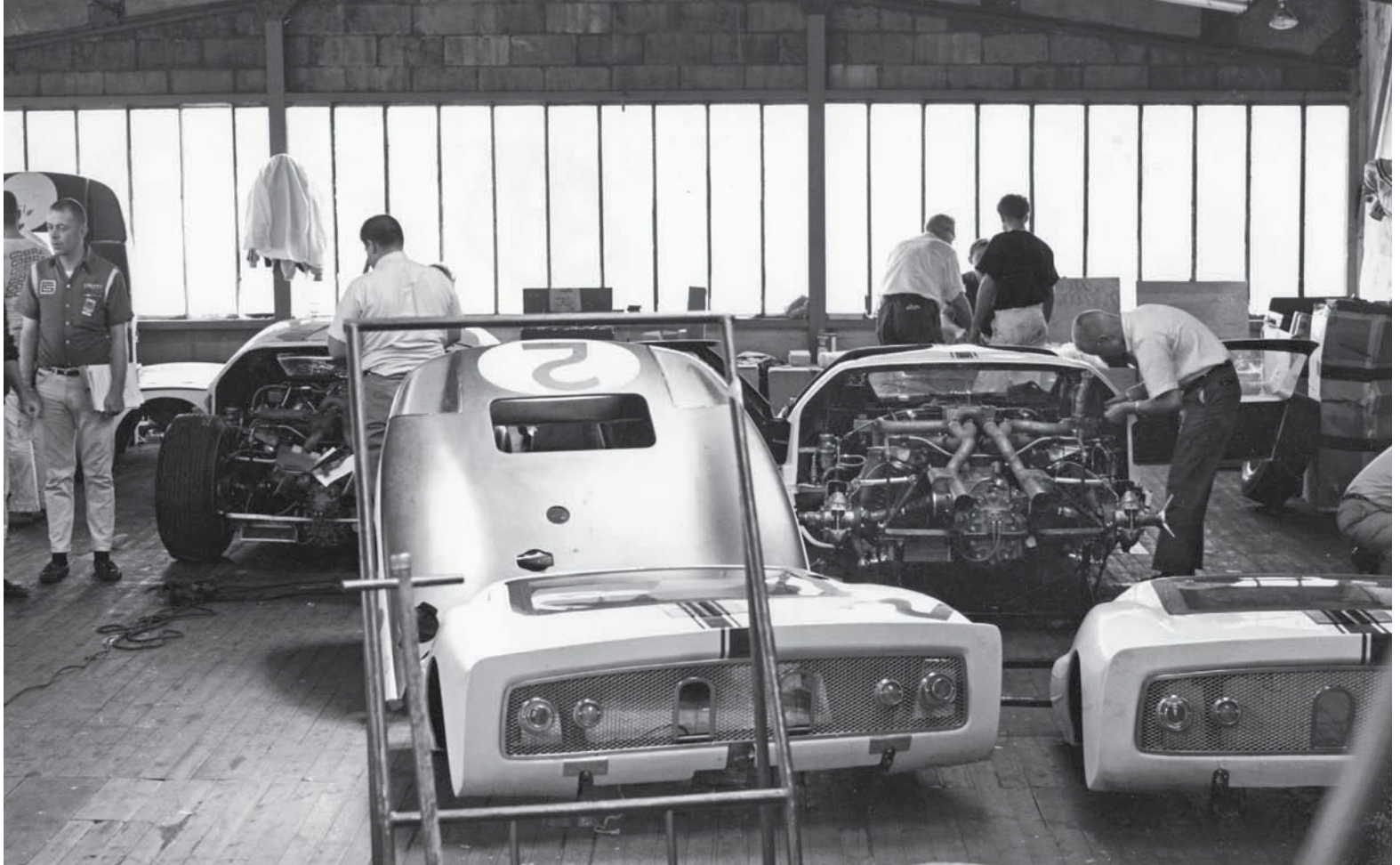
Above: For Le Mans in 1965, 427-cubic-inch V-8s were hastily dropped into a pair of Ford GTs, which were dubbed Mark IIs. At the time, the FE line of pushrod motors was the dominant engine in NASCAR.

Right: There had been virtually no time to develop the cars prior to Le Mans. Here, Jacque Passino (left), who oversaw Ford's racing program, and Shelby American team manager Al Dowd attend a wind-tunnel test of the brand-new Mark II.



Toploader—which had been introduced in 1962 to replace the venerable Borg-Warner T-10—already found in muscle cars equipped with the 427. A team led by Ed Hull and young engineer Pete Weismann, who would go on to become one of the world's foremost transmission designers, created a lightweight magnesium case to house the gearset. Incoming torque ran through a two-plate dry clutch, and the back end of the unit contained a pair of quick-change gears.

The new transaxle was designated as the T-44, and while it was big and heavy, it could handle the torque of the 427. "The gearbox is easy to shift after broken in and has completely unbeatable synchros," Miles later told *Road & Track*. Privately, though, Shelby American team

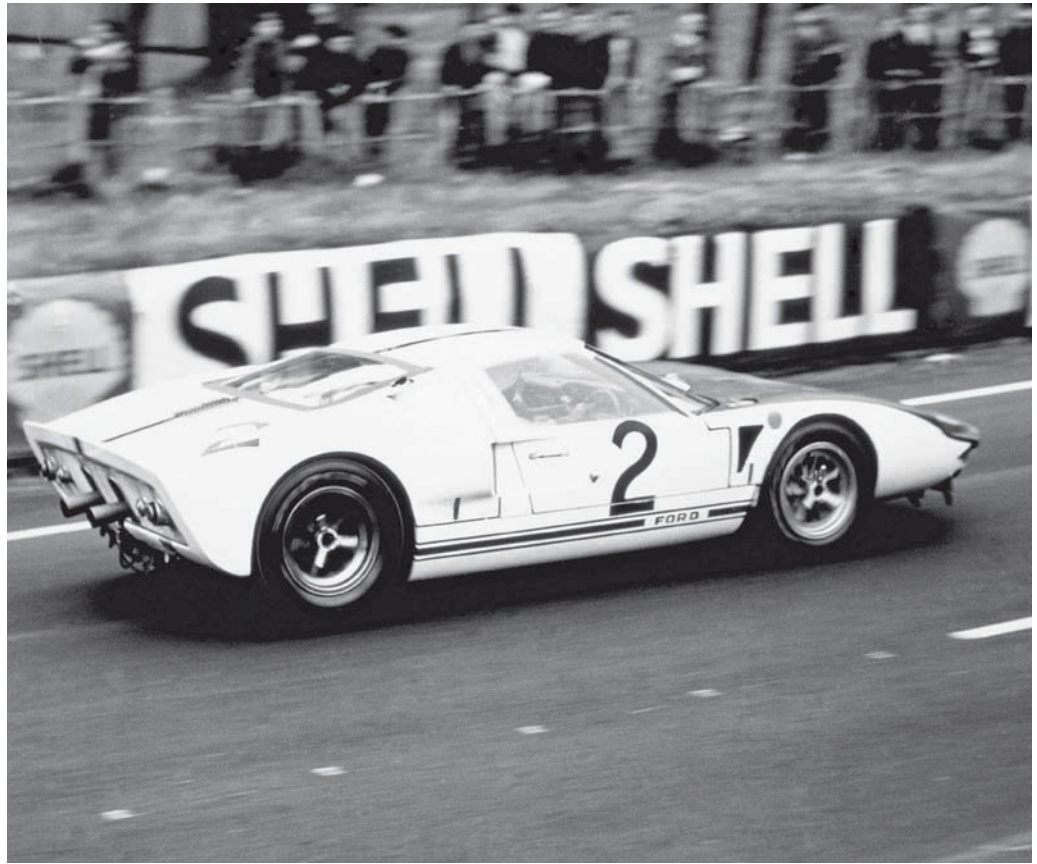


Above: With two Mark IIs and four small-block GTs to take care of, Shelby American mechanics were overworked at Le Mans—especially after they were ordered to swap out a pair of 325s for conventional 289s at the 11th hour.

Left: The two Mark IIs underwent substantial changes during practice to cure handling woes. Here, the No. 1 car sports a crudely applied air dam while the other doesn't—yet .

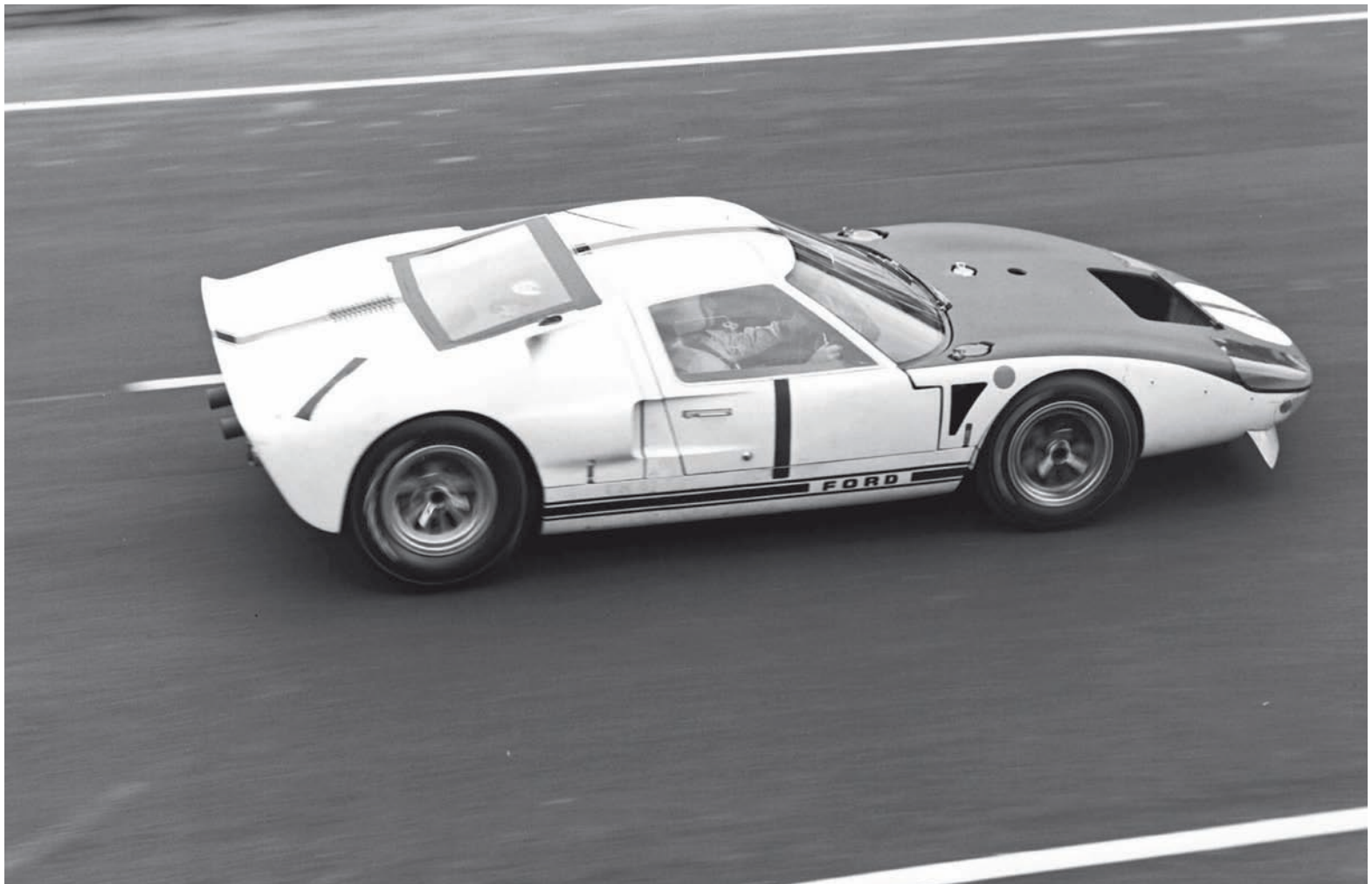
members bitched constantly about the endless hours they had to devote to breaking in trannies at the racetrack, and they begged the folks at Kar-Kraft to do this on their dynos in Dearborn before shipping the gearboxes to California. Eventually, Kar-Kraft would develop not one but two automatic transmissions as potential alternatives to the T-44.

But the gearbox was only one reason the engine project was moving so slowly. The other issue was that the plan to develop the big-block motor for road racing provoked strident pushback from FAV. John Wyer lobbied vociferously against the project, which he considered unnecessary and ill-advised. "There is no evidence that the Ford G.T. is not going to be fast enough for Le Mans," FAV director Walter Hayes wrote, no doubt at Wyer's request, in a memo to Dearborn. "Our problem is not power but reliability, and all the development and testing has been with the existing engine. I think it is a dangerous risk to put all that extra power through the transmission, which has proved to be the main questionable component of this vehicle."



Right: Phil Hill and Chris Amon shared one of the Mark IIs, shown here in practice in a relatively “clean” aerodynamic configuration.

Below: Bruce McLaren and Ken Miles were in the second Mark II, which here sports an air dam but is still making do with a duck tail spoiler on the rear deck.





Hayes' memo fell on deaf ears. First of all, the new T-44 seemed likely to solve the car's transmission problems. Second and more important, the folks in Dearborn weren't convinced that the GT, in current form, was quick enough to win Le Mans. At Monza, which was nearly as fast as Le Mans, the 289 cars had been thoroughly outpaced by the Ferraris. That said, swapping engines in midseason was a huge gamble, especially since it wasn't simply a matter of yanking out the old motor and dropping the new one neatly into its place. "The extra cubic inches came with extra weight, which meant a bigger and heavier gearbox, bigger and heavier brakes, more cooling, and so on," John Horsman said. "But that was the engine they knew. The fact that the whole car had to be designed around it wasn't their concern."

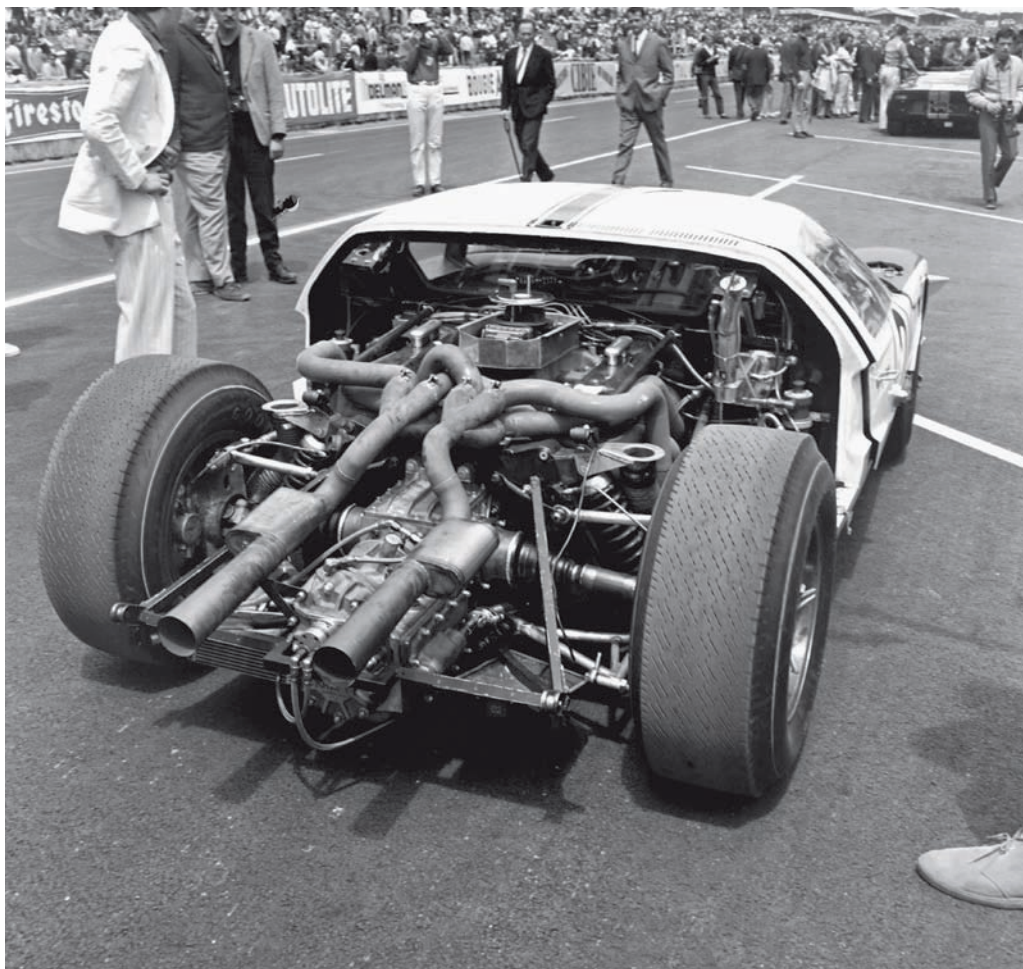
To fit the 427 in the engine bay, both the seat and the rear bulkhead had to be modified. That was the easy part. The bigger challenge was dealing with the extra 150 or so pounds and greater cooling requirements. Larger Halibrand wheels were spec'd—to the ones Shelby was already using in his 289s—and the T-44 transaxle was installed. The front and rear structures attached to each end of the monocoque were strengthened. A longer nose was designed to accommodate a larger radiator, and a remote oil tank was attached to the bulkhead. The conversion wasn't completed until April, and it wasn't until May that the first tests were run. But almost immediately after Miles pushed the car past 200 mph, Ford decided to race the 427, and the crew at Kar-Kraft started working feverishly to finish the second car.

Le Mans was less than five weeks away.

Above: Aided by a chin spoiler and canards affixed to the front fenders, Hill claimed the pole with a record lap at 3:33 or 141.37 mph. Unofficially, he was timed at 213 mph on the Mulsanne straight in what was clearly the fastest car ever run at Le Mans.

Opposite, top: Carroll Shelby left the cowboy hat and western boots behind when he came to France.

Opposite, bottom: The big-block motor glints in all its muscular glory. The engine was so powerful that Kar-Kraft had to develop a new transmission, the T-44, to handle all the grunt. The gearbox suffered catastrophic teething problems at Le Mans.



The first Mark II, as the big-block car was dubbed, performed well in a durability test at Riverside. But the second, GT/107, wasn't finished soon enough to turn a wheel before Le Mans, so Ford wanted to hedge its bets by entering a couple of small-block cars. Unfortunately, unlike virtually every other race in the world, Le Mans entries are granted by invitation only. Shelby American had been awarded two entries, which were going to be filled by the new 7.0-liter cars, and FAV and Ford France had two more slots for 289s—a light-green coupe (GT40P/1006) with the Len Bailey nose for John Whitmore and Innes Ireland, and a white roadster (GT/109) with a ZF box for Maurice Trintignant and Guy Ligier. To fill out the team, Wyer was enlisted to persuade two other competitors to enter cars on Ford's behalf. Well-known privateer Rob Walker, the debonair heir to the Johnnie Walker liquor fortune, agreed to assign his entry to GT40P/1004, which was to be driven by Bob Bondurant and Umberto Maglioli, while the Swiss team, Scuderia Filipinetti, entered GT40P/1005 for Ronnie Bucknum and Herbert Muller. Both of these cars were equipped with 325-cubic-inch engines rather than the usual 289s.

The opening night of practice was canceled—for the first time ever—by a storm so fierce that it blew down trees. Thursday night, the big-block cars were so squirrely that even members of the team started referring to them as “cast-iron monsters.” The long nose was producing an alarming amount of front-end lift. In an effort to keep the cars on the road, Shelby American fabricators kept ducking behind the pits to cut up sheets of aluminum into crudely applied aerodynamic aids—front air dams, canards above the front wheel arches, rear spoilers, and dramatic tailfins reminiscent of a 1950s-era show car. The appendages gave the cars something of a Frankenstein look, but the mods did the trick. During Friday night practice, which had been added to replace the canceled session, Carroll Shelby sidled over to Phil Hill and casually told him to stop babying the car and let it out. “All the way out?” Hill asked. Shelby said yes. Pushing hard, Hill snagged the pole with a lap at 3:33, which was 5.1



Above: Miles and Shelby American general manager Peyton Cramer watch the action from the pits. Miles did most of the initial testing of the 427, and he lobbied fiercely to race it at Le Mans.

Left: Bob Negstad, senior project engineer at Ford Motor Company, tests the suspension of a Mark II before the race. A mixture of Ford, Kar-Kraft, and Shelby American personnel worked on the cars.

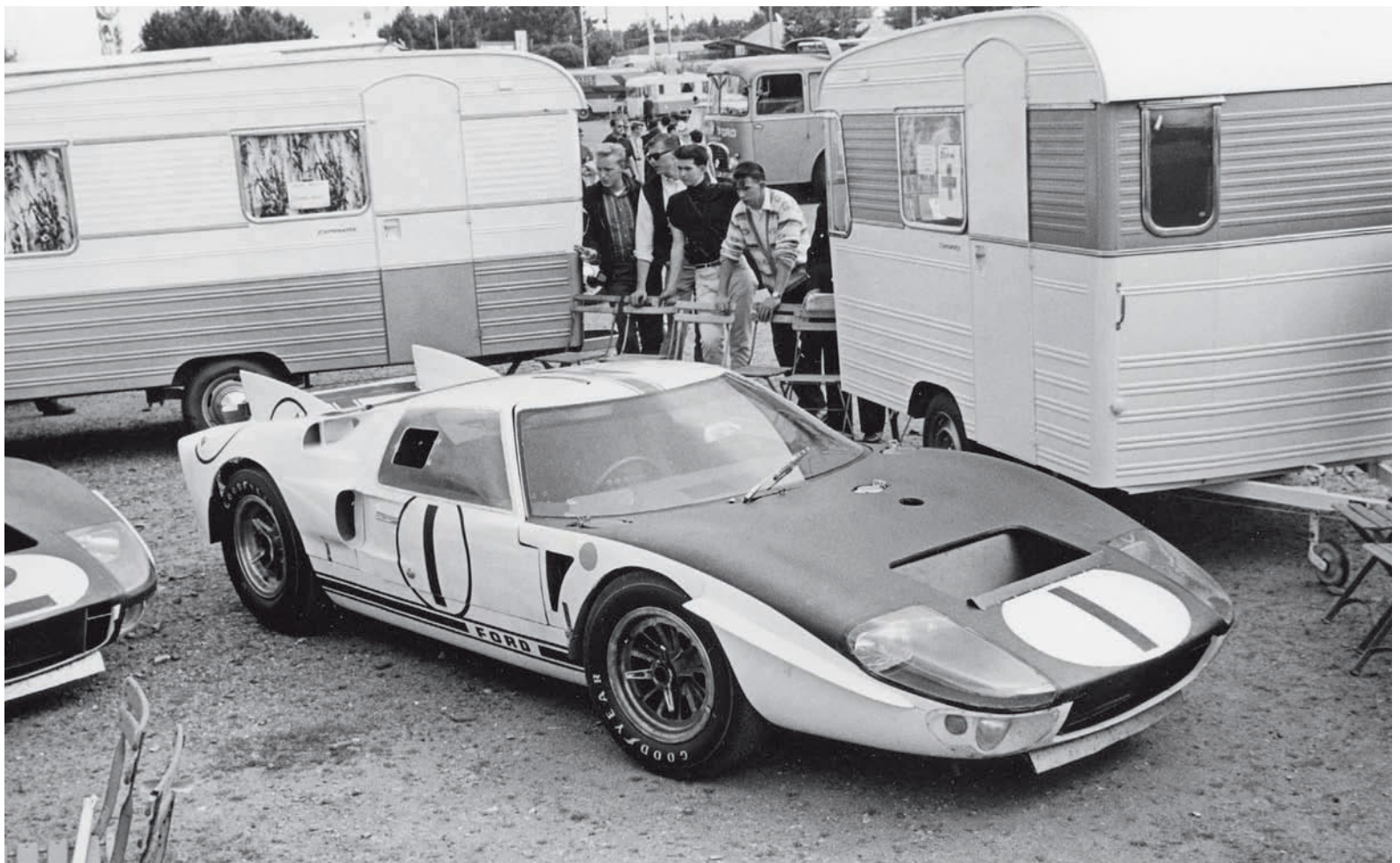
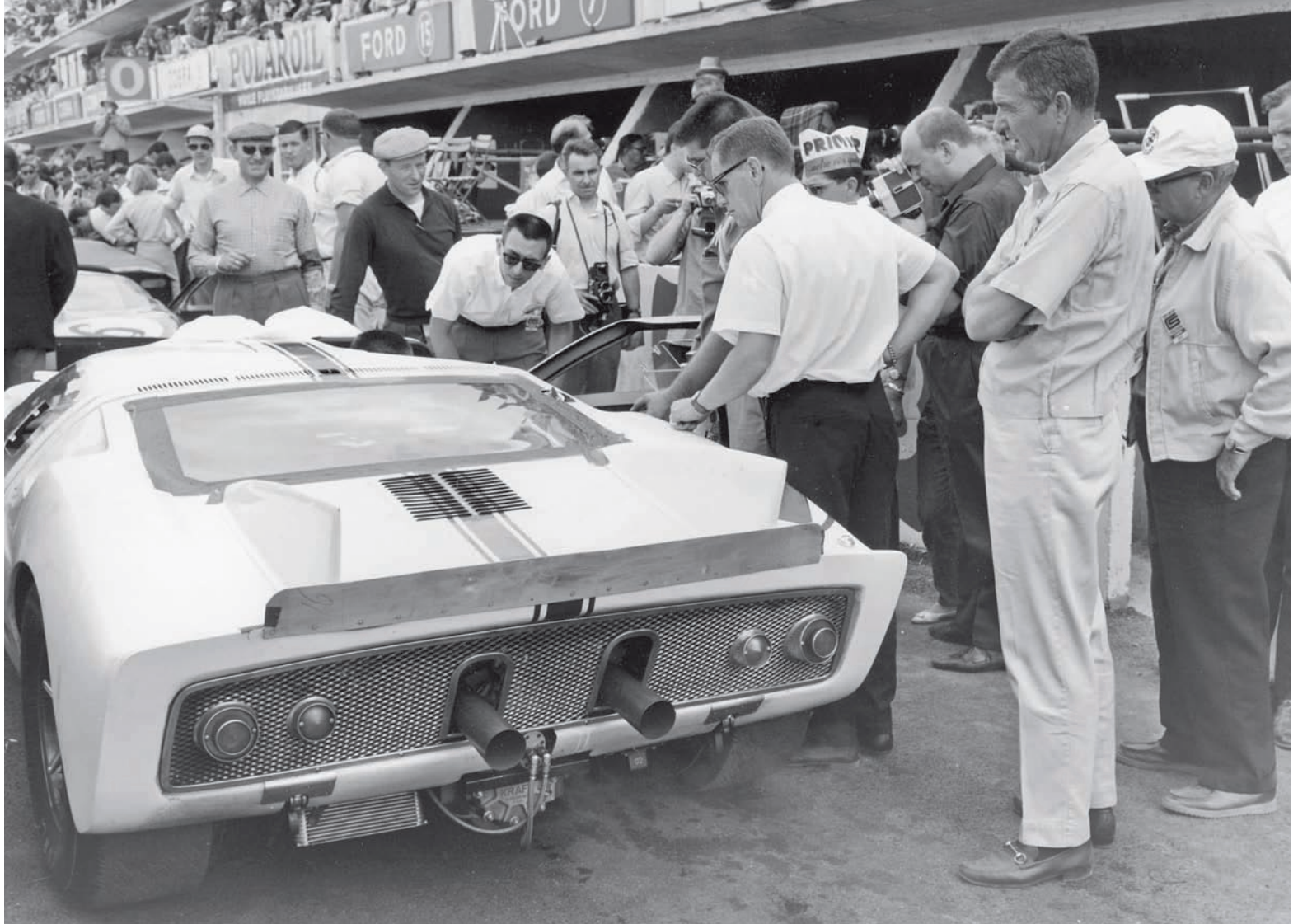
Opposite, top: Roy Lunn and Shelby, standing behind him, examine a Mark II in the pits. By this time, a bigger spoiler and fins had been added to the rear deck.

seconds faster than John Surtees in a Ferrari 330 P2 and 12.9 seconds faster than he'd gone the previous year in the 255-cubic-inch GT. The rest of the Fords were an encouraging third, fourth, fifth, and tenth, with the French entry 13th in a roadster that was unsuited to the high-speed circuit. Unofficially, Hill hit 213 mph on the Mulsanne straight.

Of course, Bondurant managed 212 mph with a small-block punched out to 325 cubic inches, which was pretty damn fast. Too fast, in the minds of the Ford brain trust. In the interest of longevity, it was decided on Friday night to swap out the 325s for a pair of 289s. The mechanics had already been working like proverbial one-armed paperhangers to whip the cast-iron monsters into shape. Plus, they were taking care of four cars rather than the expected two. The unanticipated engine changes kept them in the garage into the wee hours of Saturday morning. *Road & Track's* Henry Manney described the scene as "Hogarthian"—surely the first and last time this term was used in an American car magazine. "Although the UN of mechanics worked willingly, well, and until they dropped, I got the impression that they had been doing just that for too long already," he wrote. "It was marvelous how each man kept his good humor and pitched into the various problems with real dedication and interest even though everyone was obviously near the limit of endurance. There were just too many cars to look after." When Chris Amon stopped by the garage before the race, a mechanic told him, "I've been to everything from county fairs to public hangings, and I've never seen anything like this before."

Opposite, bottom: The big-block Ford in its race-day configuration. "I made the fins for the Ford Mark II at Le Mans in 1965. The cars had come from Kar-Kraft and had never been run. As it turned out, we needed what I called 'Chrysler Fins' to make the cars more stable at high speed. When Roy Lunn explained what he wanted, we went out in the backside, behind the pits, and cut up these large sheets of aluminum and bent them over our trailer. They were fabricated pieces of aluminum fitted to the body, which was kind of unique at the time. They were indeed run during the race and worked quite well. Unfortunately the new Ford gearboxes didn't work as well." —Bill Eaton

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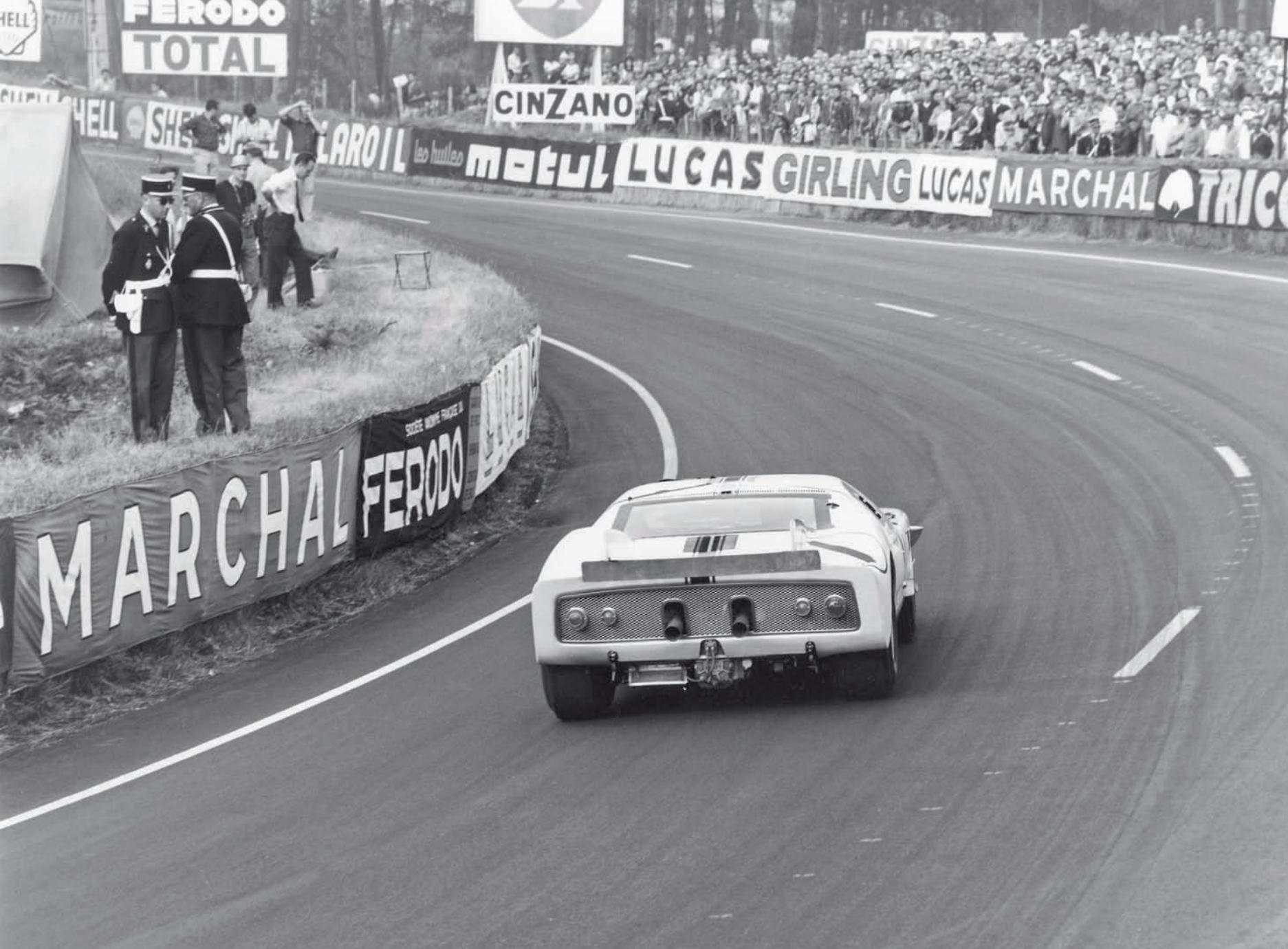


Above: New Zealander Chris Amon, Bruce McLaren's young protégé, was promoted to the A Team for Le Mans. Although Amon endured a famously star-crossed career in Formula 1, he scored his biggest victory in a Ford at Le Mans—but not this year.



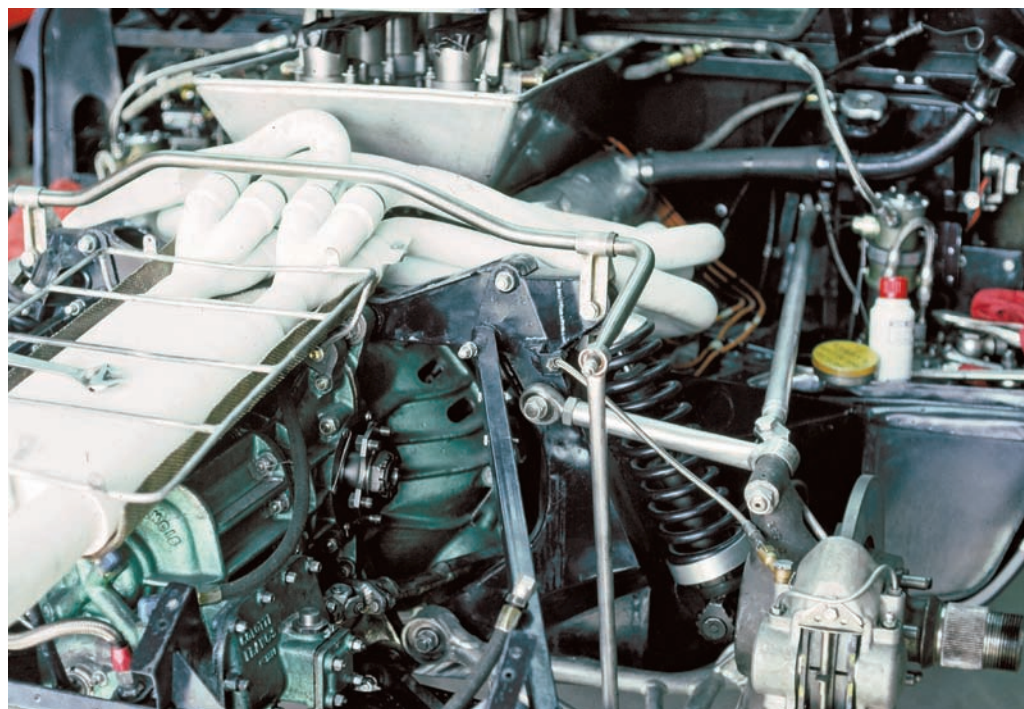
Left, top: Bruce McLaren, talking with Shelby, was involved in the Ford GT program from start to finish, running the first race in 1964 and the last one in 1967. He was killed in 1970 while testing a McLaren Can-Am car.

Left, bottom: On race morning, Phil Remington (right) talks to another mechanic while Gordon Chance (white printed T-shirt) looks on and McLaren grows comfortable in the cockpit.



Above: This is what the field saw of the two 7-liter Fords in the first few hours. “We learned an important lesson at Le Mans in 1965. We made the classic mistake of thinking Le Mans was a speed contest, not an endurance race. We now realized that it didn’t matter how fast you went if you didn’t finish. That mistake wouldn’t be repeated.” —Leo Beebe

Right: The supposedly reliable 289s didn’t fare any better than the 427s. Three of them suffered blown head gaskets, while the fourth Mark I retired with a broken transmission.



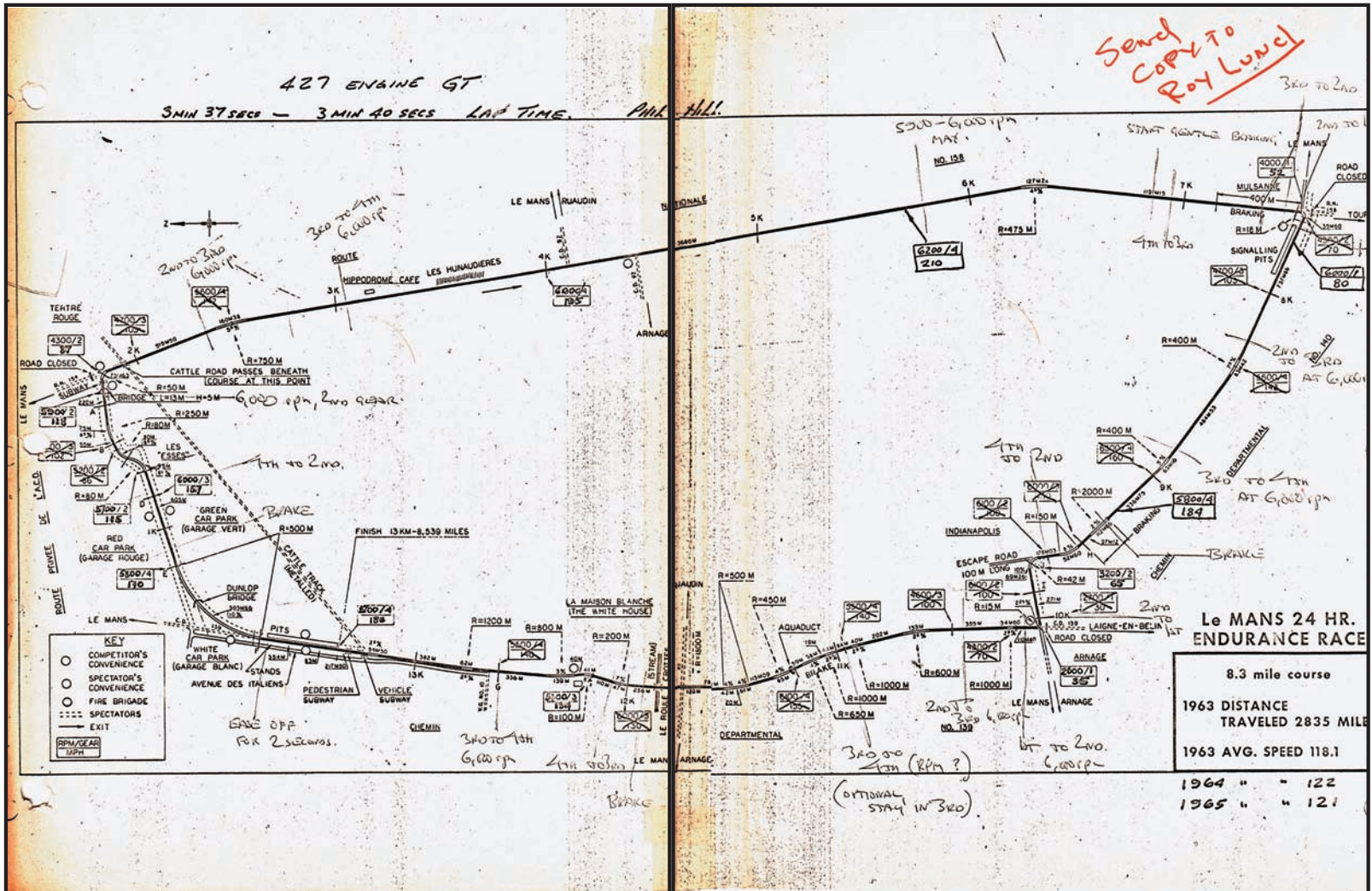


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Despite ferocious heat, a huge crowd attended the race, though, as David E. Davis acidly observed in *Car and Driver*: “It is possible that about ten percent of [the spectators] were Ford team personnel.” As part of the pre-race ceremonies, the organizers played recordings of the national anthems of all of the entrants. But when “The Star-Spangled Banner” was cued up, there was no sound. Then, when ABC began its live broadcast of the race on “Wide World of Sports,” there was no picture, and announcers Jim McKay and Phil Hill—yes, pole-sitter Phil Hill, who was letting Amon take the start—were left to talk over a blank screen. The foul-ups were a harbinger of things to come.

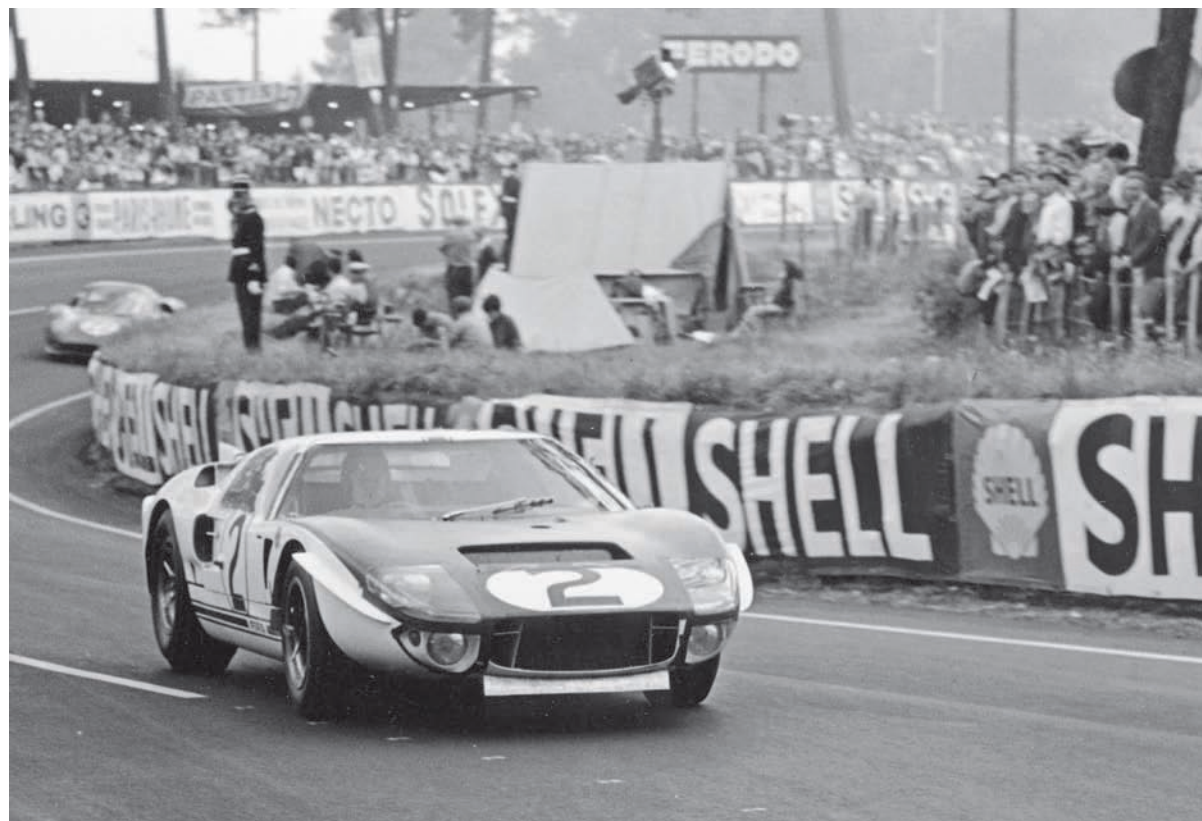
One of the T-44 gearboxes had acted up during practice, so Amon and McLaren were sternly warned to baby the driveline after the Le Mans start. But Amon was blinded by the red mist, and he roared out of the pits ahead of the field, leaving a pair of black tire streaks behind him. “I remember leading onto the Mulsanne straight and Bruce slipstreamed past me, and I can remember looking in the mirror as we came over the hump and the closest car—which was Surtees in the Ferrari—was 600 meters behind us,” Amon said. “We were so much quicker than anybody else. We were just cruising around, basically.”

Above: McLaren leads the Peter Sutcliffe/Peter Harper Cobra Daytona Coupe through the Mulsanne hairpin. “This was the first car I’d driven that made Le Mans feel like the short circuit at Brands Hatch.”
—Bruce McLaren



Above: These hand-written markings on a circuit map of Le Mans show the shift points and speeds recorded while Phil Hill was hot-lapping in the Mark II. Mike Teske Archives/Ford Motor Company

Right: "I drove one of the prototype Mark IIs with Phil Hill at Le Mans in 1965 and that thing was bloody quick. The car was not quite as sorted out as it was in 1966, but with that long nose, we blew by everything on the Mulsanne straight. If the transmissions would have stayed together, we would have run off with that race. We absolutely ran off from everyone." —Chris Amon



The Name Game

MOST PEOPLE WERE SURPRISED—AND MANY WERE disappointed—when Ford’s Le Mans–inspired supercar debuted in 2004 as the Ford GT rather than using the better known GT40 nameplate. There were two compelling reasons for this seemingly perverse choice. First, ownership of the GT40 trademark was cloudy, so selling the car by that name might have prompted legal action. Second, the 1960s-era race cars were originally known as Ford GTs, not GT40s.

Or were they?

There is, in the GT40 community, a sometimes acrimonious debate about the proper nomenclature of the cars Ford built to race at Le Mans. Today, they’re all known generically as GT40s. And in the first confidential memo Roy Lunn wrote in June 1963, he envisioned two models—a race car dubbed the GT40 and a street version called the GT46, both names reflecting the height of their roofs. The street car was eventually canceled, and the race car quickly morphed into the Ford GT. It’s not clear why this occurred, since the car competed in the prototype class and in no way fit the description of a Grand Touring car.

According to the records meticulously catalogued by Ronnie Spain in *GT40: An Individual History and Race Record*, the first 12 cars carried chassis plates identifying them as GT/101 to GT/112. Therefore, it seems most accurate to refer to these cars as Ford GTs rather than GT40s. There are three exceptions. GT/106 and GT/107 were retrofitted with big-block engines at Kar-Kraft and dubbed Mark IIs. Also, GT/110, the single roadster equipped with a 427, won Sebring in 1966 as the X-1.

The GT40 nameplate—often GT-40 or GT 40—started appearing in press reports early in 1965. In March of that year, Ford Advanced Vehicles delivered the first of what would be 87 or so production cars. (Coming up with an exact figure is tricky because several wrecked chassis were later replaced and some cars were rebodied.) To distinguish them from the first 12 prototypes, they were given chassis plates ranging from GT40P/1000 to GT40P/1086. So these cars would seem to be best identified as GT40s.

But there’s a complicating factor. Eight of these production GT40s were fitted with big-block engines. These were known as Mark IIs. The small-block cars were then retroactively named Mark Is. The name Mark IA is sometimes used to denote cars built to the production standards established by FAV in 1965. By the same token, the many changes made after the Le Mans debacle in 1965 inspired the Mark IIA designation for the 427 cars in 1966. Additional modifications prompted Ford to call the big-block cars raced at Le Mans in 1967 Mark IIIs. That said, there were significant differences between the Mark IIIs developed and campaigned by Shelby American and Holman & Moody.

The American-built J-Car had nothing in common with the GT40 tub, so it was given chassis numbers J-1 to J-12. The revisions made by Phil



The car raced by McLaren and Miles at Le Mans in 1965, GT/106, came out of Slough as a plain-Jane Ford GT. When it was fitted with a 427, it became a Mark II. Had it subsequently been retrofitted with a 289, it would have been renamed a Mark I. Confused yet?

Remington in the spring of 1967 were so substantial that the car was renamed the Mark IV. Five chassis— J-4 through J-8— were raced as Mark IVs. J-10 was later sold to Shelby American mechanics Charlie and Kerry Agapiou, who raced it in the 1969 Can-Am series as the G7A.

In addition, John Wyer oversaw production of three narrow GT40 variants known as Mirages. These are listed as M/10001 to M/10003. (Two of them were later turned into conventional GT40s.) Also, Alan Mann commissioned the construction of five lightweight cars with highly modified monocoques. There’s never been a perfect consensus on what to call them, but AM GT-1 and -2 and XGT-1 to XGT-3 seems reasonable. Confusingly, when XGT-1 and XGT-2 raced at Le Mans in 1966 with 427-cubic-inch engines, they were called Mark IIs.

Last but not least, seven road cars, known as Mark IIIs, were built by FAV. These are identified by chassis plates GT40M3/1101 to GT40M3/1107. Subsequently, seven more cars were completed and sold post production—GT40P/1108 to GT40P/1114. According to Spain’s accounting, that brought the grand total to 134.



Although the Mark II was heavy, it took a lovely set and could be four-wheel-drifted through fast sweepers with reliable precision.

Shifting at a leisurely 6,000 rpm, McLaren repeatedly broke the lap record as he and Amon, cruising in cars No. 1 and 2, pulled away by 4 or 5 seconds a lap. After an hour, the big Fords led by 70 seconds. But there was trouble on the horizon. The Ford France car went out early with a busted ZF gearbox. Then Amon lost 38 minutes with clutch problems, and Hill was 10 laps down by the time he got out of his ABC blazer and into the cockpit. McLaren still led after two hours, but he was missing first, second, and third gears. During the third hour, the Rob Walker and Scuderia Filipinetti entries went up in smoke when their head gaskets blew. The next hour, the transmission in the McLaren/Miles car finally lost top gear. An hour after that, the FAV entry blew *its* head gasket. Hill lowered the lap record to 3:37.5 as he climbed back up to sixth place. But his gearbox gave up the ghost before it was dark, and all six Fords were history. Cumulatively, they completed fewer laps than the privately owned Ferrari 250 LM that won the race. It was, in short, an epic fail.

With all of his horses shot out from under him, Shelby marched into the trailer serving as the press room. "Next year, Ferrari's ass will be mine," he growled and stalked out without taking questions. The reviews were scathing. *Autosport* described the race as "a Ford fiasco" and "a dismal failure." In *Car and Driver*, Davis suggested that Ford had it coming: "We'll never know, for sure, but it's safe to guess that many of Ford's troubles stemmed directly from this 'Tower of Babel' organization and the attendant breakdown in communications. The CIA couldn't have done it better." Wyer, too, seemed perversely pleased by the flop of the 427s that he'd recommended against developing. "The race was almost ludicrously predictable," he wrote later.

Wyer would have been thrilled to read Ford's in-house postmortem: "When a single would have won the ball game for us, or even a walk, we got over-exuberant and went for another home



run. We struck out. We did not win, we did not finish, we fell flat on our face. We lost the ball game. We got what we deserved. We failed to attain our objective at Le Mans because we took our eye off the ball. Our object all year long had been to *finish*, not win, Le Mans with the Ford GT. Nobody wins Le Mans with new machinery the second time out."

And yet, despite this caustic appraisal, Ford execs saw a silver lining in the disaster. After the race, Shelby shoved a large Stetson on Hayes' head and told him, "You'll come around because we're gonna make the [427] mothers right." Back at the Ford headquarters at the Hotel de Paris, Leo Beebe convened a meeting not unlike the one he'd held after the debacle in Nassau that led to Shelby getting the GT program. But this time, his message was unexpectedly upbeat. "This is a victory meeting!" Beebe told the team. "Next year, we're going to come back here and win, and we might as well start right now."

Back in Dearborn, Ford engineers discovered that one of the T-44s had broken because a gear had been machined improperly. In the other car, a speck of sand in the clutch slave cylinder caused the piston to stick, creating a catastrophic gear oil leak. So both breakdowns had been flukes, and in neither case was the big-block engine at fault. Regarding the blown head gaskets in the 289s, the issue was systemic. "Tear-down of the engines indicated head-to-block sealing failures on all four engines apparently caused by head bolts stretching," an internal report found. So this was another theoretically fixable flaw. (Actually, head gaskets remained a chronic weakness until the 289 was dry-decked in 1968.)

Still, Henry Ford II wasn't pleased. In fact, he was irate. The Deuce didn't know much—or, frankly, care much—about racing, but he understood that there was no reason for Ford to be involved in the sport unless it was winning. So he ordered Frey to visit him in his office to explain what had happened at Le Mans. "You got your ass whipped?" Ford said.

"Yes, sir," Frey said, knowing this was no time for excuses.

"You win that race."

"Yes, sir. How much money do I have?"

Ford stared at him for a beat. "Who said anything about money?"

The company coffers were wide open. So Ford Motor Company would be returning to Le Mans on a cost-no-object basis. But this time, Frey knew, failure wasn't an option.



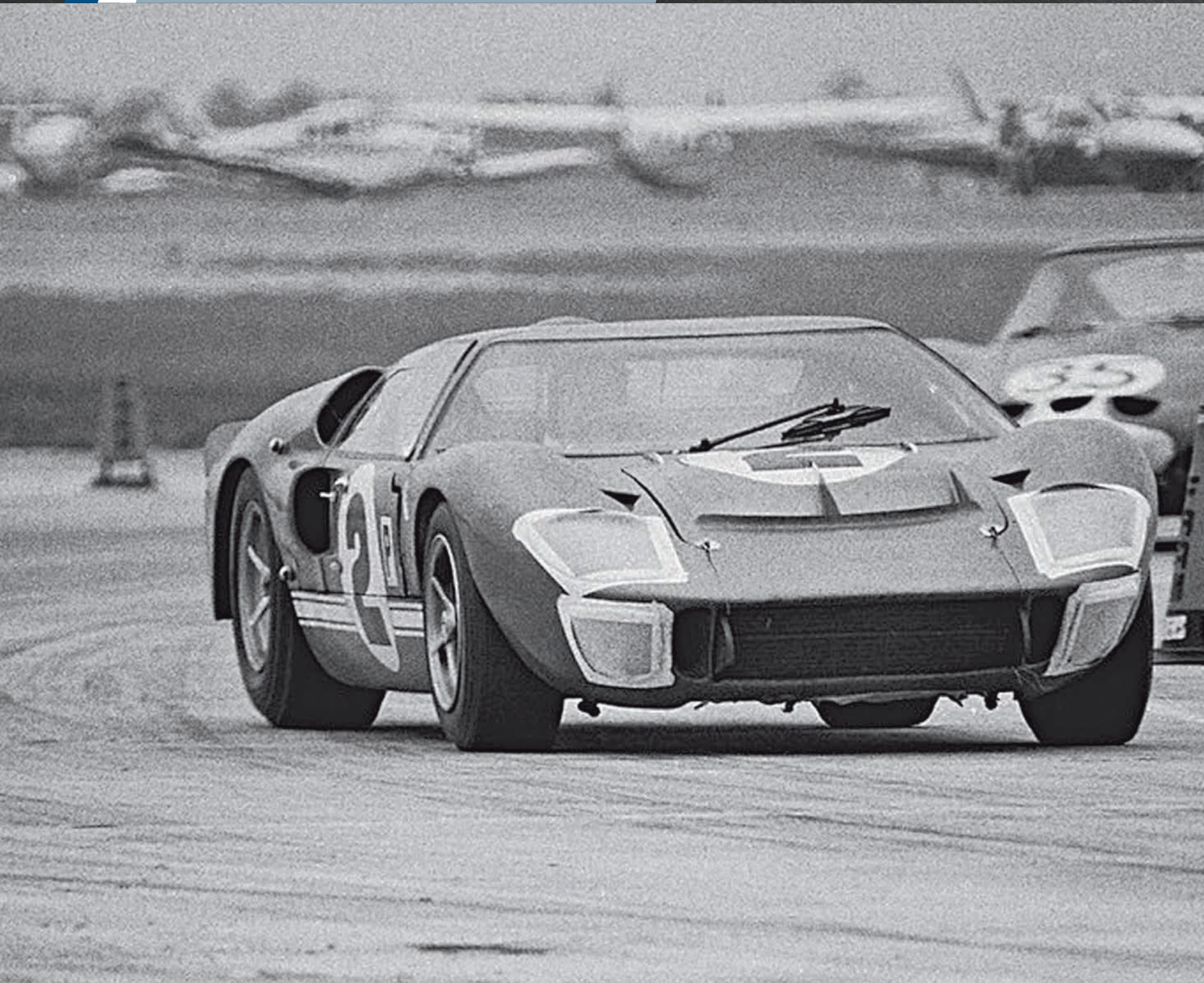
Top: Freak transmission issues sank both of the big Fords before midnight. But the stunning speed of the cars impressed everybody—including Ferrari, which won Le Mans for the final time that year.

Above: Leo Beebe was a hard man to please. But he was surprisingly upbeat after the failure of the Mark IIs.

Opposite: The pits at dusk on a warm summer night.



5



JUNE 1965 - APRIL 1966

A FRESH START



HENRY FORD II MAY HAVE BEEN CLEAR ABOUT WHAT HE EXPECTED. BUT THE sports car program was in disarray after the farce at Le Mans. “Confusion has reigned in the past,” Shelby American team manager Al Dowd wrote in a memo to Ford. “Personnel morale has suffered in the past. All primarily because there was a lack of proper direction and the fact that the right hand knew nothing of what the left hand was doing. To be successful we must not let this happen again.”

Ford reacted in typically corporate fashion—by creating a committee. But the so-called Le Mans Committee was more than the usual bureaucratic Band-Aid. It included the heads of all of the company’s major internal departments—Engine & Foundry, Transmission & Chassis, Public Relations, and so on. After convening for the first time on August 18, the committee met regularly to chart progress and correct course. It also brought new blood into the program. John Cowley and his dapper boss, Jacque Passino, who’d been two of the principal architects of Ford’s NASCAR juggernaut, were given operational control of the Le Mans program. This was to have critical ramifications for Shelby American.

Carroll Shelby still had plenty of supporters all the way up the corporate hierarchy. He was close to Don Frey, and Leo Beebe said flatly, “Shelby was one of my most trusted advisors. I always relied on Carroll for all his wisdom and judgment about motor racing.” But there was no denying the fact that the 1965 season had been disappointing. Yes, a Shelby American car had won out of the box at Daytona, but there hadn’t been much competition, and after that, the Fords had been waxed by Ferrari and Chaparral. The team’s calamitous performance at Le Mans had been not only unsatisfactory but also embarrassing. Yet while the GTs had been going nowhere fast, stock cars powered by 427-cubic-inch Fords had been steamrolling the competition in NASCAR. The team running Ford’s stock car program was Holman & Moody, which was the stock car version of Shelby American, only a lot bigger. As Passino put it: “Carroll Shelby had a racing garage, but Holman-Moody was a factory.”

Jerry Grant pulls clear of a Ferrari 250 GTO at Sebring in 1966. Co-driver Dan Gurney was leading by a lap when a rod bolt let go at the final corner of the final lap. He pushed the car to the finish—and was disqualified for his efforts.

John Holman was a big, gregarious, larger-than-life figure who'd gotten his start by driving the parts truck for the Lincoln team in the Mexican Road Race in 1952. He later went to work for Bill Stroppe, who ran Ford's West Coast racing operations. Holman was then hired by Ford to open a race shop in Charlotte. There, he formed a partnership with soon-to-be-retired stock car racer Ralph Moody. Before long, Holman & Moody was a principal supplier of Ford competition parts. The company also ran its own highly successful NASCAR team and slapped its widely recognized Competition Proven logo on a slew of parts developed in-house, including a state-of-the-art Grand National chassis. The taciturn Moody was the technical guy, while the outgoing Holman focused on sales. As one of their first employees remembered, "Ralph wanted the fastest race cars in the world. John wanted the biggest business in the world." Although neither man had much road racing experience, Holman jumped at the opportunity to grab a piece of Shelby's pie.

But as much as Passino appreciated Holman & Moody's stock car expertise, the Le Mans Committee recognized the vast difference between a 100-miler on a dirt bullring at Valdosta Speedway and the 12 Hours of Sebring. So Ford covered its bases by also bringing in Englishman Alan Mann as the third pillar of the Le Mans effort. At 29, Mann was a handsome, charming aristocrat who seemed to have the golden touch in sports car racing. He'd already won numerous races in the UK with a team of fiendishly fast Ford Cortinas, and he was on the verge of leading the Cobra Daytona Coupe to the GT world championship—over Ferrari—that had eluded Shelby American the previous year. So he was a natural choice. But Shelby American retained what might be called most-favored-nation status. Shelby got the pick of the litter when it came to drivers, and Phil Remington and Ken Miles remained the core of the testing program.

To make sure everybody was on the same page, Ford lifer Homer Perry was brought into the loop. "It was a political football that got passed to me because no one else wanted it," he said. Besides an extensive background in vehicle testing, Perry had earned a reputation for getting jobs done. "Homer was tough and gruff, and he worked as a troubleshooter for the company," said John Wanderer, who was tabbed to run the Le Mans program for Holman & Moody. "When I needed something, I called Homer, and he took care of it."

The other major decision made by the Le Mans Committee was to double down on the big-block engine. Even if the 289s were fast enough to win races, durability remained an issue. The hefty skirts of the 427's Y-block design allowed the main bearing caps to be cross-bolted,



After the debacle at Le Mans, Jacque Passino—one of the principal architects of Ford's all-conquering NASCAR program—was given operational control of the Ford GTs. Known as the "Gray Fox," he reported directly to a newly formed Le Mans Committee. "Jacque Passino was the most secretive man I ever knew. You never knew what he was up to. Even in my days with him I never knew what he was up to. He was very reclusive, and then all of a sudden he'd say something that made a lot of sense. He and [Leo] Beebe were quite a pair as they were very much the same. I always thought they tried to out-silence each other." —Don Frey



Above: Alan Mann (left) was brought in to run the third team in Ford's multi-pronged approach to 1966. Here, he stands with Len Bailey, the engineer who'd been part of Ford's original GT design team and who fashioned what would become the definitive nose of the Mark I and Mark II. *Jean Charles Martha Photography Collection/Courtesy of The Revs Institute for Automotive Research, Inc.*

Right: John Holman, clowning with Carroll Shelby, was hired to give the Le Mans program some NASCAR expertise. Based in Charlotte, Holman & Moody had long been the team to beat in stock car racing. But it lacked experience in what some of its mechanics called "fruit cup racing."



creating a robust bottom end. And because the engine was so powerful, it could be run at relatively low rpm to increase longevity. At the time, Mose Nowland was one of nearly a dozen men assigned to the Engine & Foundry Race Group. For the past few years, he'd been working on the Indy and stock car programs. Now, his boss, Bill Gay, called him into his office to tell him that his full-time job would be helping to modify the nearly invincible NASCAR 427 for sports car racing. "You must understand you'll have no vacation," Gay said. "Yes, it's going to be a long haul. But we're going to go to Le Mans and win the 24-hour race."

In stock car form, with a compression ratio of 12.0:1, the 427 made 525 horsepower at 6,400 rpm. But unlike oval track racing, where cars ran close to peak rpm the entire race, road racing demanded an engine that developed power at both low and high speeds. As Ford engine maven Hank Lenox put it, "The Mulsanne is great, but most races are won coming off the corners." Also, Le Mans stipulated fuel with a slightly lower octane rating than the gasoline used in stock car racing. So the compression ratio was reduced to 10.5:1, and the engine was retuned to broaden the powerband. "We knew we didn't need all the horsepower and torque [of the NASCAR engine], so we backed off a bit and automatically bought reliability," Nowland said.

The target was 450 horsepower at 6,200 rpm. But, frankly, the team was less concerned about power than weight. In NASCAR form the engine weighed 602 pounds. A team led by Gus Scussel replaced the iron head with an aluminum one. This meant installing inserts for the valve seats, which reduced the size of the valves and limited power, but this was considered to be a justifiable tradeoff. More weight was shaved with an aluminum water pump, aluminum front cover, aluminum hub on the vibration dampener, and a lightened flywheel. A heavier dry-sump system was deemed necessary to ensure adequate lubrication on left- and right-hand corners, but a trick magnesium oil pan was designed with a single scavenge pump driven by an external, toothed belt. Altogether, the mods saved about 50 pounds. Equipped with a single four-barrel 780 cfm Holley carburetor atop a medium-rise manifold, the engine made 449 horsepower at 5,800 rpm by the end of 1965. And output would continue to climb over the next year. "It's a

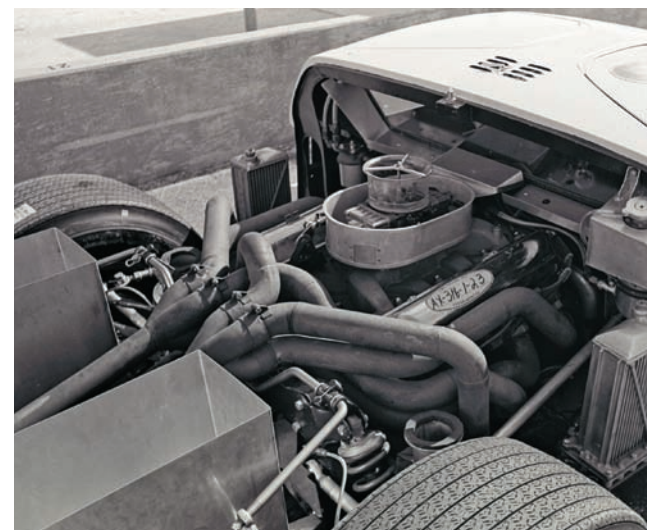


cooking engine,” Miles said. “I can lug it down to 1,000 rpm in fourth. When does it come ‘on the cam?’ Oh, about 3,000 rpm!”

Corralling this power obviously required a stout gearbox. Kar-Kraft replaced the stock Ford Galaxie gears in the T-44 with more robust internals fabricated for this precise purpose. At the same time, the team was intrigued by—and jealous of—the automatic transmission that Jim Hall had run so effectively in his Chaparrals. But Ford being Ford, which is to say prone to overkill, Kar-Kraft developed not one but two automatic transmissions. Both were two-speed boxes with a production torque converter usually mated to the straight-6 in the prosaic Ford Falcon. One, similar to the Chaparral unit, featured a dog clutch and synchronized, constant-mesh spur gears. Known as the “jump” transmission or “crash” gearbox, it was simple and light, but it required easing off the throttle on upshifts and matching revs on downshifts. The other transmission was more complex. In fact, the shift lever wasn’t connected directly to the gearbox but opened and closed valves that allowed shifts to be executed hydraulically through clutch discs. No throttle-lift was necessary on upshifts, hence the name “power-shift” transmission.

With Perry overseeing the program, Shelby American embarked on an intensive test schedule using the Mark IIs that had raced at Le Mans. It didn’t go well. “They always had at least 17 technicians on hand when they went testing. Quite daft, it was,” Mann wrote later. “This was not the way to go racing, of course, and it was plain that the giant Ford corporation was struggling with the laborious methods of production car engineering instead of getting the racing programmes moving with the urgent efficiency of a good racing team.”

A Riverside test passed without any incidents, but a right-rear hub failed at Daytona in August. Two months later, the entire chassis of GT/106—one of the four lightweight



Top: Same as it ever was: Late-night fans on the outside sneak a peek at the work going on in the Ford garage at Daytona in February 1966.

Above: To accommodate the fiction that the cars could carry passengers, even the prototypes had to have two seats and room for luggage, hence the silly aluminum boxes at the back of the engine bay.

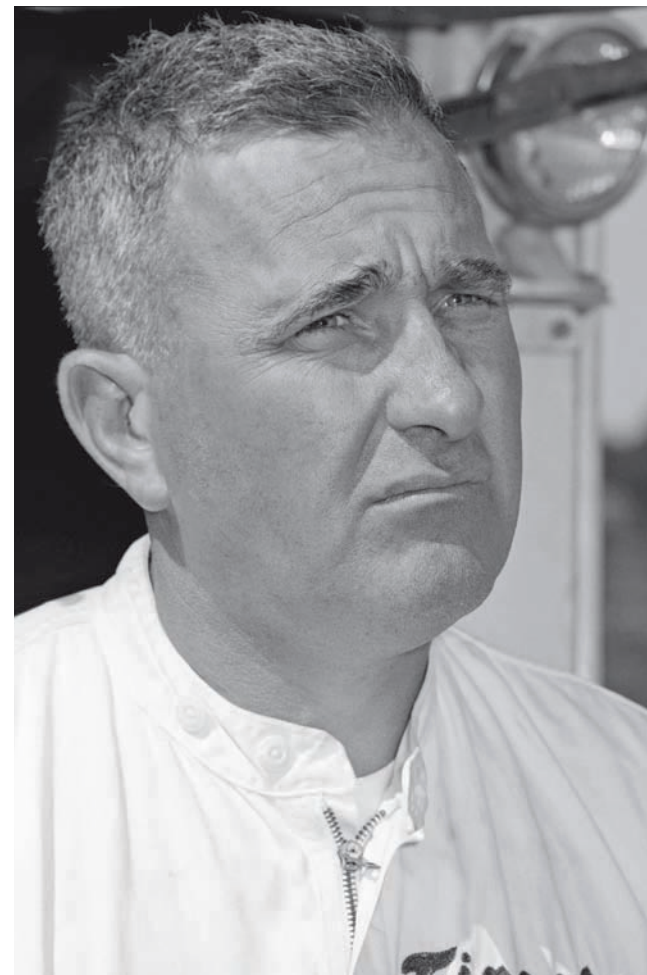


Above: Dan Gurney was the most versatile driver in America. The lanky, good-looking Californian had competed successfully in Formula 1, Indy cars, and NASCAR, but victories in endurance races always seemed to elude him.

Right, top: Like Gurney, Bruce McLaren had formed his own race car-building company. At the time of his death in 1970, bright-orange McLarens were racing successfully in F1, in Can-Am, and at Indy.

Right, bottom: In 1966, Daytona was run for the first time as a 24-hour enduro. Supremely confident as always, defending race winner Ken Miles put his car on the pole.





frames—started falling apart during a profoundly “disappointing” session. “The vehicle’s lap times are no better than the Mark I vehicle was in February 1965,” according to the Shelby American test report. “Its maximum straight line speed on the Daytona course is no faster than the Mark I.” Then, in December, came an even-more-disastrous test at Daytona, where an engine failed.

The Shelby American postmortem was filled with gloom and doom: “The 427 CID engine is not presently considered reliable for either 12- or 24-hour races. The Type 44 transaxle is presently considered of dubious reliability for 24-hour races. The brakes are not presently suitable for 12- or 24-hour races. It is dubious whether the shock absorbers will function effectively for 24 hours at Daytona.” Then came a stunning conclusion that would have been music to John Wyer’s ears: “Shelby American is still of the opinion that the 289 CID engine offers at least equal chances of racing success.”

This was an unexpected about-face. But with less than two months before the 1966 season would begin at Daytona, Ford had no intention of backing away from the 427. The following week, the team headed to Kingman, Arizona, for a long-overdue test of the Len Bailey nose on Ford’s 5-mile-long high-speed test track. In an apples-to-apples comparison, the “short” nose was 8 mph faster—a top speed of 204.54 mph versus 196.50 mph—than the Kar-Kraft “long” nose. So the Len Bailey nose was fitted to all of the cars. By this time, heavier-gauge chassis with sheet steel ranging from 0.024 to 0.049 inches thick had been ordered from Abbey Panels. Also, gussets were added around engine mounts and suspension pickup points. In the front suspension, the A-arms were increased in diameter and stouter uprights were cast, while the rear control arm was given stronger support. Two-way adjustable Koni shocks replaced the original Armstrong dampers. Brakes continued to be a major concern, especially with the added weight of the big-block engine, so vented discs became standard equipment.

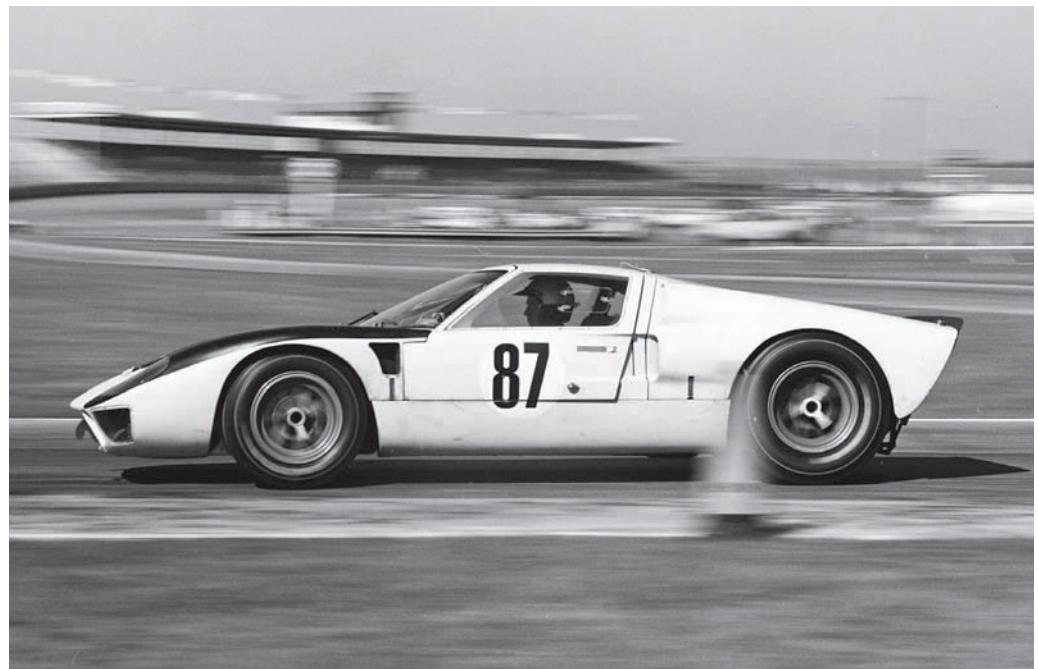
Above: Walt Hansgen had been the No. 1 driver for Briggs Cunningham and John Mecom Jr. before signing up to lead Holman & Moody’s Le Mans effort. As part of his deal, he secured a ride for his young protégé, Mark Donohue.

Left: A trio of Mark IIs. Miles leads Donohue and McLaren out of the infield and onto the banking at Daytona. Donohue, a little-known club racer, was making his big-time professional debut at Daytona in a Holman & Moody Mark II.



Above: Gurney holds off a pair of Ferraris—Pedro Rodriguez in a 365 P2 and Jochen Rindt in a 275 LM—but he couldn't catch Miles and Lloyd Ruby in the fastest of the Shelby American Mark IIs.

Right: Holman & Moody made its Ford GT debut at Daytona. One of its two entries, driven by Richie Ginther and Ronnie Bucknum, was fitted with an experimental two-speed automatic transmission. The torque converter failed at 4:20 in the morning.



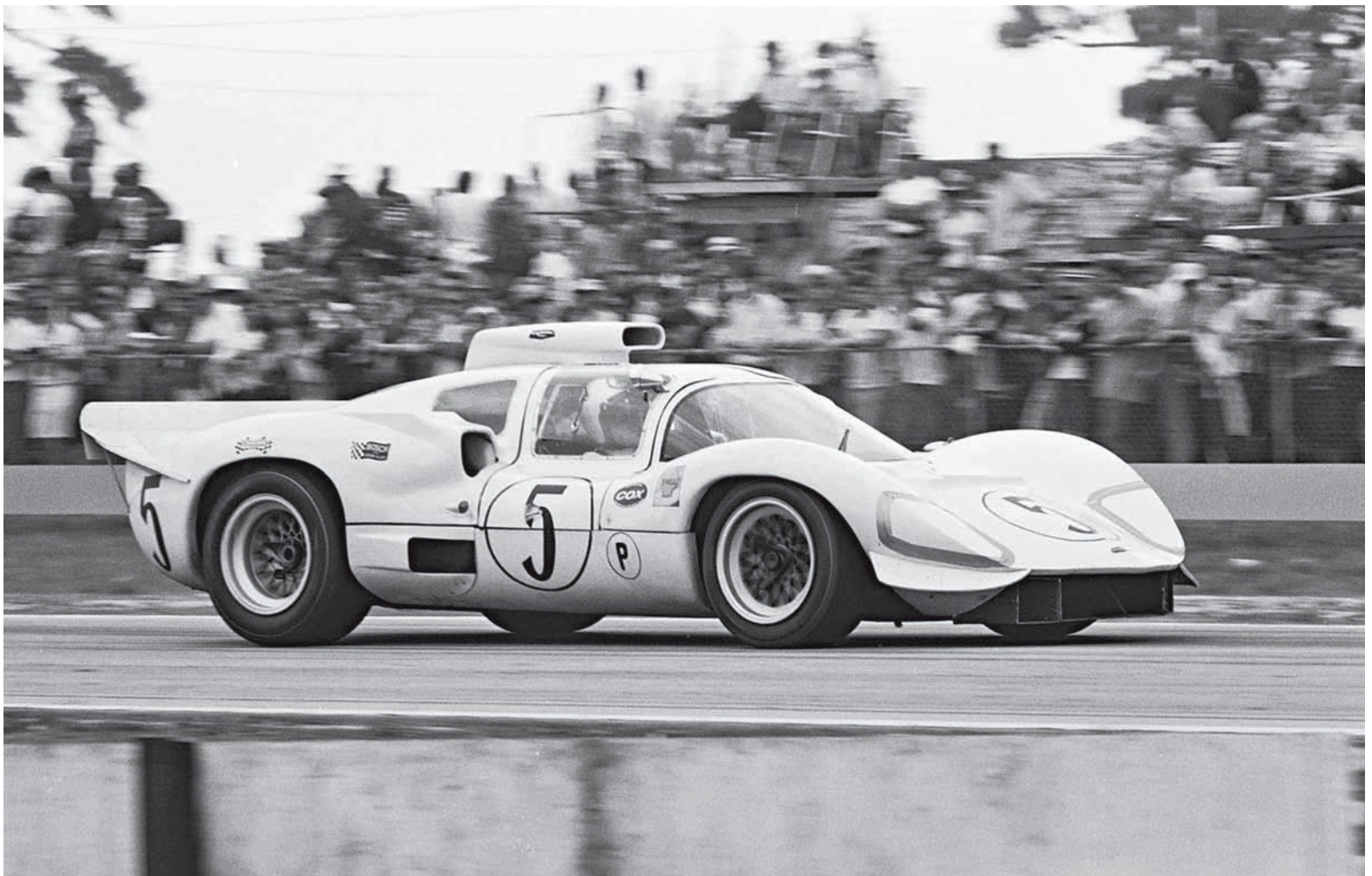


Left: As Miles makes a scheduled pit stop for a tire change and routine maintenance, there are more people around his pit box than there are in the grandstands.

Opposite, top: Grant runs flat out through Turn 4. With the 7.0-liter engine making 463 horsepower at 6,300 rpm, the Mark II maxed out at close to 200 mph at Daytona.

Opposite, bottom: Ruby hammers around the banking—and the damaged Corvette of Dick Guldstrand and George Wintersteen—on his way to a second consecutive win at Daytona.

Below: The Chaparral 2D made its debut at Daytona. Actually, this photo shows the car at Sebring in 1967, but the 2D wore this general shape when Phil Hill and Jo Bonnier drove it to a historic victory at the Nürburgring in 1966.





A final pre-season test at Sebring went reasonably well. Holman & Moody received the first of its Mark IIs a few weeks before Daytona, but the second arrived so late that it had to be prepared on a 24/7 basis. By this time, Holman had selected John Wanderer to run the Le Mans program. Wanderer was a no-nonsense racer who'd cut his teeth on USAC stock cars in the Chicago area, but he'd also worked on the Scarab sports cars—which had been built, coincidentally, at Shelby's shop in Venice—so he was familiar with the road racing world. And he wasn't too impressed when he got his first look at the Mark II.

"We saw a lot of things wrong with it," he said. "The car was too goddamned heavy. Plus, the Shelby people didn't have any experience on the high bank. They didn't know how to run Daytona." Wanderer ordered heavier-duty shocks and springs and mounted Competition Proven—that is, made by Holman & Moody—adjustable stabilizer bars. Over the next 18 months, a host of other changes would be made in Charlotte to improve performance. The goal was to go faster, obviously. But almost as important as beating Ferrari and Chaparral was the imperative to outrun the in-house competition.

It's a truism in racing that the first—and most important—person to beat is your teammate. Shelby and Holman were two alpha males fighting for dominance. One was East Coast; one was West Coast. One was stock cars; one was sports cars. "Keeping the politics, egos, and other problems at bay was an interesting job," Perry said. Mann, who always remained an outsider, had a cynical take on the situation: "It was not a happy ship at times, partly thanks to the tensions between the other teams involved," he wrote. "It didn't help, either, that there always seemed to be hordes of Ford people flitting about and every one of them was conscious of the need to defend his career and reputation within the company."

Shelby himself was the biggest star of the program, more recognizable than any of his drivers or, for that matter, any Ford executives other than the Deuce himself. Holman's son, Lee, who worked on the program, insisted that his father was content to let Shelby American monopolize the spotlight. "My dad





felt like he worked for Henry II, and he had no problems following team orders,” He said. But over at Shelby American, Carroll Smith understood the score, “Shelby once told me, ‘You know, someday, you’re going to get beat, and it better be by Ferrari,’” he said.

In 1966, Daytona was run for the first time as a 24-hour race. By this time, so many changes had been made to the big-block car that it was now called a Mark IIA. Ford entered five of them in matching white-and-blue livery in the Group 6 class for prototypes. (There were also four privately entered GT40s running 289s in Group 4 for production sports cars built in quantities of 50 or more.) Shelby American had the luxury of three supremely strong driver pairings—Chris Amon and Bruce McLaren, Ken Miles and Lloyd Ruby, and Dan Gurney and Jerry Grant, who’d shared a class-winning Cobra Daytona Coupe with Gurney at Le Mans the year before. Richie Ginther and Ronnie Bucknum were in one of the two Holman & Moody cars, which was outfitted with the temperamental power-shift automatic. The other was entrusted to two newcomers, Walt Hansgen and an untested Brown University-trained engineer named Mark Donohue, who was nervous about making his debut in the big leagues.

For reasons that remained opaque outside Maranello, Ferrari chose not to send any works entries, so the factory was represented only by privateers running second-string cars. (The best of the bunch was a NART 365 P2—essentially last year’s car with a new aluminum body—driven by Pedro Rodriguez and rising star Mario Andretti.) Jim Hall, on the other hand, had completed a major upgrade of the Chaparral, which now wore more sophisticated aerodynamic appendages, coupe bodywork, and the designation 2D. He’d also managed another coup by poaching Phil Hill away from Ford and installing him as his lead driver. On the other hand, transforming the Chaparral from a roadster to a coupe (to qualify for the championship) had added several hundred pounds, and the Chevy 327 didn’t have enough grunt to measure up to the Ford 427. So the major battle at Daytona promised to be between Shelby American and Holman & Moody.

By this point, the 7.0-liter was making 463 horsepower at 6,300 rpm, which translated into 196 mph on the banking. During practice, the right front tires wore through the fenders, necessitating some remedial fiberglass work at the track. Also, and this came as no surprise, the brakes were a continuing headache despite trial runs with various pad compounds and rotor additives. “No one knew how to make brakes last on a 3,000-pound race car. After the brakes warmed up—in two or three laps—I had to push so hard on the pedal that I couldn’t concentrate on driving the car,” Donohue wrote. Nothing worked. No matter what, in a few laps they would all go to hell.” Phil Remington had come up with a technique to spring-load the brake pads so they could be changed quickly, but cracking rotors remained a perennial headache.

Miles snagged the pole without pushing hard. Jo Bonnier, sharing the Chaparral with Hill, was two-tenths back, with Hansgen another two-tenths slower in a second Mark IIA. Race day dawned unseasonably cool, and fans stayed away in droves. Bonnier led the first lap, but was never a factor after that. Miles swept past on the banking on Lap 2, and the Fords started circulating according to conservative lap time targets established before the race. Hansgen led briefly during a pit stop exchange, and Gurney set the fast lap late in the race. While temperatures dipped into the 20s, Miles and Ruby ran like clockwork. After 24 grueling hours, they beat Gurney and Grant to the line by eight laps, with Hansgen and Donohue in third, another lap back after being slowed by brake trouble. Problems with their limited-slip differential left McLaren and Amon fifth. Of the Mark IIAs, only Ginther and Bucknum failed to finish when their automatic transmission broke.

Ford was pleased but wary. Last year, another Ford had won Daytona against modest opposition, and the team had gone on to have a dreadful season. Plus, the stakes would be

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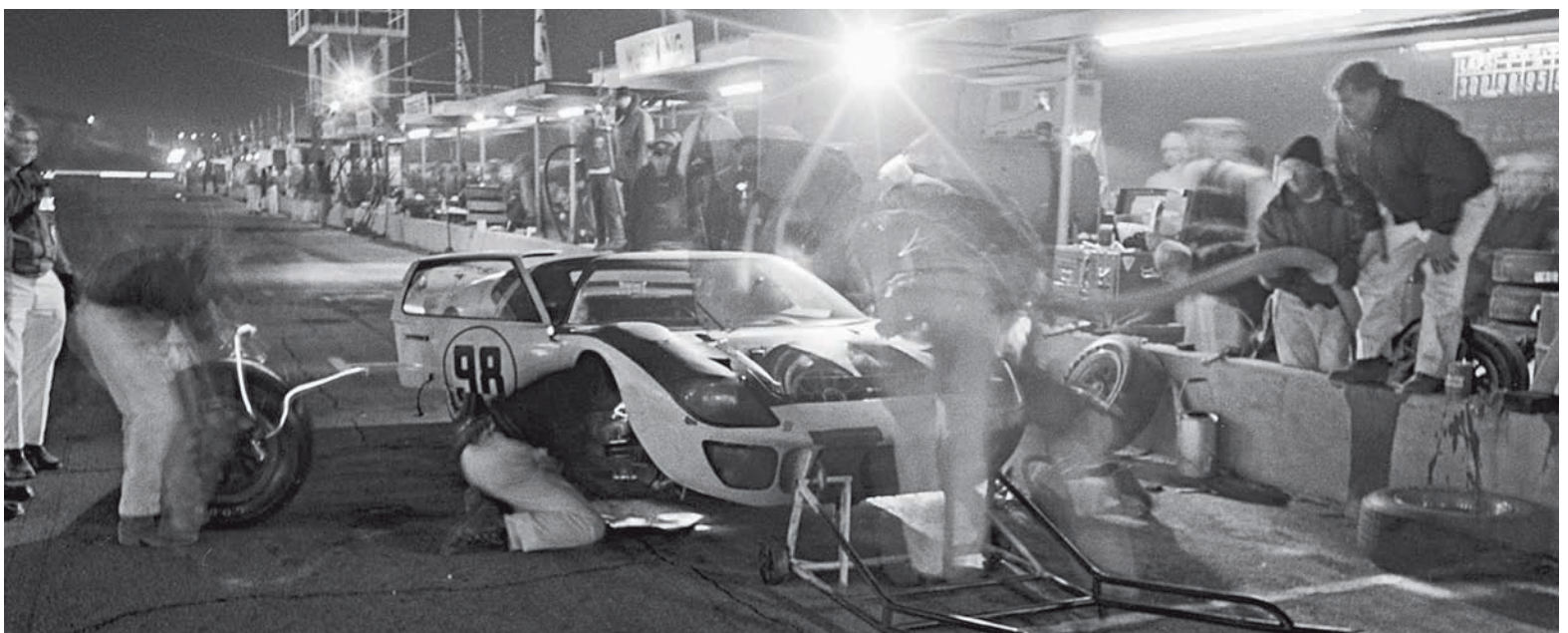
Gurney set the fastest lap late in the race, but he still finished second, eight laps behind the winning Mark II.



This page: Three Shelby American entries make scheduled night pit stops. The winter nights at Daytona tend to be long, dark, and cold.

Opposite, top: In the days before in-car radios, this is how the pit signs were put out. Of course, strategy tended to be less complicated back then.

Opposite, bottom: Ruby and Miles occupy some familiar territory at Daytona. “The Mark II was a really good car. It had lots of power, was fast, and handled damn good, and it put Ken and me in the winner’s circle for the second year in a row.” —Lloyd Ruby









Above: Shelby was always ready for a TV interview with Chris Economaki. Sebring was one of the most informal—and often rowdy—events on the international schedule.

Above, right: The always-exciting start at the Sebring of yesteryear. Gurney was fastest during qualifying, and he's about to surge ahead of Mike Parkes in a Ferrari 330 P3, and Graham Hill, wearing the distinctive helmet, in an Alan Mann GT40.

Opposite: The team hangar is a beehive of activity before the race at Sebring. The two Shelby American cars sit in the foreground while a pair of lightweight Alan Mann Racing entries with small-block engines are prepared at the rear.

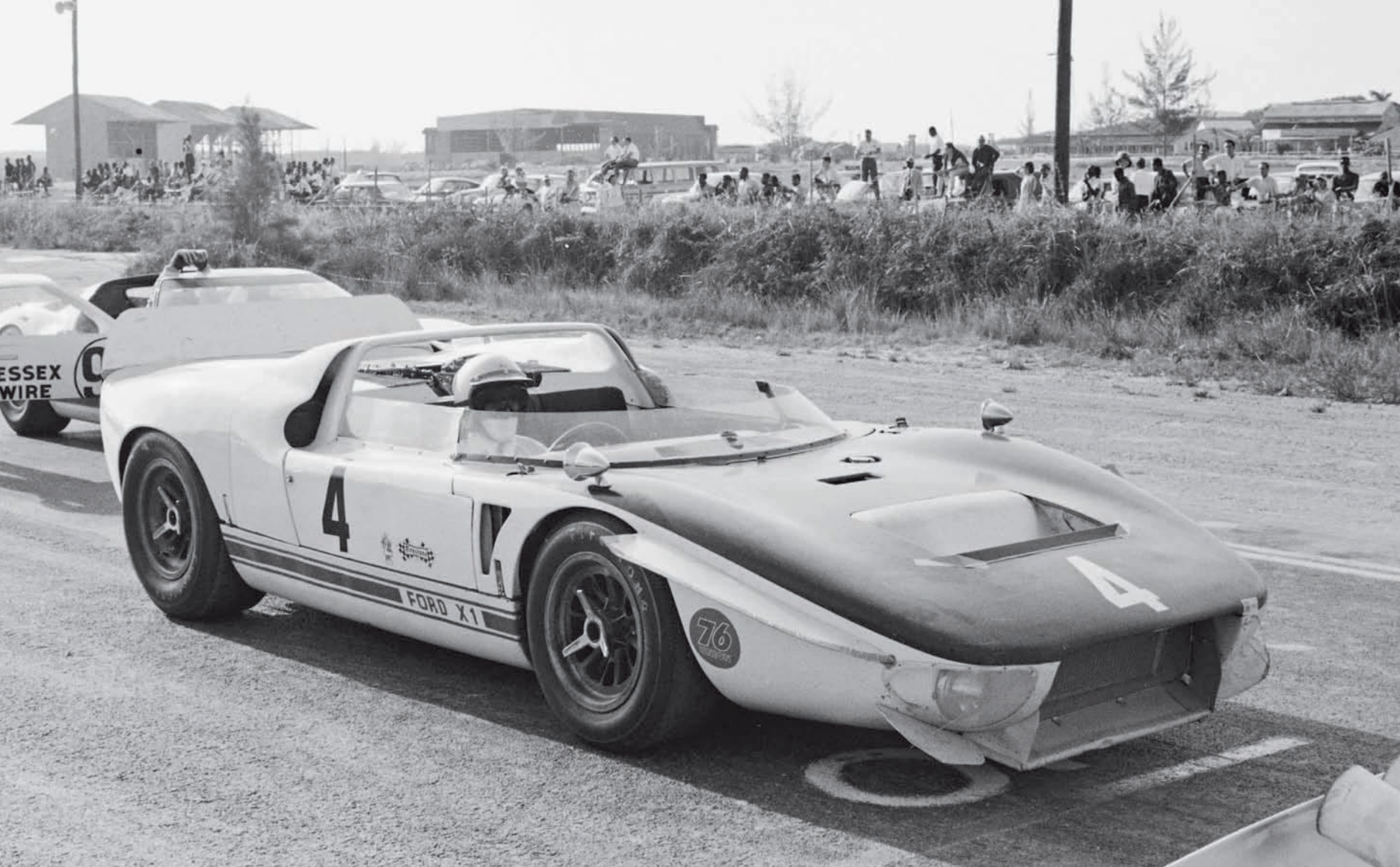


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higher, and the field a lot stronger, at Sebring. Hill was bringing a pair of Chaparral 2Ds, one for Hill and Bonnier and another for Hap Sharp and himself. Ferrari had deigned to send his latest and greatest prototype, a 330 P3 featuring stunning bodywork, a full monocoque chassis, and a 4.0-liter, twin-plug engine making 420 horsepower at 8,000 rpm. The drivers were up-and-comer Mike Parkes and Bob Bondurant, who, like Phil Hill, had defected from Ford. Also, Rodriguez and Andretti were back in the NART Ferrari they'd driven to fourth place at Daytona.

There were no fewer than 13 Fords racing at Sebring. Seven of them were privateers running GT40s in Group 4. But the big dogs were the six cars entered by Ford's three works teams. Holman & Moody again had Hansgen and Donohue in a brand-new Mark IIA, while Bucknum was sharing the car he'd raced at Daytona with two-time Indy 500 winner A. J. Foyt. The strapping, self-confident "Ay Jay," as McLaren called him in his column for *Autosport*, was unquestionably the most famous driver in the United States, but he was making his debut in big-time international endurance racing. Like all the Mark II drivers, he'd have the benefit of a 427 that had been further developed to make 471 horsepower at 6,400 rpm.

Alan Mann Racing was also getting its baptism of fire. Like Wyer, Mann remained convinced that the 289 was strong enough to get the job done. So he'd commissioned the construction of five chassis from Abbey Panels incorporating more than 100 modifications—everything from different suspension pickup points to slimmer B pillars—drawn by John Crosthwaite, who'd worked most recently on BRM's F1 cars. Coupled with aluminum bodywork, the cars were about 200 pounds lighter than the GT40 and nearly 450 pounds lighter than the Mark IIA. John Whitmore and Australian Frank Gardner shared the first car, while Mann had paired Graham Hill and Jackie Stewart—generally thought to be the Next Big Thing in Formula 1—in the other.



Above: After a series of desultory results as a Group 7 car—shown here, driven by Chris Amon at Nassau in December 1965—GT/110 was transformed into the Sebring-winning X-1 roadster. *Albert R. Bochroch Photographic Archive/Courtesy of The Revs Institute for Automotive Research, Inc.*



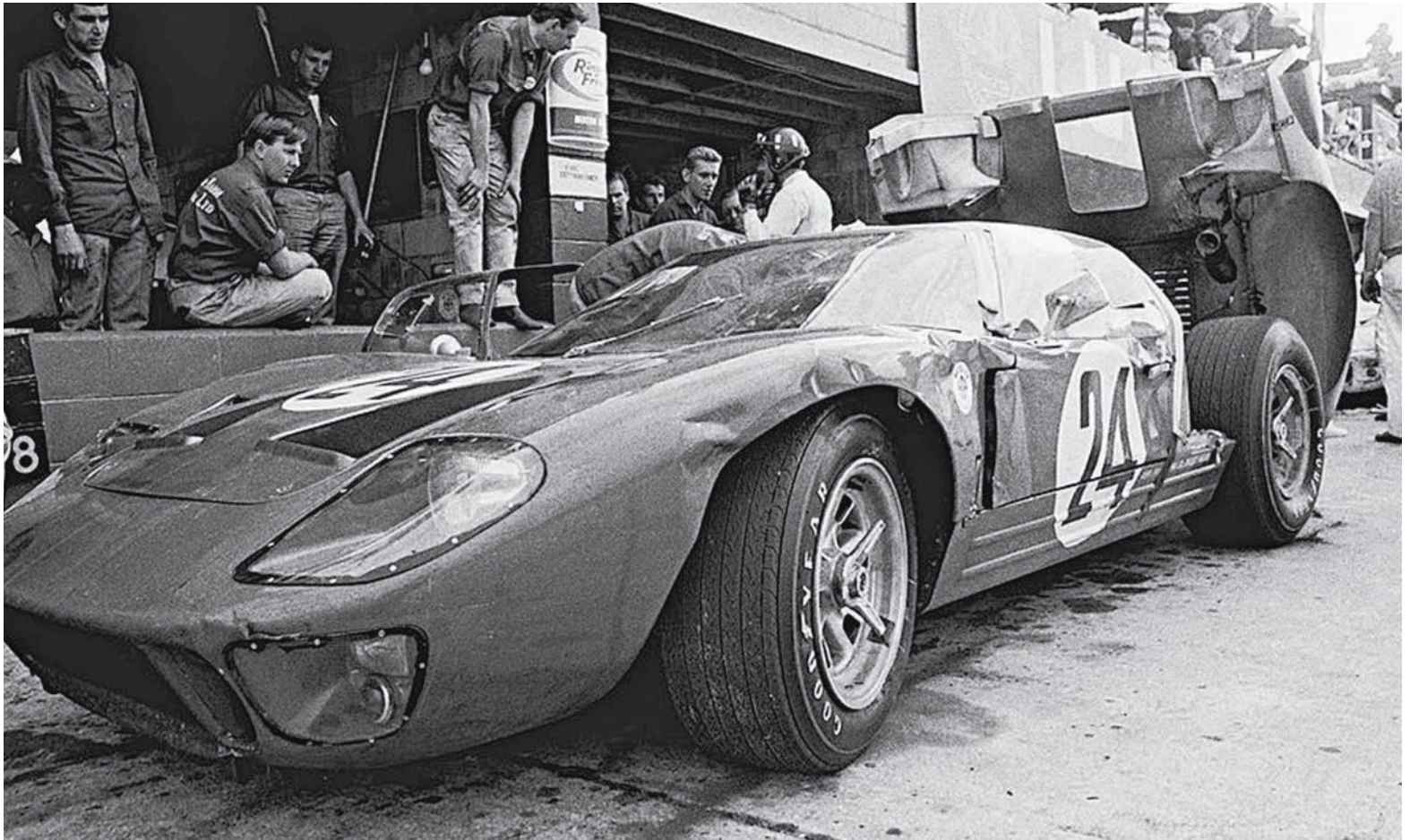
Left: GT/110, distinguished by its experimental aluminum chassis, was completely reworked for Sebring. Note all the changes made since Amon recorded a pair of DNFs in the Bahamas three months earlier.

Both cars were painted in Mann's usual red-and-gold-striped livery. Like the Mark IIs, they wore a pair of snorkels sticking up from the rear deck to feed air to the brakes.

Shelby American had two cars at Sebring. Gurney and Grant were in the Mark IIA that Hansgen and Donohue had driven at Daytona, now painted Shelby American blue. But the second car was bright red and missing its top. Now known as the X-1, GT/110 had begun life in 1964 as an experimental aluminum chassis that was shipped to McLaren's fledgling shop in Feltham, England. There, it was fitted with a 427-cubic-inch engine and a Hewland LG500 gearbox and prepared for Group 7 racing, which was governed by the regulations that would later spawn the Can-Am series. With Amon driving, it performed so dismally at Mosport, Riverside, and Nassau that the crew dubbed it Big Ed, as in Edsel. "Whilst it was a very good GT40, because it was a lightweight, it was never going to be a Can Am car," Amon said. "A, it didn't have anything near enough horsepower, and B, even though it was a light GT40, it was much heavier than the other Can-Am cars."

Although Gurney lost time at the start, he smashed the lap record repeatedly before taking the lead after 90 minutes. Thereafter, he and Grant were the class of the field.





Above and opposite, bottom: The Alan Mann Racing GT40s made their first appearance under the Ford corporate banner at Sebring, but neither the Hill/Jackie Stewart (No. 24) car nor the John Whitmore/Frank Gardner entry made it to the finish.

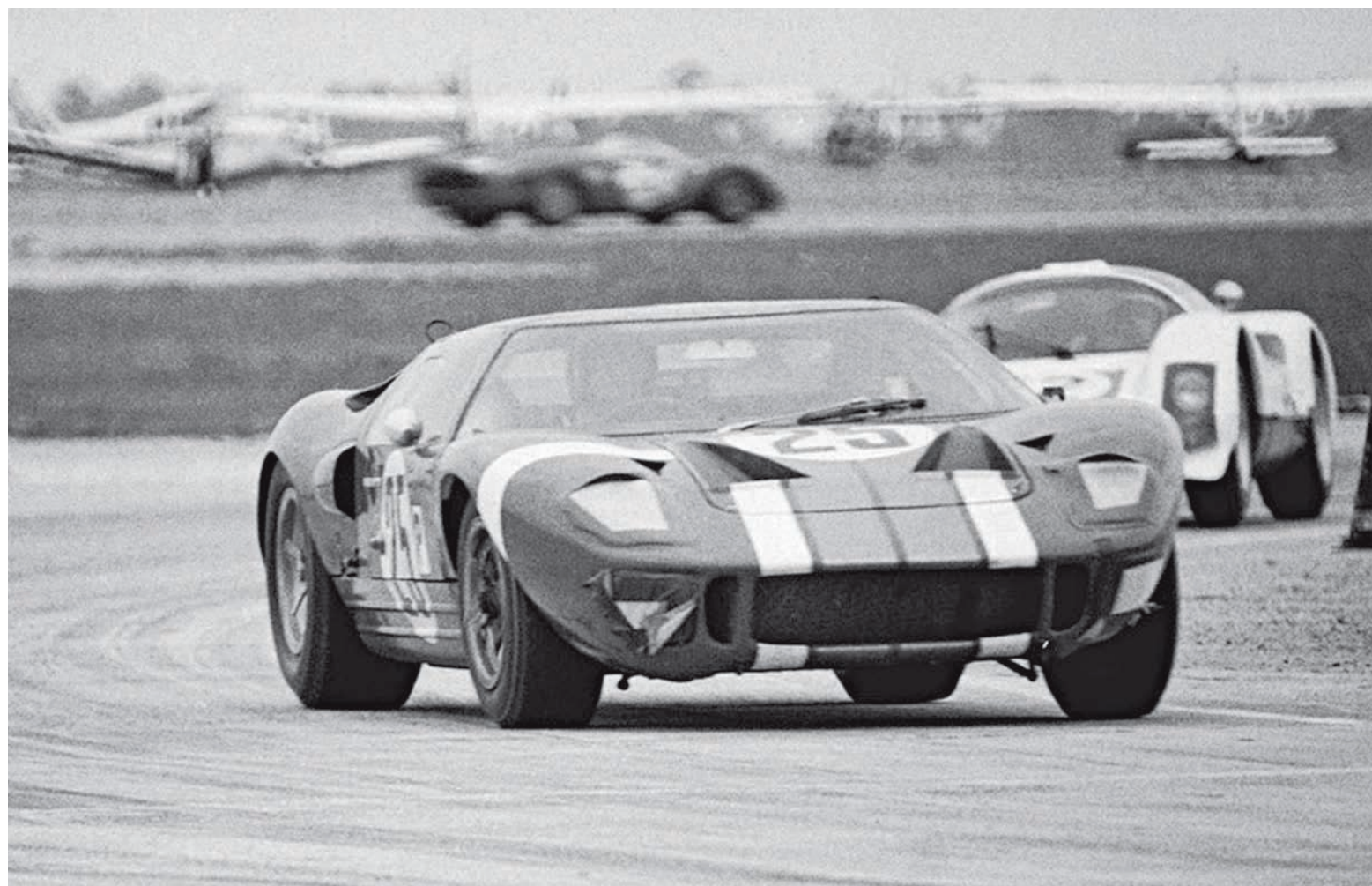
Left: The Bucknum/A. J. Foyt Mark II gets a new set of rotors. Both Holman & Moody cars suffered from incurable brake problems despite snorkels added to the rear deck to provide more brake cooling.

Opposite, top: A Shelby American crewman swaps out brake pads in the X-1. Any hope Miles had of catching Gurney was extinguished when he suffered a cracked rotor late in the race.

Still, the X-1 roadster was about 250 pounds lighter than a Mark IIA (though, ironically, the open cockpit was hotter than the closed one in the coupe). So it was fitted with standard Mark II body panels and a new windscreen. But the decision to race it came late, and Remington and Bill Eaton were still installing a rollbar shortly before it left for Sebring. There, the car was entrusted to Miles and Ruby and saddled with an automatic transmission. After two of the power-shift units broke during practice, Miles persuaded Ford to retrofit the car with a T-44.

Gurney breezed to the pole, 2 seconds ahead of Parkes in the Ferrari, with Graham Hill an encouraging third in Mann's lightweight, Hansgen fourth in the first of the Holman & Moody cars, Miles fifth in the X-1, and then Sharp sixth in the faster of the two Chaparrals. Gurney flooded the engine of his Mark IIA at the start and didn't leave the grid until all but one of the other cars were gone. This gave Graham Hill and then Parkes a few moments of glory at the front of the field. But once Gurney got going, he whizzed around cars left and right like a character in a movie chase scene, and he smashed the lap record en route to taking the lead after 90 minutes. The Chaparrals were out early, the Mann GT40s broke late, and none of them were very competitive. Both Holman & Moody cars were plagued by chronic brake woes; by the end of the race, the mechanics couldn't remember how many sets of pads they'd changed.

About a third of the way into the race, black smoke eddied into the air over the back side of the circuit like the residue of a funeral pyre, which, in effect, it was. Canadian Bob McLean lost control while exiting the Esses in a GT40 entered by Comstock Racing, clouted a utility pole, flipped, and landed upside-down, burning fiercely. Track officials were inexcusably unprepared to fight the fire, and McLean was dead by the time he was freed from the car. The race got even uglier after dark. With about two hours to go, Andretti spun when the rear wheels of his Ferrari locked after a balky transmission gave him the wrong gear. He punted the Porsche 906 driven





by Don Wester as Wester tried to squeeze past. Wester careened off the track, killing four spectators who'd been watching in a restricted area. Sebring officials were rightfully excoriated after the race for inadequate safety provisions and indefensible crowd control.

The race itself lacked any drama once the Ferraris and Chaparrals were out of the running. The only real racing was between Gurney and Miles, who repeatedly ignored pit signals to slow down. Finally, Shelby jumped up on the pit wall and furiously brandished a hammer, used to tighten and loosen knock-off wheel nuts, at the red roadster. The sardonic Miles gave Shelby the finger as he passed the pits the next time around, but he eased off. Any hope Miles had of fighting for the win was extinguished when he was forced to pit to replace a cracked brake rotor. Gurney had a lap in hand when he started his last lap. As he was coming around the final corner, the 7.0-liter V-8 spluttered and died. After trying and failing to restart the engine, Gurney climbed out





Above: Gurney and Shelby talk just before Gurney's last stint.

Above, right: Miles and Ruby are the surprise winners at Sebring. "I was in the shower when I found out I had to go to victory lane. What a shock that was, cause Gurney and them guys was supposed to win that race and they should have. We were really lucky in that one." —Lloyd Ruby

Opposite, top: The Foyt/Bucknum car makes its final pit stop before the end of the race.

Opposite, bottom: Ken Miles is back in the roadster for the final laps of the race.



and began pushing the car while the P.A. announcer shouted, "This is un-be-leev-able!" A stunned Miles passed Gurney to take the checkered flag. Gurney received a huge ovation as he manhandled his Mark IIA past the finish line—where he was promptly disqualified because his car didn't finish the race under its own power. Ruby, who had been reconciled to finishing second, was yanked out of the shower to join Miles at the victory celebration.

As usual, Ford conducted an exhaustive postmortem. A rod bolt was found to have caused Gurney's 427 to expire. Brake problems "were primarily due to excessive driver usage, which resulted in an abnormal deflection or dishing of the rotors." Looking back, this seems harsh, not to mention hard to fathom, considering that all but one of the big-block cars experienced brake trouble. As for Mann's lightweights, the cars had been reasonably quick, but the speed seemed to have been as much a product of the drivers as the design. "Neither car had sufficient power to be competitive with the Mark IIs, even with the reduced weight and handling modifications," the report concluded. The race-winning X-1, meanwhile, never raced again, and the willowy chassis was later chopped up and buried unceremoniously near LAX.

The Le Mans Test was a week away. For the first time, Ford would be arriving at the Circuit de la Sarthe as the odds-on favorite.

6



APRIL 1966 – JUNE 1966

VICTORY!



WALT HANSGEN WAS A MAN IN A HURRY AS HE SPED TOWARD LE MANS IN A rental car with Holman & Moody team manager John Wanderer riding shotgun.

Forty-six years old, with silver hair and a fondness for martinis, Hansgen was a late bloomer who was making up for lost time. When he wasn't racing, he ran a service station, and he was a wheeler-dealer who served as a distributor for Jaguar, BMC, Goodyear, and even a tractor manufacturer. After several years of club racing on the East Coast, he'd been anointed as Briggs Cunningham's No. 1 driver. Four consecutive SCCA national championships in Cunningham Jaguars followed. When Cunningham retired, Hansgen started driving for another wealthy American sportsman with his own independent race team, John Mecon Jr. One-off rides earned him a fifth-place finish in the US Grand Prix and back-to-back appearances in the Indy 500, where he ran as high as second as a rookie.

Hansgen had raced at Le Mans five times but never made it to the finish. In 1966, coming off a third-place finish at Daytona and a second at Sebring in a Mark IIA, he would be one of the favorites at Le Mans, and he was eager to show off his speed during the test weekend. Sitting in the passenger seat of the rental car, Wanderer felt Hansgen was driving too quickly for the rain-slick French highways. It was a dreary day, not unlike the one two years earlier when the original Ford GT had made its disastrous debut. But this Le Mans Test would be even more calamitous.

The turnout for the weekend was modest. Jim Hall didn't bother to send any Chaparrals over, and Enzo Ferrari decided at the 11th hour to test at Monza instead of Le Mans. Ford had brought five cars in three different configurations for back-to-back comparisons. There were two Mark IIAs that had been shipped to France after racing at Daytona. Alan Mann, who was still trying to persuade the powers-that-be that his lightweights made more sense than the Mark IIs, had hastily repaired the 289 GT40s that ran at Sebring. The fifth entry was the one that Ford saw as the future. Known as the J-Car, it featured a 427-cubic-inch engine in an aerospace-style aluminum honeycomb monocoque clothed in a space age body that looked like it had been designed by NASA. This was to be the car's first public performance, and the general sense among team members was that it wasn't quite ready for prime time.

Bruce McLaren clearly leads Ken Miles and Dick Hutcherson to a historic 1-2-3 finish at Le Mans in 1966. But the first two cars were nearly dead even when they crossed the timing line a few yards earlier.

Rain fell steadily. Bruce McLaren and Chris Amon took a few halfhearted laps in the J-Car, which was fitted with a data recorder to log material that would be downloaded and reconfigured to create simulation programs for future testing. Ken Miles went out in a Mark IIA, but even running at a reduced pace, he beached the car in the sand. The Alan Mann lightweights performed well in the tricky conditions, but Hansgen was fastest of all in a Mark IIA. He was so fast, in fact, that he was told to slow down—twice, by John Cowley and Homer Perry on Lap 11 and by Carroll Smith on Lap 16. He returned to the track, clicked off a lap at 3:59, then a 3:48.5, then a 3:46.8. Amon and Smith watched with frank amazement as he flashed past. “I don’t know what he was doing, but he was going like hell,” Amon said. “I remember him being far quicker than anybody else in the wet.”

On the next lap, disaster. “Alas,” Gregor Grant wrote in *Autosport*, “after bombing past the pits, the tail wagged viciously, and Walt completely lost control while trying to take the old Dunlop Bridge bend.” Hansgen was talented enough to guide the car up an escape road. What he didn’t realize was that a gigantic pile of sand had been dumped there in preparation for a construction project. His car smacked into the sandbank at 100 to 130 mph and flipped end over end. No medical personnel were available during the 20 minutes it took to cut the unconscious Hansgen out of the upside-down and badly mangled car. Walter Hayes accompanied him to a local hospital, where he was found to have multiple fractures in his arm, legs, skull, and pelvis. “I stood in the operating room for the longest hours of my life and watched his life ebbing away,” Hayes wrote. Hansgen was later flown by military helicopter to a US Army hospital in Orleans. But he never showed signs of brain activity, and he was taken off life support five days after the accident.

Lucien Bianchi, in the driver’s seat of a Mark II, confers with Carroll Smith and Jerry Bondio while Sherman Falconer stands at the rear. Before the weekend was over, every Ford driver except Walt Hansgen will have tested the car.





Above: Five Mark IIs are ready to be shipped from LAX to France for the 24-hour race at Le Mans. The first three cars are Shelby American entries, the last two from Alan Mann Racing. Photo by Steele Therklson, Vernon Estes Collection

Right: Hansgen crashed heavily in the rain after the pits. Critically injured when he was cut out of the mangled car, he died in a military hospital five days later. Carroll Smith (at right with hands outstretched) and Homer Perry (in white jacket behind Smith) were among the first to arrive at the accident scene. "When Walt went by the pits, he went by far too fast to get under the Dunlop Bridge. Chris Amon and I looked at each other and said words to the effect 'Christ, I hope he can sort this one out.' He didn't, of course, and it cost him his life." —Carroll Smith

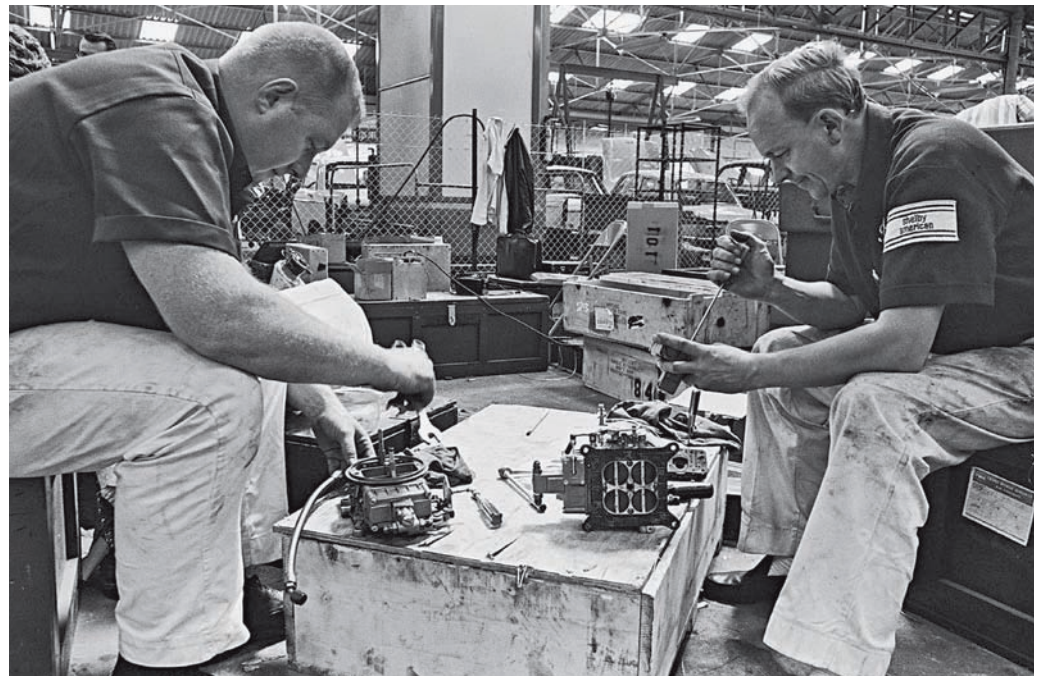


Coupled with the fatal crash of Bob McLean in a GT40 the previous week, Hansgen's death understandably cast a pall over the Ford team. Sunday was dry, at least, and the remaining four cars turned plenty of laps. Surprisingly, Amon was quickest in the J-Car, which he liked a lot more than McLaren. But his best time of 3:34.4 was slower than Phil Hill had gone last year in a Mark II that hadn't turned a wheel before arriving at Le Mans. And the rest of the cars were even further off the pace. "The two Alan Mann (289 CID) cars turned times of 3:38 and 3:40," according to an internal Ford memo. "However, all these drivers, when given a ride in the Mark II, preferred the 427 CID engine over the 289 CID." Much to his chagrin, Mann was ordered to stop messing around with the small-block and equip his cars with 7.0-liter motors.

With Hansgen gone and plans to race three cars at Le Mans, Holman & Moody needed drivers. Stock car aces Marvin Panch and Dick Hutcherson were dispatched to Kingman to familiarize themselves with the Mark IIA. They'd never run a midengine car before and the handling spooked them. Panch topped out at an average lap speed of 169 mph while Hutcherson saw a maximum velocity of 175 mph. Wanderer then asked Miles to check out the car to make sure it was okay. Hutcherson and Panch didn't know what to make of the strange-looking Englishman with the odd-sounding accent. Miles pulled on his helmet, buckled his seat belt, and took off. His first flying lap was at 187 mph, with a trap speed of 198.2 mph. "Ken Miles reported that the car handled perfectly," Wanderer wrote in his report.

While at Kingman, the J-Car was run alongside the Mark IIA. The Mark IIA was faster—a *lot* faster. But Kingman was good only for high-speed testing. So the cars were trucked to Riverside for another face-off. The J-Car broke a rear hub early in a durability run. Even worse, the chassis started to fail. "No significant defects were noted in either the basic honeycomb structure or the aluminum brackets themselves but rather in the bond that joins these units," Ford engineer Bob Negstad reported. The Mark IIA, on the other hand, breezed through the test unscathed. So a command decision was made to mothball the J-Car and prepare the Mark IIA for Le Mans.

Back in Dearborn, the Engine & Foundry department kept improving the 427. The external, belted drive for the dry sump was replaced with a more elegant internal chain drive running off the crankshaft. Mostly, though, Ford concentrated on longevity. In Dynamometer Cell 17D, an

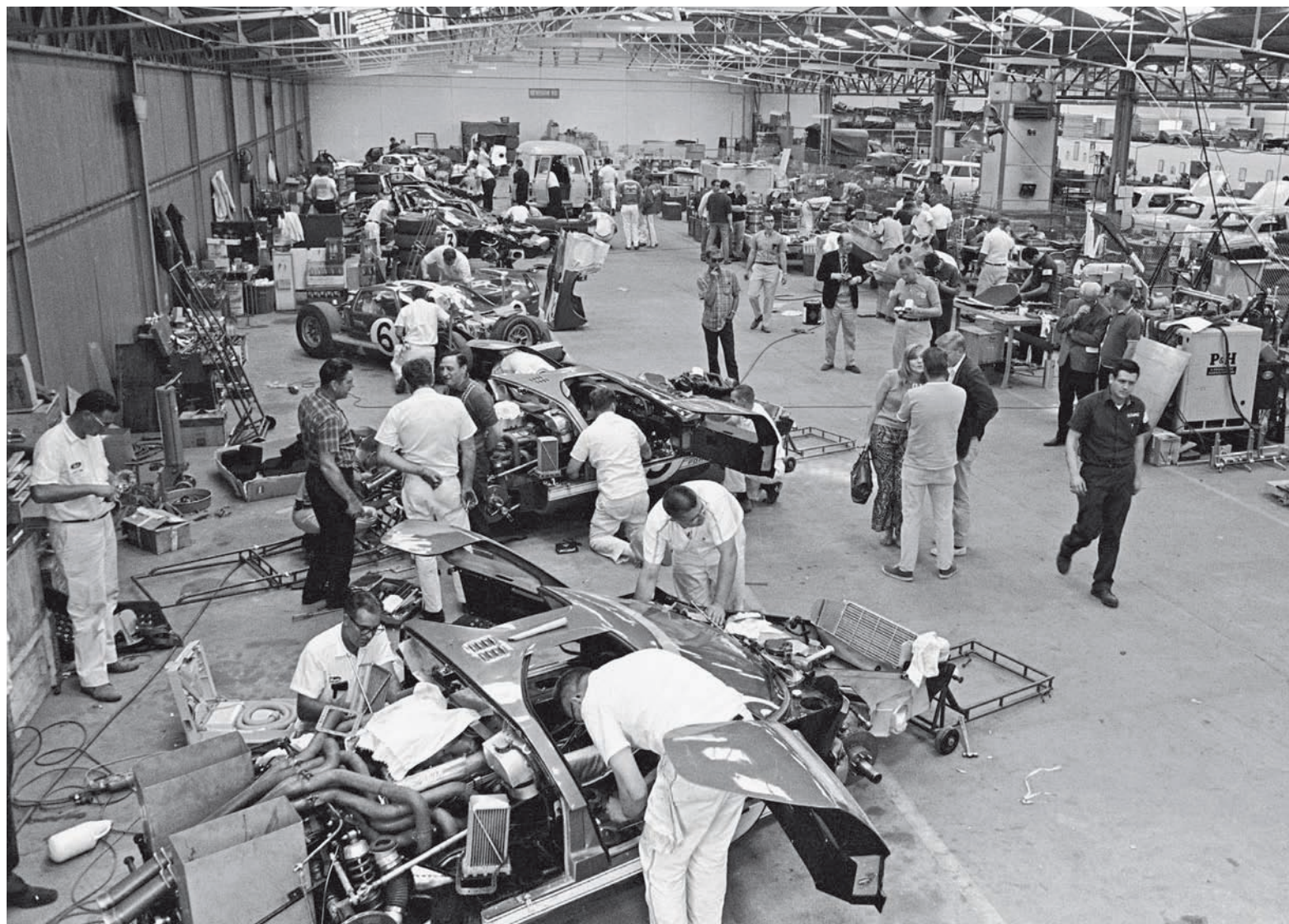


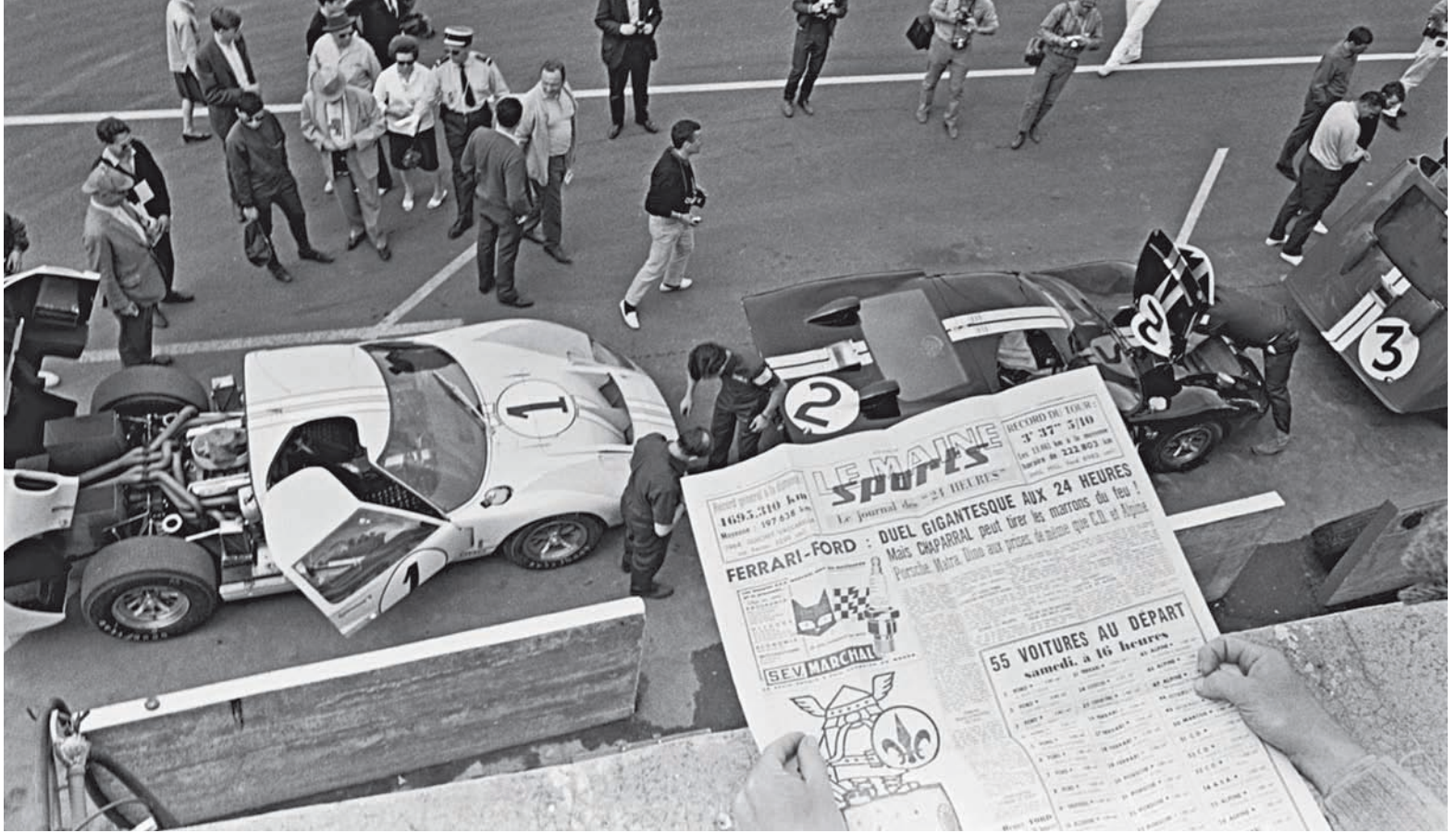
Above: Shelby American engine men Jack Russell (left) and Steele Therkluson rebuild four-barrel Holley carburetors before the race. By this time, the 427s were making an average of 485 horsepower based on the specs of an engine that had completed 48 hours on a pair of dynos in Dearborn that simulated laps at Le Mans.

Right: The ACO invited Henry Ford II to start the race in 1966. Here, he strides through the pits with his glamorous Italian wife, Cristina, and his teenage son, Edsel, in tow.

Opposite, top: Don Frey, Leo Beebe, Henry Ford II and Gianni Agnelli, debonair ruler of the Fiat empire (left to right), before the start. Agnelli looks amused, and Ford discomfited, as Beebe brandishes the You Better Win notecard he'd been given by the Deuce a few weeks earlier. *Mike Teske Archives/Ford Motor Company*

Below: Ford rented half of the huge garage of a local Peugeot dealership to house all three of its teams at Le Mans. In addition, Holman & Moody brought a big rig fitted out as a mobile machine shop.







Above: Henry Ford II (dark jacket and light pants) saunters across the track after waving the starting flag. The first four cars are Dan Gurney, Ken Miles, John Whitmore in an Alan Mann lightweight, and Bruce McLaren in the third Shelby American Mark II.

Opposite, top: A spectator in the grandstand overlooking the pits watches the three Shelby American Mark IIs. The newspaper tells the score—55 cars about to race, and a gigantic duel between Ford and Ferrari about to unfold.

Opposite, bottom: Gurney, who qualified on the pole, stands next to his car on the grid during the last minutes before the Le Mans start. As usual, he was sharing the car with Jerry Grant.

entire Mark II powertrain—7.0-liter engine mated to a T-44 transmission—was cradled between two electric dynos that were coupled to the output shafts of the transaxle. “The throttle, clutch mechanism, and gear shift selector were actuated by an air-valve solenoid system controlled electronically at a master panel,” Ford engineers Joe Macura and Jonathan Bowers wrote in an SAE paper. Using data collected during the Le Mans Test, the dynos were programmed to simulate laps at 4:02. There were 17 automated gear changes per lap, with the engine speed going from 2,600 rpm to 6,800 in first and second gears and up to 6,200 rpm in third and fourth. Development was frozen after a bogey engine completed 48 consecutive hours on the dyno. Twelve more engines were prepared to the same specifications and broken in for four hours with a target output of 485 horsepower. In fact, engineers saw a disparity of 36 horsepower, from 505 for the strongest engine to 469 for the weakest, which turned out to be the one in the winning car. The results of the dyno tests were collected in a black three-ring binder that Don Frey brandished for reporters. “It’s all in here,” he said. “How to organize to win at Le Mans. It’s one of the most expensive notebooks I know of—and it’s not for sale.”

In June, Ford headed for Le Mans, loaded for bear—and elk and caribou and moose and pretty much everything else between a gnat and a mastodon. A nonplussed John Wyer was told to request no fewer than 15 entries from the Automobile Club de l’Ouest. This was obviously a nonstarter during an era when only 50 or so cars generally took the green flag. The ACO ended up awarding Ford eight entries, but it made the magnanimous gesture of agreeing to allow Henry Ford II, who was attending the race with his wife, Cristina, a vivacious Italian beauty, to serve as the official starter. Cristina later admitted that she’d bet \$1,000 on Ferrari to win Le Mans, which didn’t do much to endear her to anybody in the Ford camp other than her husband.

Including the Deuce’s delegation, the American expeditionary force included about 100 live bodies, eight race-ready cars (and one spare), seven backup engines, 21 tons of parts, and a

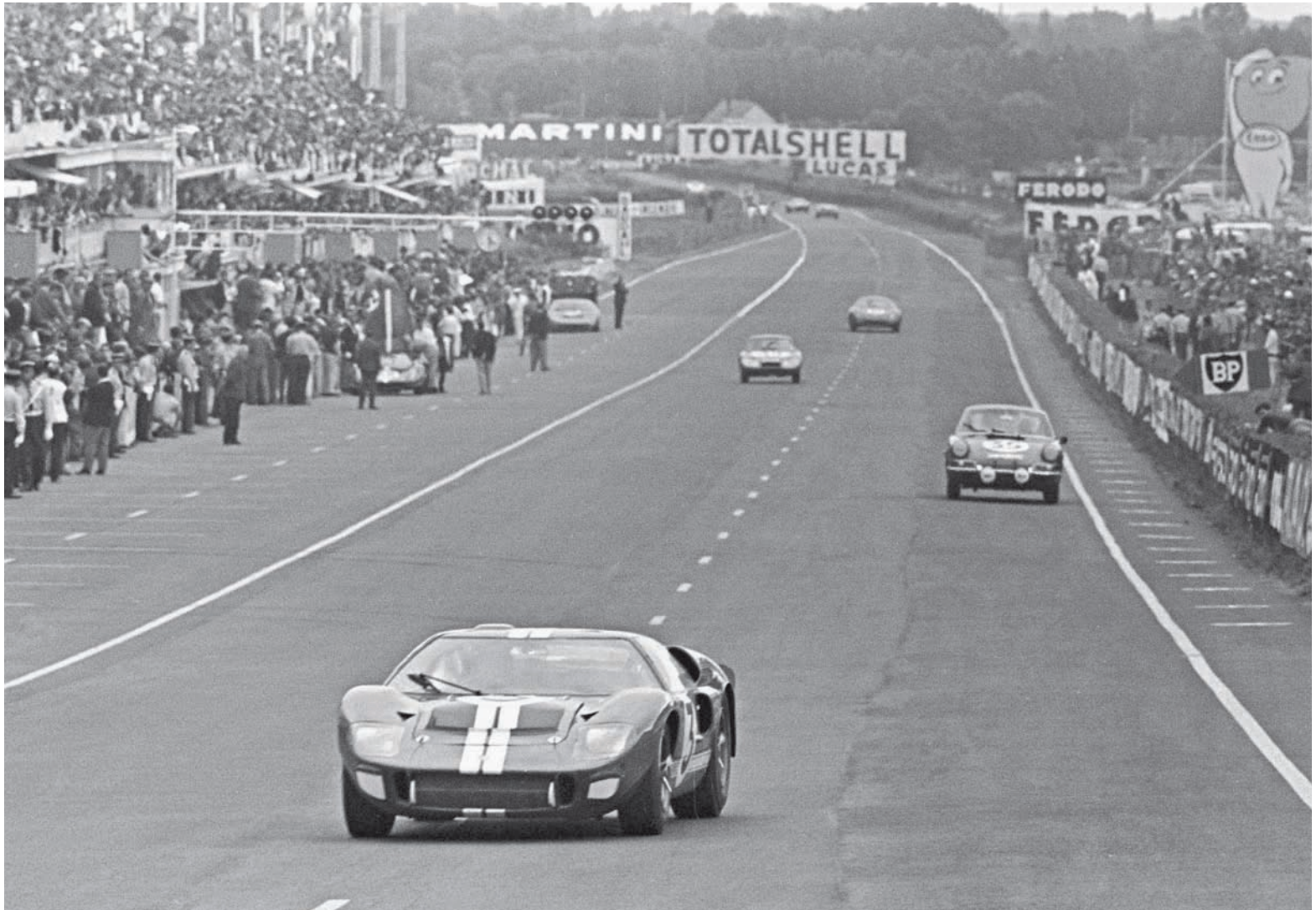
Coca-Cola machine, or what Henry Manney described in *Road & Track* as “more material than Hannibal took across the Alps.” Holman & Moody shipped over a 40-foot-long trailer equipped with a lathe, mill, hydraulic press, sheet-metal bender, bead roller, surface grinder, belt and disc sanders, generator, air compressor, gas and electric welding rigs, bathrooms, showers, and, on the roof, canopies and cots for sleeping. “It was so big that it got trapped in corners in some small towns and took some bricks off walls getting out,” Lee Holman said. John Holman hired the Wood Brothers, renowned on the stock car circuit for their lightning-fast pit stops, to crew his cars. The good ol’ boys of NASCAR weren’t crazy about the effete world of sports car racing, which they derided as “fruit cup racing,” or the prospect of eating French food. Glen Wood showed up at Charlotte Airport with insanely heavy pieces of luggage filled with cases of potted meats and Vienna sausage. “We ate every can he had,” Hutcherson said.

Nothing of this magnitude had ever been seen—or, frankly, imagined—in endurance racing before. The Ford GT program had begun two years earlier as a relatively modest British operation supported by American know-how and a substantial supply of Yankee greenbacks. Even as recently as the previous year, Ford still seemed like a feisty upstart seeking to unseat an unpopular despot. But by Le Mans in 1966, all proportion had been lost. “Operation Overkill,” Wyer called it disapprovingly. Richard Attwood, who’d been one of the Ford GT’s first drivers

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And they’re off! Graham Hill, in an Alan Mann entry, is in the foreground; Mario Andretti, driving for Holman & Moody, follows with the distinctive airbox of a Chaparral 2D peeking out from behind him.





Above: Gurney, passing the pits at record-setting speeds, seemed to start passing backmarkers as soon as the race began.

Right: Miles had to pit after the first lap to secure his unlatched door, but he wasted no time catching the leaders. Here, he harries Gurney at the Mulsanne hairpin.

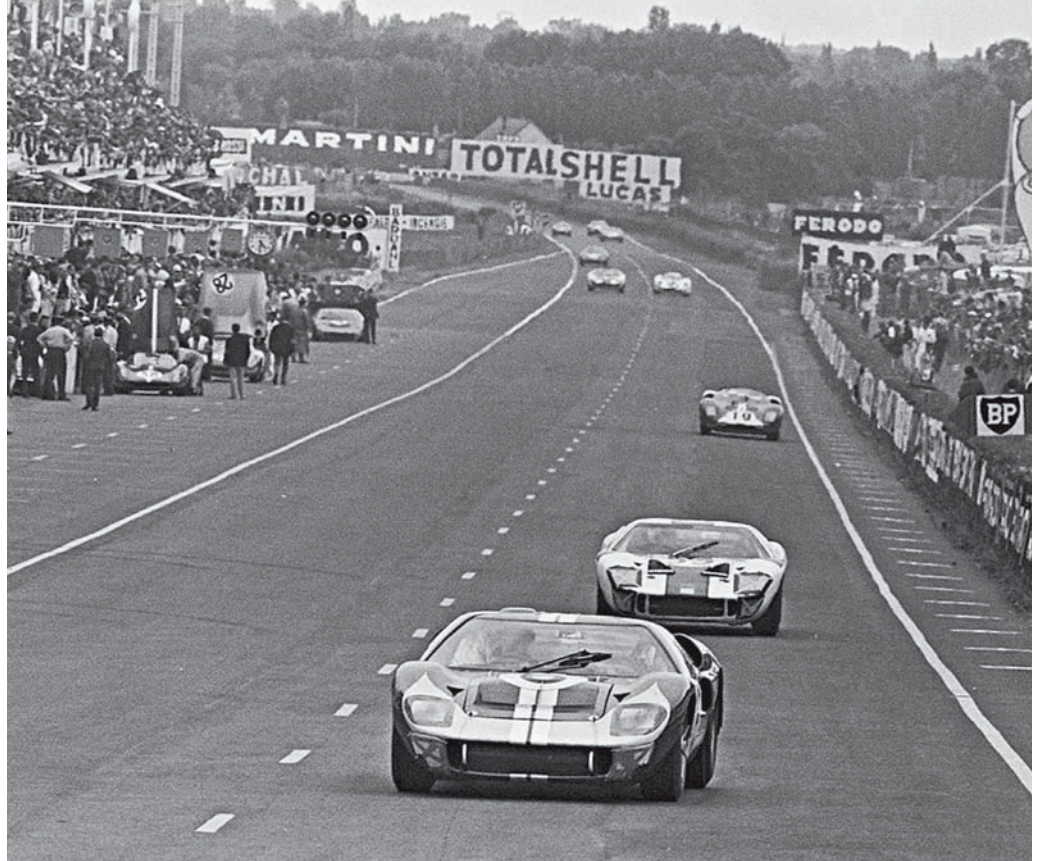


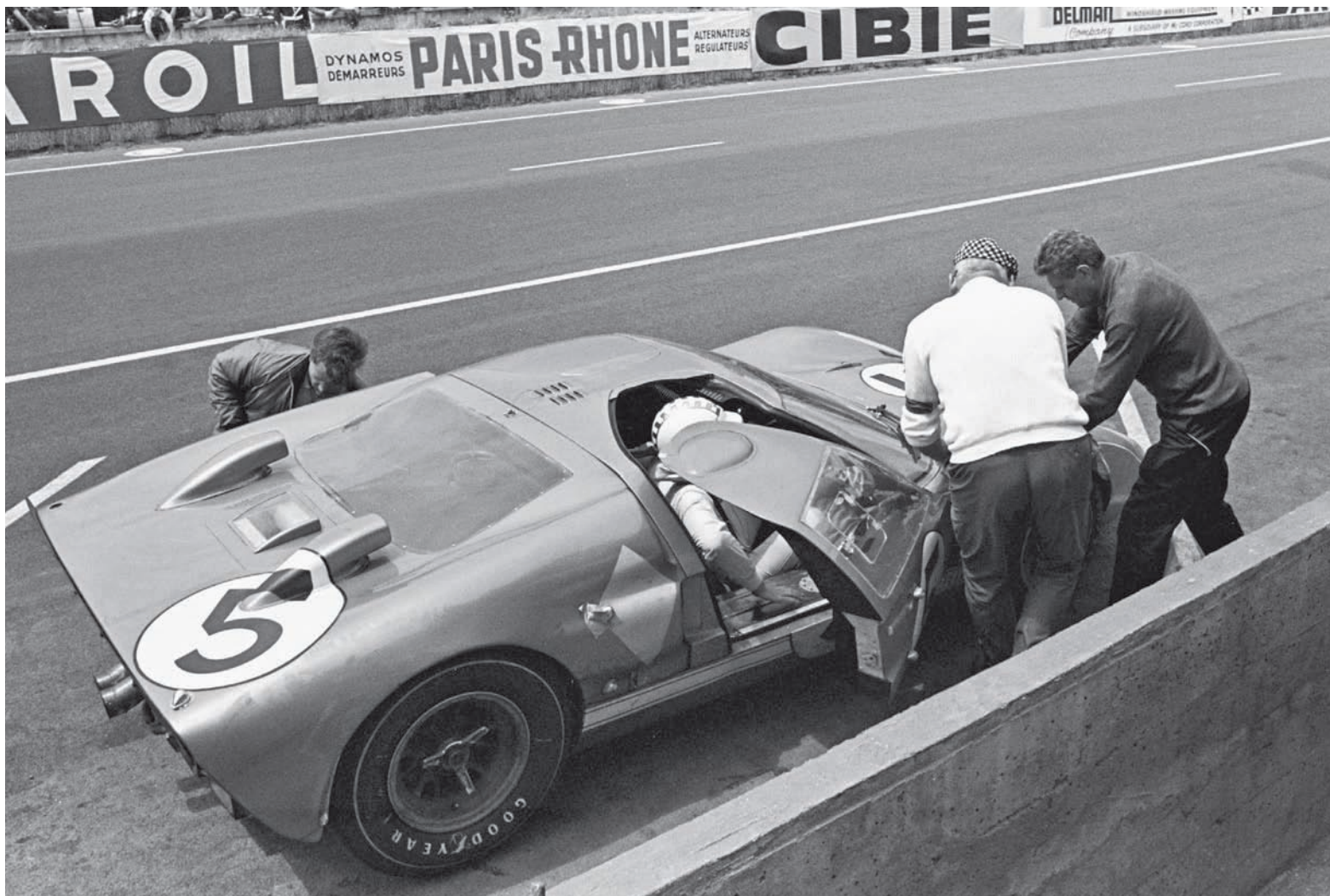


Right: Early in the race, Mario Andretti—making his Le Mans debut in a Holman & Moody Mark II—leads the privately entered GT40 co-driven by Peter Revson and Skip Scott.

Opposite: The Graham Hill/Brian Muir Mark II leads a Ferrari 330 P3 through the Esses. Muir was a last-minute replacement who got his first laps in a prototype—and his first laps around the circuit—a few hours before the race began.

Below: A few laps later, the second Alan Mann Racing entry, driven by John Whitmore and Frank Gardner, shows an Alpine A210 the way through the Esses.





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but who was now racing a privately entered Ferrari against his former employer, was more charitable. Still, as he said, "That was really using a sledgehammer to break a nut, wasn't it?"

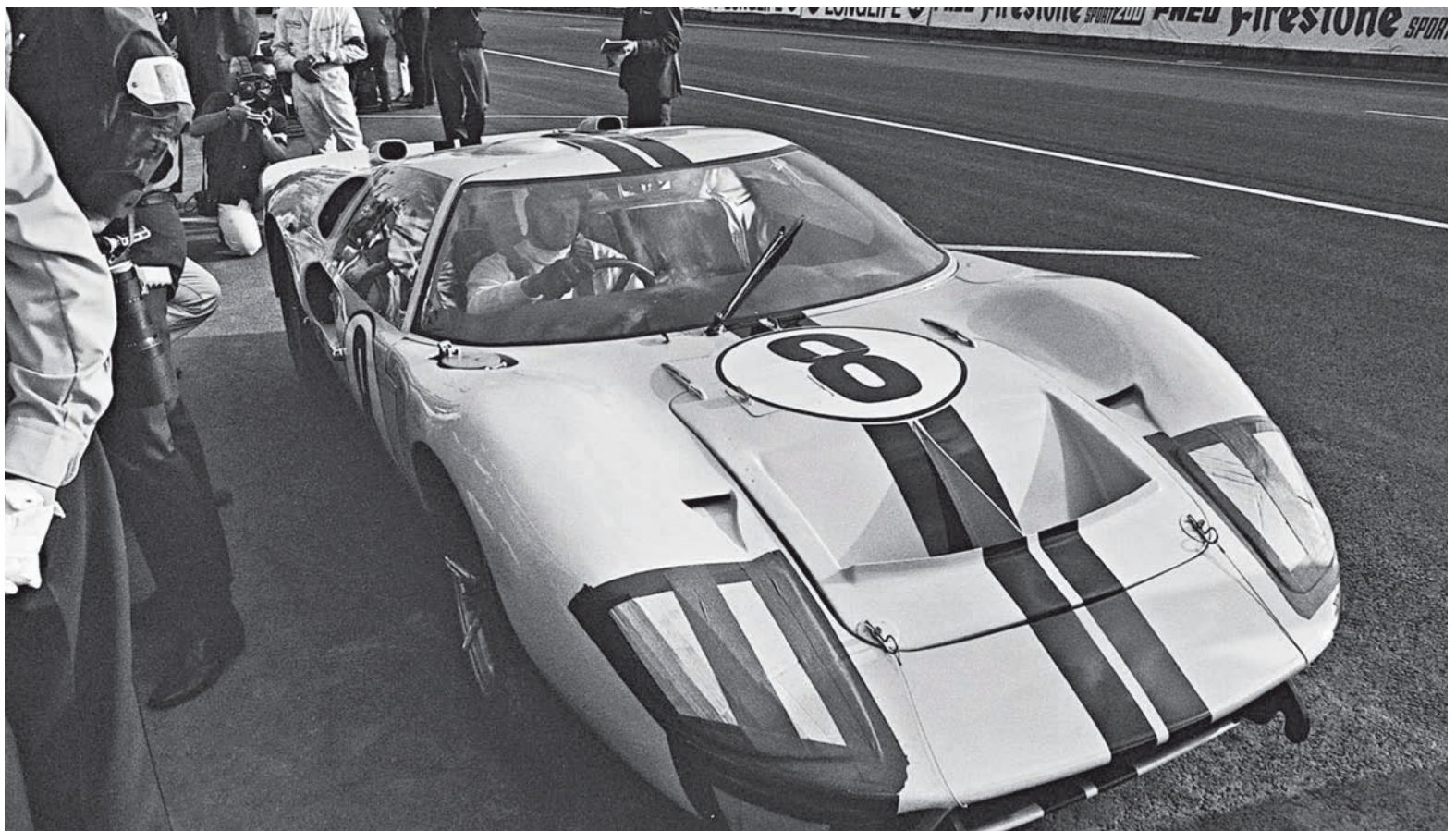
You needed a scorecard just to keep track of the all the players on the Ford roster. Helpfully, the Mark IIAs had been given sequential numbers from 1 to 8, but several of the expected names had changed, thanks to a particularly grim stretch of racing mayhem. First, Hansgen was killed. Then Jackie Stewart was seriously injured in a wreck in the Belgian Grand Prix, A.J. Foyt was badly burned after hitting the wall in an Indy car at the Milwaukee Mile, and Lloyd Ruby was hospitalized after crash-landing in a small airplane. So the Ford lineup looked like this:

1. Ken Miles and Denny Hulme of New Zealand, a promising F1 driver, racing for Shelby American.
2. Bruce McLaren and Chris Amon, Shelby American.
3. Dan Gurney and Jerry Grant, Shelby American.
4. Mark Donohue and Paul Hawkins, a rambunctious Aussie, entered by Holman & Moody.
5. Ronnie Bucknum and Dick Hutcherson, Holman & Moody.
6. Belgian sports car specialist Lucien Bianchi and Mario Andretti, in his first race for Ford, Holman & Moody.
7. Graham Hill and Dr. Dick Thompson, the racing dentist, who had oodles of experience, racing an Alan Mann lightweight aluminum chassis with a 7.0-liter engine.
8. John Whitmore and Frank Gardner in a second Alan Mann lightweight 7.0-liter.

Above: Ronnie Bucknum, racing for Holman & Moody, ran solidly to a third-place finish.

Opposite, top: Shelby American mechanic Ron Butler peers into the engine bay of the Gurney/Grant car during a routine pit stop.

Opposite, bottom: The Whitmore/Gardner Mark II leaves the pits after a scheduled pit stop. Before long, it was out of the race.







Above: Dan Gurney catches up on the local news between late-afternoon stints. Behind him stands Teddy Mayer, later better known for running McLaren Cars.

Left: A high-speed Ford train snakes through the Esses. The Gurney/Grant Mark II leads the Revson/Scott GT40 and the Bucknum/Dick Hutcherson Mark II.

There were also six privately entered GT40s, though these were all running in Group 4 and weren't quick enough to keep up with their bigger brethren.

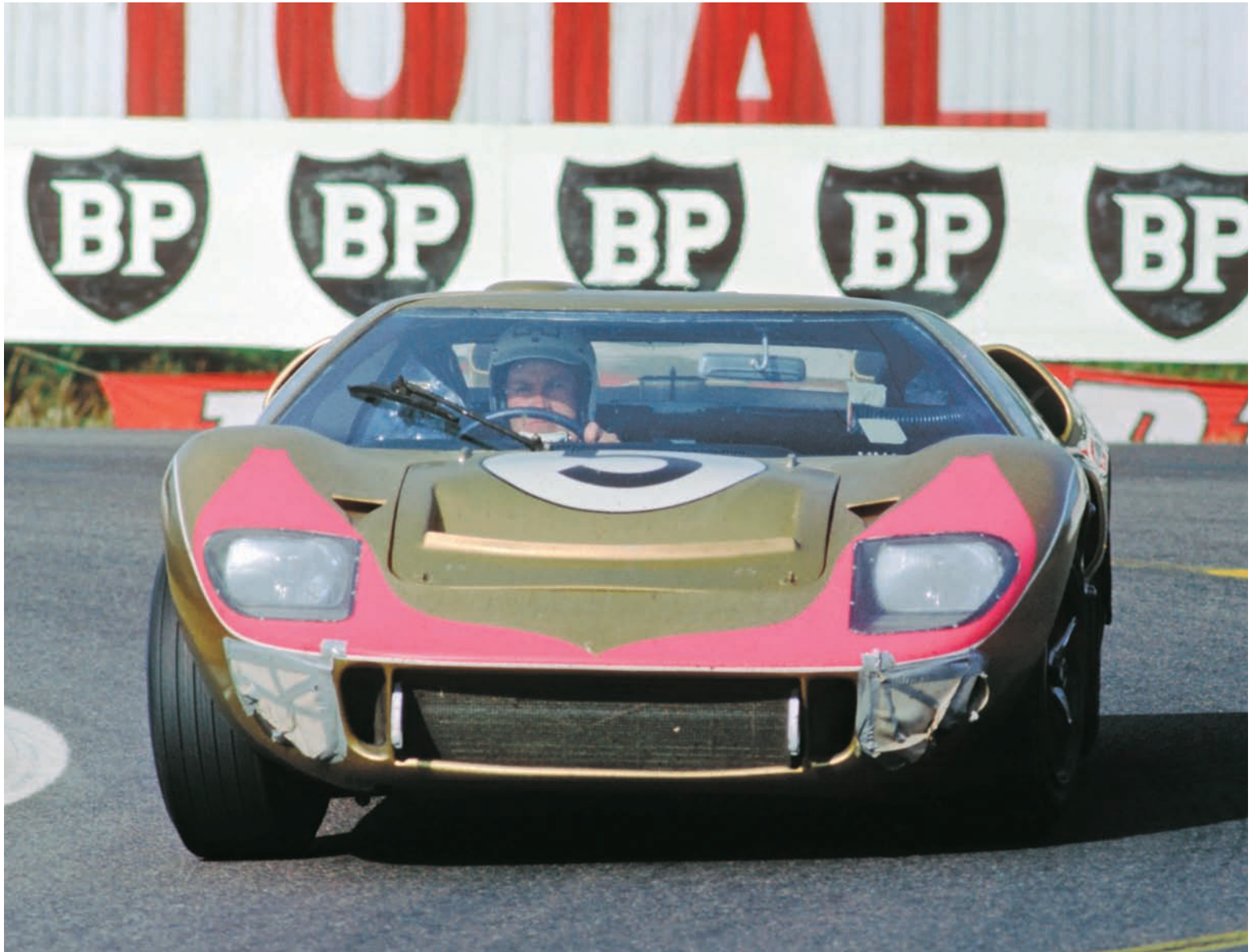
The competition was lighter than usual. There was only one Chaparral 2D, driven by Phil Hill and Jo Bonnier, though it was coming off a splendid win in the Nürburgring 1,000 Kilometers. The Ferraris were late, thanks to labor strikes in Italy, but a pair of factory twin-cam 330 P3s finally arrived just when cynics were starting to think that Enzo had decided to sit this one out. Luigi Chinetti and his North American Racing Team showed up, as usual, this time with a third 330 P3—a spyder—and there were four privately entered single-cam 365 P2s.



Qualifying doesn't usually mean much at an endurance race, but the unusually sultry days leading up to the race were packed with drama. The surprise was that most of it occurred off the track. Gurney was quickest during the first night session despite a final-drive ratio that was too short, with Whitmore an impressive second and John Surtees third in the fastest Ferrari. But the next morning, after long-simmering discord between Surtees and his team manager erupted into open warfare, Il Grande John stunned the racing community by quitting Ferrari. (He rebuffed instant offers from Shelby and Mann to drive instead for Ford.) Then, on Thursday night, Thompson was hurtling through the sweeper at White House when he clobbered an ineptly driven GT40 trundling along at a snail's pace. Although the GT40 was destroyed, Thompson's car miraculously suffered no major damage. But the ACO decided that Thompson had shown callous disregard by failing to report the accident, and with typically idiosyncratic arbitrariness, summarily disqualified him and his car.

Leo Beebe was incensed when he heard the news. Like everybody involved in the program, he'd been working under intense pressure ever since the calamity at Le Mans the previous year. But the stakes had risen dramatically during the weeks leading up to the race when Henry Ford II handed Beebe a piece of light-blue card stock slightly larger than a business card. Hand-written on it, in decisive script, was a single command: "You better win." It was signed: "Henry." Beebe

Graham Hill, who led the first lap of the race, rounds the Mulsanne hairpin.



Bucknum carves through the hairpin in the Mark II he was sharing with Hutcherson, a NASCAR veteran with no road-racing experience. “That racetrack was kind of neat. In 1966, there wasn’t no guardrails or nothin’, just trees, which people used to hit rather regularly, linin’ the racetrack. When it started raining, I told John Holman that if he wanted that sucker to go any faster he better put someone else in there because I was slowin’ my ass down. He said, ‘Just keep it on the road, Hutch.’ Ken Miles and them guys drove those cars faster in the rain than they did in the dry, but I’d never driven a race in the rain before. There were times when I was runnin’ down the Mulsanne, in the rain, at night, at over 200 mph, where I thought ‘what the fuck am I doing here?’” —Dick Hutcherson

understood that it wasn’t meant to be a friendly joke, nor was it an idle exhortation. It was a direct order, and the results of the upcoming race would be his performance review. In time, the card took on the qualities of a sacred religious relic. During the run up to Le Mans, it was passed around to various departments at Ford and shown to the troops to inspire them for the coming confrontation with Ferrari. The card meant so much to Beebe that, after the race, he kept it in his wallet for the rest of his life. And the Deuce’s admonition would end up, unexpectedly, playing a critical role in deciding who won Le Mans in 1966.

Beebe perceptively sized up the ACO officials as petty bureaucrats looking to score some easy points against the American invaders. So he played American hardball, telling them that if Thompson and his car were DQ’ed, the rest of the Ford team would be withdrawn. The Frenchmen stared at him with open mouths. After conferring privately for a few minutes, they decided not to call Beebe’s bluff. To save face, they ruled that Thompson was excluded, but the car would be allowed to race. Mann therefore had to find a new driver—no easy task considering that the race was less than 48 hours away. Brian Muir, an Australian who’d been racing Ford Galaxies (with 427-cubic-inch engines) in the UK, was plucked from relative obscurity even though he’d never before sat in a Mark II or raced at Le Mans. To familiarize him with the car and the track, he was given a few laps around the circuit on Saturday morning, hours before the race began.



Gurney started from the pole. Miles was second and McLaren fourth. The two of them were separated by perhaps 20 feet on the grid—the precise distance, it turned out, between winning and losing. Fords, Ferraris, and the lone Chaparral accounted for all of the first 21 positions. Henry Ford II, grinning like a schoolboy being let loose for summer vacation, dropped the Tricolor to start the race as rain began to fall. Whitmore's car was the first to move, but he stalled the engine, so it was Graham Hill in the second Alan Mann entry who led the first lap, with Gurney and Bucknum snapping at his tail. Hawkins dropped his clutch too aggressively and damaged his drivetrain leaving the grid, and the half-shaft snapped as he was approaching top speed on the Mulsanne straight. He somehow avoided crashing and made it back to the pits, where the half-shaft was replaced. But the rear bodywork flew off while Donohue was in the cockpit, and even though he was able to MacGyver it back on, the car retired before dark with a broken diff.

Miles stopped after the first lap to secure a door that hadn't closed properly, and he broke the lap record repeatedly as he chased the pack. Whitmore pitted early with brake problems—what

Andretti ran well in his Le Mans debut until the 427 in his Holman & Moody Mark II let go.

else was new?—and his car was out early with a bum clutch. Mark IIs were running 1-2-3 after the first hour, with Gurney at the point, but the McLaren/Amon car was nowhere near the leaders. When the two Kiwis had arrived at Le Mans earlier in the week, they'd been pleasantly surprised to find that their Ford had been painted black and silver, New Zealand's sporting colors. Two months earlier, they'd finished well back at Daytona after being ordered to drive conservatively, so at Le Mans, they were determined to keep the hammer down. But they were being held back by their Firestone rain tires, which were chunking badly.

Goodyear had gotten involved in big-time racing a few years earlier and was now fighting an acrimonious tire war with Firestone, which had dominated the sport for decades. Most drivers signed a contract with one company or the other. Both McLaren and Amon were members of the Firestone team. Moreover, McLaren's fledgling race car company earned the bulk of its income performing tire tests for Firestone. But unlike Goodyear, Firestone didn't have an intermediate tire—the hot set-up on a damp but not completely wet track—and the Firestone rains were uncompetitive. After falling well behind, McLaren reluctantly decided that winning the race was more important than pleasing his most important sponsor. So after losing a bunch of time, the Firestones were junked and a set of Goodyear intermediates were mounted. "Let's drive the door handles off the thing," McLaren said before Amon returned to the track.

Before the start, the Ford drivers had been given target times that were several seconds slower than they were capable of going. But nobody was paying any attention to those pre-race instructions. Miles got down to a 3:31.9 and hit 201.8 mph on the Mulsanne straight. (Ironically, the Mark IIs had posted higher top speeds the previous year with the long, lower-drag but less aerodynamically efficient nose.) But on Lap 39, Gurney went even faster—3:30.6, which was nearly 7 seconds quicker than 1965's lap record and an average speed of 142.979 mph. The only reason

Miles on cruise-control while leading the race. He and Gurney traded fastest laps early on before slowing their pace.





Above: A scheduled pit stop for the Bucknum/Hutcherson Mark II.

Right: Grant avoids the sand trap outside the Mulsanne hairpin. The engine overheated while Gurney was napping between stints. "We lead them all, set records, and can't finish. Our luck has to change." —Dan Gurney

the Ferraris were still in the hunt was that the higher speeds were killing the Fords' brake pads and cracking rotors more quickly than expected. After six hours, much to everybody's surprise, Ferraris were 1-2. But it couldn't last. And it didn't.

There was a downpour as the light faded, and four Ferraris disappeared in the middle of the night. They weren't alone. The rapid pace and on-and-off showers caused brutal attrition. (Only 15 of the 55 starters would make it to the finish.) The second Alan Mann car retired with a broken suspension, most likely the result of the accident that had nearly gotten it disqualified during practice. The Bianchi/Andretti Mark IIA lost its motor. All five of the GT40s eventually stopped, most after their 289s crapped out. Still, by 4:00 a.m., halfway through the seemingly endless race, Fords were 1-2-3-4-5-6. The lead was being swapped between the Gurney/Grant, Miles/Hulme, and McLaren/Amon cars, but Hutcherson, a stock car driver in the last of the remaining Mark IIAs, couldn't match their pace.

Sunday morning, while Gurney slept, Grant pitted with his water temp gauge pegged. Remedial efforts failed to keep the car running, so the race was effectively down to Miles and Hulme versus Amon and McLaren. Beebe, oh-so-conscious of his boss's you better win imperative, didn't want to take any chances. The drivers were told to shift gears at 5,000 rpm and turn laps at four minutes flat. A torrential downpour around 2:00 p.m. forced them to tiptoe so carefully around tight corners that they had to knock their transmissions out of gear to keep the engines from stalling. The lead changed hands every hour or so as the cars pitted. Under no circumstances did the Ford brain trust want to see the drivers duking it out for the win, with potentially disastrous consequences. At the same time, they realized they had an opportunity to score a unique public-relations coup. So Beebe made the fateful decision to try to arrange a dead heat.

While Amon and Hulme were on the track, Miles and McLaren were called over and told what they were supposed to do when they got back in their respective cars for the final stint of the race. Miles was understandably unhappy; his car was leading by a large enough margin that nobody





could have caught it. McLaren, on the other hand, was convinced that Miles had amassed his lead by disobeying team orders and lapping faster than he was supposed to, so he considered Beebe's decision a just reward for being a good soldier. As he walked through the pits, Miles flung down his sunglasses and growled, "So ends my contribution to this bloody motor race."

With a little more than an hour to go, Amon pitted and McLaren climbed into the cockpit of his black car. A few minutes later, the powder-blue Mark IIA stopped, and Hulme and Miles changed places. When it returned to the track, it was leading by 40 seconds. But over the next five laps McLaren closed the gap, and before long, Hutcherson's gold Ford, running in third but 11 laps down, joined the other two Mark IIAs to form a slow-running convoy. It was clear from the ponderous pace that something was up, but nobody other than Shelby, a handful of Ford executives, and the two drivers knew what was going on. Spectators near the finish line craned their necks, gazing down the track. Three cars came into view at White House in a side-by-side formation. With their headlights blazing, they motored deliberately through a light drizzle, not racing for the finish line but maintaining a measured pace, like tanks in a military parade.

Confusion reigned as race director Jacques Loste doffed his hat and threw the checkered flag. "Who won?" people shouted. "What happened?" Even in the Ford pits, nobody knew for sure. In 1966, there was no electronic scoring pylon, no big-screen TV, no live timing and scoring. All people knew was what they'd seen with their own eyes, but that was hardly definitive. Those sitting at the leading edge of the pits saw what might have been a dead heat. But a few yards





Above: Grimy but undaunted, the Miles/Denny Hulme Mark II heads toward the most controversial finish in the history of Le Mans.

Opposite, top: Miles and longtime friend and crew chief Charlie Agapiou confer during a late-race pit stop.

Opposite, bottom: McLaren guides the Ford he shared with fellow Kiwi Chris Amon through the Mulsanne hairpin. "When Chris and I first saw our car in the garage, we both immediately agreed that we'd never seen a better-prepared car. Two New Zealanders in a car painted black and silver, New Zealand's sporting colors? What could be better?" —Bruce McLaren.

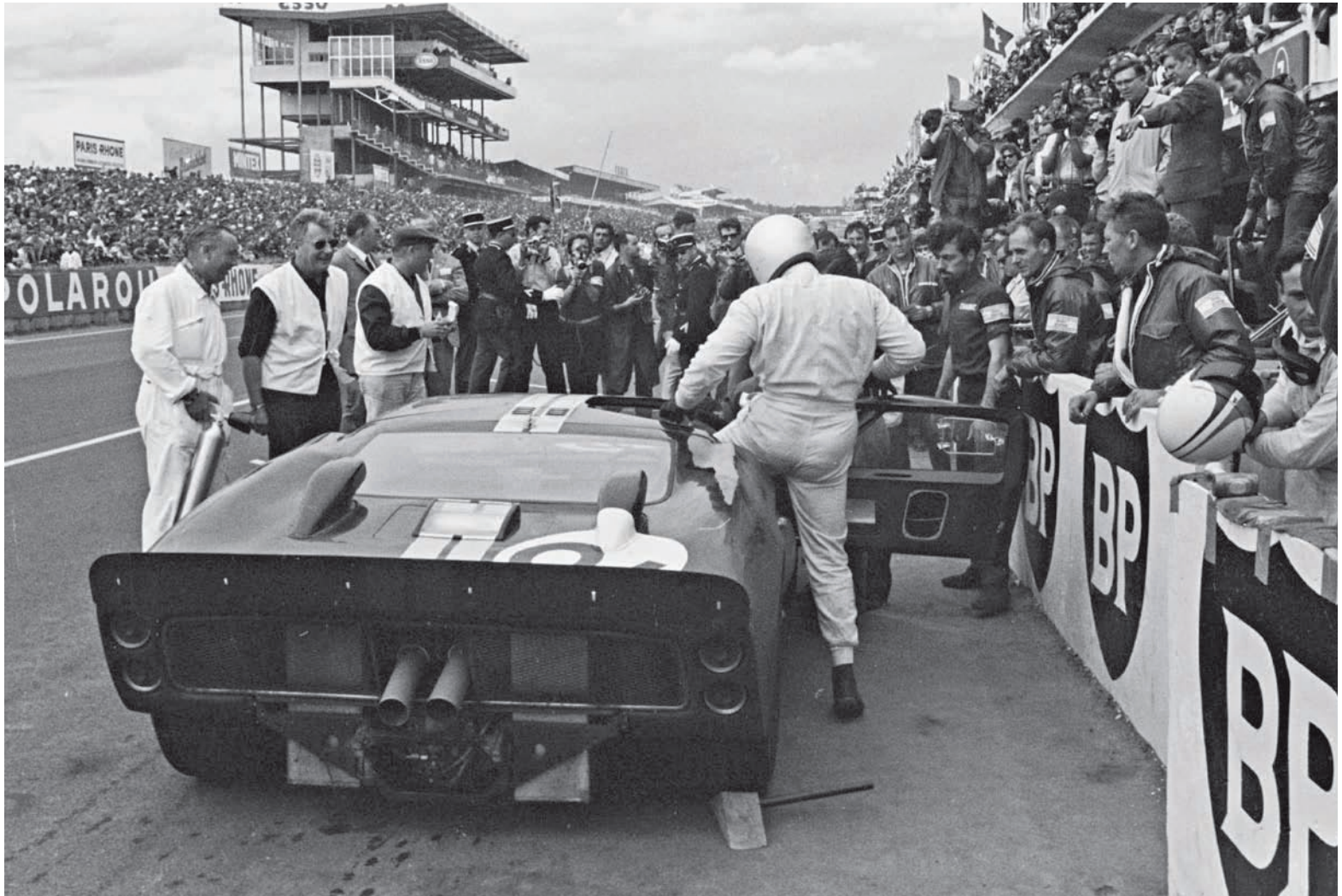
up the road, where the flag had been thrown, McLaren's black car definitely had been a few feet ahead, with Miles lagging slightly behind and Hutcherson bringing up the rear. Then again, a bit farther up the track, Miles' powder-blue car seemed to have drawn even again and then pulled in front of McLaren.

At first, Miles was generally thought to have won. After all, he'd led most of the race and he was in front when the last lap began. But as he and Hulme made their way to the victory podium, the P.A. chimed, and an announcement was made in French: The results had been recalculated: Amon and McLaren were declared the winners! This was an unexpected twist, but it didn't change the fact that Fords had finished 1-2-3. The highest-placed Ferrari was eighth, 47 laps down. In the most emphatic fashion, Ford had finally attained the goal it had been chasing so urgently for the past three years. A headline in *Road & Track* proclaimed it "America's Finest Hour in International Racing."

It should have been a golden moment of unrestrained celebration. Instead, the applause was muted. Even within the Ford camp, the prevailing emotions weren't joy and satisfaction but consternation and bewilderment. As Brock Yates wrote in *Car and Driver*: "It was nearly perfect

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Above: McLaren prepares to leave the pits after his car's final pit stop. Phil Remington, Agapiou, and mechanic Max Kelly watch from the pit wall while Leo Beebe points out something to Don Frey in the top right corner.

Opposite: Bucknum and Hutcherson weren't in the hunt for the win, but they made it onto the podium.

Right: With barely two minutes left in the race, according to the official clock cantilevered above pit lane, Henry Ford II grants an interview to a trackside journalist.



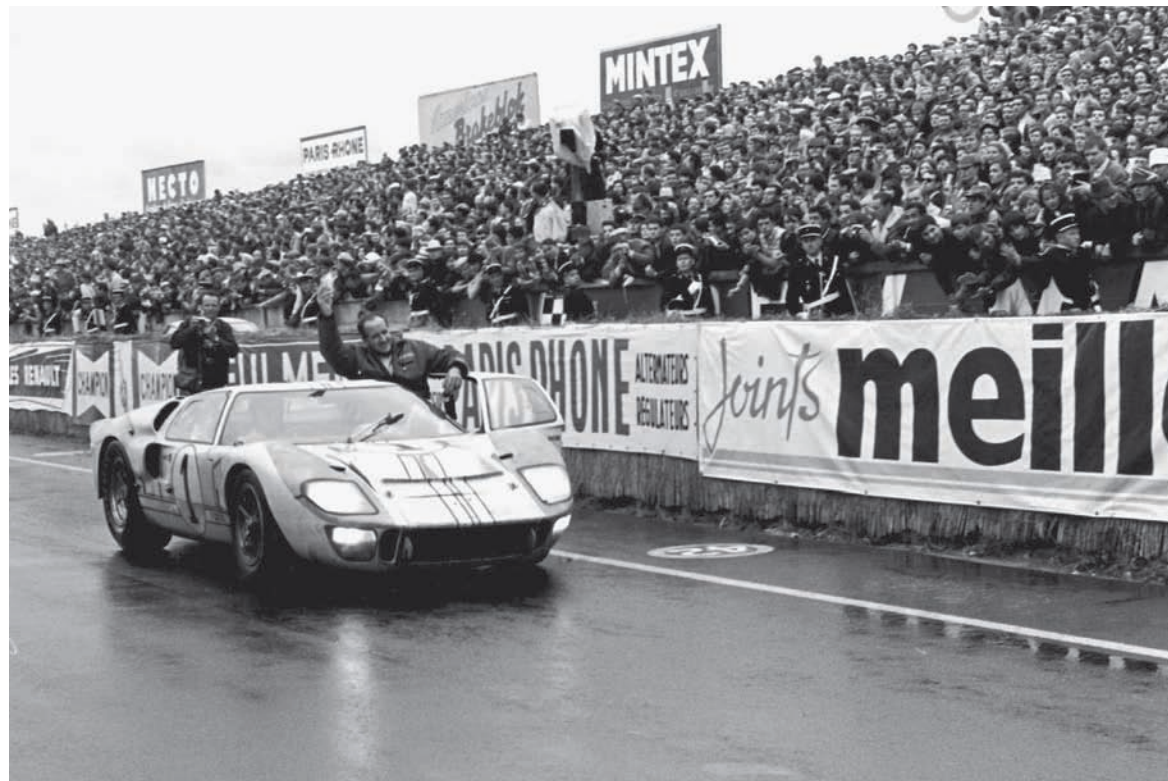


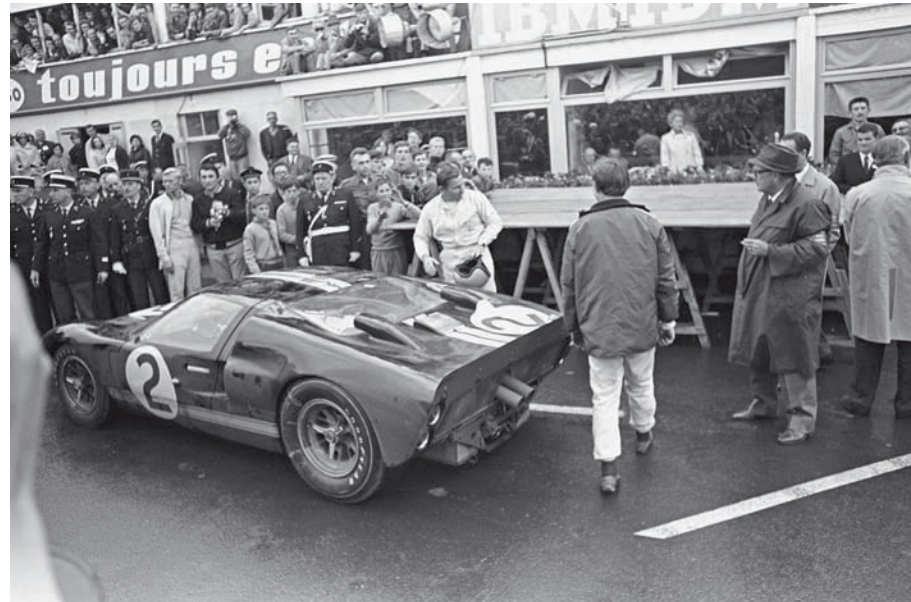


Above: McLaren gives Amon a ride to the victory stand. At this point, the crowd wasn't sure who'd won.

Right: At the same time, Miles was also driving Hulme—waving to the crowd—to the same destination. “We thought we had won and we attempted to push the car to the victory stand. The French officials stopped us and said that we didn't belong there, that we'd finished second. Ken was sitting in the car and said to me, ‘I think I've been fucked.’” —Charlie Agapiou

Opposite: The finish as seen from the pits.
 Photo by Steele Therkluson, Vernon Estes Collection







Above: At year's end, Jacque Passino, Frey, and Carroll Shelby pose with the FIA trophies for the Ford World Manufacturers Championship, the Cobra Manufacturers World Championship, and the Ford World Drivers Championship.

Opposite, top left: An ACO official takes control of the situation and leads the McLaren/Amon car to victory lane.

Opposite, top right: Amon walks over to greet McLaren. Believe it or not, that crude wooden structure is the victory podium.

Opposite, bottom: McLaren and Amon look more sheepish than thrilled as a jovial Henry Ford II—seemingly blind to the controversy caused by the finish—toasts their victory.

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until the end. The Ford Motor Company's third annual assault on Le Mans was as classically executed as a von Clausewitz campaign until those final, rain-soaked moments when an otherwise flawless system broke down and left the race blighted with mysterious anti-climax and corporate confusion."

A beaming Henry Ford II stood on the victory podium, quaffing champagne with the winners as "The Star-Spangled Banner" played, seemingly oblivious to the controversy the finish had caused. It wasn't until the ceremony was nearly over that Miles and Hulme, looking glum, reluctantly ascended to the rostrum. As recently as a month earlier, Ford had told reporters that "there will be a reduction of our racing expenditures." He himself didn't care much about racing. As he was to explain many years later, "I don't honestly know whether racing sells cars. It is so complicated, and it is run by such disorganized organizations. The rules are so flaky [that] they can be changed to suit anybody who puts up the most money."

But winning is a drug more addictive than the most powerful narcotic. As he basked in the adulation of victory at Le Mans, Ford declared, "We will be back next year." And this time, it would be with genuinely American cars and all-American drivers.

How Le Mans was Won

THE STAGED FINISH OF THE 24 HOURS OF LE MANS IN 1966

was the most controversial—and remains the most mysterious—episode in the long and convoluted saga of the Ford GTs. A dozen or so drivers, crewmen, and executives played crucial roles in the end-of-the-race production, and several of them provided accounts of what happened. The problem is that all their stories can't be reconciled. In some cases, in fact, the same source provided conflicting versions of events. At this point, it's impossible to say with any certainty what occurred in the pits and at the finish line. Still, it's possible to rule out some of the more outlandish conspiracy theories and see the end of the race with a bit more clarity.

"We were told to finish neck and neck," Ken Miles said shortly after the race, "and that's what we did. If they'd let Bruce and me race for it, we wouldn't have had all this nonsense." This sounds self-evident and supremely logical. But like many of the statements made about the denouement, it has to be placed in a larger context. By early Sunday morning, with all of the Ferraris gone and no serious challenge to the Fords remaining, Le Mans had ceased to be a race. Drivers who'd been lapping comfortably in the high 3:30s were ordered to slow to a positively snail-like four-minute pace. "It took me something like ten laps of concentrated effort to slow down to this speed," Chris Amon said. Race reports show the lead changing every hour as each car pitted for fuel and necessary service. But the drivers weren't racing in any commonly accepted sense. They were more like a pair of joggers who happened to be sharing the same track.

Henry Ford II returned to the circuit after lunch, gratified to see his cars dominating the race and about to settle the score with Enzo Ferrari. He was blind to the details and, to be honest, wasn't interested in how the sausage was ground. Leo Beebe, too, didn't really care which car won the race. His principal concern was the "You better win" notecard in his wallet, so his major objective was to avoid screwing up. By 8:00 a.m., all of the competitive Ferraris had faded, and the leading Ford was 16 laps ahead of the closest Porsche. But watching the Gurney/Grant car retire with a blown head gasket must have sent a shiver up his spine. And he must have been mortified by the prospect of a rerun of the fiasco of 1965, this time with his boss looking over his shoulder.

Amon, Bruce McLaren, Miles, and Denny Hulme were ordered to slow down even further. Aside from a mechanical failure, just about the only thing that could have gone wrong now was that Miles—who had a reputation for flouting team orders—would start dicing with McLaren, causing both of them to crash. And Miles already *had* speeded up on several occasions. Sunday morning, Carroll Shelby had chastised Miles for cutting a few quick laps, threatening to bar him from driving any more if he did it again. Yet a few hours later, after McLaren finished his second-to-last stint in the car, he realized that Miles had made up about 30 seconds on the previous five laps, presumably by again ignoring team orders. This gave Hulme a substantial lead over Amon with less than three hours to go.



Jacque Passino (center) talks with his right-hand man, John Cowley, on the plane ride to Le Mans. But it was their boss, Leo Beebe, taking notes, who made the ultimate decision about the finish in 1966.

McLaren and Miles had been around endurance racing long enough to realize that the positions would be frozen at a certain point, and whichever car happened to be leading at the time would be anointed the winner. "I work for the Ford Motor Company," Miles told Leo Levine, whose magisterial history, *Ford: The Dust and the Glory*, is the Rosetta Stone of the Le Mans program, in between stints, "and they pay me so much a month to do what they want. If they want me to win the race, why I'll do it. And if they want me to jump in the lake, why I'll have to do that too."

In his column for *Autosport*, McLaren wrote a sanitized version of what happened next. But a letter he sent to his father—"not printable, of course"—told an entirely different story. In it, McLaren claimed that he went to his bosses at Ford with a cheeky proposition: "Why don't you bring the cars over the line together? It would be much better public relations," he wrote. "I didn't think ten minutes of politics could win a 24-hour race—but there you are. Nice guys don't win ball games, they say. . ."

Although this is a compelling story, it strains credulity. To begin with, Amon, who was one of McLaren's closest friends as well as his co-driver, didn't remember it occurring. Granted, Amon was only 22 at the time, and he was grateful to leave the politics to McLaren. Still, McLaren himself must have realized that a dead heat was a non-starter. No major automobile race had ever ended in a tie. The idea that persnickety ACO officials—who had nearly disqualified a Mark IIA for a harmless infraction during practice—would allow a pair of Fords to be declared co-winners sounds like the public-relations fancy of somebody who knew nothing about racing. And, in fact, that seems to be precisely how the ill-fated decision was made.

(and Lost) in 1966



Phil Remington talks to a clearly unhappy Ken Miles as a pensive Bruce McLaren (foreground) contemplates the team orders handed down by Beebe. “We had three cars running up at the front as the race was drawing to its conclusion. Ken Miles was in one and Dick Hutcherson and Bruce McLaren were in the others. All of those guys were real racers. Miles would race his grandmother to the breakfast table, and the other two weren’t much better. We figured that in order to ensure a Ford win and keep those three guys from racing each other to the end, that we would have a dead-heat finish. We didn’t want to risk those guys crashing each other or breaking the cars. In hindsight we probably should have done it differently, but we were trying to control our destiny and ensure a Ford win, and we did just that.”

—Jacque Passino



Carroll Shelby chats with Ken Miles and Denny Hulme during the No. 1 car’s last pit stop. “I don’t know what they told Ken during that final pit stop, but he wasn’t very happy as he entered the car to finish the race.” —Carroll Smith

According to the commonly accepted—and most plausible—version of events, Beebe and company came up with the idea of stage-managing the finish about two hours before the end of the race. Bill Reiber, the head of Ford France, conferred with ACO officials, who confirmed that a dead heat could be arranged. Shelby reluctantly signed off on the decision, though he said afterward that he’d made a mistake—a position he maintained vigorously until he died in 2012. “I’ve regretted it ever since, but I went along with what they wanted,” he told his authorized biographer, Rinsey Mills. “I didn’t defend Ken’s position, even when they came out with that stupid crap about him starting in front, which they said meant he’d have to be that way at the finish—and he was my friend.” But there were cynics who felt Shelby was crying crocodile tears. As Brock Yates wrote caustically in his race report in *Car and Driver*: “Shelby was later to say wistfully, ‘I would have given \$50,000 to have Ken win.’ All it would have taken was a pit signal.”

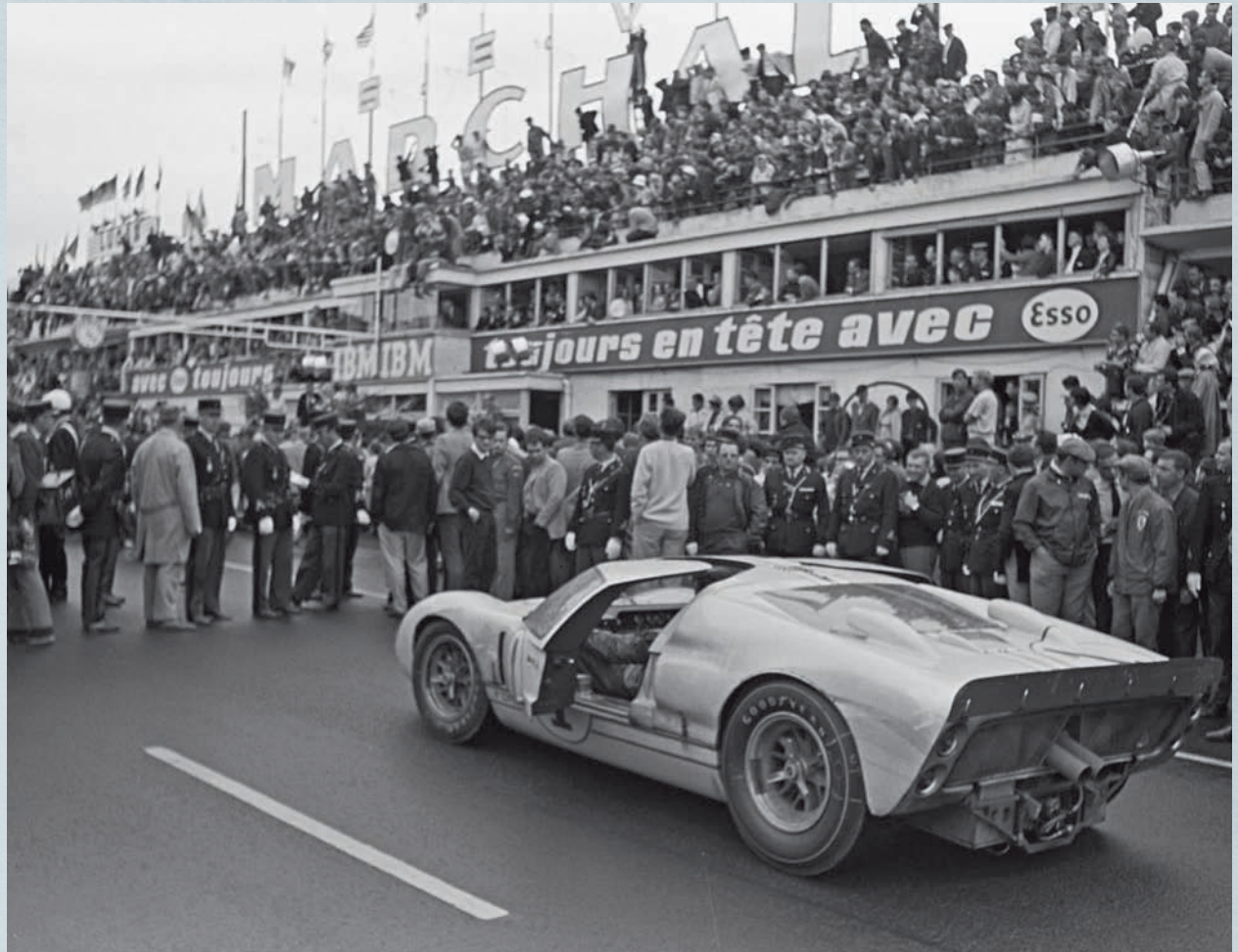
In his defense, Shelby was under tremendous pressure at the time. (Amon remembered him “looking pretty gray, actually.”) And Beebe was the one who did most of the talking when McLaren and Miles were called over for a chat before their final stints. After some persuasion, Miles agreed to run slowly enough to let McLaren and Hutcherson catch him for a three-abreast finish. By that point, the atmosphere in the pits was so tense that even people who weren’t directly involved in the decision realized something was up. After Miles swapped seats with Hulme, Carroll Smith poked his head in the cockpit. “I don’t know what they told you,” he said, “but you won’t be fired for winning Le Mans.”

Miles and McLaren returned to the track. While they circulated at a reduced pace, Reiber hurried over to the Ford brass with disconcerting news from the ACO. “Leo,” he said, “the officials *now* say a tie isn’t possible.” Instead of calling the race a dead heat, they planned to award the win to the car that had covered the greatest distance. Since McLaren had qualified at a slower speed than Miles, he’d started the race about 20 feet farther back on the grid. Therefore, if the two cars crossed the finish line side by side, McLaren would be declared the winner.

After the race, a lot of Monday morning quarterbacks slammed Ford for not knowing the rules governing the finish. Actually, it’s hard to believe that the ACO *had* a regulation covering a dead heat. At Le Mans, cars rarely finished on the same lap, much less a few feet apart. In any case, it would have been easy to adjudicate a photo finish, if necessary. (“How the French love to complicate things!” John Blunsden complained in *Sports Car Graphic*.) Moreover, as Dennis Jenkinson pointed out in *Motor Sport*, Le Mans is a timed race. So, theoretically, the winner wasn’t the car that crossed the finish line first. It was the one that had covered the most distance when the 24th hour passed.

Of course, all of these issues were academic, not to mention meaningless. Once events were set into motion, there was nothing anybody could have done to stop them. These were the days before in-car radios, and it’s easy to imagine things going calamitously wrong if Shelby had

The Miles/Hulme Mark II sits abandoned a few yards from the victory podium. So close, yet so far away!



tried to rearrange the finish through pit signals. Miles and McLaren were so far ahead that they could have been called in to discuss the situation, but, then again, unscheduled pit stops came with downside risks that were impossible to justify under the circumstances. In the end, Beebe made the call to leave well enough alone. "I've been accused and abused about the final results of that race and the circumstances that surrounded that win for years, but I stand by my decision," he said. "I was always fond of Ken Miles and I had great respect for him. In that race, Miles was devilish, not only for himself but for others. The decision regarding the outcome of that race was mine as the manager of the Ford racing effort at Le Mans."

Immediately after the race, the buzz in the pits was that Miles had gotten the shaft for failing to suck up to Ford executives. Years later, staff engineer Bob Negstad even claimed that Ford officials had gone to Timing and Scoring to request that Miles be denied credit for a lap so that McLaren would be guaranteed the win. Like most conspiracy theories, this one came with no proof, nor have any of the many people, both French and American, who would have been in on the fix come forward to confirm it. Also, none of the hundreds of media types covering the race or hundreds of thousands of spectators watching it ever said anything about the Miles/Hulme car inexplicably being docked a lap. More to the point, Miles was by no means a black sheep at Ford. Yes, he could be difficult, and he didn't always toe the company line. But he was an American, and he'd done more of the development work on the Mark II than anybody in



It took a while to cajole Hulme and Miles onto the victory podium, where they glumly downed their flutes of celebratory champagne.

the world. He was coming off wins at Daytona and Sebring, and a clean sweep of the three longest endurance races on the schedule would have been a great story. All things being equal, it's hard to believe that Beebe would have deprived him of a victory out of spite.



Ken Miles is besieged by spectators seeking autographs and reporters seeking answers. "In 1966, Ford didn't cost Ken Miles the race at Le Mans. I did, and I regret it to this day. Leo Beebe came up to me and said, 'Who do you think should win the race?' I thought, well hell, Ken's been leading for all of these hours, he should win the race. I looked at Leo Beebe and said, 'What do you think ought to happen, Leo?' He said, 'I don't know, I'd kind of like to see all three of them cross the finish line together.' Leo Beebe did not tell me what to say or do, so I said, 'Oh hell let's do it that way then,' not knowing that the French would interpret the rules the way that they did. Ken should have won the race, and in most everyone's mind, he did win the race. That was my fuckup, I take full responsibility for it, and I'm very sorry for it because, as you know, Ken was killed at Riverside two months later."

—Carroll Shelby

As the race wound down, Miles dutifully slowed to let McLaren catch up. On the final lap, the black and light-blue cars were side by side on the final stretch from White House, with Hutcherson lagging slightly behind. McLaren seemed to surge forward at the finish, and photos clearly show him a few feet ahead of Miles as the flag dropped. Some people—though not McLaren—claimed that McLaren goosed the throttle at the last instant to steal the win. Others—though not Miles—said that Miles eased off the gas to signal his disgust over the arranged finish. As he climbed out of the cockpit when the race was over, Miles muttered, "Screw it." After that, the Associated Press reported, "At a victory celebration where the atmosphere was heavy with tension, Miles said, 'I'm disappointed, but what are you going to do about it?'"

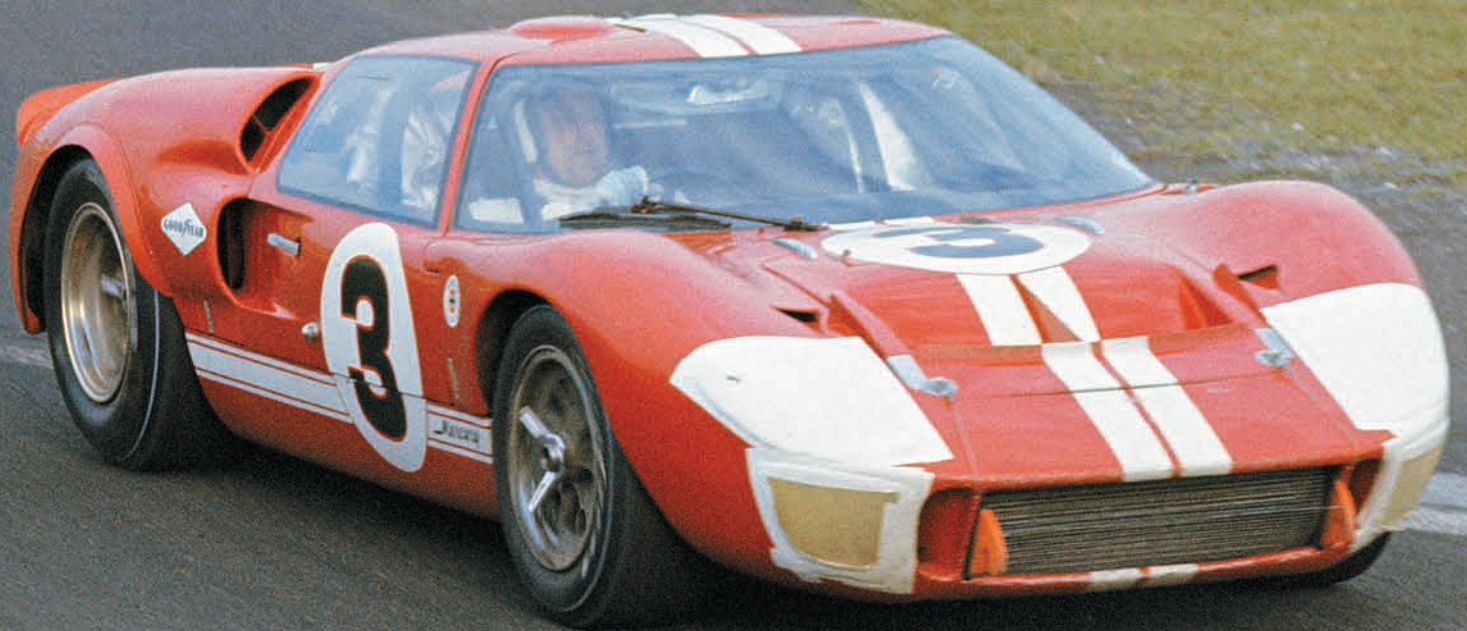
Miles never told anybody—not his friends, not his co-workers, not even his son, Peter—exactly what happened. But during an interview on Los Angeles radio station KRHM a month after the race, Miles insisted that he and McLaren had done their best to be dead-even at the timing strip, which was a few yards before they reached the waving flag. He also provided a remarkably lucid and even-handed précis that applauded the ACO for making the correct ruling. As for Ford's decision to stage-manage the finish, he said, "It's up to them. If they have the information, they can say, 'Well, under the circumstances, we feel that there's no reason why Bruce shouldn't win the race.' Or, 'Under the circumstances, we feel that Miles should win the race.' It's up to them to make a decision and nobody

will make it for them. They're running the cars; it's their money. They're paying the piper. They can call the tune."

Amon was as surprised as anybody when he belatedly realized that he'd won the race. Standing on the victory podium with McLaren and Henry Ford II, he looked more bemused than elated. Hulme swallowed his disappointment and slapped McLaren, his fellow Kiwi, on the back. "You beauty, good on you, mate!" he said cheerfully. But the next week, at a test session, Hulme ran into John Horsman, who naturally asked what had happened at Le Mans. "We wuz robbed," Hulme told him. McLaren, though, saw the results as poetic justice. "Ford made no bones about it," he wrote to his father. "They were pleased [by] the way it had come out, partly because I had been in the thing from the start, partly because we didn't race the hell out of the car at any stage, and partly because it was Denny's first ride with Ford and Chris had worked with them for a year and we got the bad deal at Daytona."

In retrospect, Jacque Passino regretted how events played out. "You think about the decision now and it seems kind of dumb, but we've all done a lot of dumb things in our lives before," he said. "It's one of those things that happens, but we were trying to control our destiny, and looking back, maybe we should have done it differently." But how? No matter what Ford did, there were going to be two enormously unhappy drivers. What mattered most to the company was not the finishing order but the finish itself—Fords, 1-2-3, Ferraris, nowhere. And that's the way most people remember it.

7



JUNE 1966 - APRIL 1967

DOWN AND UP AGAIN

IT WAS 98 DEGREES UNDER AN UNFORGIVING, INESCAPABLE SUN. AND YET

this was something of a respite. The day before, it had been even hotter, topping out at 101. Such was life in Southern California's fancifully named Inland Empire. The Shelby American team was here at Riverside—yet again—testing the J-Car. Although Ford had chosen not to race the flat-top coupe at Le Mans, it was thought that the car might have a future in the Can-Am series. Yesterday, Ken Miles had pounded around the circuit for hours using the power-shift gearbox that had failed during practice at Sebring in the X-1 roadster. Today, he was running the “jump” box, which had never been raced. It was late in the afternoon, and everybody was ready to go home.

The team tested so often at Riverside that it was like a day at the office. Miles had brought his 15-year-old son, Peter, with him, but Peter wasn't paying attention to the action on the track. Instead, he and a friend were practicing parallel parking in a borrowed rental car. “I heard my dad driving around the track,” he recalled. “On that last lap, it seemed like he was working the car really hard, and it sounded like he was doing power slides. Then it got quiet. I happened to look down at Turn 9 and saw a fireball flying through the air.”

Several team members were there by the time Peter arrived at the crash. The car was still burning.

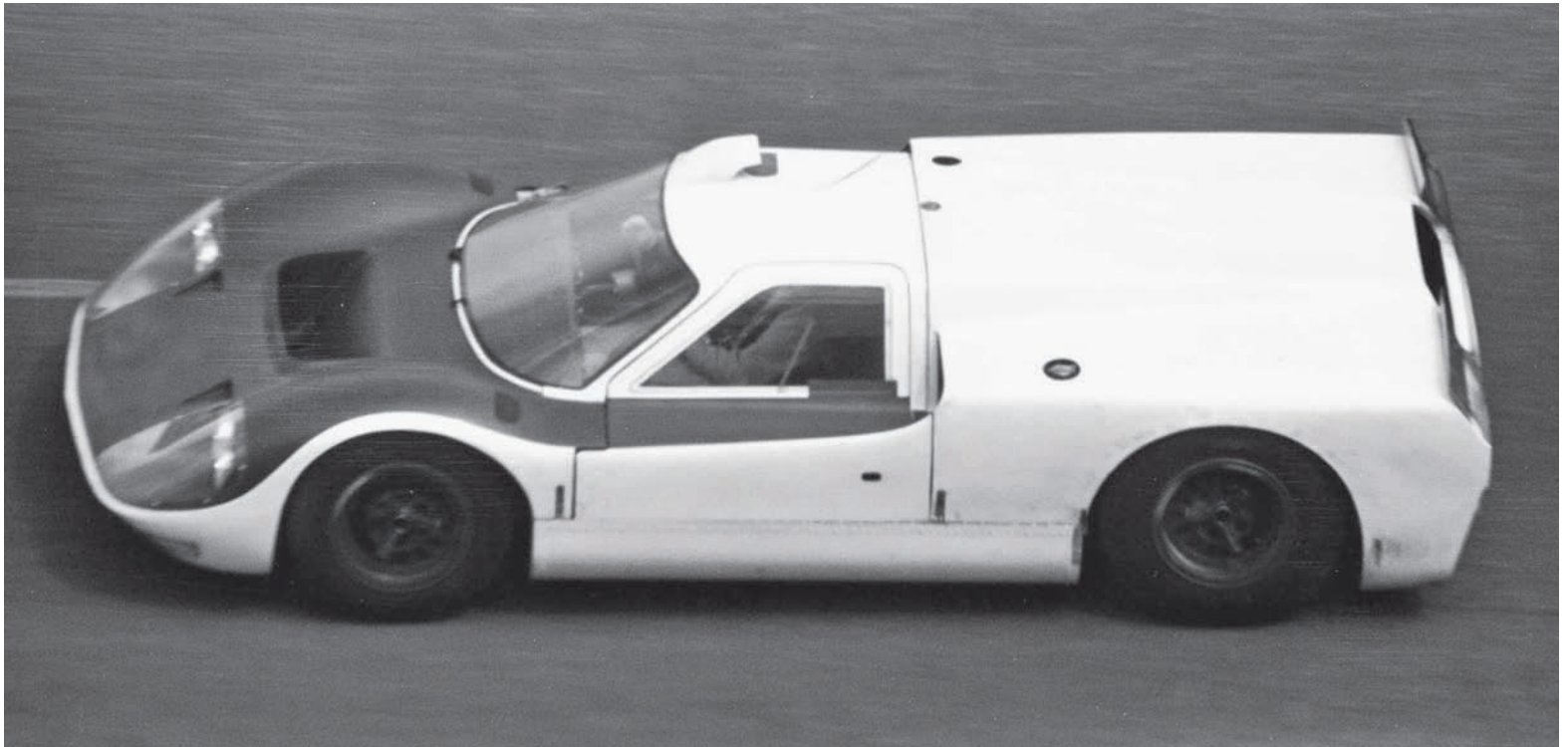
“Can't we get him out of the car?” he said.

“He's not in the car,” Carroll Smith told him.

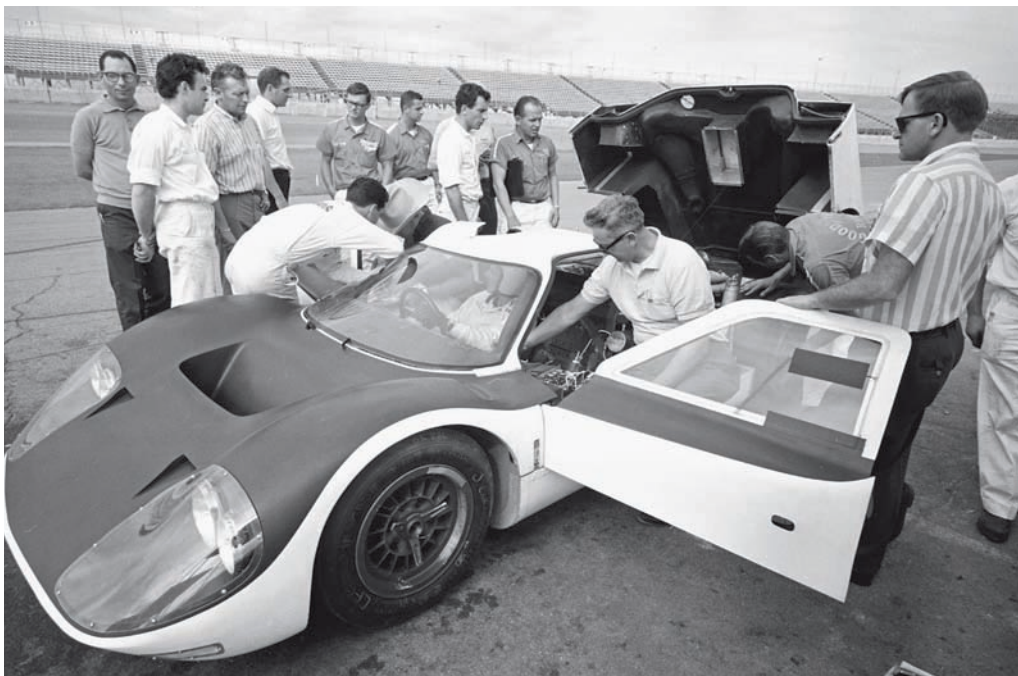
“Well, where is he?”

Miles lay crumpled on the ground about 12 feet from the smoldering remains of the J-Car. His right leg was bent backward at the knee, and his helmet was next to him, still buckled. He died at the scene of massive head injuries. Firefighter Jud Weirbach estimated that Miles had been pushing 180 mph down the long back straight and had shut off as usual and braked to about 100 mph for Turn 9 when the rear end suddenly veered to the inside of the track. “As Miles corrected, the rear came around to the right and got into the dirt at the edge of the track,” Weirbach said. “The car was almost broadside when it left the track.” The J-Car vaulted over an embankment and rolled end over end several times. Miles was ejected on the third rotation.

A. J. Foyt exits the infield and climbs the banking at Daytona in his overmatched Mark II during the 1967 season-opening 24-hour race. The Chaparral 2F and Ferrari 330 P4s were already disappearing into the distance.

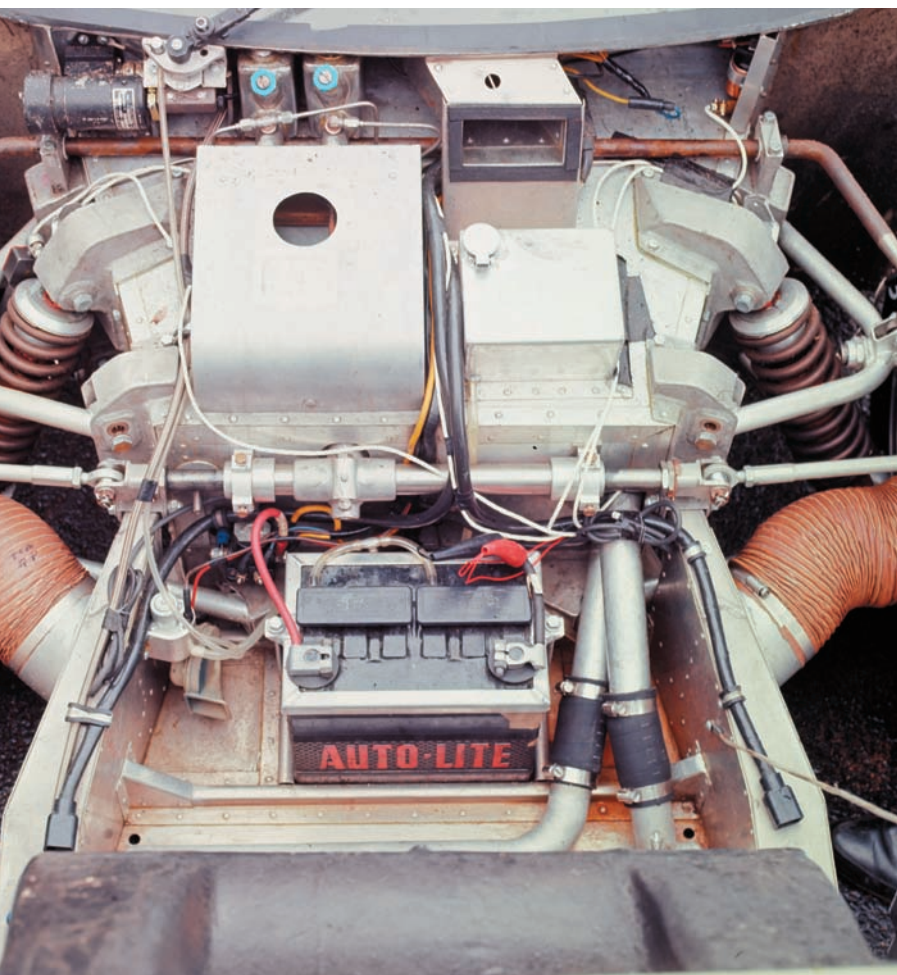


Above: An early test of the J-Car at Daytona in February 1966. This view clearly shows why it was dubbed the Bread Van. The scoop in the roof houses a rear-view mirror.



Left: Bruce McLaren sits in the cockpit while the crew swarms over the car. Note the data-logging instrumentation in the passenger seat and the clean shape of the front end.

Smith and Peter Miles drove slowly around the track, looking for clues about what had happened. Near the wreck, they saw two long skid marks caused by the rear tires. Although Ford conducted an extensive crash investigation, the cause of the accident was never established. Phil Remington speculated that the experimental transmission locked up. Kar-Kraft engineer Bob Riley thought brake failure was more likely. Holman & Moody team manager John Wanderer insisted that the car was aerodynamically unstable, which caused it to spin out of control. (He said he saw the rear end rise off the ground immediately before the crash.) A fourth contingent believed that the innovative but largely unproven chassis, which was essentially bonded together with glue, broke apart and prevented the rear wheels from turning.



Above, left: A close-up of the front end of the J-Car. Like the rest of the chassis, it was complicated but tidy. From the beginning, the car's biggest problem was aerodynamic, not mechanical. Jean Charles Martha Photography Collection/Courtesy of The Revs Institute for Automotive Research, Inc.

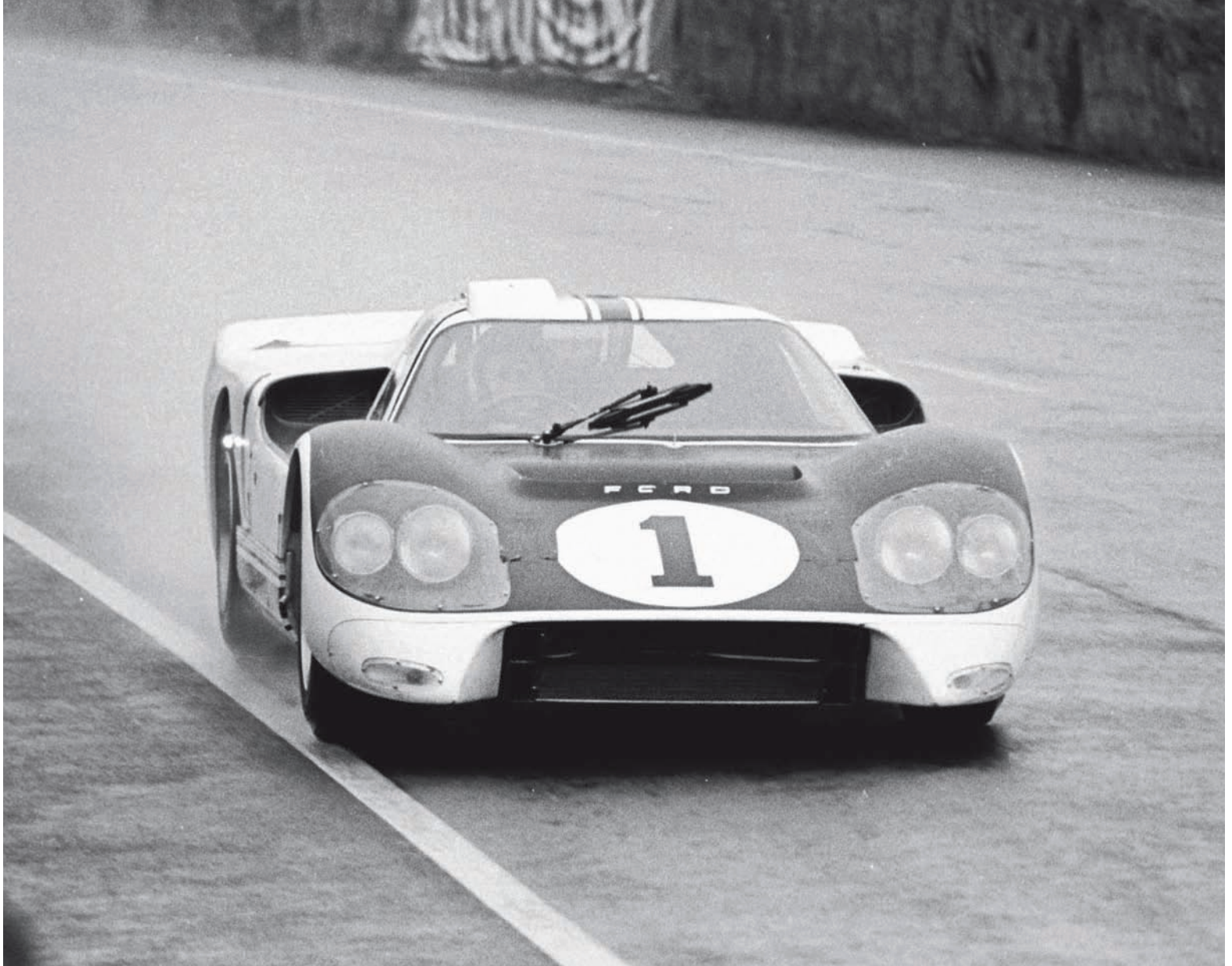
Above, right: McLaren and Chris Amon ran laps at the Le Mans Test in a fully instrumented J-Car to provide data for the dynos on which the 427-cubic-inch engines would be developed and optimized for the upcoming 24 Hours of Le Mans. Jean Charles Martha Photography Collection/Courtesy of The Revs Institute for Automotive Research, Inc.



Whatever the explanation, August 17, 1966, was probably the worst day in the history of the Ford GT program. But it also led indirectly to the victory that served as the capstone of Ford's Le Mans program.

The first steps on the rocky road that would end in France in the summer of 1967 were taken at the humming Kar-Kraft shop early in 1965. The team had recently started working in earnest on the project to squeeze the 427 into a Ford GT chassis. From the beginning, it was clear the excess weight was going to be the major enemy. Chuck Mountain, one of the three Ford engineers who'd accompanied Roy Lunn to England, was now based at Kar-Kraft. He'd come across a company called Brunswick, which had a gigantic factory in Muskegon on the eastern shore of Lake Michigan. Brunswick was best known for its consumer products—pool tables, bowling balls, early versions of the skateboard, even toilet seats. But it also had a division that created components out of cutting-edge materials for military and aerospace applications. One of these materials was an aluminum honeycomb that was lighter yet stronger and more rigid than steel. Mountain thought it might serve as the basis of a new chassis.

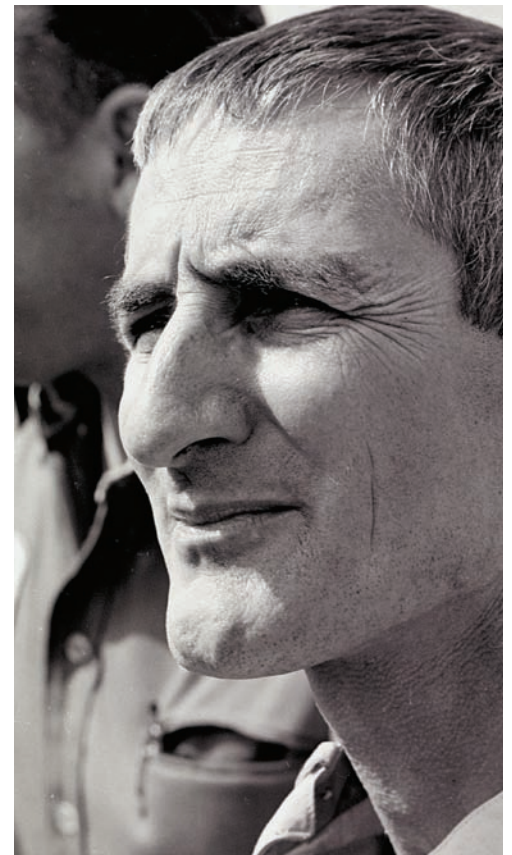
Aside from saving weight, the other intriguing—and appealing—aspect of Mountain's proposal was that it would transform the race car into an indisputably American product designed and built by Ford. Many people still believed that the Ford GT was little more than an Anglo-American gloss on the British Lola. This wasn't true, of course, especially after all the development done during the past year. But there was no question that the chassis and bodywork *were* built and assembled in the UK. A car that was made from the ground up in the United States would finally silence the critics who claimed that Ford wasn't good at anything besides building gargantuan but unsophisticated engines and paying other people to come up with the clever bits.



A week after the debacle at Le Mans in 1965, where both of the Mark IIs broke, Lunn drafted recommendations for an entirely new car—initially called the GT-P—that would take better advantage of the grunt of the 427. Based on the specifications of Appendix J of the Group 6 regulations, the prototype that came to be known as the J-Car would feature a narrower, more aerodynamically efficient cockpit. The chassis would be built of the lightweight aluminum honeycomb that Mountain had discovered. This would enable the design team to spec smaller wheels, tires, and brakes. Factoring in an automatic transmission that was significantly lighter than the standard T-44, Lunn estimated that the J-Car would weigh 500 pounds less than the Mark II while boasting just as much power. Simulations suggested that this would improve lap times around Le Mans by a whopping 10 seconds.

The fundamental building block of the J-Car was the innovative material developed by Brunswick. This consisted of a metal “sandwich” composed of two sheets of thin aluminum enclosing a core of aluminum honeycomb. The honeycomb was an inch thick in the front and rear bulkheads, and half an inch thick elsewhere, while the aluminum sheets surrounding it were typically 26-gauge (0.016 inches thick) or thinner. “This material necessitated us to change our whole design approach because, instead of welding, riveting, and bolting the pieces together, they were glued,” Lunn said. The aluminum sandwich was bonded with aerospace-spec adhesives cured in an autoclave at Brunswick. Joints—the weakest points in the structure—were secured with aluminum brackets that were riveted into place.

Ed Hull, a legendarily hard-working engineer who put in a full shift at Kar-Kraft after completing his day job at Ford, was selected to design the chassis. (He’d already put together the package study for what would become the J-Car while working after hours in his garage).





Above: A rear view of the J-Car shows the stock Thunderbird taillights, rear-view mirror, and a whole lot of stuff going on underneath the starkly smooth bodywork.

Opposite, top: By the time of the Le Mans test in April, lobster-claw appendages had been added to the front end. Although McLaren didn't appreciate the handling, the J-Car was faster than the Mark IIs during the test.

Opposite, bottom: Ken Miles was killed while testing the J-Car at Riverside on August 17, 1966. Shelby American and the Ford Le Mans program continued without him, of course, but they were never quite the same.

The unconventional honeycomb material inspired him to think outside the box. Instead of making the chassis a monocoque, he developed a so-called multicocque formed by several major torque boxes joined by the bulkheads and the floor. A single piece of honeycomb ran from the front suspension bulkhead to the transmission hoop. Two side-sill fuel tanks sat inside torque boxes that served as the main load-bearing structures. The only pieces of steel in the chassis were reinforcement for the transmission hoop, the roll cage, the suspension arms, and the tubular structure supporting the spare tire. The J-Car chassis was roughly half the weight yet just as rigid as the steel monocoque underpinning the Mark II. "It was a very strong car," said Riley, who was just beginning a career that would see him become one of the world's premier race car designers. "It may have been a bit overdesigned, which made it pretty rugged, and after Ken Miles's accident, we beefed it up even more."

Although the J-Car shared the same wheelbase with the Mark II and GT40, it was slightly narrower and significantly lower. (The top of the roof stood only 38.5 inches high.) The suspension architecture was fundamentally unchanged, but thousands of computer punch cards were run through Chuck Carrig's suspension geometry program, and the rear upright was eventually rotated to eliminate some inherent oversteer. From the beginning, the 427 was the engine of choice, but the original plan was to use an automatic transmission to save at least 50 pounds. Hull even designed cast-aluminum wheels with turbine-blade-shaped spokes to draw in air to cool the brakes.

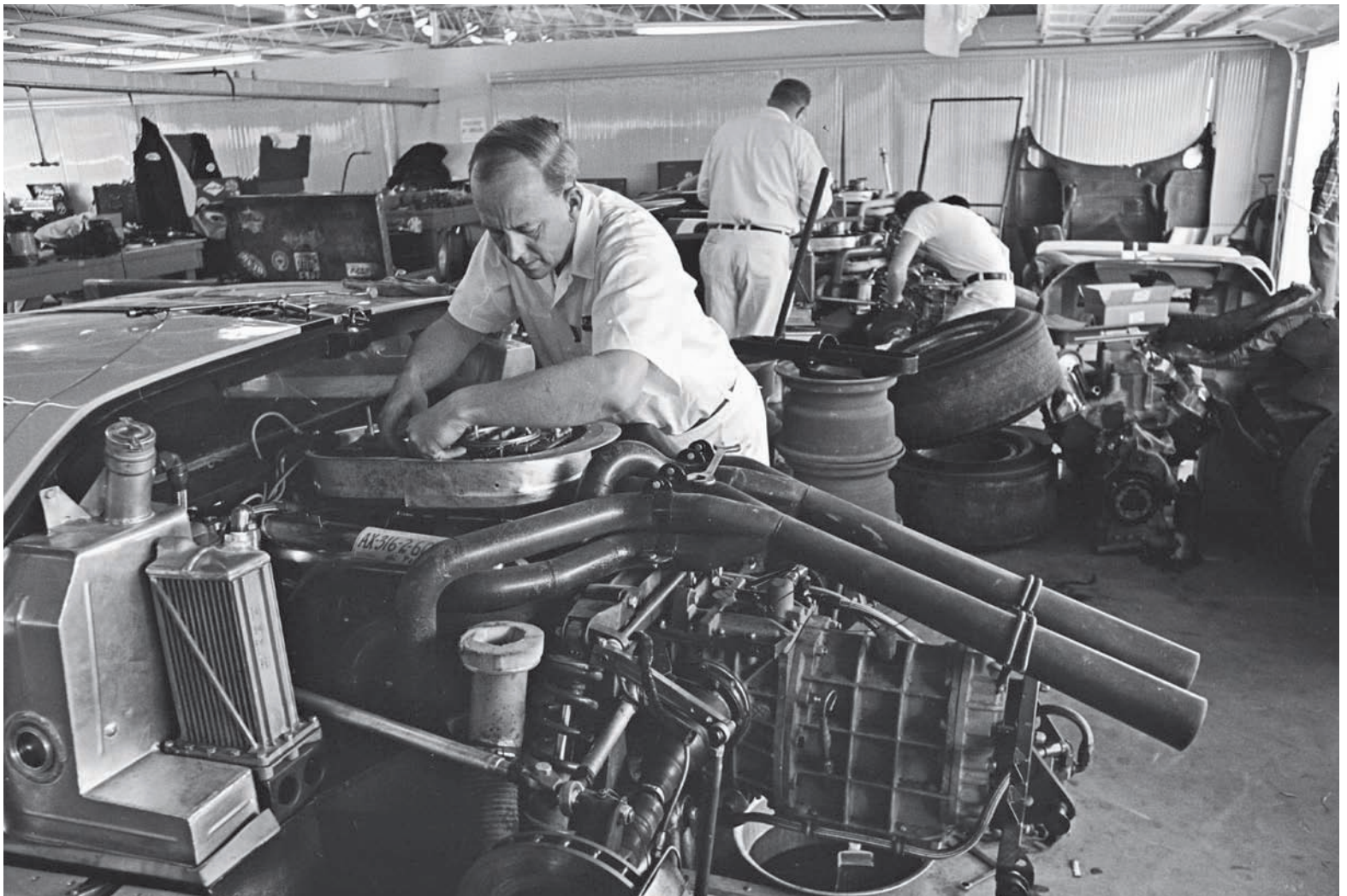
Although Hull had already laid out the general shape, responsibility for designing the body was given to Ford styling chief Gene Bordinat, who farmed out the assignment to in-house

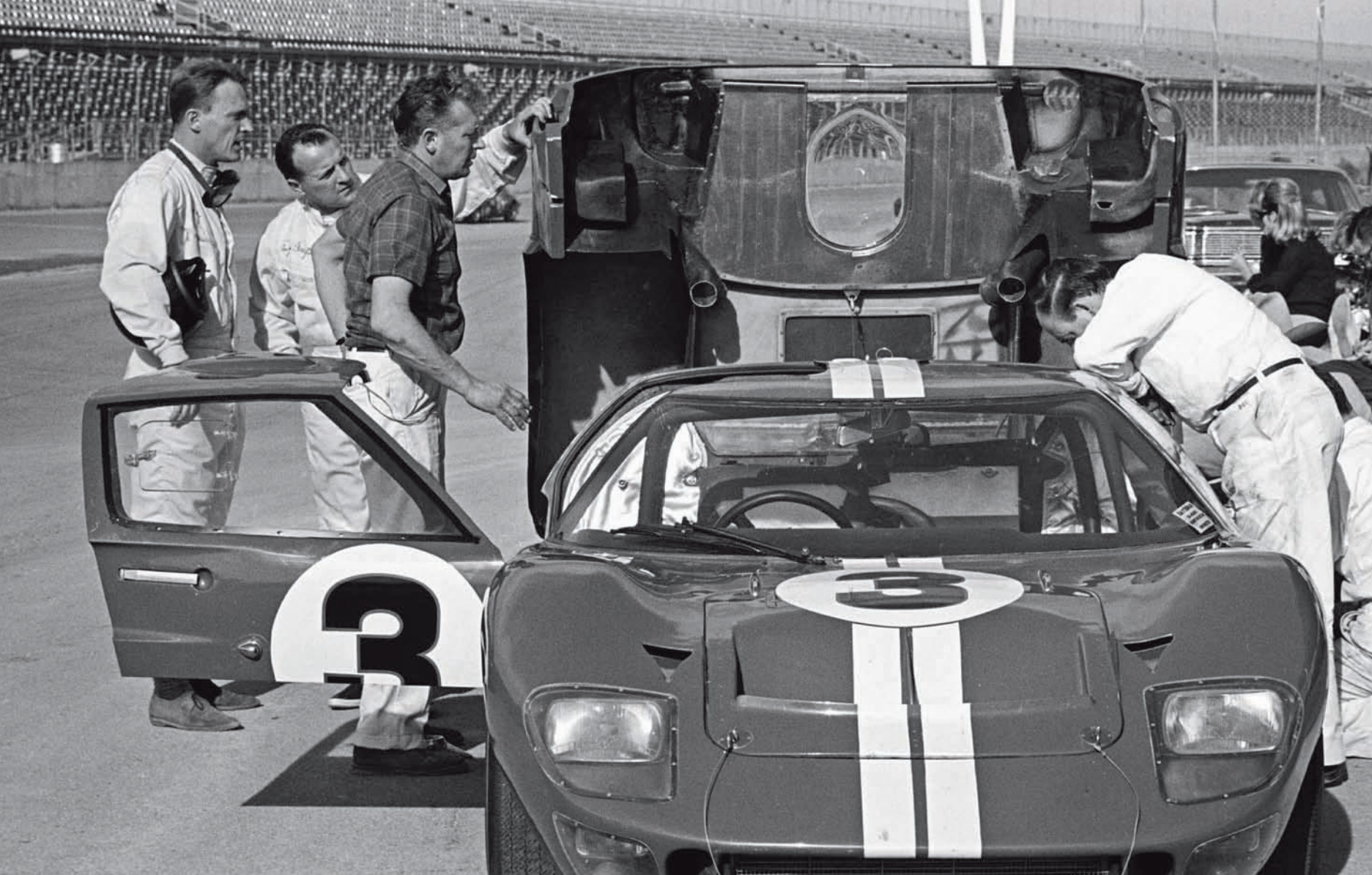
designer Homer LaGassey Jr. “We were interested in following sound aesthetic principles, of course, but our first objective was to produce a light, strong, and aerodynamically sound vehicle capable of reaching a speed of 250 mph,” LaGassey said. “We don’t believe that speed and aesthetic styling are necessarily incompatible, and with this car we’ve tried to bring about a marriage of function and aesthetic form.”

Nobody on the team had designed a race car before, and they didn’t have the benefit of much time in the wind tunnel. (This wasn’t seen as an issue because the wind-tunnel analysis of the original Ford GT had been so far off.) They wanted a low-slung car that would slice through the air to minimize drag, but they also recognized the need to retain airflow over the top of the car to produce downforce. What they came up with was a highly stylized body with protuberances that extended prominently from the nose on either side of the grille like lobster claws. The roof and rear deck were almost perfectly flat, which led to the J-Car’s less-than-complimentary nickname, the Bread Van. The rear end featured the chopped Kamm tail that had been used effectively on the Cobra Daytona Coupe. Originally, the car was fitted with taillights off a contemporary Thunderbird, which, coincidentally, LaGassey had helped design.

In the summer and fall of 1965, while the race team was busy testing upgrades to the Mark II, Kar-Kraft and Ford Styling breathed life into the J-Car. A modeling buck was built in October. The full-size clay model was completed in November. The next month, covered with an industrial material that mimicked paint, it was shown at the Ford Motorsports Banquet. By February 1966, Brunswick was kicking out parts, and Kar-Kraft was assembling them. Bruce McLaren gave the car its maiden run on Ford’s low-speed ride-and-handling course on March 1. The initial feedback was generally positive, and the J-Car posted the fastest time at the Le Mans

Shelby American engine man Steele Therkluson works on the Holley carbs in the Dan Gurney/A. J. Foyt Mark II. The iron-block V-8 benefitted from two four-barrel carburetors and larger valves, which translated into 530 horsepower. But the engine was 50 pounds heavier than the aluminum-block motor, and lap times were no better than they’d been before. As it would transpire, transmissions were the weak link at Daytona.





Dan Gurney, Foyt, and Phil Remington (left to right) stand by the car while Shelby American mechanic John Collins works on it. The robust NASCAR-style roll cage developed by Holman & Moody can be seen through the windshield.

Test in April. But the car hadn't performed like a world-beater. Then, in high-speed runs at Kingman, it was slower than a Mark II (so much for the 250 mph top speed). Next, during durability testing at Sebring, it broke early and was parked while Mark IIs completed the session.

After these setbacks, nobody was jumping on the J-Car bandwagon. "It was a whole lot of trouble to go to for just a little [bit of weight savings]," Carroll Shelby grouched. The car's performance at the Le Mans Test was underwhelming. "Everybody hated the J-Car except Chris," Carroll Smith said. "He loved it for some reason." Actually, Amon had his own concerns about the car. "The engineers were very proud of the fact that the suspension components were glued to the chassis," he said. "I thought about that as I was going down the Mulsanne at 200 mph, remembering putting together models with glue of my own."

Ford decided to place all of its considerable money on the Mark IIs at Le Mans, and they came through with a storybook 1-2-3 finish. Still, Miles was convinced that the lighter chassis would be perfect for the Can-Am Series, which was scheduled to hold its inaugural race in September. So a second car, J-2, was built. This was what he was driving when he was killed at Riverside in August.

By that time, Leo Beebe had been rewarded by Henry Ford II for his success in racing with a job as the marketing chief at Lincoln-Mercury. Responsibility for the Le Mans effort passed to Jacque Passino. Passino wasn't ready to pull the plug on the J-Car, but he thought it would be prudent to concentrate on developing the Mark II. At Le Mans, the Mark IIAs had not only outrun the Ferraris and Chaparrals but also had thoroughly outclassed them. What's more, the 1-2-3 finish had ended the British criticism of the 427-cubic-inch engine, and Ford let its relationship with Alan Mann lapse. (Mann claimed it was because Henry Ford II had been offended when he saw Mann drive his personal Ferrari road car into the Ford compound at Le Mans.) There was no reason, it seemed, why the Mark II couldn't continue to dominate.



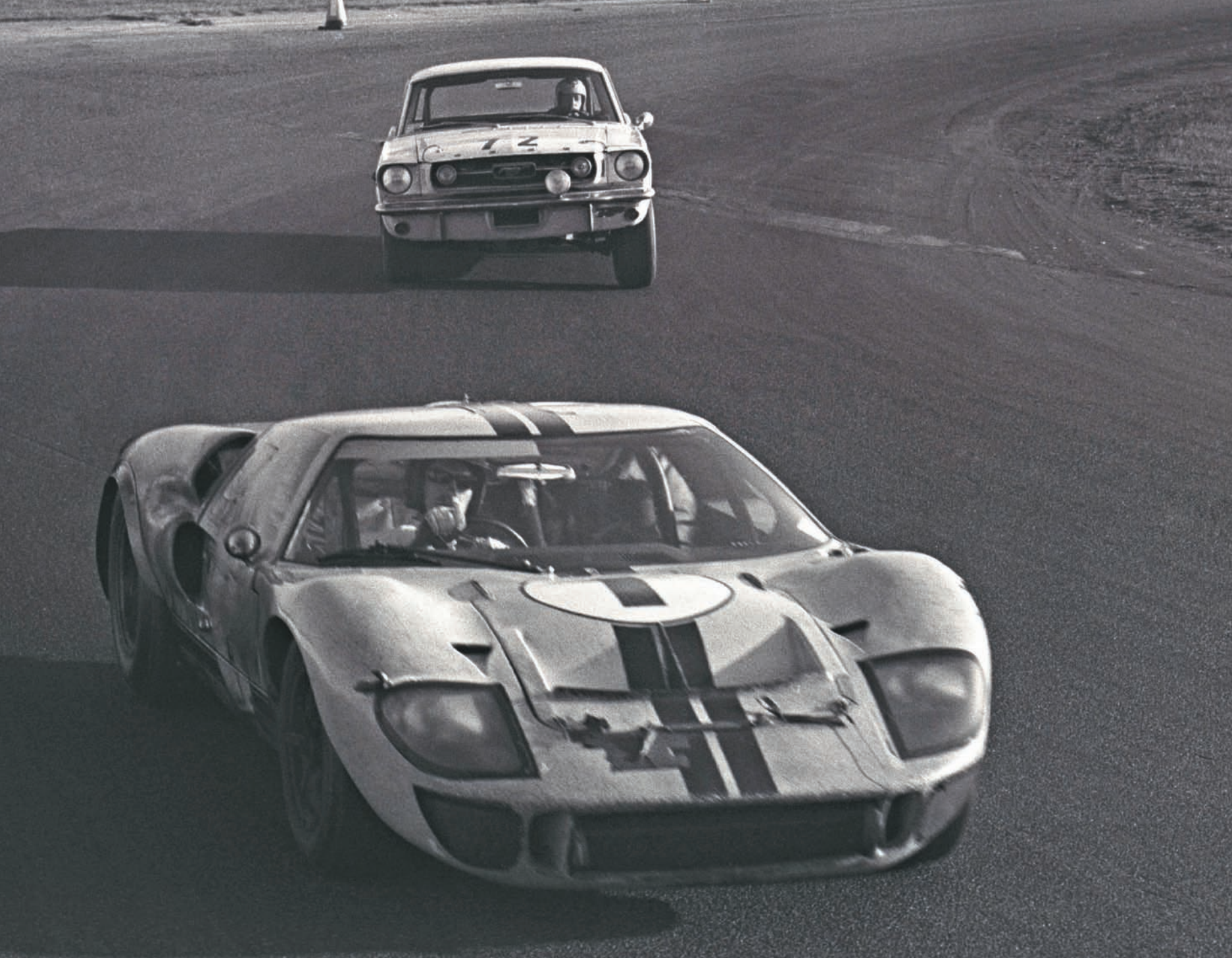
Left: Gurney and Foyt—friends, rivals, and now co-drivers—share a laugh in pit lane.

Opposite, top: The McLaren/Lucien Bianchi Mark II was the only Ford to finish at Daytona, and it made it to the end largely because a blown head gasket forced them to putter around the track at greatly reduced speeds.

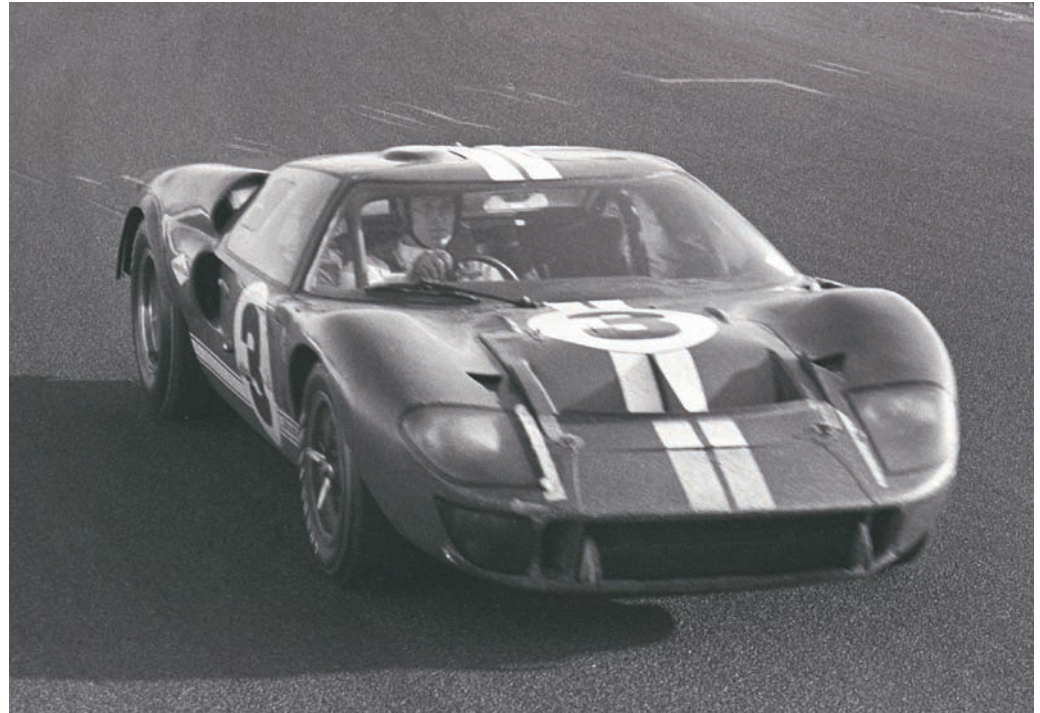
Opposite, bottom: A small Mercury decal next to the number meatball is barely visible on the Holman & Moody entry driven by Mark Donohue and Peter Revson.

Below: Ronnie Bucknum prepares to qualify as Mike Warne gets in a last word. Behind Warne is Carroll Smith (wearing cowboy hat), and Charlie Agapiou is on the far right.





Over the next few months, the car was modified so extensively that it was eventually called the Mark IIB. (Officially, the IIB designation wasn't used until Le Mans, but the 1967 version of the car was so different from the 1966 model that a new name seems justified. Further muddying the waters, the Holman & Moody and Shelby American versions of the Mark II diverged significantly.) The changes included larger 12.0x15.0 inches Halibrand wheels at the rear, reprofiled front and rear fenders; a lighter hood with revised brake ducting; a lighter, shorter rear deck shorn of the brake snorkels; and the dry sump oil tank relocated to the tail. The revised cockpit incorporated an aluminum dashboard with new switchgear, molded fiberglass seats, an onboard fire extinguisher, and rerouted water and oil lines to keep the driver cooler. The





Above: At Daytona, the T-44 transmissions failed early and often. Improper heat-treatment of the output shaft was the problem, and nobody at Ford had an answer.

Opposite, top: The Gurney/Foyt entry also carried a Mercury decal. Daytona 1967 was the only time that Ford GTs were raced as Mercurys.

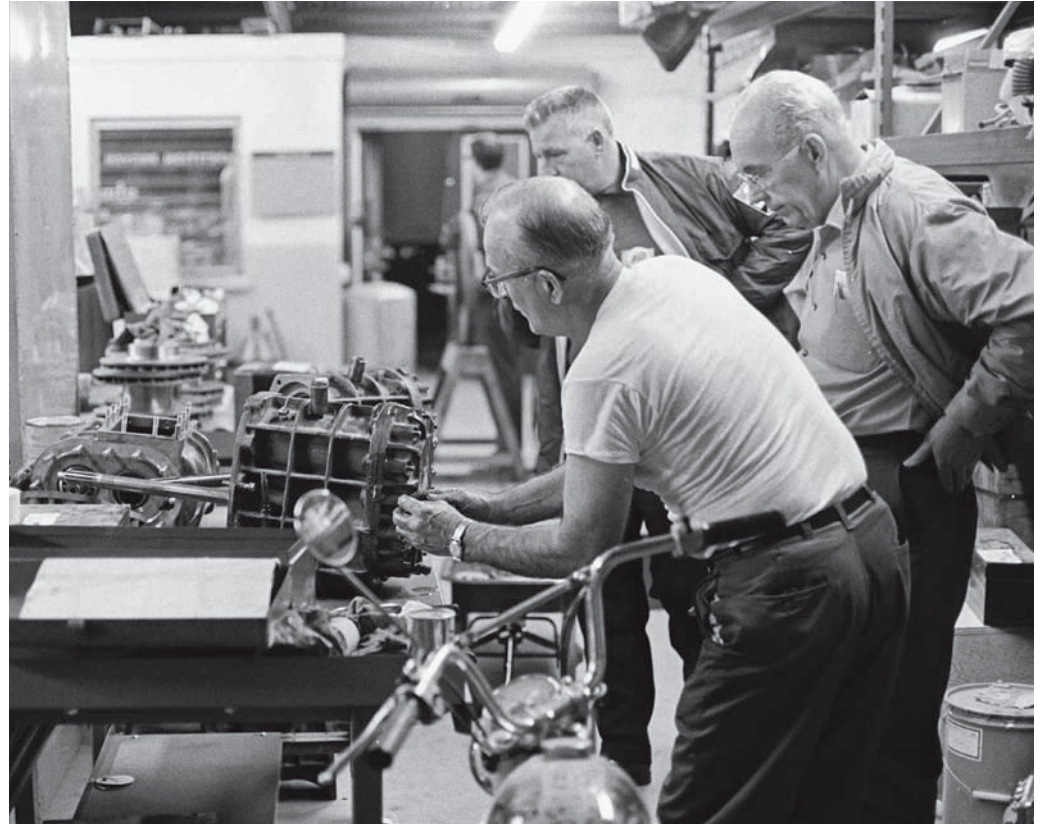
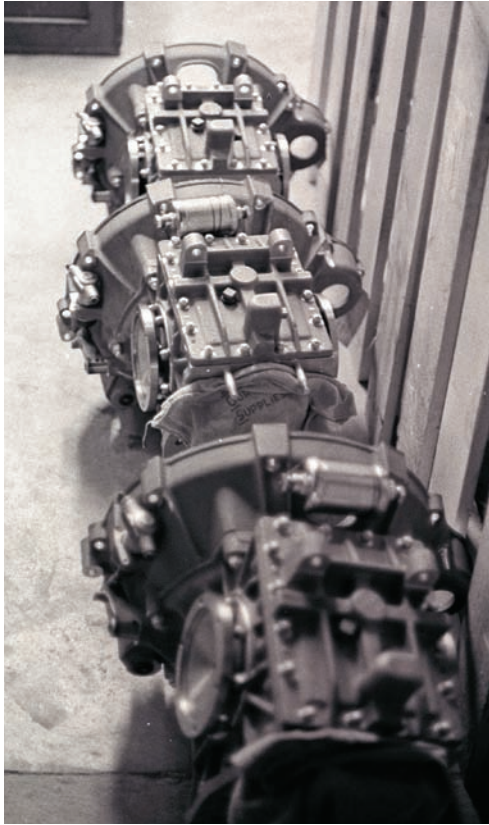
Opposite, bottom: The McLaren/Bianchi car soldiered on to finish seventh. Ferraris finished 1-2-3 and took the checkered flag in line-abreast formation.

weight savings were impressive. But they were largely offset by the addition of a 120-pound NASCAR-style roll cage.

Hopes that some weight could be trimmed by installing an automatic transmission were quashed during a marathon test at Riverside in November, where McLaren, A. J. Foyt, Mario Andretti, and Lloyd Ruby all preferred the old, heavy but reliable T-44. On the other hand, after years of experimentation, Ford had finally settled on a Kelsey-Hayes brake system featuring nodular iron rotors measuring 12.0x1.25 inches—massive by the standards of the time. The brakes didn't last forever, but they were as good as they were going to get. Also, Holman & Moody had started machining the calipers so the shims could be built into them, and the hat for the rotor was redesigned so the discs could be changed more quickly.

While the Mark II was being upgraded, the J-Car was being strengthened in light of Miles' accident. The aluminum brackets at the joints were widened and secured with three rows of rivets. In addition, a flat aluminum plate was bonded near the inside edge to form a triangulated 45-degree gusset, while staggered rows of rivets—lots of rivets—completed the assembly. The modifications added 13 pounds to the chassis. The curing process was also upgraded to improve adhesion. Both the J-Car and the Mark II showed promise at Riverside, so Ford felt confident as it headed to Daytona for a pre-Christmas test. But as the team unloaded, they found a Christmas stocking filled with a piece of coal known as the Ferrari 330 P4.

Ferrari had suffered through a frustrating season in 1966. The company had been strapped for cash, and the factory had been beset by strikes. More than that, Enzo Ferrari seemed to have been overwhelmed by the weight of the Ford onslaught. But for 1967, *il Commendatore*



committed himself to battling against the Americans. The brand-new P4 retained the flowing and sensuous bodywork of the P3, which looked like a graceful yacht compared with the blunter and more functional Mark II. But underneath the aluminum skin was a brand-new twin-cam 4.0-liter V-12 derived from the Formula 1 engine that had won the previous year at Spa and Monza—the two fastest races on the Grand Prix circuit. Fitted with three valves per cylinder and Lucas fuel injection, it made 450 horsepower at 8,000 rpm. Wider wheels and fatter Firestones helped tame the handling, and the gearbox had been redesigned to overcome chronic transmission problems. Fully laden, the Ferrari was about 1,000 pounds lighter than the Mark II.

As a sign of his determination to beat Ford, Ferrari dispatched two factory P4s to Daytona for a test session. Mike Parkes and Ludivico Scarfiotti arrived to drive the coupe while Lorenzo Bandini and Chris Amon—recently poached from Ford—would be in the spyder. Although the pits were closed, the grandstands were open, and the spectators included Ford employees armed with stopwatches. When they checked the times, they could hardly believe their eyes: Each of the Ferrari drivers had shattered the lap record. Repeatedly. The two cars completed nearly 600 laps—roughly the distance that would be covered during the 24-hour race—without any serious glitches. Game on.

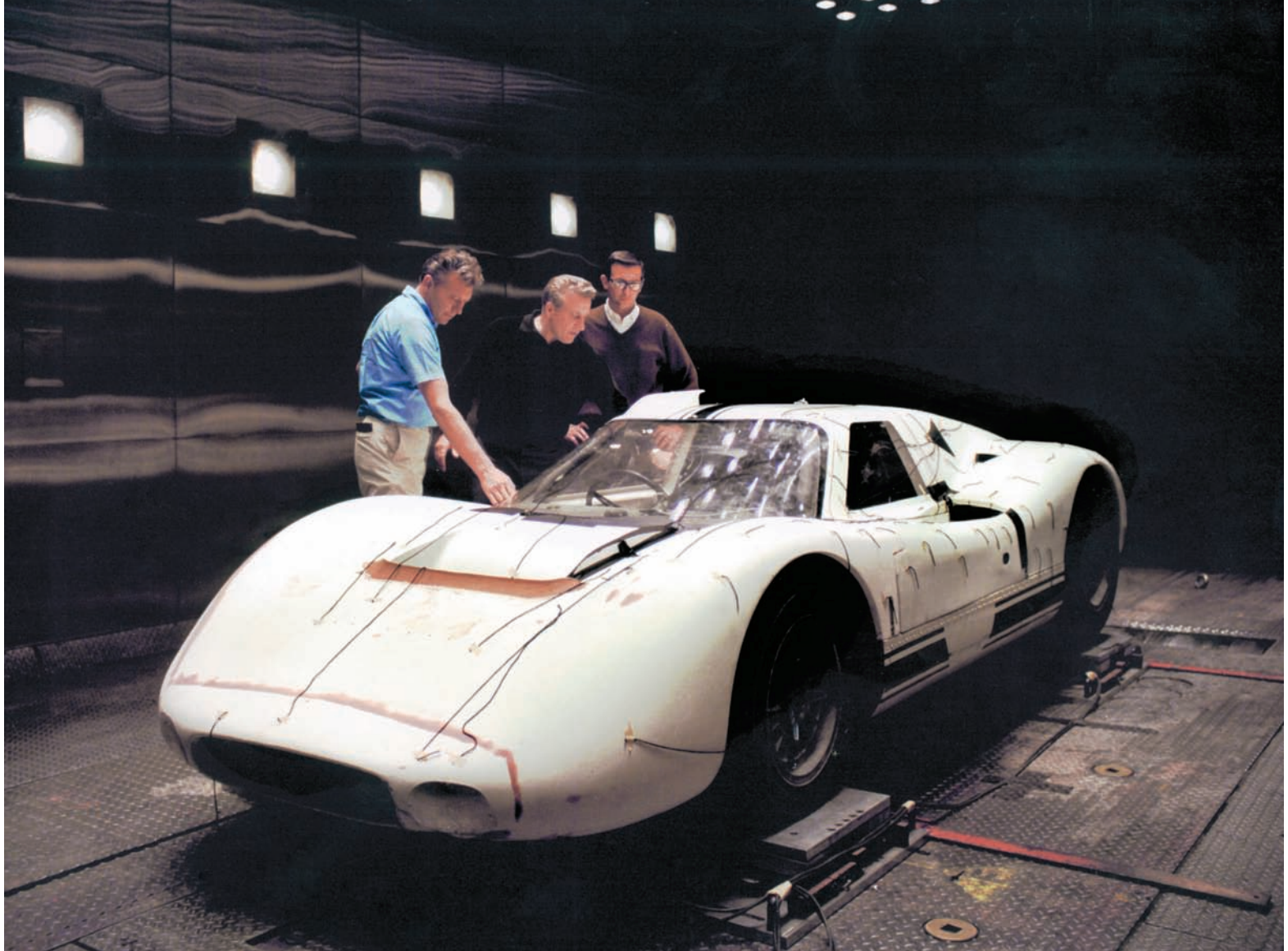
When Ferrari packed up, Ford unloaded for its own week of testing with a J-Car and Mark IIs in two different configurations. The Mark IIs were one and two seconds slower than the Ferraris, and the J-Car—chassis J-3—was a disaster, understeering horribly in the infield and handling so diabolically on the banking that the drivers stopped using it. Eventually, the lower right radius rod bracket separated from the chassis, which showed some disturbing structural damage. Ford closed ranks. “They threw a security net around the whole place,” Michael Tee reported in *Motor Sport*, “and even NASCAR President Bill France, owner of the speedway, had difficulty getting in.”

There was enough time for one final pre-season test at Daytona. The latest J-Car—chassis J-4—received additional strengthening, but it went even slower than J-3 had gone the previous month, so Ford decided to set it aside and focus on the Mark IIB. Desperately seeking more

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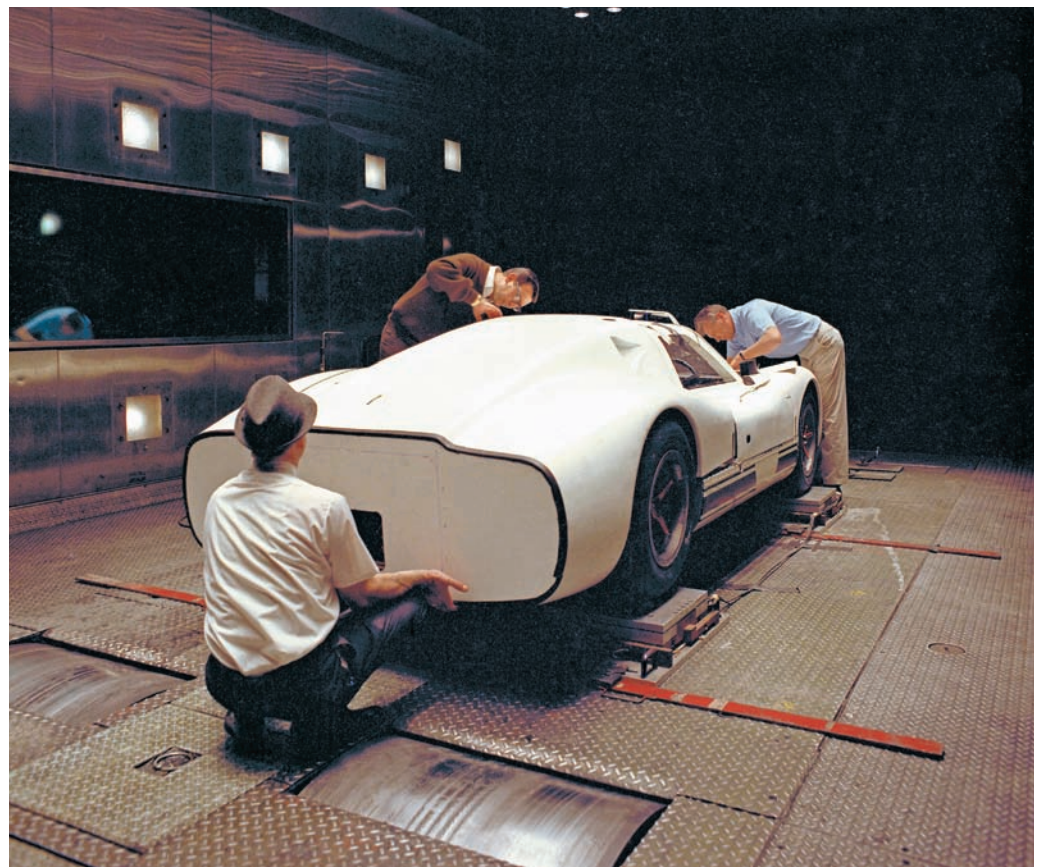
Above: The gearbox situation was so dire that even Bill Innes (background), who ran Engine & Foundry (and who would retire as an executive vice president and board member) got into the act. “When the transmissions failed at Daytona, we knew shit would hit the fan. We even had Bill Innes rebuilding the transmissions, and it made us look like a bunch of fucking idiots ... Things are unreal in racing with the politics and the pressure; you have to be there to realize just what it all entails.” —Homer Perry

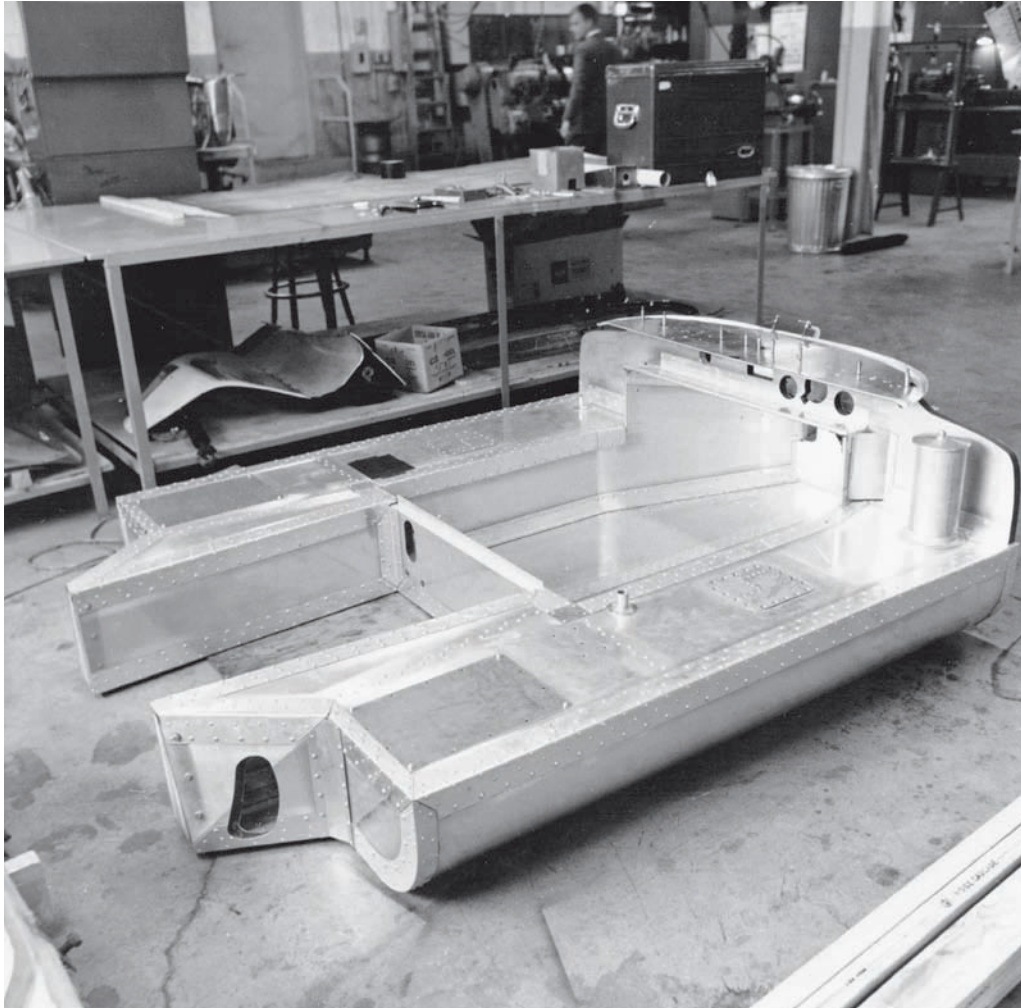
Above, left: Dead transmissions line the Ford workshop.



Above: After the debacle at Daytona, Remington went to Dearborn in an effort to make the J-Car less “draggy.” Here, he works with Homer Perry (center) and Ford engineer Chuck Mountain (right) who had come up with the original idea to use aluminum honeycomb for the chassis. *Mike Teske Archives/ Ford Motor Company*

Right: Remington gets a chance to see how his seat-of-the-pants redesign performed in the wind tunnel. It was an instant hit. Remington’s only regret, he said later, was that he made the wheel wells too big (to make it easier to change brakes and tires).

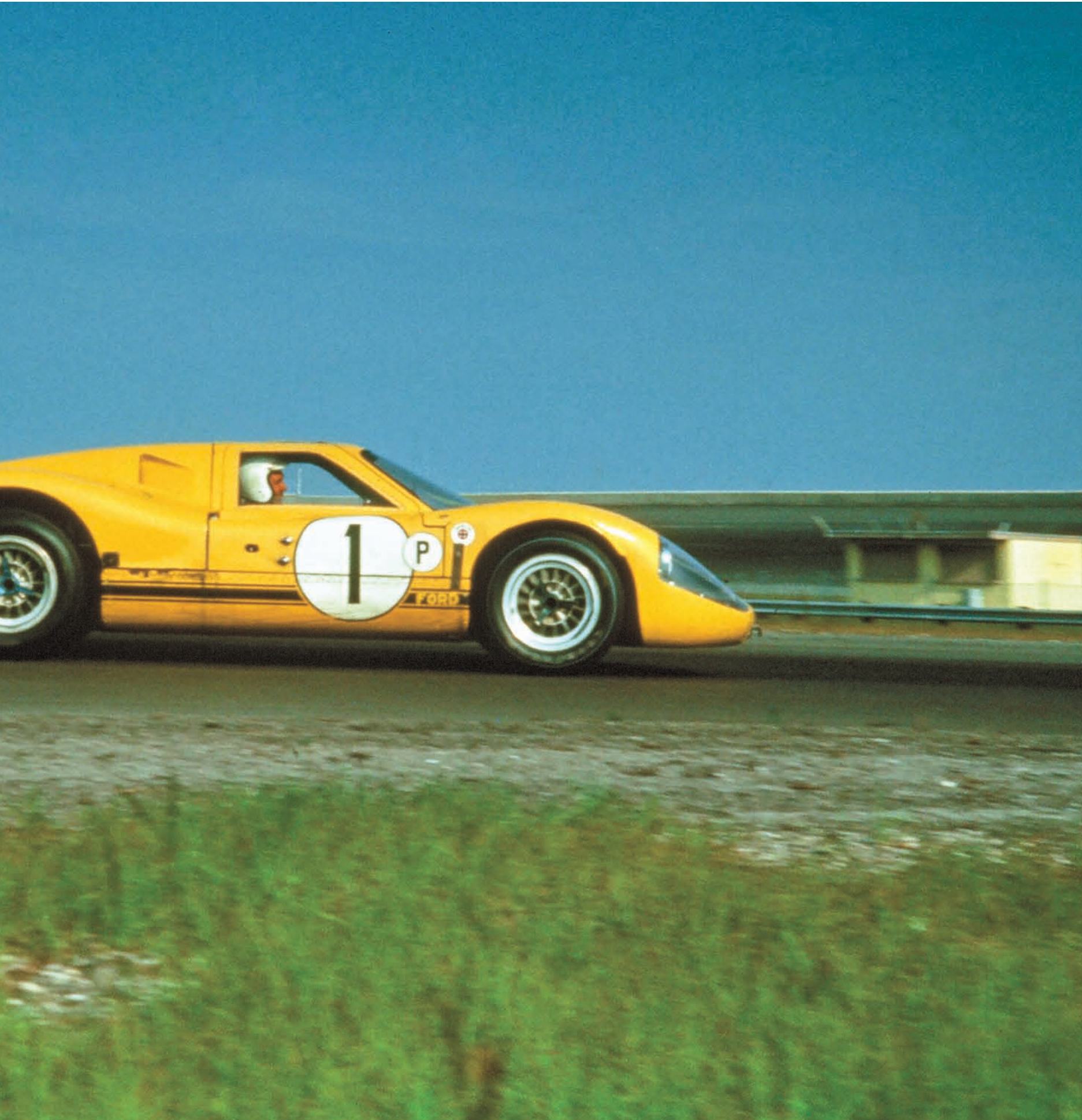


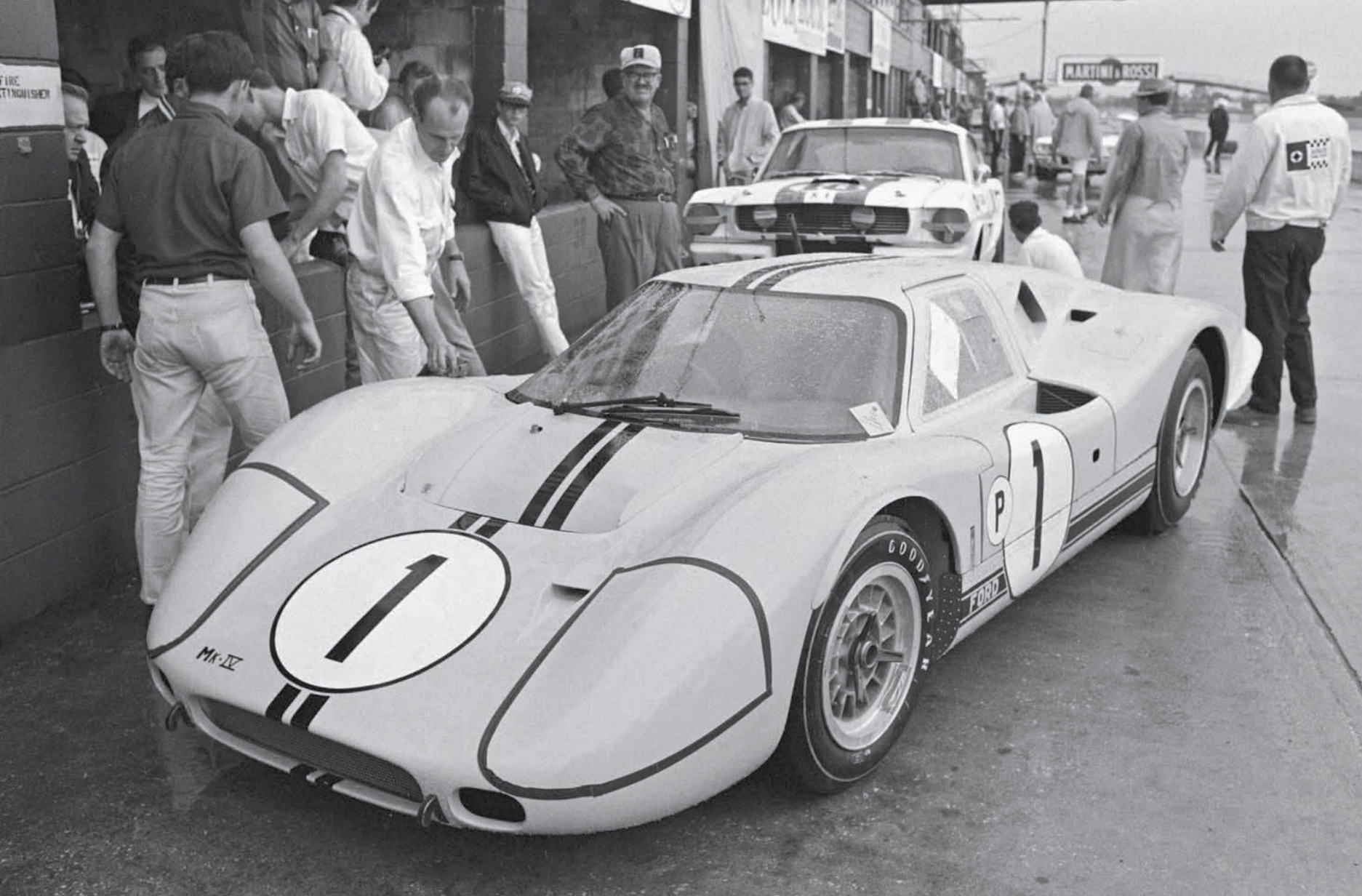


Above: The Mark IV chassis was big and wide, but the aluminum honeycomb structure—reinforced after Ken Miles' fatal crash at Riverside—offered the same structural rigidity as conventional steel at roughly half the weight. *Mike Teske Archives/Ford Motor Company*

Below and right: The radically reshaped J-Car, now known as the Mark IV, was proven during a test on the high-speed loop in Kingman, Arizona. Here, McLaren and Andretti shake the car down at Daytona.







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speed, Ford replaced the aluminum head medium-riser engines with cast-iron units topped by NASCAR-style tunnel port manifolds fed by two four-barrel carburetors. The better breathing produced 45 additional horsepower. But the engine added 50 extra pounds, and lap times were no better than they'd been before.

When the team returned to Daytona the following month for the 24-hour race, it was unpleasantly surprised to find not only the two factory 330 P4s but also NART and Ecurie Francorchamps with P3s that had been upgraded to P4 specs. (These were known, confusingly, as both P3/4s and 412 Ps.) Even worse, Jim Hall was debuting his latest and most radical creation, the Chaparral 2F, which boasted a gigantic and fantastic-looking wing mounted on struts more than a foot above the rear deck as well as an aluminum 427-cubic-inch Chevy V-8 mated to a three-speed automatic transmission. With its movable airfoil, the Chaparral represented the dawn of a new era in aerodynamics. It was nearly as powerful as the Mark II, but about 800 pounds lighter. The Ford prototypes—cars that had seemed cutting-edge only six months ago—suddenly looked slow and dowdy.

Ford brought six Mark IIs to the race, each painted a different color. McLaren and Lucien Bianchi, Ronnie Bucknum and Frank Gardner, and Foyt and Dan Gurney drove the three Shelby American cars while Mark Donohue and Peter Revson, Andretti and Richie Ginther, and Ruby and Denny Hulme were the Holman & Moody driver pairings. For marketing purposes, the Foyt/Gurney and Donohue/Revson cars carried small Mercury logos. Gurney managed to sneak out the pole by 0.26 seconds, but only by using super-sticky gumball tires, a minimal fuel load, and considerably more revs than recommended. (His engine was changed before the race.) The rest

Above: The Mark IV made its public debut at Sebring on March 29, 1967. As soon as practice began, it was clear that the big Ford had moved the goalposts in the prototype class.

Opposite, top: Although Mario Andretti was best known for his circle-track exploits, he'd grown up in Italy idolizing Alberto Ascari and aspired to race in Formula 1. He'd run a few road races in privateer Ferraris in 1965, joined the Ford team in 1966, and was now eager to run every prototype race and test session.

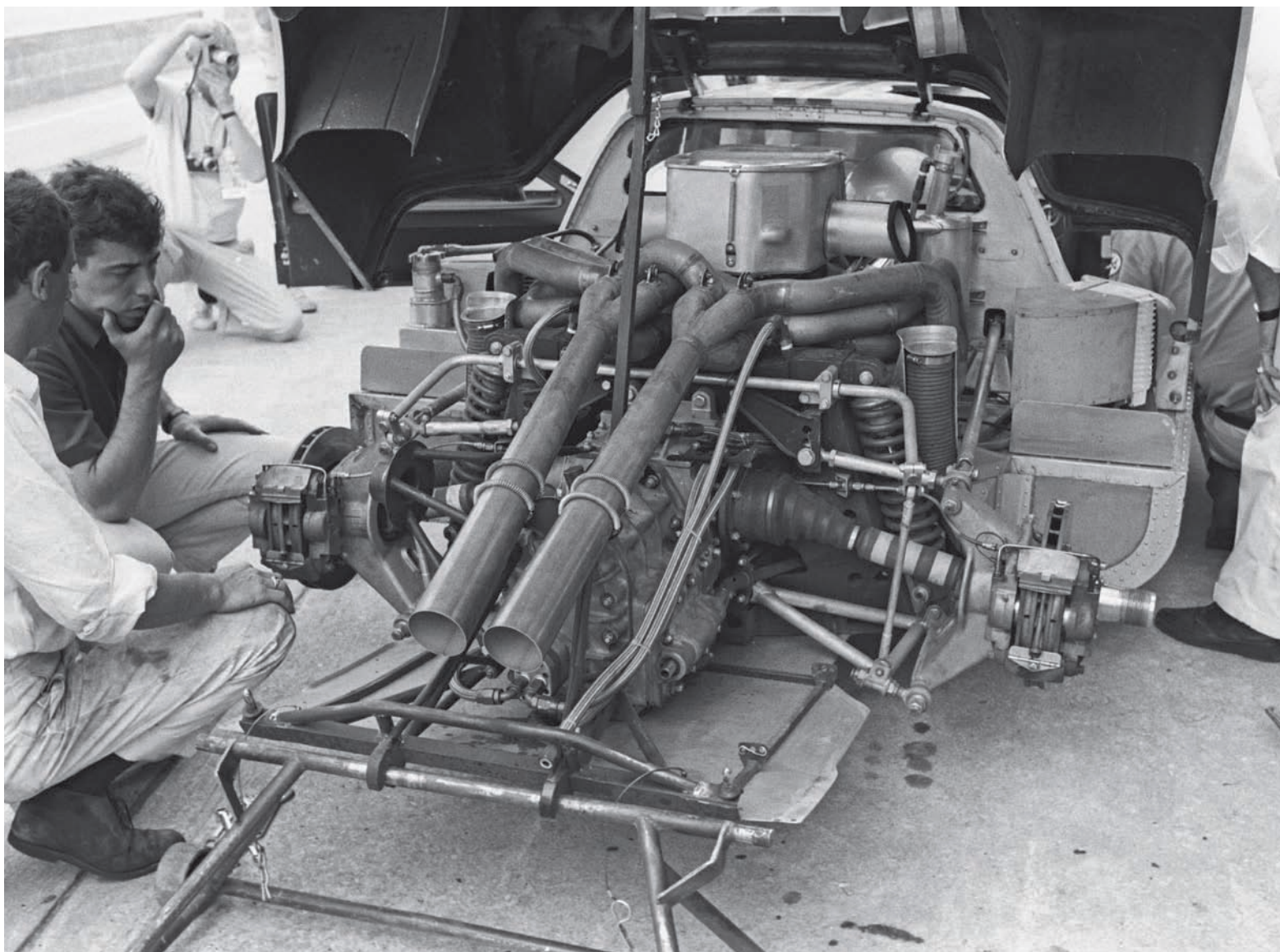
Opposite, bottom: For Sebring—and Le Mans—Ford reverted to the aluminum-block V-8 with a single four-barrel carburetor now encased in a sanitary-looking box.

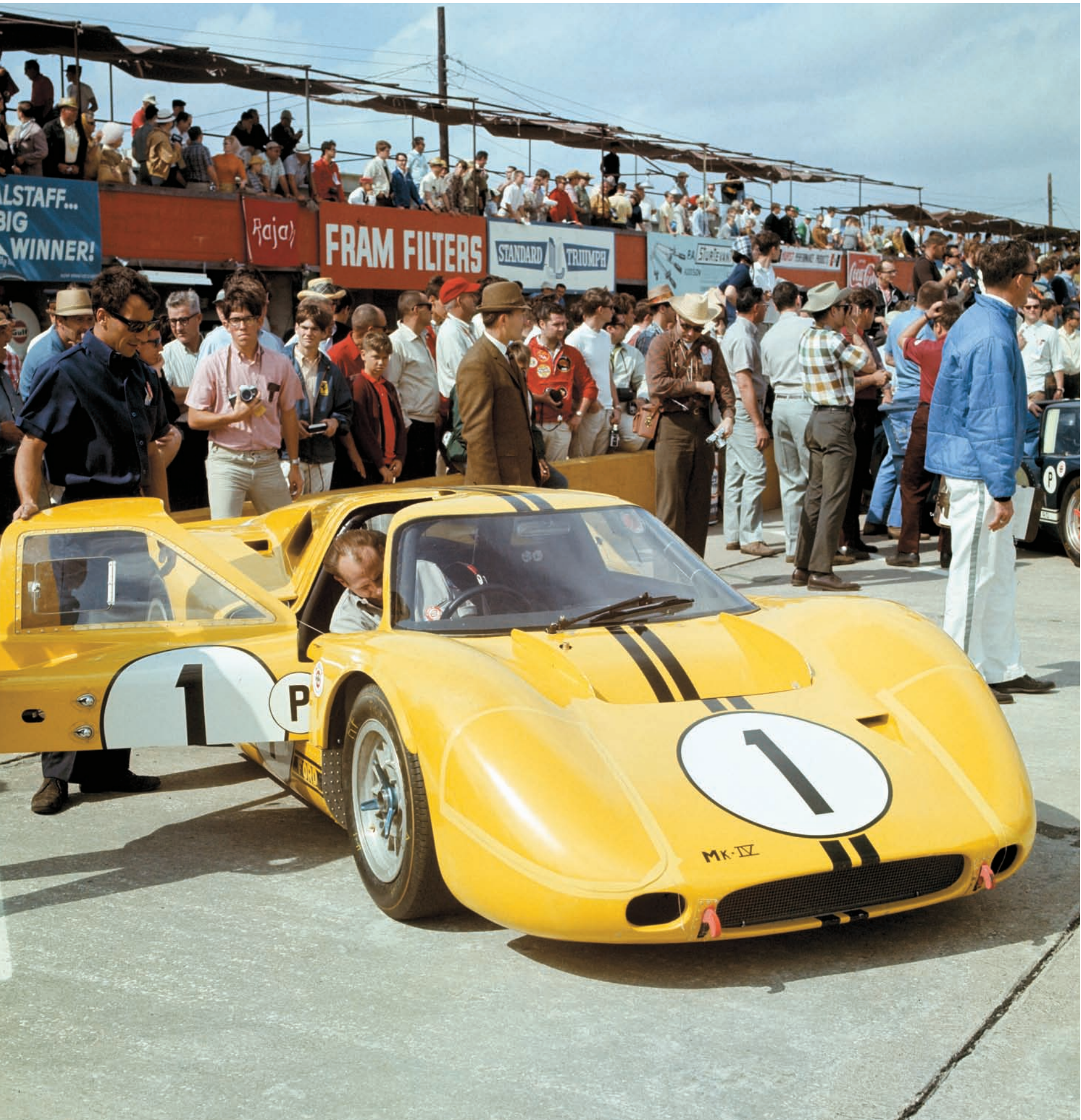


of the Fords were 5-7-9-10-12. Phil Hill and Mike Spence started second in the Chaparral 2F. (An older 2D qualified 8th.) Ferraris gridded up 3-4-6-11.

Hill led from the start and pulled away with ease. Andretti, who'd been assigned to be Ford's rabbit, pitted early with handling problems. Gurney was the fastest of the Fords, and even he couldn't keep up. Before long, it was a great white Chaparral trailed by a trio of scarlet Ferraris. After 30 minutes, Bucknum pitted with a bum transmission. Shelby American mechanics ferried over a spare from the garage in a little red shop wagon and swapped it out for the bad gearbox. Next in was Donohue after a shock mount failed on the banking. This kept the Holman & Moody guys busy for more than an hour, but they eventually patched up the car. Meanwhile, McLaren stopped with overheating. The head gasket was blown. But by adding water every pit stop and keeping the revs below 5,500 rpm, he and Bianchi were able to soldier on.

Things went from bad to worse. Much worse. The transmission in the Andretti/Ginther car failed. Ditto for the Ruby/Hulme Mark IIB. In each case, the output shaft had snapped like a stale breadstick between third and fourth gears. Later, it was determined that an outside vendor had improperly heat-treated the component. Since all the output shafts were from the same batch, it was just a matter of time before they broke. Revson's failed while Donohue was sleeping, and the mechanics made yet another trip to and from the garage with the little red wagon. "We got so good at changing transmissions that we were doing it in less than 25 minutes," Shelby American mechanic Bill Eaton said. "And that was from car in to car out."

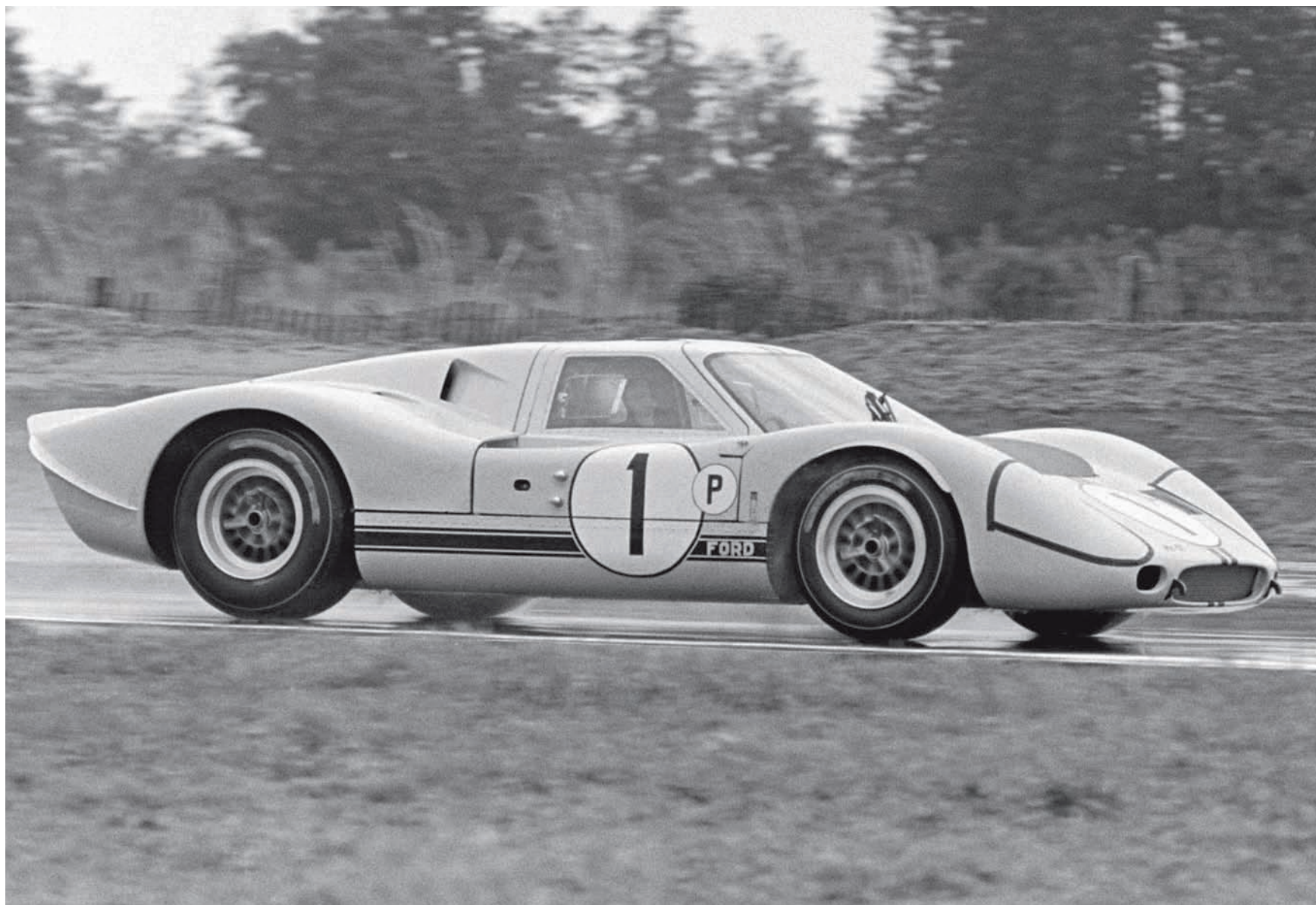


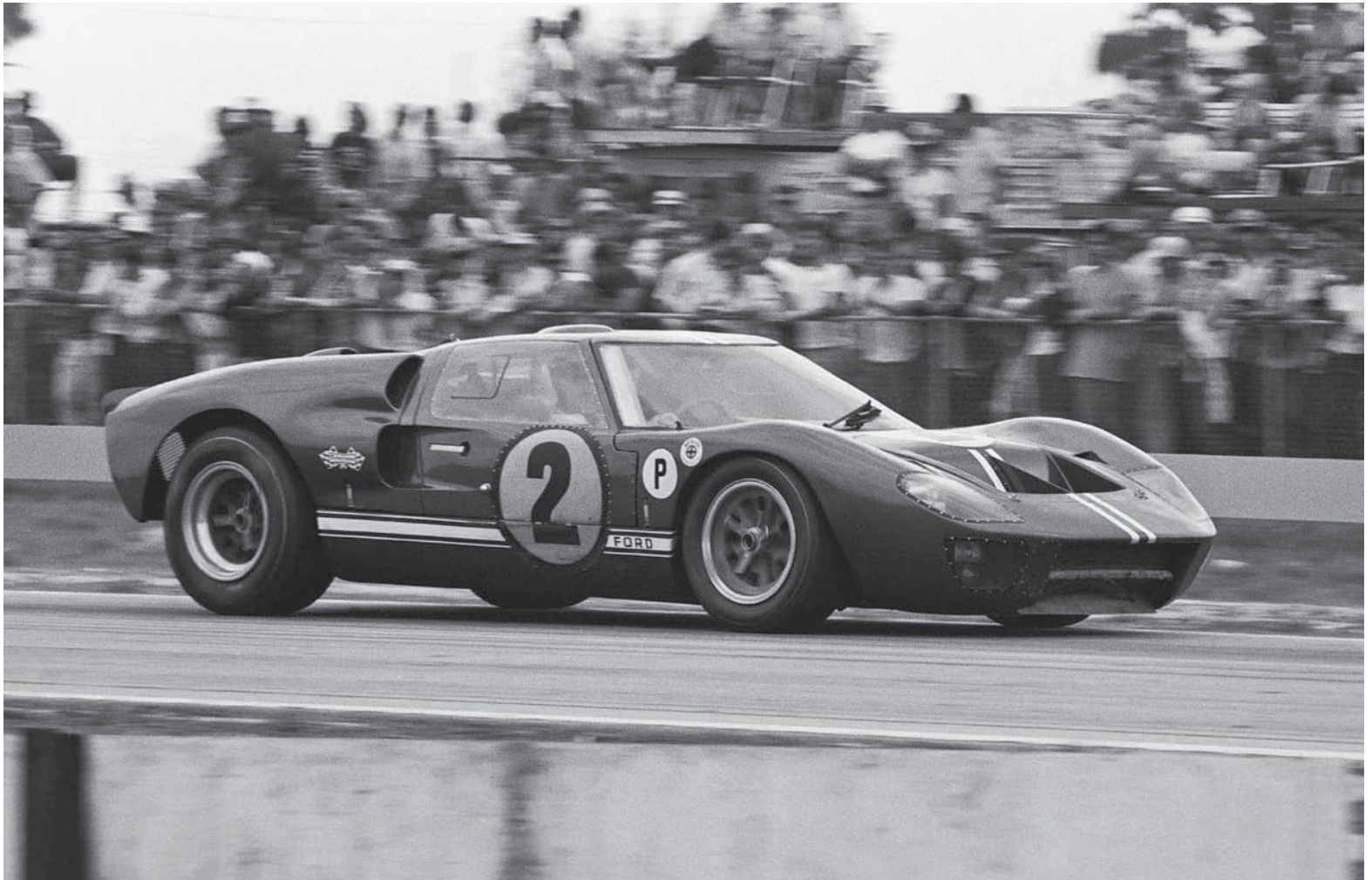


Right: The McLaren/Andretti Mark IV is first in line, but what really stands out at the start at Sebring is the high wing of the Chaparral 2F, which qualified second. Foyt, third in a Holman & Moody Mark II, has already reached his car.

Opposite: Max Kelly gives the Mark IV a last-minute check prior to the start. While Andretti was qualifying a Holman & Moody stock car in Atlanta, McLaren stuck the Ford on the pole by a whopping 2.6 seconds.

Below: Chaparral drivers Jim Hall and Mike Spence diced with the Mark IV for seven hours, but Andretti and McLaren always had some speed in reserve.





By the time McLaren pitted with yet another broken tranny, all the spares were gone. At this point, he was dozens of laps down because of the overheating issue. But the protocol in endurance racing demands that you don't quit until a stake has been driven through your car's heart. Somebody remembered that the Mark II and the J-Car from the previous month's test were sitting on a Holman & Moody trailer. So they were dutifully unloaded and their transmissions salvaged. More trudging back and forth with the little red wagon. McLaren and Bianchi got the first transmission; Gurney and Foyt, the second. Not that it helped; the Gurney/Foyt car expired Sunday morning. "The Ford pits became very morose," Dennis Cipnic reported in *Road & Track*. "A big 'Keep Out' sign was posted and everyone was instructed to say 'I dunno nothing' to newsmen's questions, and the garage doors were pulled shut." In the end, only one Ford survived—the overheating McLaren/Bianchi Mark II, which resolutely refused to die, circulating for hours like a zombie and finishing seventh, 73 laps behind the leader. The joke around the paddock was that the little red shop wagon logged more miles than most of the race cars.

Hill crashed while way ahead in the Chaparral, so Ferraris finished 1-2-3 and executed the textbook line-abreast finish that had eluded Ford at Le Mans the previous year. To rub salt in the wounds, Amon said of his race-winning P4, "It's beautiful. By comparison, the Ford Mark II is a truck." In fairness, in later years, Amon had much more complimentary things to say about the Ford. "The Mark II was a great car, particularly around a circuit like Le Mans, which was very quick," he said. "It wasn't a nimble car, by any means. But it was very good on fast corners, very stable. It certainly wouldn't have been happy around the Nürburgring. But it was fast at Daytona. And it was quite quick at Sebring too. It was a very comfortable car to drive." Still, after



the humiliations of 1966, Ferrari was rightfully elated by the win at Daytona. “It wasn’t so much revenge as a sense that the ship had been righted again,” Amon said.

For Ford, Daytona shook the bedrock confidence that had helped sustain the program during its darkest days. The transmission failures were the product of an easily rectified problem with a supplier. And, as Executive Vice President Charles Patterson memorably put it, “Christ, if you have to make the transmission parts out of gold, make them, but that will never happen again.” But the larger and more troubling issue was the lack of pace. Ever since the Ford GT had first appeared, it had always been fast. At Daytona, on the other hand, it had been comprehensively outrun, not just by the Ferraris but by the Chaparrals as well. Even more troubling, it wasn’t clear how much upside was left in the Mark IIs.

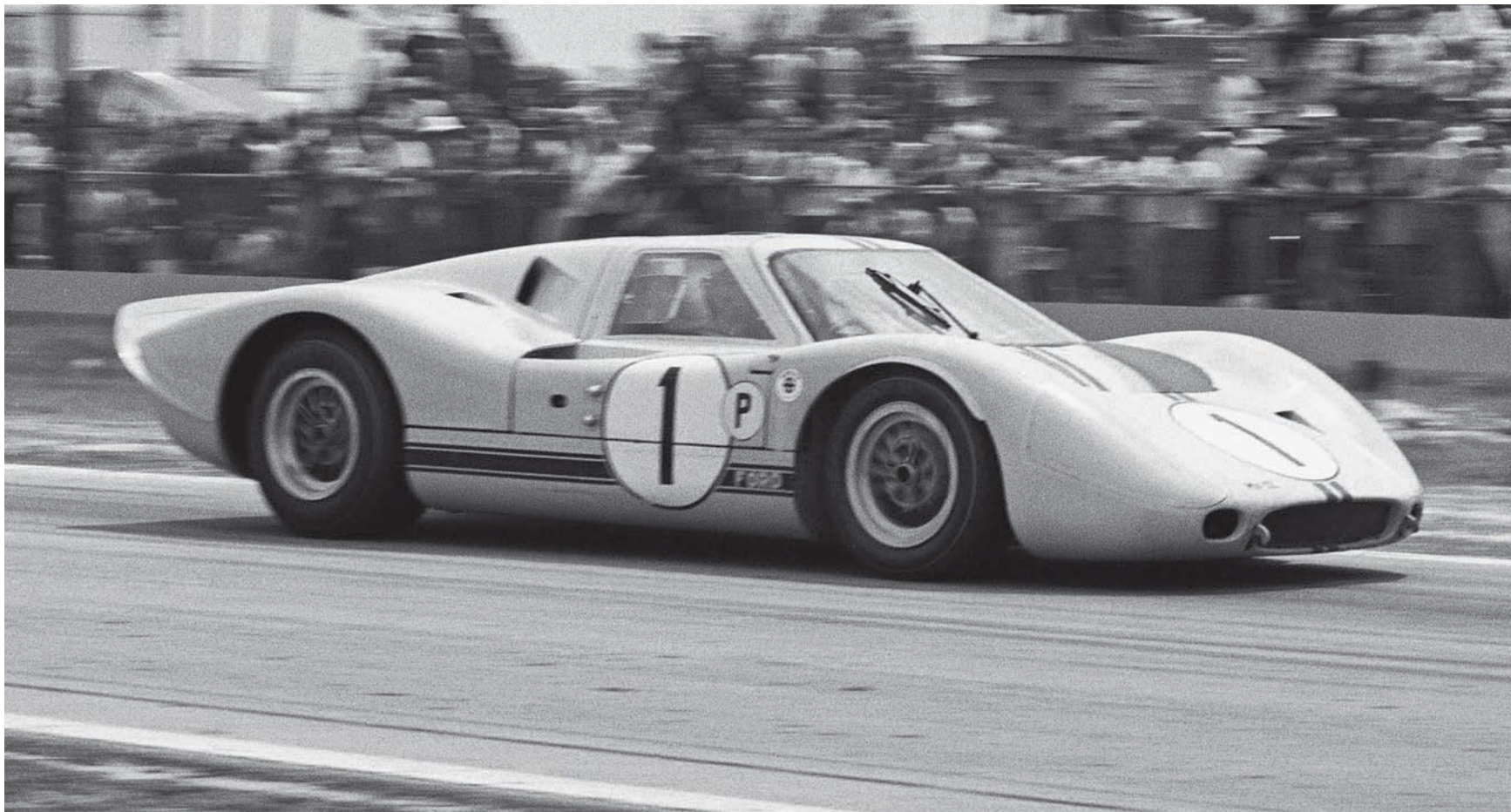
Holman & Moody had done yeoman work on the IIB. Young engineer Wes Moss, who would go on to play major roles in the Nissan and Toyota racing programs, designed custom suspension components and upgraded the aerodynamics. “They told me, ‘We’ve got to have these dummy luggage boxes in the rear. Can you do a different tail for the car?’” he said. “We spent 36 hours in the wind tunnel at Ford alternating with Shelby’s people.” To cut weight, Wanderer went to a thinner fiberglass, replaced plexiglass with a polycarbonate material, and commissioned a lightweight fuel cell from Firestone. He even talked to Corning about the possibility of experimenting with ceramic brakes. “We made it a much more competitive automobile,” he said.

But even as the Mark II was upgraded, Lunn continued to lobby for development of the J-Car. He had an unlikely ally in Remington. Although Shelby was convinced that the car was a waste of time and money, his director of research and development—Rem’s official title—believed that cosmetic surgery would make the J-Car less “draggy.” So, two days after the shambles at Daytona, Remington flew to Detroit with two of his top fabricators, Bill Eaton and Dennis Gragg, and took a whack at transforming a sow’s ear into a silk purse.

Opposite, top: Foyt and Lloyd Ruby couldn’t keep up with the Mark IV or the Chaparral. But they were the best of the rest.

Opposite, bottom: Shelby takes a moment to ponder the future.

Below: Braking hard, McLaren and Andretti give the Mark IV a win in its first outing.





Helped by Hull and a few clay modelers, the three of them went to work on J-1, the original J-Car prototype, cutting and reshaping the bodywork. “We took the old body off and saved the center section, which had the doors and the windshield,” Remington said. “We had about three guys from Ford Styling helping us. We built the thing up with plaster until it looked right.” Eaton confirmed Remington’s recollection. “We did the work entirely by eye—no drawings, nothing,” he said. “The nose was created with welding rods and tubes. We knew the tail was about a foot or a foot and a half too long, so Phil built it in such a way that it could be unzipped and shortened in the wind tunnel.”

While leaving the center section unchanged, Remington and his team dramatically lengthened the car and made it much swoopier. The blunt nose was given a sleeker profile, and the flat, bread van tail was replaced with a sloping rear deck that dropped gracefully away from the cockpit to a much lower and elegantly contoured tail. After more than a week of day-and-night labor, the car was rolled into the wind tunnel, where it generated 100 pounds less drag than the J-Car even at 120 mph. The test merely confirmed what the Shelby American guys knew by intuition. As Andretti put it: “Phil Remington designed the car inside his mental wind tunnel.”

Such a frankly unscientific approach sounds implausible today, when Formula 1 teams have wind tunnels running three shifts a day, seven days a week, 52 weeks a year to gain advantages that amount to no more than hundredths of a second a lap. But in 1967, race car aerodynamics were so poorly understood that the discipline was closer to alchemy than science. Jim Hall had just introduced the wing on the Chaparral, but the underwing—the essence of ground

A scheduled pit stop for Foyt and Ruby. Their engine failed with 32 minutes remaining and they ended the race in the pits, but they were still classified second due to the amount of laps covered.



Above: As Al Dowd withdraws the fuel hose, McLaren re-enters the car for the run to the finish.

Right: In victory lane, Andretti and McLaren are interviewed by Bob Holbert, who had successfully raced Cobras for Shelby American before retiring three years earlier.



effects—was still a decade away from being discovered. Two years later, when Porsche designed the 917, the car suffered from such appalling high-speed aerodynamic instability that it was more properly described as a lethal weapon than a race car. As he reimagined the J-Car, Remington didn't have the benefit of a technical understanding of the complex mathematical formulas governing how a car moved through the air. But then again, neither did anybody else, and Remington could draw on a lifetime of practical racetrack engineering. "Some things just look right and others don't," he explained. "We knew what the car was doing with the existing bodywork, and I wanted to steer clear of that, so I guess we just got lucky."

The rebodied car was christened the Mark IV—the Mark III was a road car—and immediately shipped to Kingman for head-to-head testing against the Mark II. The Mark II went 211.76 mph while Mark IV hit 215.82 mph despite 30 mph crosswinds. A palpable sense of relief came through the dispassionate language of the test report. "It is significant to point out that the Mark IV (J-Car) has been improved tremendously," a Ford engineer wrote. "In all previous aerodynamic tests, it had never obtained a faster speed than the Mark II. The results of this test were very encouraging." But not definitive.

Fortunately, Ford already had a test scheduled for Daytona the week before the next race, at Sebring. The low point of the session came when Revson lost control of his Mark II coming out of Turn 4. "He went end over end down the race track at at least 160 mph," Wanderer said. "Everybody thought he was dead. We went over to the mangled car. He got out and walked away, and not a drop of fuel had leaked." The heavy-duty roll cage had done its job. The high point was the speed of the Mark IV. Andretti turned a lap at 1:52.4, which was almost four seconds quicker than he'd gone during qualifying for the 24 Hour the previous month and 2.7 seconds under the pole time. On the strength of this performance, it was decided to race both a Holman & Moody Mark IIB and a Shelby American Mark IV at Sebring.

The race was anticlimactic. For a variety of reasons, Ferrari declined to send any cars to Sebring, and NART and the other big-name Ferrari owners also stayed away. So the only competition was a pair of Chaparrals. While Andretti was moonlighting in a Holman & Moody stock car in Atlanta, McLaren put their banana-yellow Mark IV on the pole by a whopping 2.6 seconds over Spence in the high-wing 2F. Foyt was three seconds back in the Mark IIB. Spence and Hall ran McLaren and Andretti close and hard for seven hours, and the Chaparral even led on a couple of occasions. But the Mark IV drivers always had something in reserve and never felt threatened. At 6:45 p.m., Hall pitted with the 2F smoking slightly, and Spence retired shortly afterward when the gearbox failed. With the Chaparral gone, Shelby put the "EZ" and "SLO" pit signs out. McLaren and Andretti coasted home. Foyt and Ruby were classified second even though a rod bolt in the engine broke with 32 minutes to go and they ended the race in the pits.

So the Mark IV became one of those exceedingly rare race cars to win a major race in its first outing. And yet Sebring really didn't mean a thing. Because everybody knew that the Mark IV would be remembered forever as a loser unless it also won Le Mans.



Top: The day after the race at Sebring, McLaren and Andretti strike an insouciant pose with their spiffed-up Mark IV for the official Ford winner's photo.

Above: Jacque Passino sits on the winning car.



Above: The Mark IV sits in pit lane during a typically wet test weekend at Le Mans. The recently added fins on the rear deck, similar to the “Chrysler” fins fitted to the Mark II in 1965, weren’t used in the race.

Right: While Carroll Smith takes notes, McLaren sits in the cockpit of the Mark IV filled with data-logging equipment designed to collect information for the program used to simulate laps at Le Mans on the dynos back in Dearborn.



8



APRIL 1967 - JUNE 1967

SURVIVAL OF THE FASTEST



THE 24 HOURS OF LE MANS IS THE GREATEST SPORTS CAR RACE IN THE world. Period. None of the pretenders to the throne can rival its history, its heritage, its impact, its variety—the action on the track, the drama in the pits, the parties in the grandstands, the spectacle in the infield. And yet, as much as Le Mans deserves its reputation, the 24-hour enduro doesn't always produce great racing. Some years, no interesting cars show up. Other years, the competition fizzles. It can be wet and cold and thoroughly miserable, and on those occasions, everybody—the drivers, the mechanics, the fans, even the vendors—can't wait for the race to end. The winners are inscribed on the roster of champions and the legend of Le Mans grows by accretion. But the race itself—an interminable slog twice around the large clock cantilevered over the pits—is quickly forgotten.

In 1967, though, Le Mans was shaping up to be something memorable. Head-to-head battles weren't unusual at the Circuit de la Sarthe. But this year promised a dogfight between three bitter enemies campaigning four vastly different models of prototype sports cars that would go on to become icons of the 1960s—the sensuously snarling Ferrari 330 P4, the fantastically winged Chaparral 2F, the once all-conquering Ford Mark II, and the exotic but largely untested Mark IV. The field included seven Ford prototypes, seven Ferraris, and a pair of Chaparrals. Ten or so cars had a legitimate shot at winning.

The driver lineups were equally impressive. With its deep pockets and broad-based racing program, Ford had access to just about anybody it wanted. Among its 12 drivers at Le Mans were two who would go on to win F1 world championships (Mario Andretti and Denny Hulme), three who had won or would win Indy 500s (Andretti, A. J. Foyt, and Mark Donohue), four who had won or would win F1 races (Andretti, Hulme, Bruce McLaren, and Dan Gurney), and seven who had won or would win Indy car races (Foyt, Donohue, Andretti, Gurney, Lloyd Ruby, Roger McCluskey, and Ronnie Bucknum). Driving various Ferraris were three F1 winners (Ludovico Scarfiotti, Pedro Rodriguez, and Giancarlo Baghetti) and Chris Amon, who's universally regarded as the finest driver never to have won a World Championship Grand Prix. Also, former F1 world champion and three-time Le Mans-winner Phil Hill was in a Chaparral.

The Mark IV that will be driven at Le Mans by Dan Gurney and A. J. Foyt gets a final test at Riverside before being shipped to France. "For the first time in my racing career, the cars were completely race-ready prior to departure. What a luxury." —crew chief John Collins (left, in white). *Photo by Steele*

Therkleson, Vernon Estes Collection

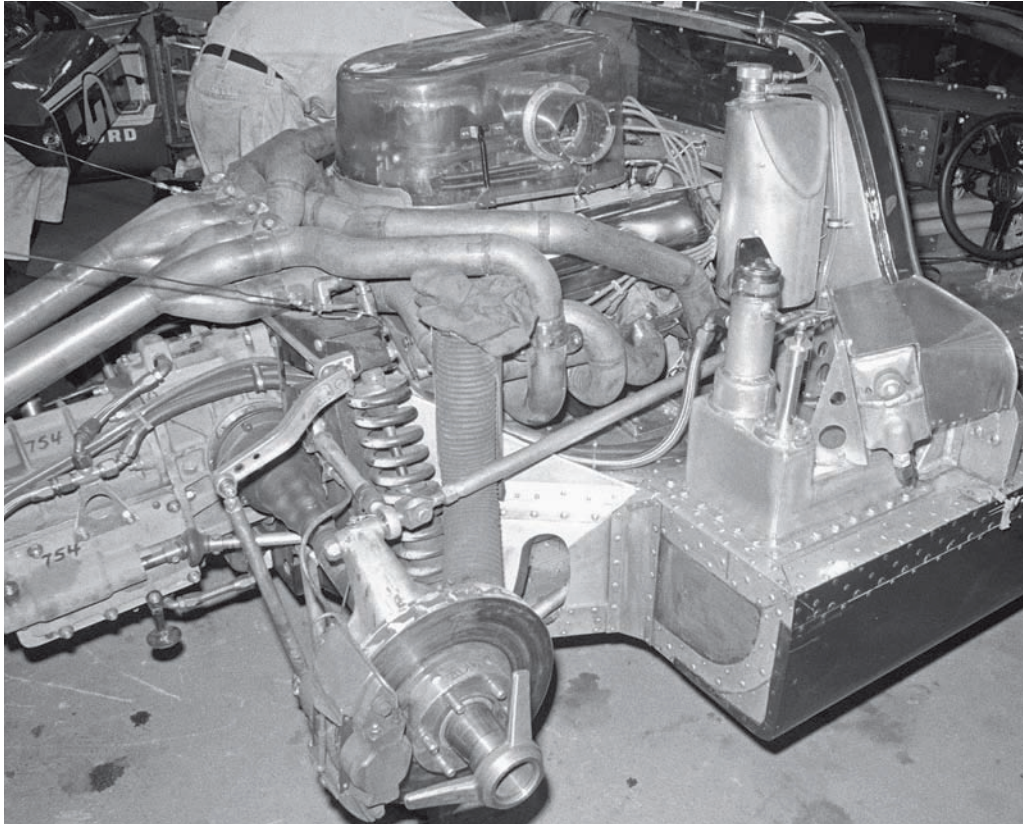


So the racing community was eagerly anticipating a clash of the giants. And the race would go on to be even more gripping than expected. “The 1967 Vingt-Quatre Heures du Mans was one of the finest contests I have ever witnessed,” wrote John Bolster, the venerable *Autosport* editor rarely seen without his deerstalker hat. “I followed the whole race from the pits, and I was so enthralled that I almost forgot to eat. Nothing could drag me away from that titanic struggle. This was motor racing at its best, with perfectly prepared cars, efficient pit crews, and, in most cases, excellent drivers. Whether the greater credit goes to Ford or Ferrari it is difficult to say, but both teams are to be congratulated on really going motor racing.”

But at the same time, an unsettled mood hung over the proceedings. In the pits and the paddock, there was a sense that this might mark the end of an era of unrestrained development. After Ford dominated Le Mans in 1966, the Fédération Internationale de l’Automobile had made noises about changing the regulations to limit engine size or require four seats or even extend the number of laps that had to be completed before pit stops. Any one of these rules would have rendered the 7.0-liter Fords instantly obsolete. In the end, nothing was done, and Ford was already planning to upgrade the Mark IV for 1968. But the FIA was scheduled to meet a week after Le Mans, and action on the rules was obviously possible. So Ford was determined to empty its tank at Le Mans.

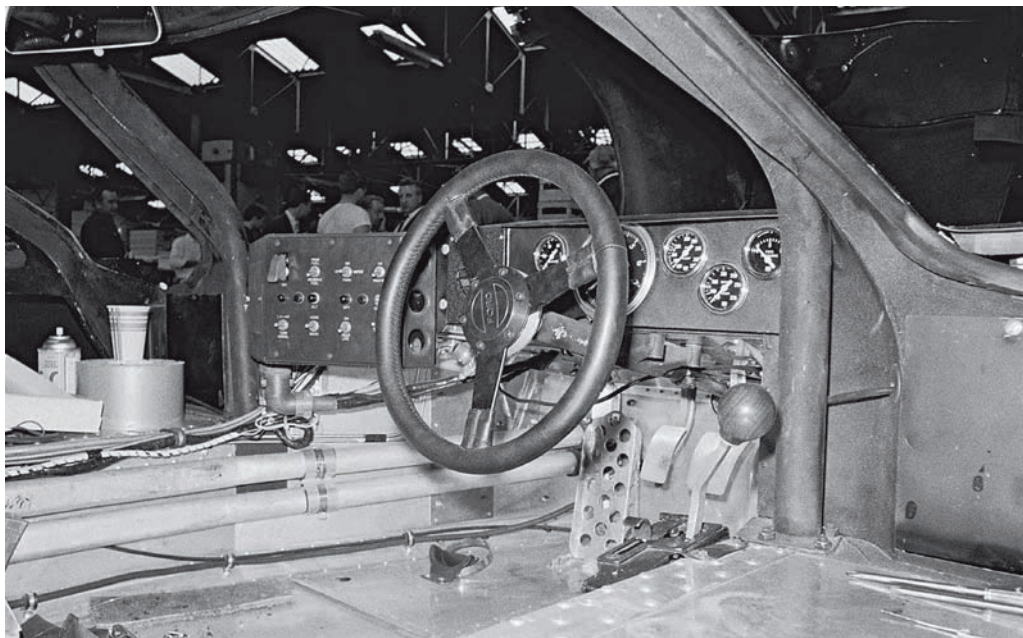
Judging by the number of people it included and the logistical support they necessitated, the Ford operation seemed less like a race team than an expeditionary force assembled to establish a beachhead in enemy territory. “It’s hard to describe the Ford setup because it’s so gigantic and

A technician checks the headlight alignment on the Ronnie Bucknum/Paul Hawkins Mark IIB in the Ford garage. The standard practice was to aim the headlights outward toward the trees that lined the circuit.



Top: Close-up of the rear end shows details of the hefty engine and the rows of rivets added to the chassis to prevent structural failures, especially at the corners, where the sheets of honeycomb aluminum were bonded.

Above: The cockpit of a Mark IV at Le Mans. What, no cupholder for the coffee cup?

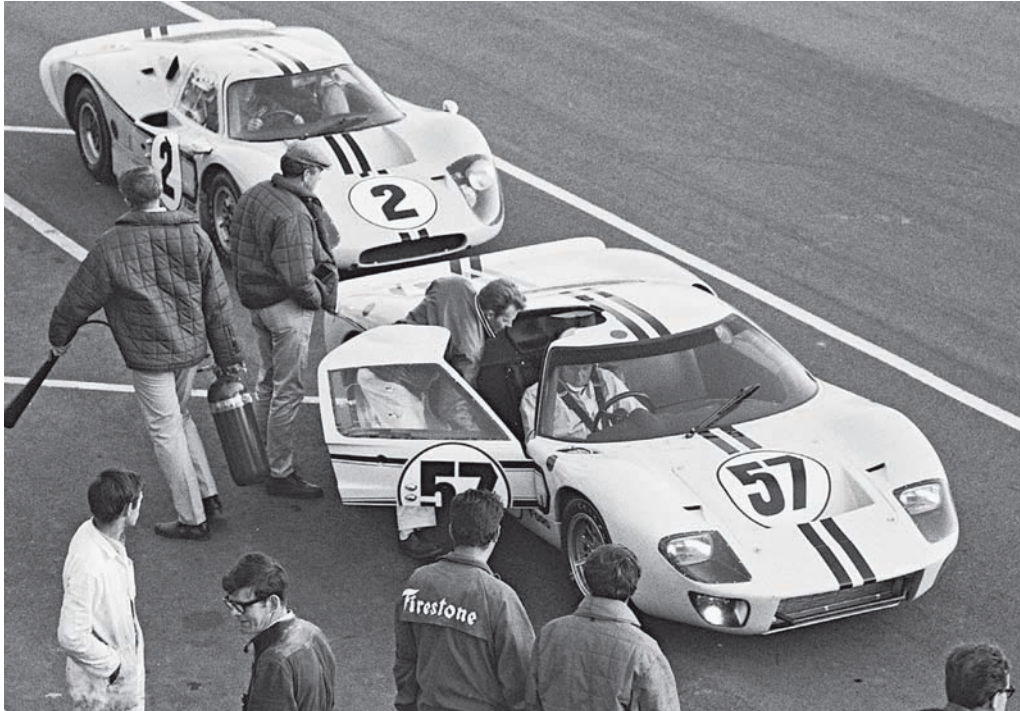


they spend so much money,” Shelby American driver Paul Hawkins wrote, “but they produce the best cars that money could buy to do the job Ford required them to do. And that is to win Le Mans. They had taken over half a big Peugeot garage in Le Mans, fitting it out with their own coffee and Coca-Cola machines, and they had even flown their own drinking water over from America! They had a big semi-trailer done out as a mobile workshop, and I’m sure they would have flown that over too if they could have found a big enough plane. They even had their own toilet paper specially brought over from the States. We were looked after like kings—the best hotels in Le Mans, special caterers at the circuit, and caravans for us to sleep in out there.”

According to Ford documents, there were 12 drivers and two reserves. Shelby American and Holman & Moody each had four administrators, two fabricators/machinists, and a parts guy. Shelby American brought 11 mechanics; Holman & Moody, 12; and Kar-Kraft, a 24th. The teams shared an engine specialist and a truck driver. Holman had three extra people performing various tasks. There were also three men assigned to the service truck. In addition, Ford brought a timing-and-scoring (and signaling) crew of 18, plus 35 Ford employees from top executives down to working engineers. Many of them traveled with their wives. This list didn’t include Henry Ford II and his considerable entourage or the official team doctor and the helicopter pilot who’d been retained to fly, if necessary, to the military hospital in Orleans (where Walt Hansgen had died). Altogether, there were more than 125 people, and, as David E. Davis observed wryly in *Car and Driver*, “They were hard to miss.” Which was precisely the point.

As a corporation, Ford understood—and this was a lesson that would be taken to heart

by other manufacturers in years to come—that racing was primarily a marketing tool. Developing new technology was all well and good. But the principal purpose of motorsport was burnishing the brand image. Thus, according to an internal memo, “Prior to leaving Los Angeles, all crew will obtain a neat haircut and are required to shave daily while in France and maintain a high degree of personal appearance at all times, as we all represent the U.S.A. and the Ford Motor Company.” No fewer than three public relations specialists were attached to the team. Besides mimeographing and distributing hourly updates to the press, they were ordered to pay personal attention to specified journalists.



Left: Two of the three Shelby American cars sit in pit lane, waiting for practice to begin. Holman & Moody had three more cars and had entered a fourth for Ford France.

Below: Mario Andretti (in the red jacket) talks to Holman & Moody team manager John Wanderer while co-driver Lucien Bianchi listens in. *Mike Teske Archives/Ford Motor Company*

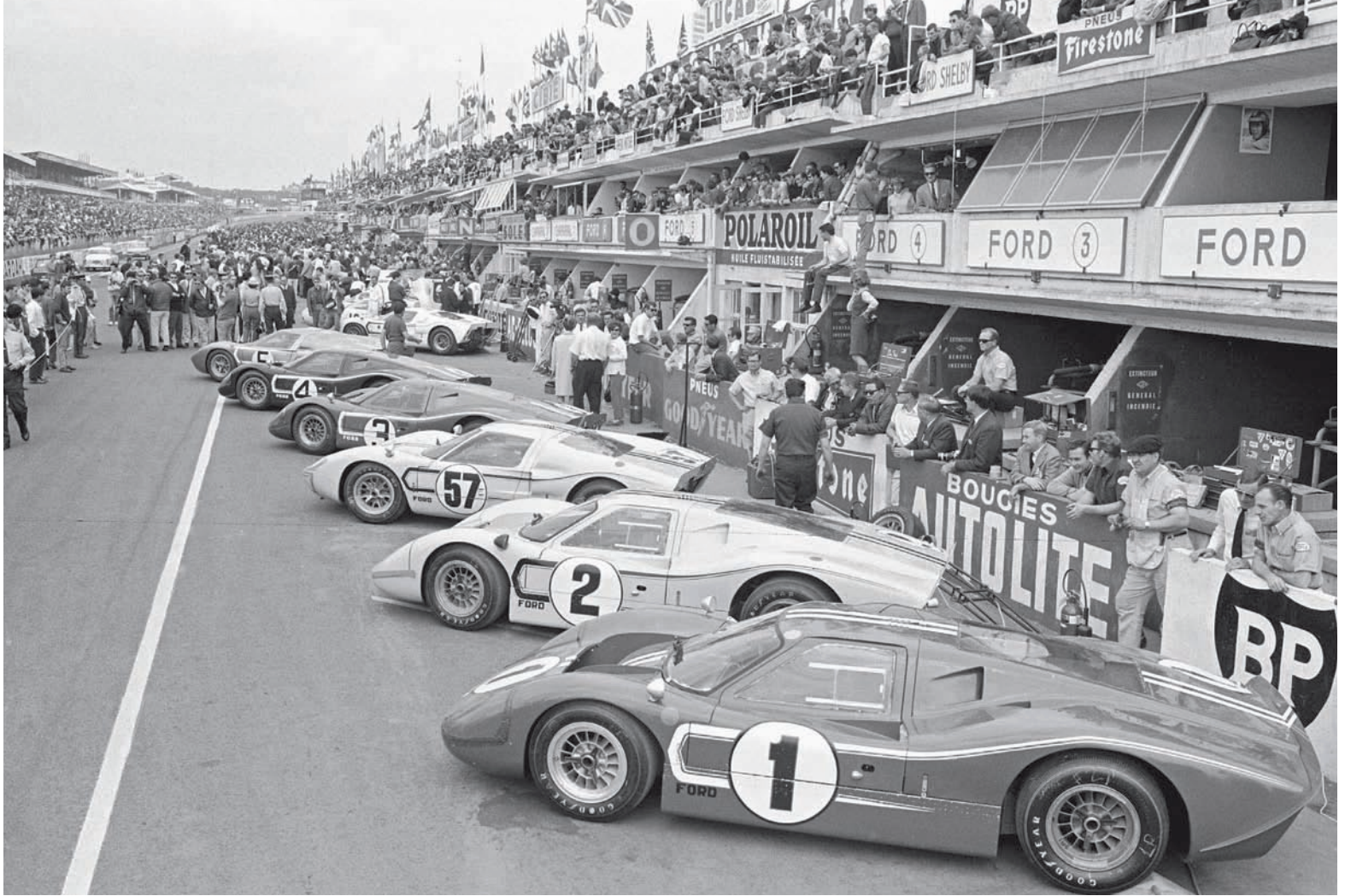


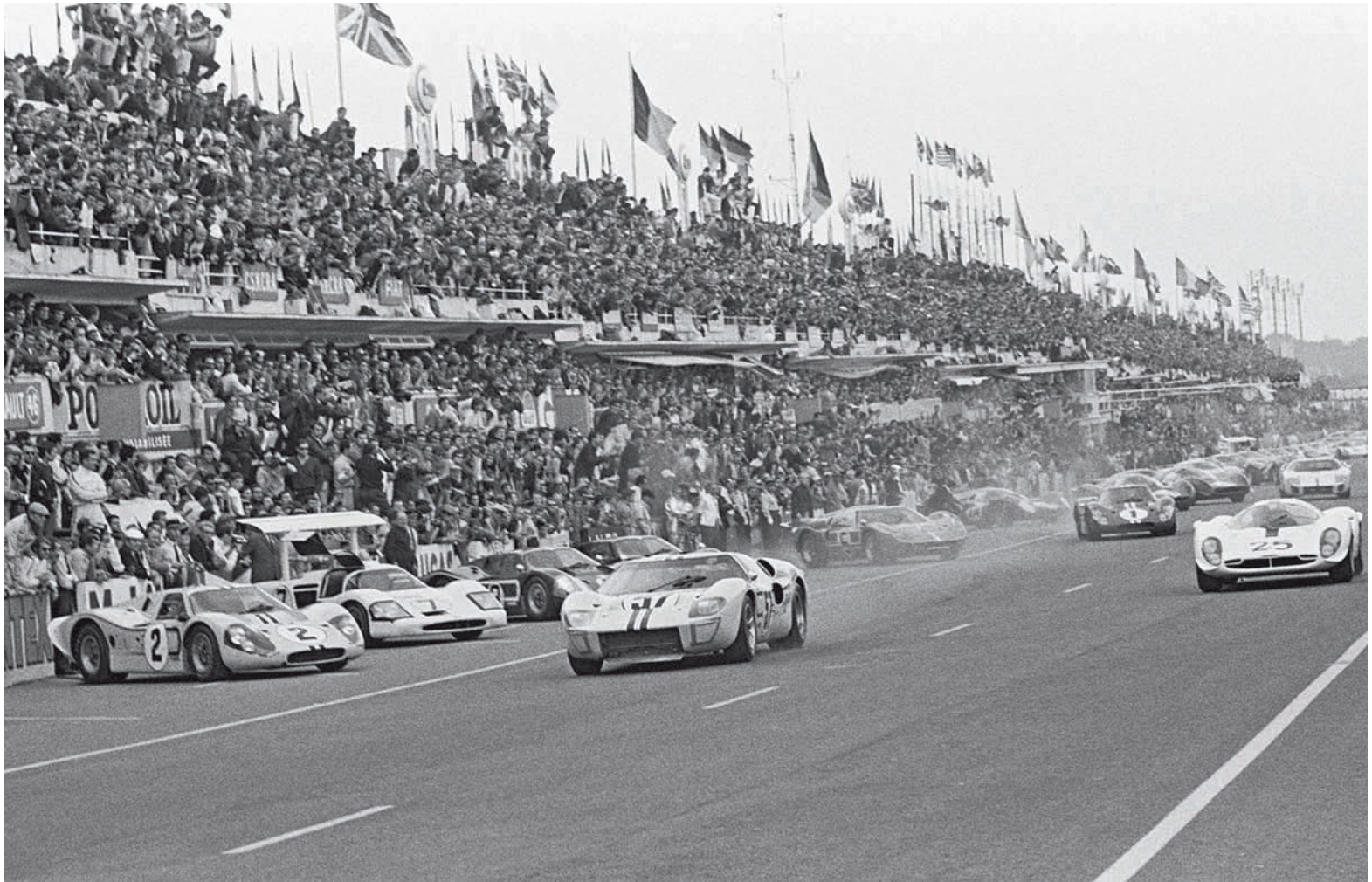


The windshields in the Fords started cracking as soon as practice began. An extra-hard temper had made the glass too brittle, and Dow Corning produced replacements on an emergency basis. Here, Gordon Chance, Charlie Agapiou, and Max Kelly (left to right) replace the windshield on the Bruce McLaren/Mark Donohue Mark IV.

Ford entered four Mark IVs and three Mark IIBs. The Sebring winner—J-4—had been retired, and four strengthened Mark IV tubs had been built for Le Mans. Holman & Moody put Andretti and Lucien Bianchi in one of them and Hulme and Ruby in another, while Frank Gardner and McCluskey shared a Mark IIB. Holman & Moody was also in charge of a second Mark IIB driven by Jo Schlesser and Guy Ligier, though Ford France was technically the entrant. Shelby American's driver pairings were Foyt/Gurney and McLaren/Donohue in Mark IVs and Bucknum/Hawkins in a Mark IIB. There were also three privately owned GT40s and two Mirages—light-weight variations on the GT40 theme—entered by the team John Wyer had formed after severing official ties with Ford.

The marquee driving combo was Gurney and Foyt. Gurney, who would become the first American to win a modern Grand Prix (at Spa) in an American car the week after Le Mans, was the best-known American in international competition. Anthony Joseph Foyt, meanwhile, was the best-known driver in America. Two weeks earlier, he'd won the Indy 500 for the third time in seven years. Strong as a bull and brave as a bull rider, Foyt was the man to beat in Indy cars, sprint cars, and midgets, on pavement or dirt, from primitive bullrings to 200-mph super-speedways. In years to come, he would win Indy a fourth time, win the Daytona 500 in a stock car, and, when he was 50 years old, win Daytona and Sebring in the same year in a Porsche 962. Born near Houston and known as "Super Tex," the drawling, self-assured Foyt was a curiosity in France. When he was served a plate of trout almondine, he sent it back because, he informed the waiter, he didn't eat anything with the head still on it. But nobody mistook him for a rube. "Some people are born to fish," he told the press. "Not me. I was born to race."





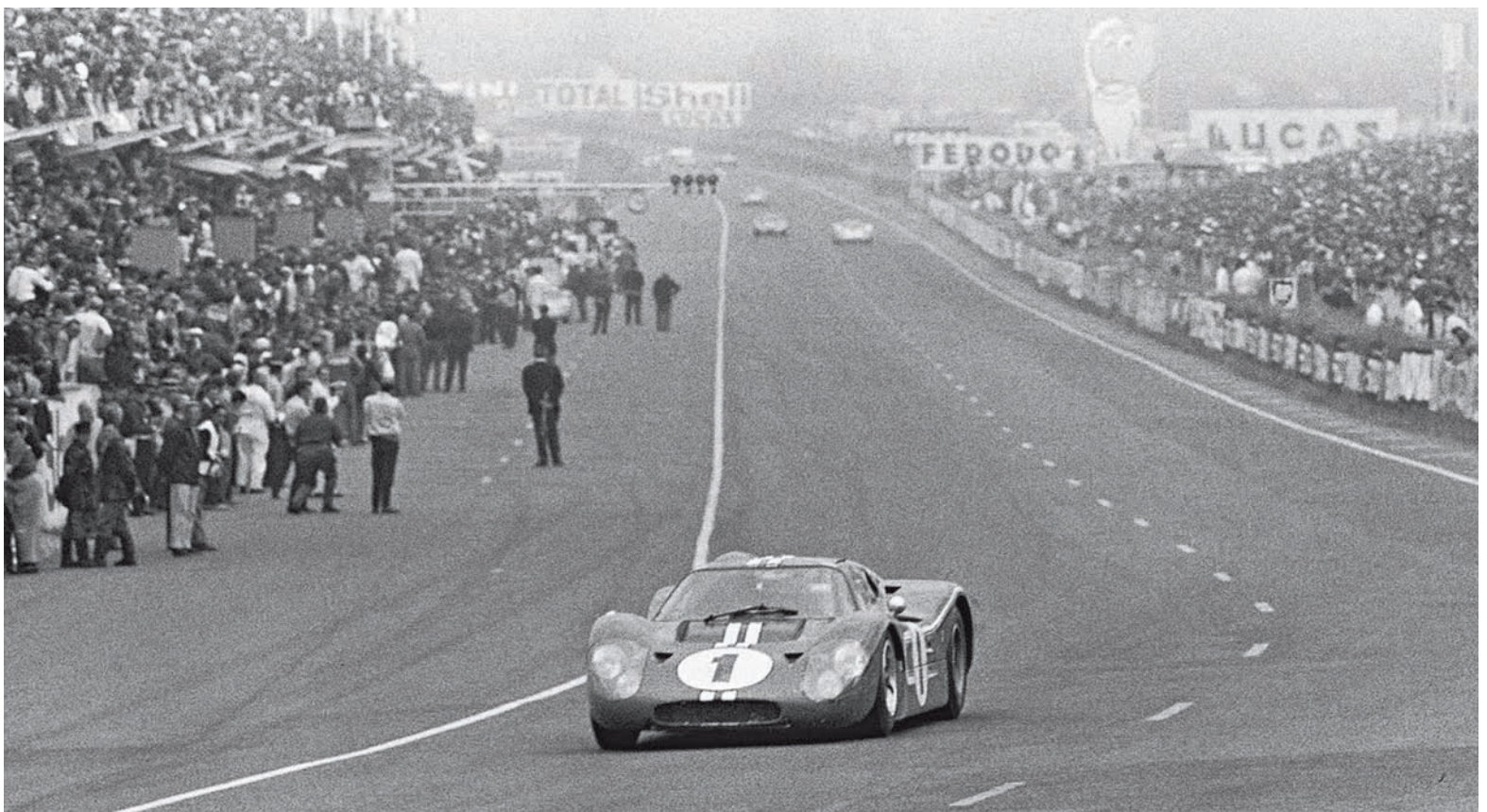
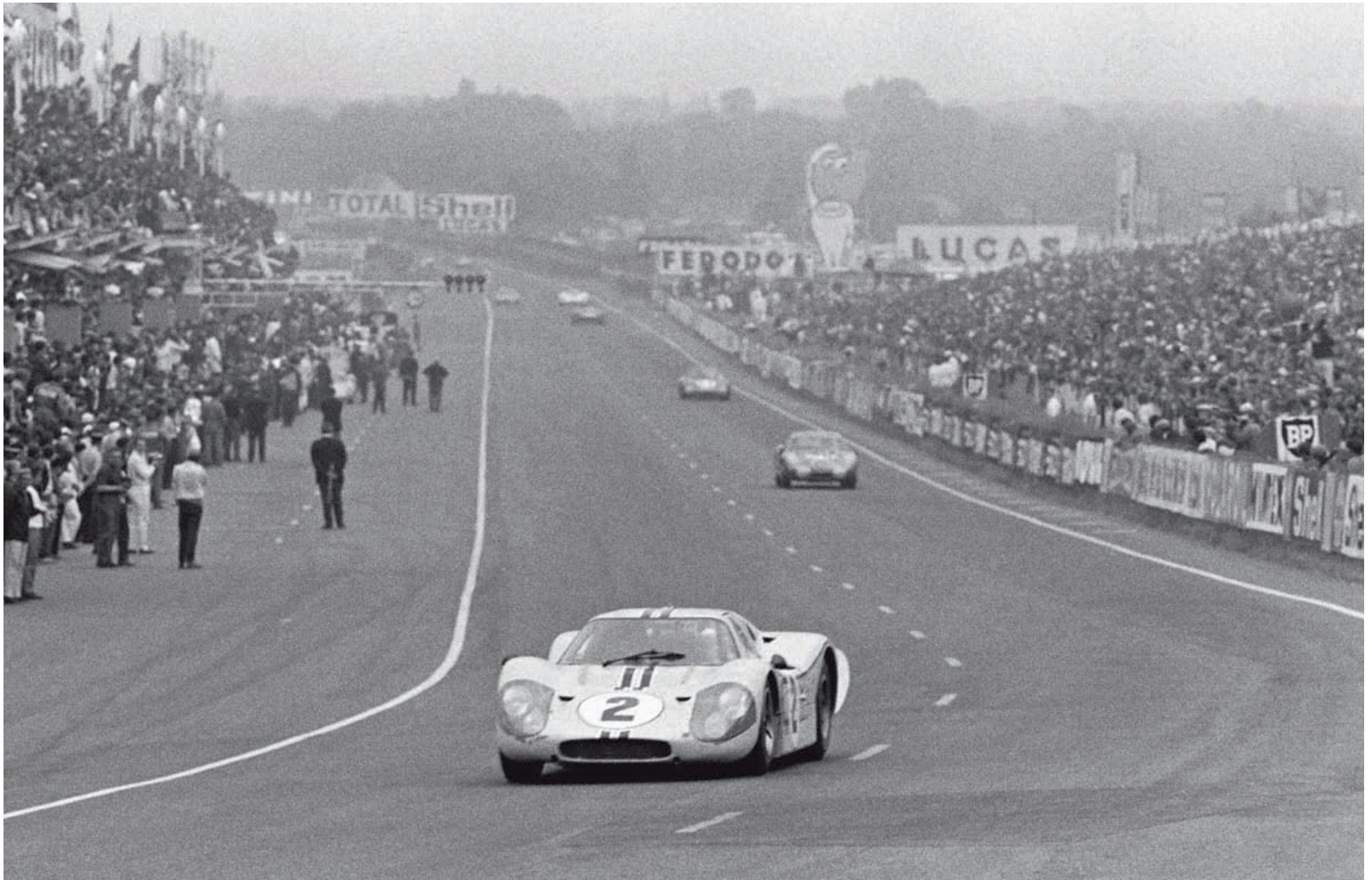
Above: Ronnie Bucknum rocketed into the lead at the start and headed the field for the first hour. The high-wing Chaparral 2F was among the last cars to leave because team owner Jim Hall ordered his drivers to secure their seat belts before leaving the grid.

Opposite, top: A posed prerace shot shows the Ford armada at Le Mans. The three Shelby entries are Nos. 1, 2, and 57, while Nos. 3, 4, and 5 belong to Holman & Moody. The white Ford France entry, driven by Jo Schlesser and Guy Ligier, is parked just beyond.

Opposite, bottom: Another view of the Ford team showing all four Mark IVs and the Shelby American Mark II.

Then again, Foyt didn't have much road-racing experience, and he'd never been to Le Mans. Neither had Ruby or McCluskey. Ruby, at least, had plenty of seat time in sports cars. McCluskey was a talented driver who would retire with USAC Champ Car, sprint car, and stock car titles to his credit. But he'd been brought in at the last moment to replace Ginther, who'd retired unexpectedly, and he was unprepared for Le Mans. Plus, he was unnerved by the race circuit, which was ringed not by walls or guardrails but by stout-looking trees. McLaren told him that they were French safety barriers. "By the time a car got through them, there weren't any pieces big enough to hurt the crowd!" he joked.

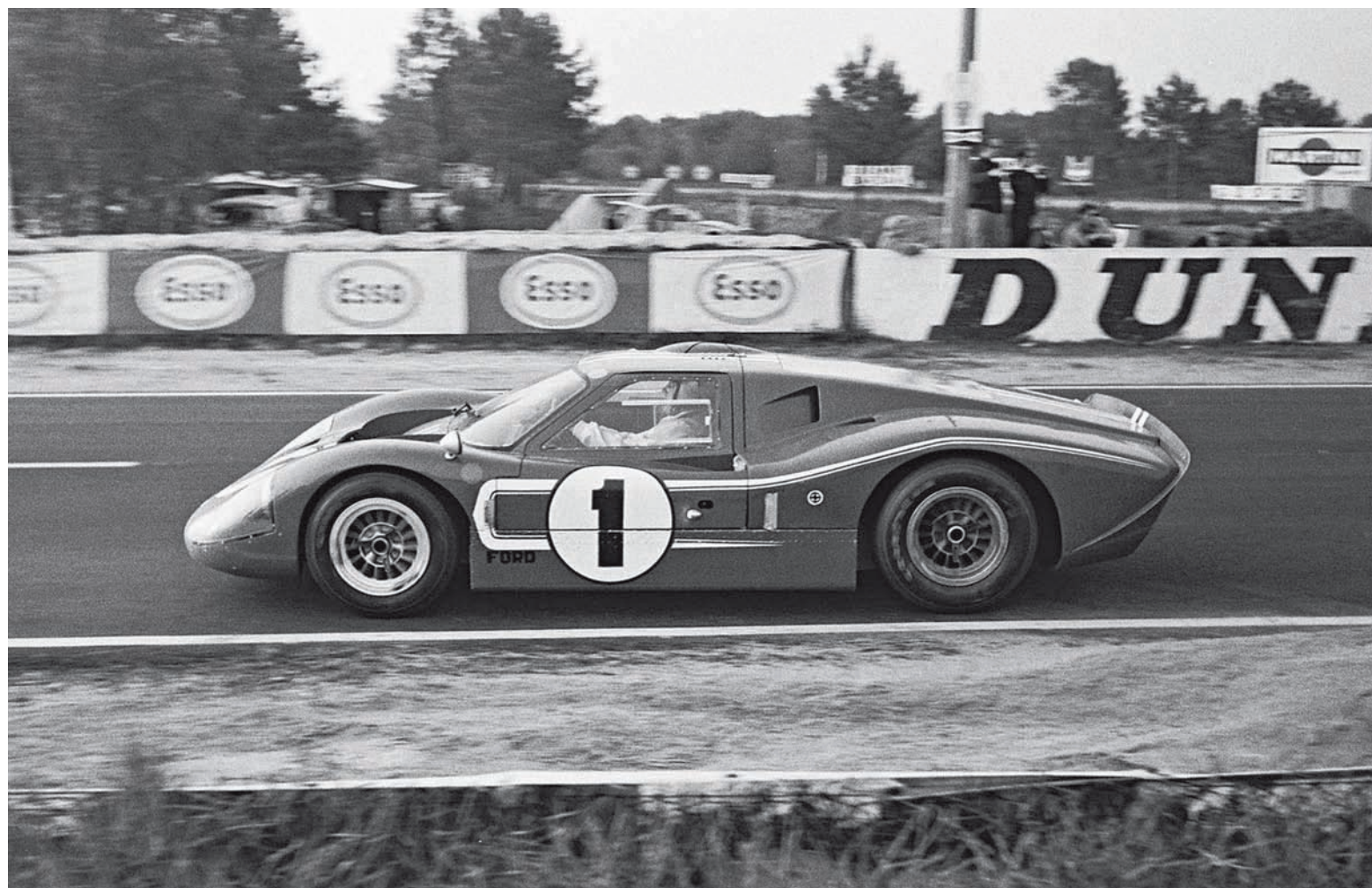
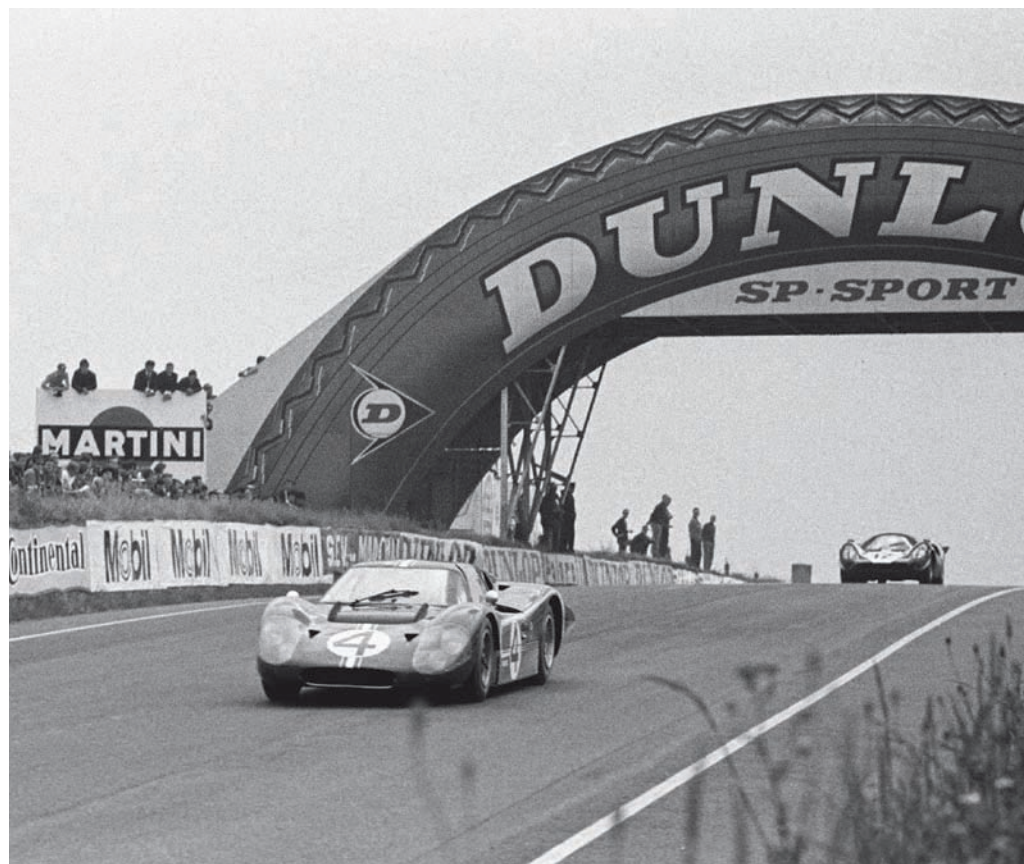
Ford engineers continued development right up until Le Mans. It had been decided, once and for all, to return to the aluminum heads to save weight. To claw back some of the lost horsepower, the engine mavens experimented with a tunnel port intake manifold. This maximized peak horsepower, but the NASCAR-spec open plenum performed poorly at low and medium engine speeds during the Le Mans Test. So the team installed an "over-and-under" intake manifold—what's now called a dual-plane intake—with a 652-cfm four-barrel Holley with secondary cam plates and longer-stroke accelerator pumps feeding each half of the split plenum. At a final pre-Le Mans test at Daytona in May, the modified engine accelerated crisply from 3,000 to 6,500 rpm and worked better on downshifts. Peak output was 500 horsepower at 6,400 rpm (up from 485 in 1966), while torque rose from 450 to 470 lb-ft at 5,000 rpm. As always, power wasn't the major objective, durability was. A test engine was hooked up in Dyno Cell 17B and run at a simulated lap speed of 3:30, with shift points at 7,000 rpm and holding 6,500 rpm on the Mulsanne straight. The goal was 48 hours without stopping. The longest the engine ran was "only" 45 hours and 15 minutes. Sold! Ten engines were built to the same specifications.

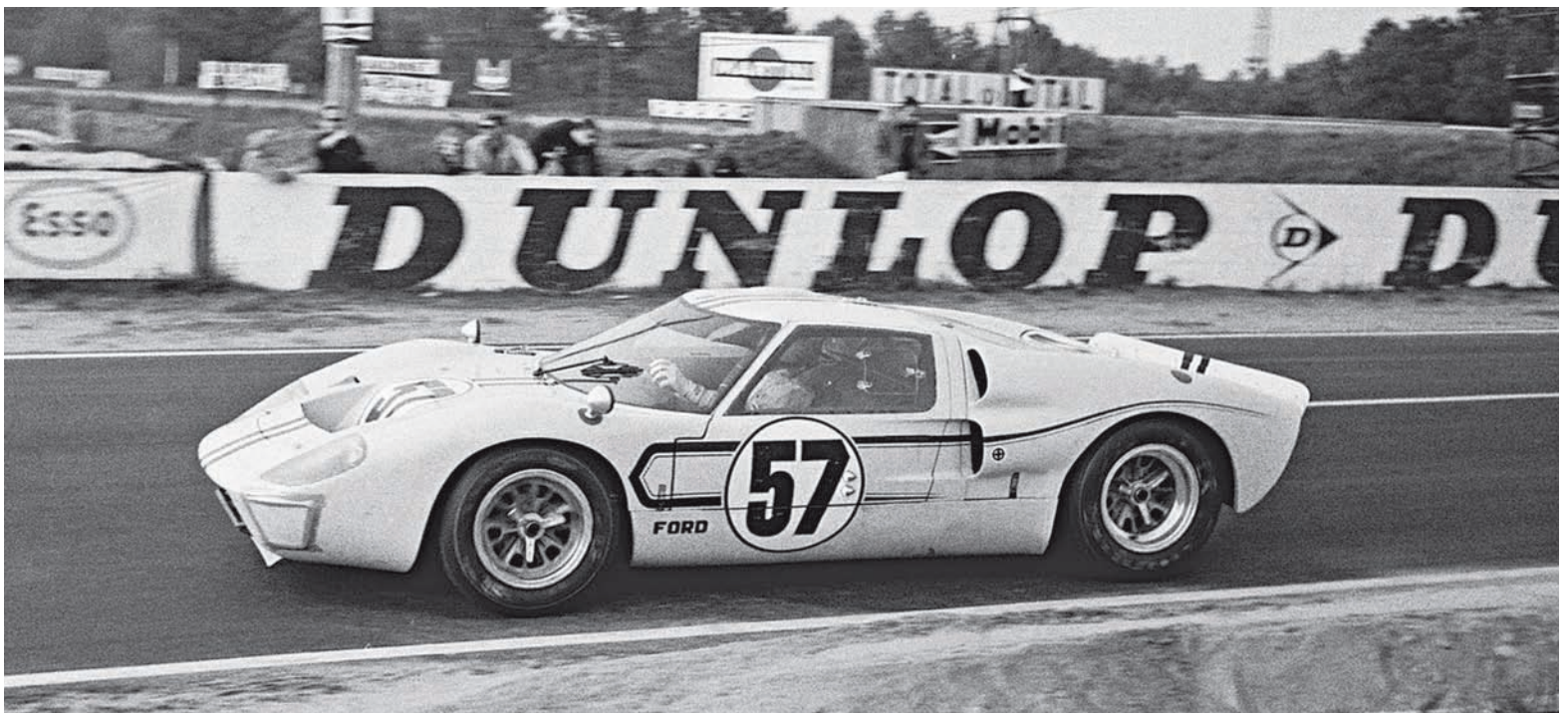
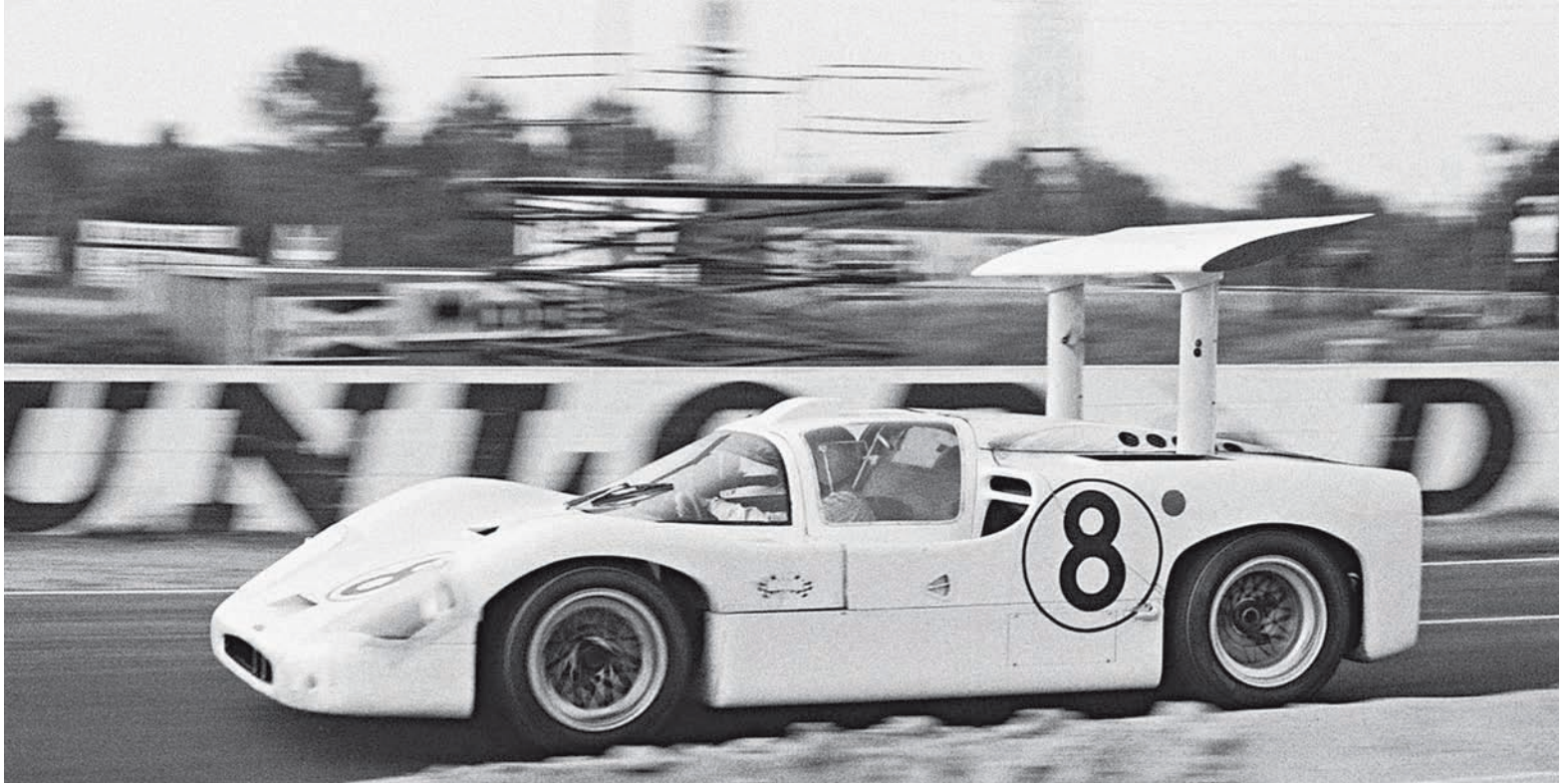


Opposite page: Although McLaren (No. 2) qualified on the pole, he took it easy early in the race. The same was true for Gurney (No. 1), who was content to let Bucknum lead in his Mark II.

Right: The Holman & Moody Mark IV driven by Denny Hulme and Lloyd Ruby leads a Lola T70 under the Dunlop Bridge. Although Hulme set an early lap record, the car retired when Ruby beached it at Tertre Rouge.

Below: Gurney took the lead after the first hour, and he and Foyt never relinquished it.





A host of other upgrades were made before the cars were sent to France. Brake pads were burnished on a brake dyno so they wouldn't have to be bedded at the track. The brake ducts next to the grille were blocked off because it was felt that the cold air would "shock" the rotors into cracking during the vicious braking at the end of the Mulsanne straight. Instead, air was allowed to warm up while passing through the radiator ducts sunk into the hood before being routed to the brakes. Meanwhile, the crossover fuel system was revised so that cars could be gassed up in 17 seconds rather than the 68 seconds it took before. Various materials were improved (the CV joints in the half-shaft, for example) or made stronger (rear brake caliper bosses). Each of Ford's seven Le Mans entries was painted a different color. The most distinctive was car No. 1, driven by Gurney and Foyt, which was dressed in bright red livery and which had a bubble in the roof to accommodate the helmet worn by the lanky Gurney. After all was said and done, the Mark IVs were only about 75 pounds lighter than the Mark IIBs, and the Holman & Moody cars were about 75 pounds lighter than the Shelby American entries.

Top: Neither of the two Chaparral 2Fs finished the race. Later that year, Phil Hill gave the car its only win, at Brands Hatch with Mike Spence, in the final race of his illustrious career.

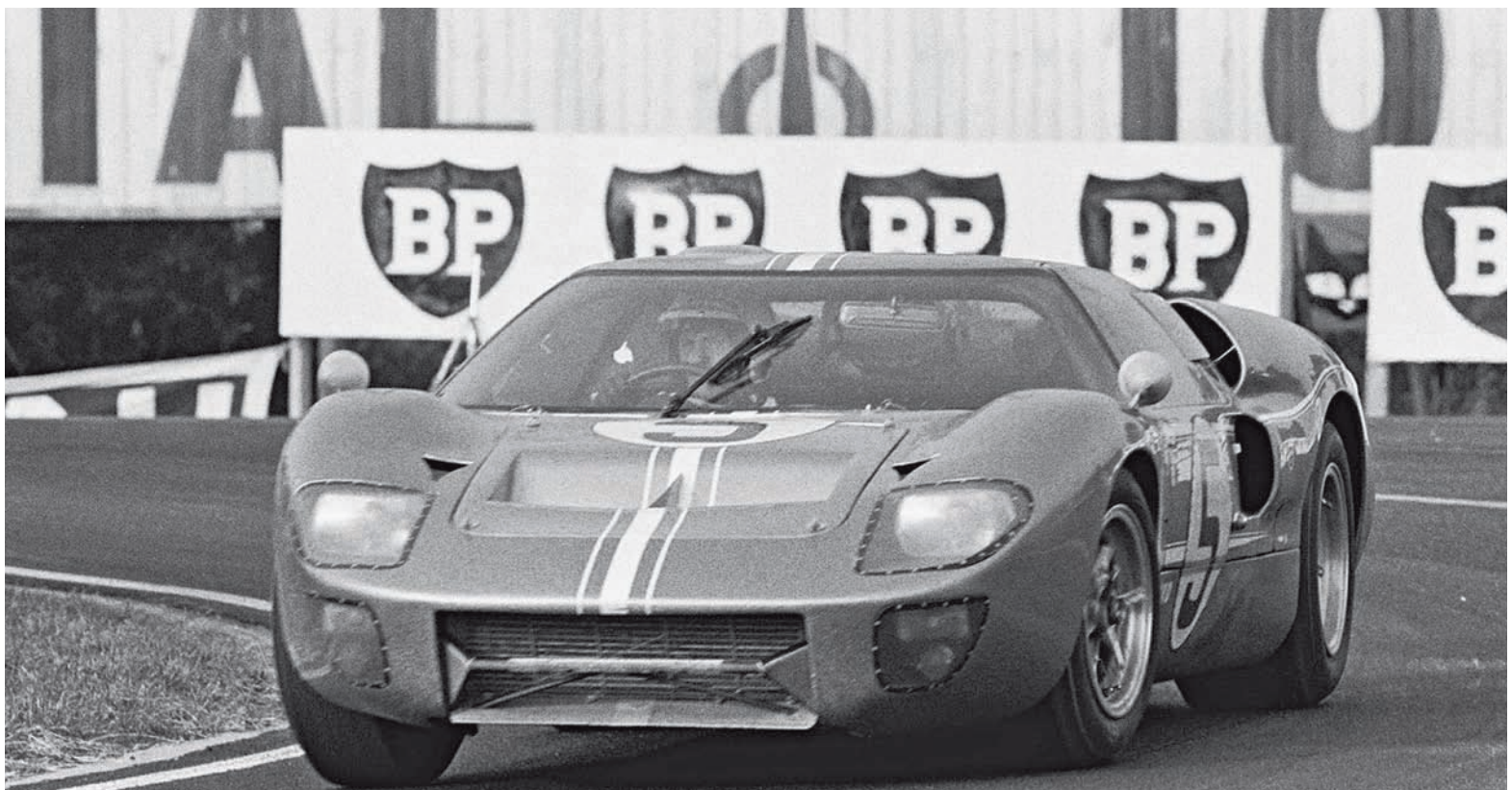
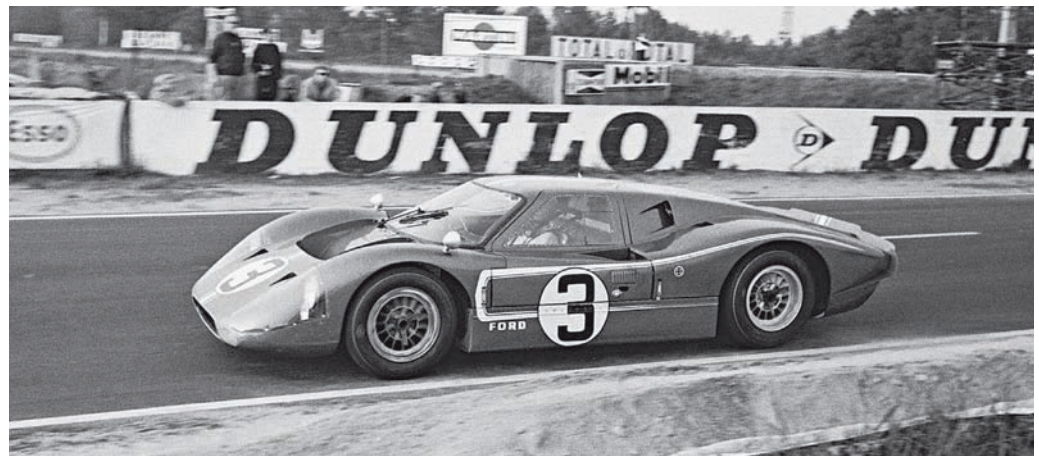
Bottom: The Bucknum/Hawkins Mark IIB ran well until it retired with engine problems after 18 hours. The IIB was lighter and more efficient than the IIA.

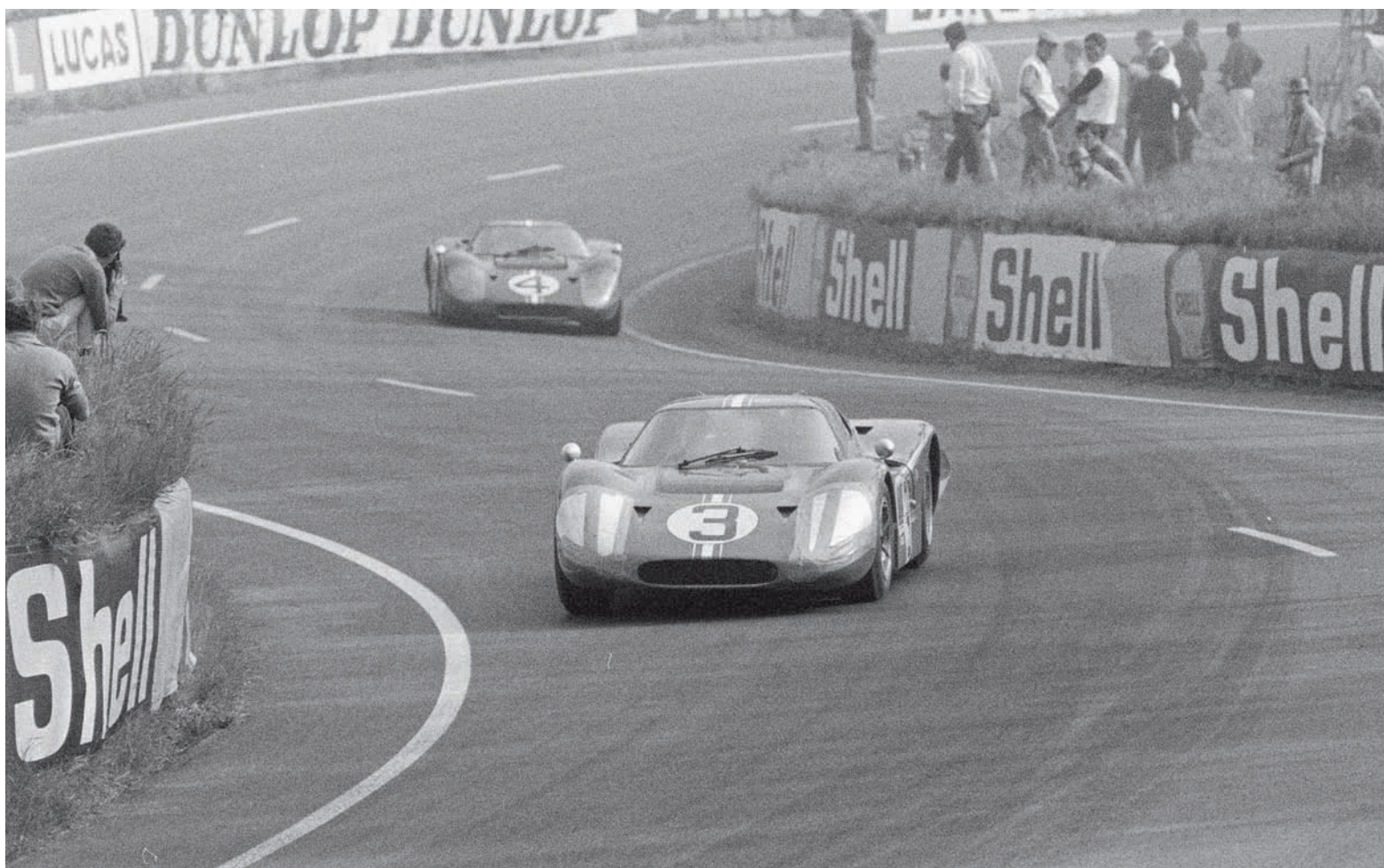
Despite the scope of Ford's preparations, Enzo Ferrari remained confident that he had the cars to beat. Ferraris had dominated the Le Mans Test in April, when even an Aston Martin-powered Lola T70 designed by ex-Ford designer Eric Broadley and driven by former Ford nemesis John Surtees had gone faster than both the Mark II and the Mark IV. "Anyone could see that Ford was in real trouble," Griff Borgeson wrote in *Motor Trend*. Anyone, that is, except the insiders at Ford. Their drivers had been working on development rather than speed on Saturday, and on Sunday, when they'd planned to turn up the wick, rain had fallen and prevented any fast times from being set. Still, at Le Mans during preparation for the race, the team ran into minor issues during scrutineering—ACO officials demanded that the Mark IVs be fitted with external mirrors—and then major problems when the track opened for practice on Wednesday night.

Less than an hour into the session, Andretti pitted with a cracked windshield. An hour later, Hulme's windshield cracked in much the same way. Then Foyt's. Then McLaren's—while he was sitting in the pits! It turned out that the extra-hard temper applied to the glass to increase the resistance to flying debris was too brittle. Frantic phone calls were made to Dow Corning in New

Right: Andretti matched Hulme's lap record in the Holman & Moody Mark IV he shared with Lucien Bianchi. Later, a brake failure in the Esses caused a monumental wreck that eliminated this car, the Holman & Moody Mark II, and the Ford France entry that Holman & Moody had prepared.

Below: The Roger McCluskey/Frank Gardner Mark IIB rounds Mulsanne hairpin. At 3:34 in the morning, McCluskey—a circle-track veteran making his road-racing debut—crashed in the Esses while trying to avoid Andretti's wrecked Mark IV.





York. The company agreed to knock out a new batch of windshields on an emergency basis. Jacques Passino was promised that he'd have the replacements by Friday morning, after qualifying was over but at least 24 hours before the race began. Just in case they didn't arrive, Wes Moss was dispatched to a local factory where he pulled an all-nighter, creating Lexan shells that could be used to bolster the windshields.

Hill was fastest in the Chaparral on Wednesday and again set what looked to be the quick time on Thursday night. Then McLaren went out late in a Mark IV that he described as "perfect" and nipped Hill by three-tenths of a second to claim the pole. The rest of the Fords were 3rd, 4th, 5th, 6th, 9th, and 14th. Nobody was surprised that the Ford France car was off the pace. But Gurney only ninth quickest? Something had to be wrong.

Like McLaren, Gurney and Foyt were drivers who also built their own race cars. But unlike McLaren, they had a reputation for fussing constantly with their setups, making minuscule adjustments that didn't always translate into better lap times. Shelby disparagingly called them "fiddle fuddlers," and he claimed that Gurney made so many changes to the suspension during practice that he rendered the car undrivable. The story goes that McLaren was enticed to run a couple of laps in the car to assess the handling. When he returned to the pits, McLaren supposedly told mechanic Steele Therklason, "That car's absolutely lethal." Shelby then snapped, "Take that car back to the shop, put it on a surface plate, and get the goddamned thing right."

Gurney's two big concerns going into the race were brakes and Foyt. Not that he doubted Foyt's ability. But he knew that Foyt hadn't done much road racing and he was a rookie at Le Mans. He also realized that Foyt was ultracompetitive, and Gurney didn't want to get into a situation where they both felt compelled to prove that they were the top dog. Which is, of course, what everybody assumed was going to happen. "Nobody expected Foyt and me to finish, much

The two Holman & Moody Mark IVs—Andretti/Bianchi (No. 3) and Hulme/Ruby (No. 4)—stream through the Esses. Both cars came to bad ends, the former in a wreck, the latter in the sand.

Right: Foyt, Carroll Smith, Gurney, and Homer Perry (left to right) look pensive as they wait for the car to be serviced during a pit stop.

Below: The McLaren/Donohue Mark IV leads a Porsche 910/6 in the Esses. Although the color is similar, this isn't the car—chassis J-4—that had won at Sebring.





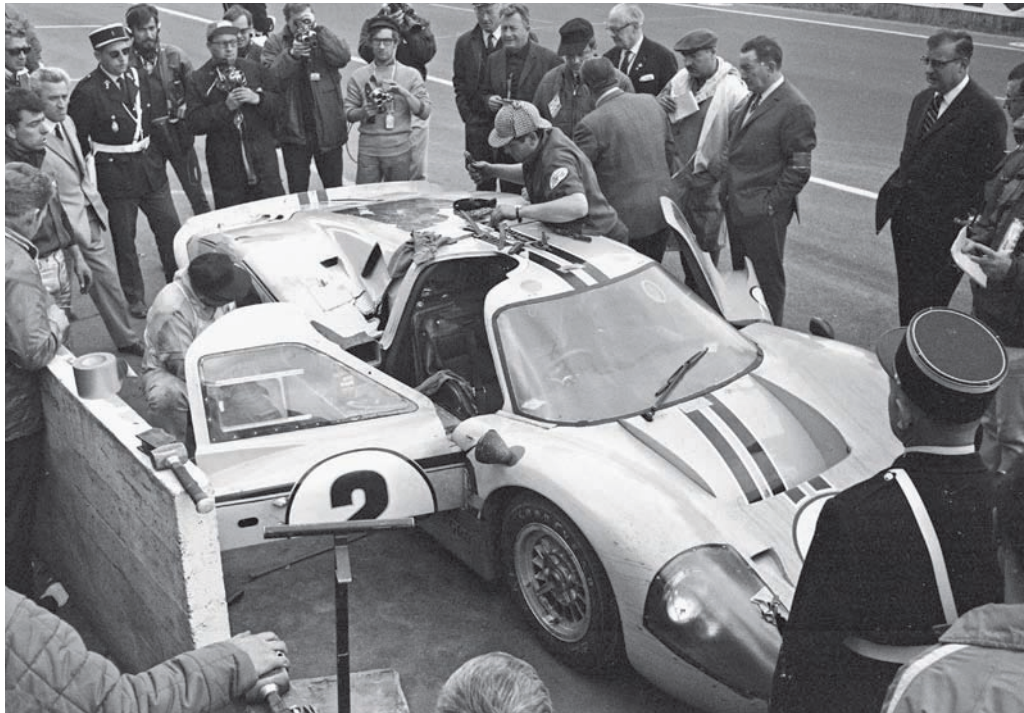
less win,” Gurney said. “We were voted ‘Least Likely to Succeed.’ If we’d bet on ourselves with the English bookies, we could have both retired after that race. The car was absolutely flawless, and the only thing that worried me was that A. J. had only ten laps of practice before the race.”

Gurney had plenty of experience at Le Mans. The problem was that almost all of it was rotten. In nine starts, he’d finished only once. By 1967, he realized that this particular race went not to the swift but to the steady. So during practice, he concentrated on setting up the car for comfort rather than speed. By making minute adjustments to the rear spoiler, he trimmed out the big red Ford so it could reach 213 mph on the Mulsanne straight but still make it through the kink dead flat, so stable and well-planted that he needed only one hand on the steering wheel. Gurney qualified at a 3:29.8. But he and Foyt could click off laps at 3:30 for hours on end, day or night, tired or fresh, in traffic or running alone. “As race cars go, it was like an American car that was roadworthy—big and heavy and fast,” Gurney said. “You wouldn’t expect a car that



Top: The big red No. 1 motors onto the Mulsanne straight, where it was clocked at 213 mph. Better still, Gurney had tweaked the car so it could get through the kink dead flat.

Above: Don Frey and Carroll Shelby, looking dapper and relaxed, watch the action from the pits.



Top: The McLaren/Donohue Mark IV required a prolonged pit stop to repair the damaged tail section, which had flown off while McLaren was bombing down the Mulsanne straight. Dennis Gragg (near the open door) and Bill Eaton (working on the roof) make repairs.

Above: Crew belts, including Shelby's expensive alligator number, were used to reattach the tail, which was secured with miles of duct tape.

comfortable to bust all the average speed and distance records, but it did.”

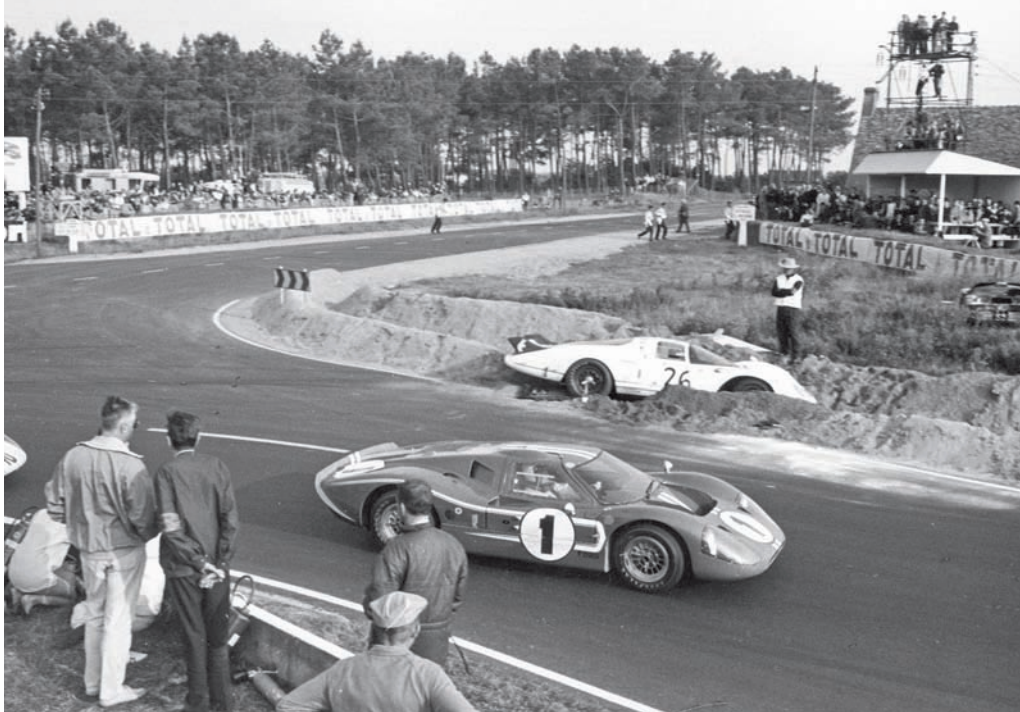
On Friday, the Fords were fitted with windshields that had been flown in from the States and installed by a 3M glue expert who'd been imported from Brussels. Race day dawned warm and sunny, but clouds started scudding in from the west, and it was overcast by mid-afternoon. Ferrari team manager Franco Lini watched the weather with hopeful eyes. He knew that the Ferraris couldn't match the Fords' pace. But he and driver Mike Parkes had a plan. “Quite apart from being a very good driver, Mike was a very good engineer.” Amon said. “He spent hours and hours and hours—this was pre-computers—deciding on a lap time that he thought would win the race.” He and Lini were convinced that, by lapping consistently at 3:36, the P4s would break the Mark IVs. And rain would tilt the odds even more sharply in Ferrari's favor because the Fords were so heavy and their American drivers so rarely drove on wet tracks.

Henry Ford II helicoptered in shortly before the race was scheduled to begin and joined an enthusiastic crowd estimated at 310,000 fans—what *Autosport's* Gregor Grant called the largest turnout ever. The grandstands were full to bursting as the Durtay clock hanging over the pits wound around to 4:00 p.m. The Le Mans start was one of the most glorious and senseless absurdities in motorsport. Each driver was filled with a combustible mixture of nervous anticipation and excess testosterone as he stood on what McLaren called his “panic circle.” When the French Tricolor dropped, they sprinted across

the track, vaulted into their cars, and took off in a haze of tire smoke, often without buckling their seat belts, all in an effort to gain a few yards in a race that would last more than 3,000 miles.

Rodriguez's NART-entered Ferrari was the first car to jump out of line and pull onto the pit straight, but Bucknum unleashed the torque of the 427 in his Mark IIB and easily outdragged him as the field passed under the Dunlop Bridge and out of sight. The two Chaparrals were the last to leave because owner Jim Hall ordered his drivers to buckle up before starting the race. Gurney took a halfway approach, allowing a couple of cars to slip past as he fastened his seat belts while he loafed along the Mulsanne straight at a mere 195 mph.

Cars started breaking early and often. (Only 16 of the 54 starters ended up finishing the race.) A Porsche 911 expired after two laps. Surtees and his Lola T70 were gone after three. Hulme pitted after 10 minutes to repair a sticking throttle. Ten minutes later, Gardner came in because a wheel weight had fallen off. Ten minutes after that, Bianchi stopped with a hole in his windshield. At the end of the first hour, the Shelby American cars were running 1-2-3 with



Above: Foyt rounds the Mulsanne hairpin, where the North American Racing Team Ferrari 365 P2 of Pedro Rodriguez and Chuck Parsons is stuck in the infamous sandbank.

Right: The Jochen Neerpasch/Rolf Stommelen Porsche 910/6 chases the patched-up McLaren/Donohue Mark IV into the Mulsanne hairpin. McLaren later joked that GT stood for “gray tape.”

Spence next and Amon and Rodriguez filling out the top six. Already, it was clear that the second Chaparral wouldn't be a factor.

Gurney was content to let Bucknum lead. In contrast with previous years, Gurney was playing the long game. “If the [Mark IV] had an Achilles’ heel, it would be in the brakes,” he explained. Le Mans had two hard braking zones—Mulsanne, where cars went from roughly 210 to 35 mph, and Indianapolis, where they slowed from about 180 to 80 mph. The Mulsanne corner was especially problematic because the brakes cooled so thoroughly on the long run down the preceding straight that applying the brakes too sharply could produce a heat shock that damaged the rotors. “I decided early on to back off maybe 300 yards before I needed to,” Gurney said. “But I wouldn't put on the brakes. I let the engine just coast down and the [car] slowed down until the speed probably came down to 140 or so, I'm guessing. But that meant that I wasn't really beating up on the brakes. And I think that was one of the things that helped us finish that race.”

Spence and then Amon led briefly as the Fords cycled through their pit stops. Gurney then claimed the lead and lapped effortlessly at his qualifying speed. The Ferraris, following Parkes and Lini's prerace strategy, dropped back. Bucknum pitted with an overheating engine. A line from the radiator had cracked. It was repaired in Holman & Moody's mobile machine shop, and Hawkins rejoined in 42nd place. Hulme, saddled with a sticking throttle, ran his midnight-blue Mark IV into a sand trap and damaged the front end, but he redeemed himself by setting the fastest lap at 3:23.6, which was an average speed of 149.90 mph. Then came trouble.

A group of ACO officials marched into the Ford pits with a device that measured ride height. During testing, as it happened, Ford engineers had discovered that the Mark IV handled best when positioned as close to the ground as possible. So the ride height had been set below the minimum allowed by the rules. To fool the tech inspectors during scrutineering, the team had wedged wood shims in the springs. After passing tech, the shims were removed and the cars sunk a few millimeters to the optimal ride height. Don Frey immediately recognized the danger posed by the ACO officials. Figuring that the best defense was a good offense, he told them that he wasn't going to allow them to check the ride height of the Fords unless the ACO also agreed to inspect every other car in the field. This would have been a logistical nightmare during the race, of course. Cowed, the officials let the matter slide.

Gurney pitted to hand over to Foyt, who'd been chewing gum while he waited for his first turn at the wheel. “Don't go wide at Mulsanne,” Gurney told him. “There's a couple of cars in the







sandbanks there and you'll hook on 'em if you do." After Foyt rumbled off, Bianchi pitted twice to adjust his gear-change linkage. Ruby's car wasn't handling properly, probably because the suspension had been tweaked during Hulme's off-course excursion. Ruby slid into the sand, sustaining damage that required 45 minutes to repair. Around 8:00 p.m., Foyt rolled slowly into the pits, stoked after his first stint. "Hell, boy," he told a mechanic, "we'd be doing a lot better than this if they quit giving me an 'EZ' sign every time I go past the stands."

Andretti, pushing to make up for the time Bianchi had lost during his unscheduled pit stops, matched Hulme's lap record, then was ordered to slow his pace. As the light started to fade, Gurney continued leading a Ford 1-2-3. The last remaining Chaparral was hanging tough in fourth. The Ferraris were nowhere. "They're playing a waiting game," Donohue reported. "They won't even race with us." Then, the most dangerous Ferrari—the P4 driven by Amon—suffered a tire puncture. When Amon tried to remove the knock-off hub, the head of his hammer flew off into orbit and disappeared. As he drove back to the pits on the flat tire, sparks from the wheel ignited the car, which burned to the ground like a rocket suffering a launch-pad disaster.

But Ford was having problems of its own. After voyages up various escape roads, Ruby's car was beached at Tertre Rouge when he slid off the track on oil dumped by a car that had blown its engine in front of him. McCluskey, meanwhile, lagged farther and farther behind. "His lap times were as slow as any recorded by the Ford team," Davis reported, "and he got into the sand so often he should have been equipped with a little pail and shovel." The fifth and last of the GT40s expired after midnight, with most of the cars suffering death by blown head gasket, the small-block's fatal weakness. (The next year, they were dry decked.)

The Chaparral challenge was blunted when the wing of the Hill/Spence 2F got stuck in the high-downforce position, which reduced the car's top speed by 12 to 15 mph. The fastest of the Mark IVs was clocked at 213.1 mph in the speed trap on the Mulsanne straight, while the best a Mark IIB could manage was 206 mph. The Ferraris topped out at 198.8 mph. "Our cars could out-accelerate, out-brake, and out-corner everything, including the Ferraris, and on the straight we were a good 20 mph faster than anyone else," McLaren wrote.

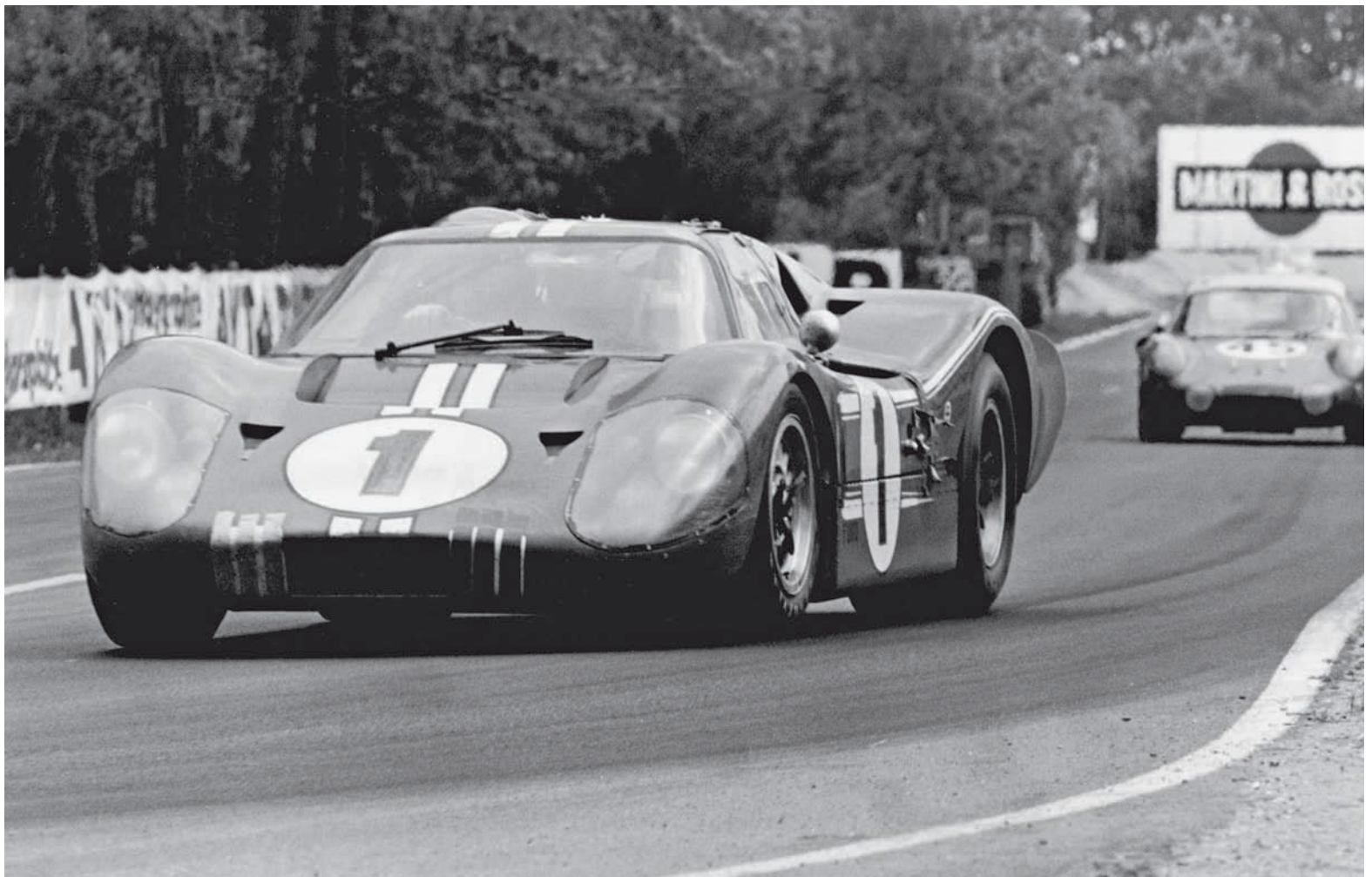
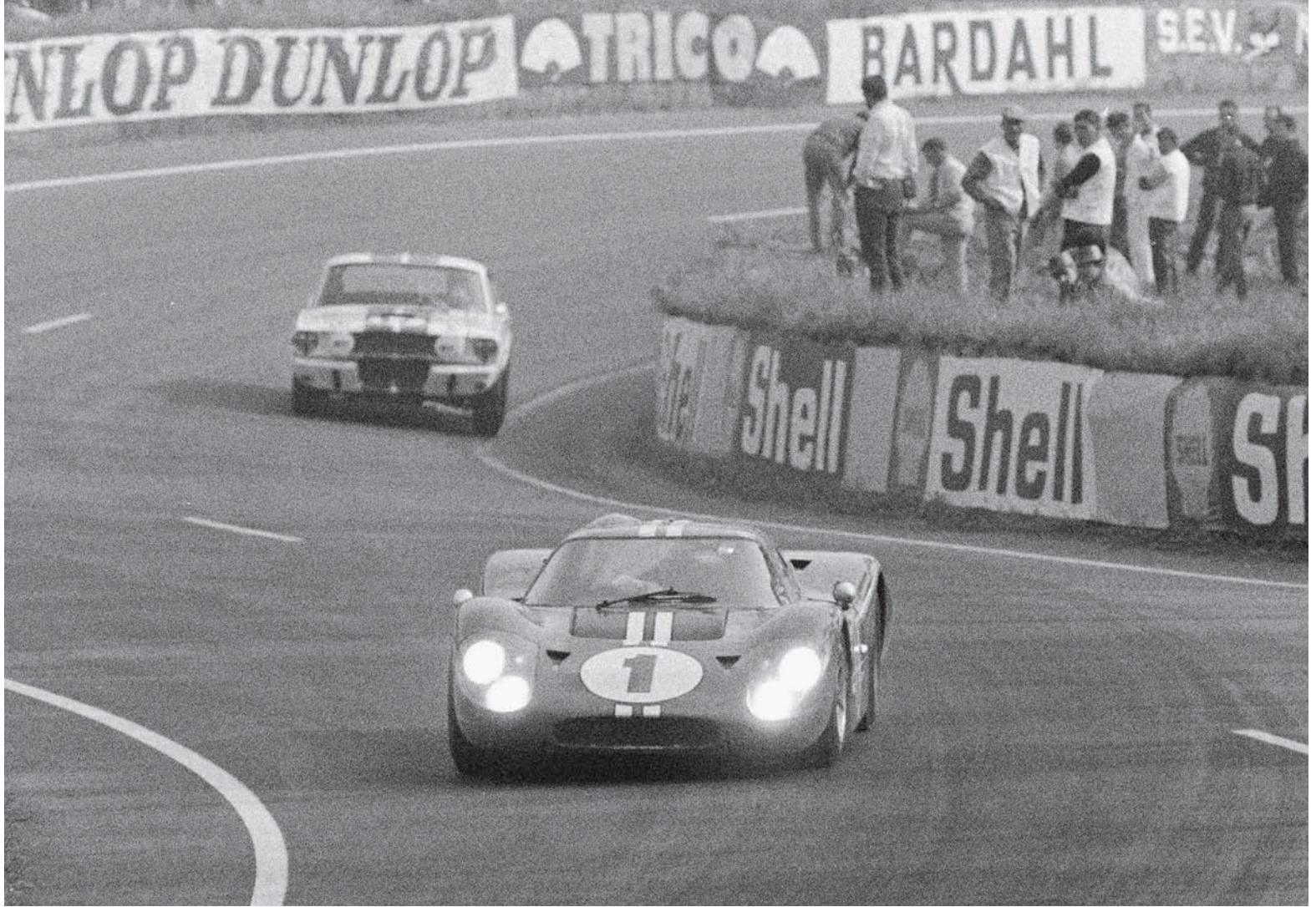
Foyt pitted to swap places with Gurney—and Gurney was nowhere to be found! Foyt calmly climbed back into the car to do a double stint without losing the lead. Although he'd never run a race this long, a decade of USAC action had prepared him for Le Mans. "Shucks, this wasn't

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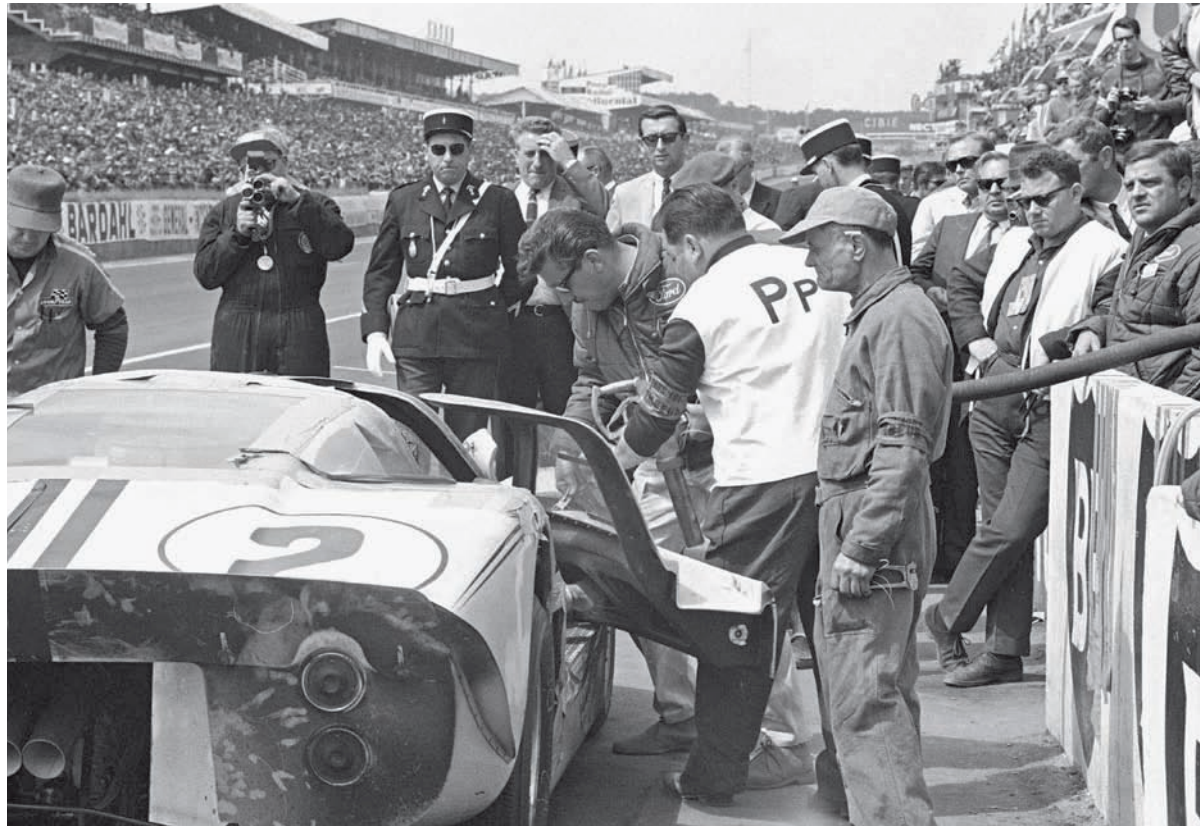
Above: Chris Amon squires the lovely Ferrari 330 P4 Spyder around Le Mans. A sister car—with even lovelier coupe bodywork—finished second to the Mark IV. Sadly, this car would burn to the ground after catching fire when a tire blew and sparks from the wheel ignited a blaze.

Opposite, top: A big Ford leads a little one through the Esses. This view shows off the roof blister added to accommodate the tall Gurney.

Opposite, bottom: The Foyt/Gurney Mark IV gobbles up an Alpine A210. By this point, duct tape had been added to the roof and door as a precautionary measure.







Above: Al Dowd refuels the McLaren/Donohue car during a scheduled pit stop. Bill Eaton can be seen at the far right in the Ford team jacket.

Left: McLaren and Donohue chug along en route to a fourth-place finish.

Below: The big red Mark IV, all alone and leading comfortably.





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so tough," he said later. "Indy is harder." Although he wasn't setting any lap records, Foyt and Gurney were averaging 137 mph, which would obliterate the mark set the previous year. *Motor Sport's* venerable Denis Jenkinson wasn't easily impressed by many racers. (He was himself a motorcycle sidecar world champion and had ridden with Stirling Moss during his epic victory in the Mille Miglia in 1955.) But he admired the performance of the burly Texan. "Foyt doesn't make mistakes," he reported after spending several hours stationed by the Mulsanne corner. "Are there still people who think A. J. Foyt is just 'a wild USAC track driver?'"

The night was clear but bitter cold; spectators could see their breath in the air. At 3:00 a.m., close to the halfway point, Fords were still running 1-2-3. Then McLaren—whose car seemed to be snake bit—stopped with a slipping clutch, and he and Donohue fell back while the slave cylinder was replaced. Then things went from bad to worse. At 3:34 a.m., the track lights flashed yellow and a distinctively European alarm sounded in the pits. There'd been a crash—a big one. "You better start counting our cars," Passino told Ford engineer Chuck Mountain. When Mountain counted, he came up three cars short.

A while earlier, Andretti had handed over to Bianchi. After one lap, Bianchi had returned to the pits to complain about the brakes. "He's talking to the mechanics like it's practice, and the race is going on!" Andretti said, still sounding exasperated nearly 50 years after the race. Andretti had been playing catch-up ever since the race began, running hard to make up for time lost in the pits—and time that the slower Bianchi had lost on the track. With growing frustration, he watched the mechanics change the brake pads. When the car was finally ready to return to action, Andretti yanked Bianchi out of the cockpit. "I'm going again," he said, and he thundered out of the pits. He was doing at least 150 mph by the time he reached the Esses. When he tapped the brakes—for the first time since leaving the pits—the steering wheel snapped out of his hands and his metallic copper Mark IV darted to the right. He cannoned off the dirt embankment, then caromed back across the track and clouted the embankment on the left before coming to rest on

Mike Parkes, in a Ferrari 330 P4, harries Gurney in a futile attempt to goad the American into speeding up and breaking his car. Gurney eventually parked his Mark IV at Arnage until Parkes got tired of playing games and drove off.



Top: Henry Ford II (left) and Engine & Foundry chief Bill Innes can see the writing on the wall, and it spells a Ford victory.

Above: Ford and wife Cristina are mobbed just before the finish. Cristina's haughty demeanor didn't endear her to the rest of the Ford team.

the racing line. The impact was colossal. The nose and much of the front suspension were ripped off the car. The hit was so hard that Andretti's harness left nasty-looking purple bruises on his chest and shoulders.

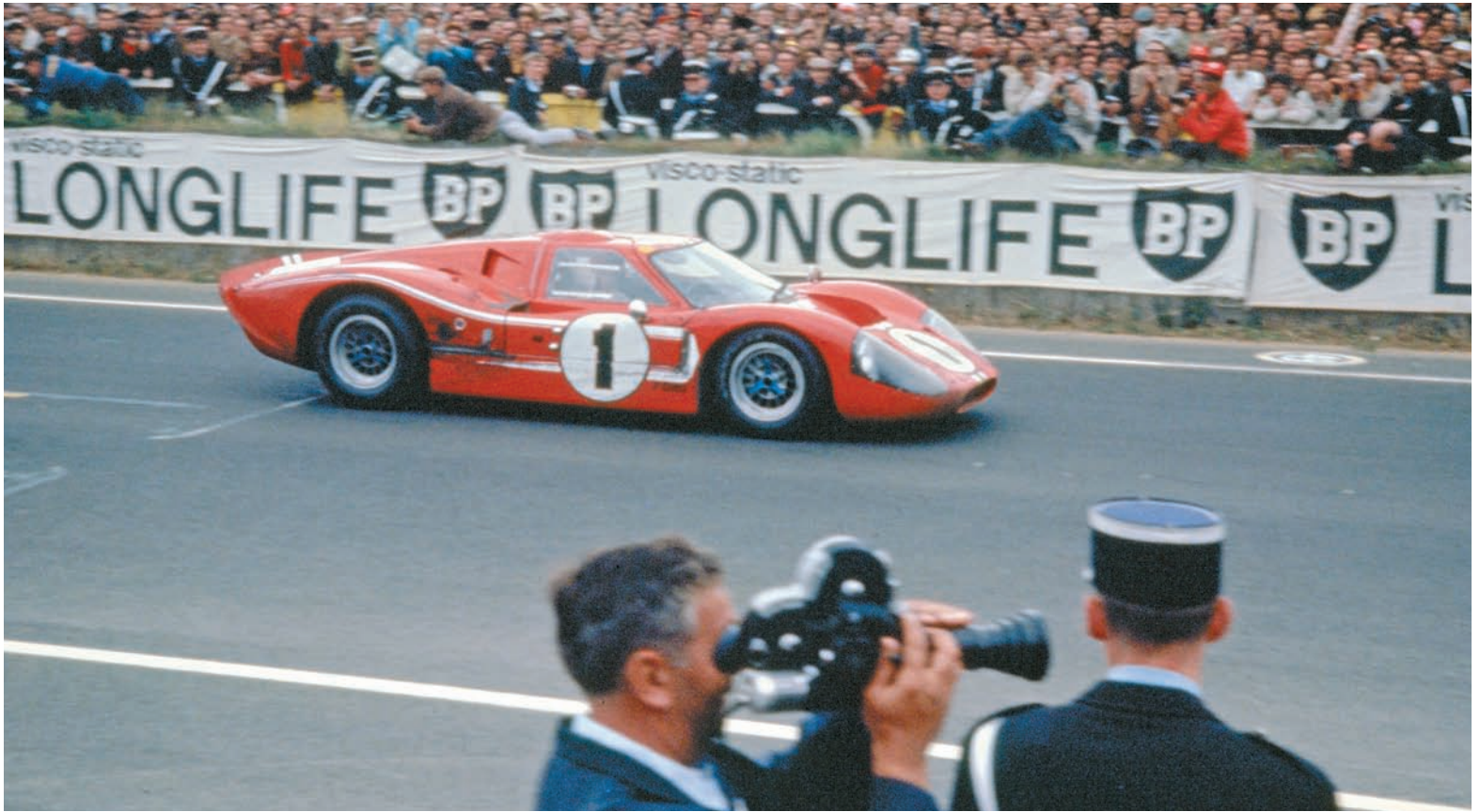
Dazed and hurting, Andretti crawled out of the cockpit and clambered to safety. "I had no idea what had happened," he said. "I didn't find out until a month or two later. The mechanics were NASCAR guys who had never worked on disc brakes before. Well, they put the pads on backward on the right front. The first time I braked, the new pad locked the front and I went head-on into this dirt embankment. I was full of fuel. I don't know how I didn't catch fire."

Holman & Moody's John Wanderer disputed this account. Although the mechanics preferred stock cars to sports car racing, this was hardly their first experience changing brake pads. "How can you install the brakes improperly? Either they fit or they don't," Wanderer scoffed. "We put new brake pads in. You have to bed them in. Andretti went roaring out of the damn pits and didn't try the brakes. He hit the brakes, and they pulled him into the wall." For the record, the pads were supposed to have been burnished on a brake dyno before the race, and they could have been mounted metal to metal by a tired or inattentive mechanic, though this clearly would have been an egregious mistake. Looking back, Wanderer also acknowledged that a brake caliper might have stuck.

Whatever happened, Andretti's car was demolished. But that was just the beginning of Ford's early-morning nightmare. Two cars managed to slither past the carcass of the dead Mark IV. Then McCluskey arrived on the scene. "I didn't know if Mario was still in the car," he said, "and I knew I would kill him if

I hit him. So I had to put her into the wall." Schlessler arrived 15 seconds after McCluskey crashed. Schlessler got his car whoa-ed down to 110 mph and tried to pick his way through the wreckage, but he clipped McCluskey's Mark IIB. "It's terrible," Bucknum reported when he pitted. "There's pieces of car and stuff all over the road for 300 yards." Unbelievably, three of the Holman & Moody cars had been eliminated in less than a minute.

At 4:00 a.m., the halfway point, Gurney led by five laps, but his Mark IV was the only completely healthy Ford remaining. In the Ferrari pit, Lini was cautiously optimistic that the car wouldn't survive. But he couldn't be sure, so he ordered Parkes and Scarfiotti to force the pace. Parkes caught Gurney on the track—though he was still several laps behind—and started harrying him, juking left and right and behaving like a puppy trying to cajole a bigger dog into



Above: Foyt and the Mark IV, nearing the finish. Photo by Steele Therkleson, Vernon Estes Collection

playing. “He was all over me under braking at the end of the Mulsanne straight, flicking his lights like crazy, trying to get me to drive harder,” Gurney said. “I wanted to say, ‘Hey, listen. Let’s get down to it.’ But I refused to do it. This went on for about four or five laps, and I was getting pretty tired of it.”

Thereupon followed one of the most surreal moments in racing history. “I understood what he was trying to do, so I pulled off on the grass after Arnage and stopped,” Gurney said. Parkes pulled in behind him, and the two of them idled on the edge of the track, like double-parked limousine drivers waiting for their passengers, while the race raged on. “We sat there for 12 or 15 seconds,” Gurney said. “Finally, he pulled back onto the track. About four laps later, I caught him and drove on by.”

By dawn, the big red Ford was seven laps ahead of the Ferrari. The Bucknum/Hawkins car lost an engine. The Chaparral blew a transmission seal. Then McLaren had a scare on the Mulsanne. “Suddenly, there was an almighty *BOOM!*” he said. “Then I looked in the mirror, and there was lots more day-

Below: Foyt and Gurney are mobbed at the finish after covering 3,251.57 miles at an average speed of 135.48 mph—10 mph faster than the Mark IIs had gone the previous year.





Gurney pops the cork on the champagne bottle and starts a motorsports tradition by spraying the crowd beneath. Foyt stands at the right with Parkes, who finished a fighting second, at the left.

the car. Parkes was carving giant chunks out of the Ford's lead, but only because the Americans were on cruise control. "Runs like a clock," Gurney told Foyt after swapping seats at 1:30 p.m. "Tell 'em not to go on sticking those 'EZ' signs in my face," Foyt drawled before shutting the door and rumbling out of the pits.

The lead dwindled to four laps, but Foyt was running like a train. He stopped at 2:37 p.m. for fuel, then made a precautionary stop at 3:30 p.m. He and Gurney joked while the crew looked the car over. At 4:00 p.m., with his Mark IV looking like it could run another 24 hours, Foyt took the checkered flag. Gurney sprawled on top of the hood as the car rolled slowly down the pit straight. A Frenchman brandishing a jeroboam of champagne joined him on the hood and enjoyed his 15 minutes of *célébrité* before bounding away and escaping from the gendarmes. Then Gurney reseated himself on the roof so the rest of the crew could climb onboard.

The big red Ford, appropriately wearing No. 1, had covered 3,251.57 miles at an average speed of 135.48 mph. This was an astonishing 10 mph faster than the winning Mark II had gone the previous year. During the past two years, Ford had pushed the speed more than it had increased in the preceding decade. Even more amazingly, the Mark IV also won the Index of Thermal Efficiency, an oddball award that the ACO had created largely as a prize for itty-bitty French cars. Still, it wasn't a popular victory with the crowd, and the applause was tepid. But there was no question about the

light than usual. The whole tail of the car had blown off!" McLaren trundled back to the pits, where he was ordered to retrieve the missing tail. He found it with the help of French fans shouting, "Ici! Ici!" He drove very slowly around the circuit, holding the unsecured tail precariously in place with one hand and steering with the other. As soon as he reached the pits, mechanics swarmed around the car to jury-rig it back into race-worthy shape. Belts were commandeered from crewmembers—including Carroll Shelby, who reluctantly donated an expensive alligator number—and cut up to serve as hinges. The tail was fortified with pop rivets and endless yards of duct tape. "Now I know what GT stands for—grey tape!" McLaren joked. After 48 minutes of emergency surgery, Donohue returned to the track in fifth place. The tail and door of the Foyt/Gurney car were taped shut as a precaution.

Ferraris were running 2-3-4 but making no impression on the leader. The weather was still cold but clear. "Did you ever see such a Sicilian drought?" Lini asked bitterly, abandoning any hope of rain. At noon, he announced, "We finish with a sprint." Scarfiotti did a stint that left him physically and emotionally exhausted. Next up was Parkes, running faster than he had during qualifying. "Never in my life have I driven a car so hard for so long," he said later. Gurney lost time in the pits while brake pads were changed, but Carroll Smith and Phil Remington decided to leave a cracked rotor on





Above: Two winners, Shelby and the Ford GT Mark IV, get some camera time after returning to the shop in Los Angeles.

Opposite, top: The car that had been raced at Le Mans by Bucknum and Paul Hawkins—and by Gurney and Jerry Grant the previous year—was shipped to Ford France after being refurbished and raced in minor European events for the rest of the 1967 season.

Opposite, bottom: Schlesser and Ligier give the big-block Mark II its final victory in the 12 Hours of Reims. Schlesser drove in the Ford GT's first official test at Le Mans in April 1964 and its last race, the 1,000 Kilometers of Paris, in October 1967.

magnitude of Ford's achievement. "This year no one could gripe that the victory had been bought; it had been earned, with courage and with anguish," Borgeson wrote in *Motor Trend*. "In addition to winning the 24 Hour in grim and equal combat, Ford won the admiring acceptance of the European racing world." Ferrari had been defeated, not merely by the resources of a larger corporation but by a template that continues to be used at the highest levels of motorsport. Innovative design, engineering development, durability testing, and a whole lot of money—this was the secret of Ford's success.

Unlike 1966, the scene on the victory podium was a joyous tableau. Gurney, beaming like an incorrigible schoolboy, shook his bottle of champagne and sprayed the crowd with Moët & Chandon. It was rumored that his target was the haughty Cristina Ford, who was unpopular with just about everybody on the Ford team other than her husband, Henry II. If so, she was dressed perfectly for the occasion in a chic black vinyl raincoat and matching knee-high boots. But Gurney denied that he had anything special in mind. "What I did with the champagne was totally spontaneous," he said. "I had no idea it would start a tradition. I was beyond caring and just got caught up in the moment. It was one of those once-in-a-lifetime occasions where things turned out perfectly."

Neither Foyt nor Gurney ever raced again at Le Mans. Neither did Ford. "We have nothing left to prove," the Deuce declared. It was time to put the toys away and get back to the tedious business of selling cars.

Epilogue

THE STORY GOES THAT HENRY FORD II WAS SITTING IN THE FIRST-CLASS CABIN of a BOAC 747 headed for Paris during the second week of June in 1967 when a gregarious passenger boarded with a large, flat parcel wrapped in brown paper. After the parcel was stowed carefully at the back of the cabin, the traveler proudly informed Ford that it was a windshield that he was delivering to Le Mans to replace one that had broken during practice for the upcoming 24-hour race. After landing in Paris, a fuming Ford was greeted by Walter Hayes.

“Have you ever flown a racing car windshield first class across the Atlantic?” Ford asked him.

Hayes said he hadn’t.

“Have you ever heard of anybody who has?”

“No.”

“Neither have I, and what’s more, it’s not going to happen again.”

Although this anecdote has the sound of an apocryphal story, it bears Hayes’s own imprimatur. And even if it isn’t strictly true, it spotlights the larger truth that Ford—both the man and the corporate entity—had had enough. A few days later, hours after Gurney and Foyt’s historic victory, alcohol flowed freely in Ford’s lavish hospitality center at Le Mans. Yet even as backs were drunkenly slapped and sloppy congratulations were exchanged, the mood was bittersweet. No official announcement had been made, but there was a sense that the program had reached the end of the line. An all-American car driven by a pair of American drivers had just humbled Ferrari at Le Mans again. There was nowhere to go from there but down.

In fact, Ford hadn’t made a definitive decision to pull the plug on the race operation. A memo written by Jacque Passino two weeks before Le Mans outlined an “interim program. . . now in progress to keep pace with competition for Le Mans in 1968. Substantial improvements are projected in chassis, powertrain, and system components, and current plans include race-testing new vehicles in the Can-Am Modified Sports Car Series of short (200–300 miles) races.”

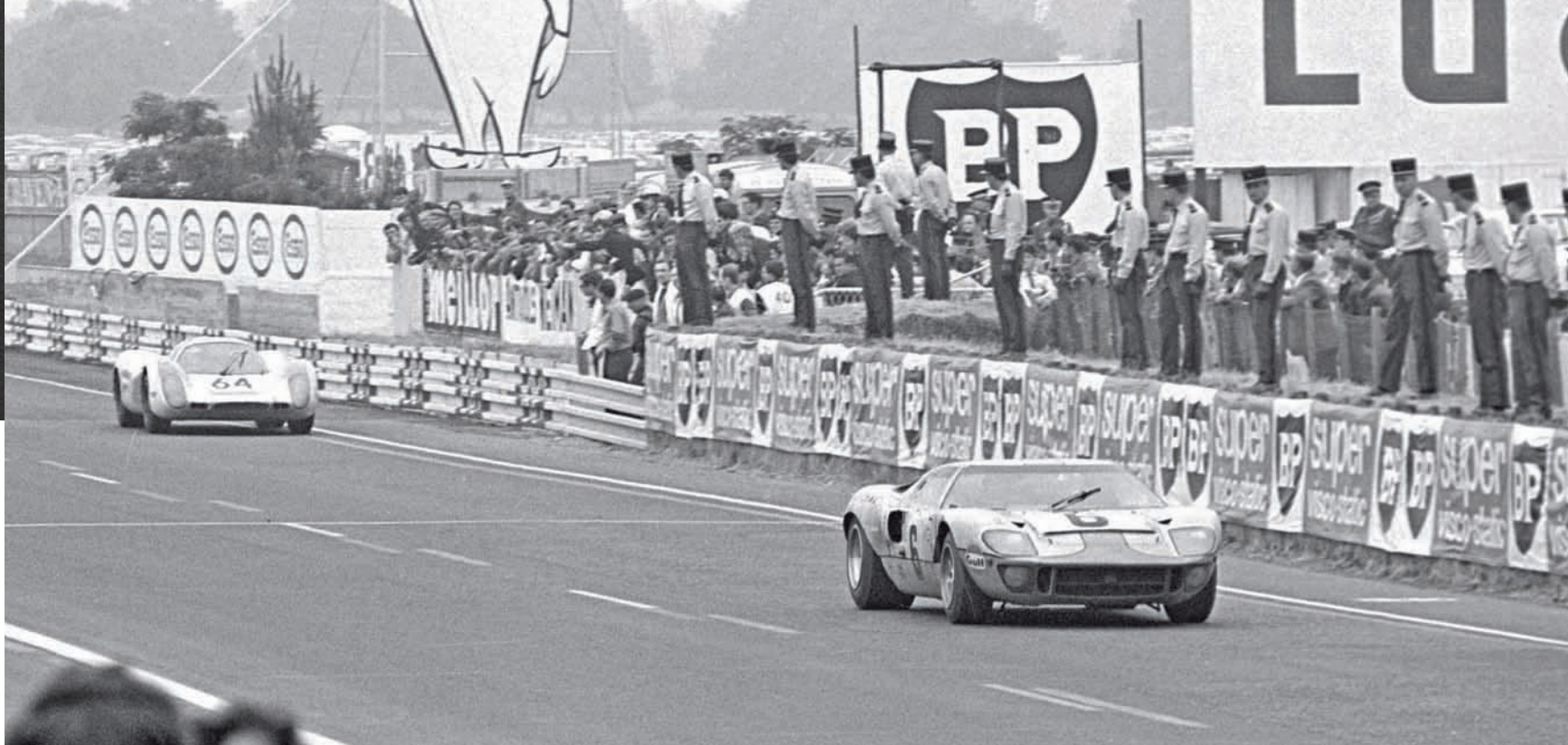
The memo covered the development of an open car (for Can-Am) and a closed one (for Le Mans) featuring “an elevated, movable anti-lift device”—that is, a wing—and other aerodynamic upgrades. The engine, known as the Calliope, would be a new all-aluminum three-valves-per-cylinder 427-cubic-inch V-8 producing 640 horsepower. It was to be mated to an experimental three-speed automatic transmission with a lockup converter. The powertrain was scheduled to be installed in the car by early July, or less than a month after Le Mans. According to a presentation made to Ford’s Operating Policy Committee, \$1 million had already been spent on the sports car program for 1968. To follow through and return to Le Mans, the presentation concluded, “Program costs, as previously discussed, are estimated at \$10 million, assuming use of a new 427 CID engine, and probability of winning is projected at 60 percent.”



Above: In 1968, John Wyer and J. W. Automotive Engineering ran small-block Ford GT40s with Gulf Oil sponsorship in the World Championship of Makes. Here at Le Mans, the No. 10 car, driven by David Hobbs and Paul Hawkins, succumbed to engine problems, but the No. 9 car, driven by Pedro Rodriguez and Lucien Bianchi, went on to win the race.

Below: The first-place car is pushed to the winner’s podium in 1968 as Bianchi has his hand around Rodriguez, and Rodriguez has his hand around the champagne. This gave Ford three straight wins at Le Mans.





Above: In March 1969, Jackie Oliver (left) and Jacky Ickx celebrate their win at Sebring in a JWA GT40.

Top: In the most riveting finish ever seen at Le Mans, Ickx barely beats the Hans Hermann/Gerard Larrousse Porsche 908 to the finish line. This was the second win in a row for chassis GT40P/1075 and Ford's fourth consecutive victory at Le Mans

As it happened, events forced Ford's hand earlier than expected. Two days after Le Mans, the FIA announced that it was imposing a 3.0-liter limit on Group 6 cars and a 5.0-liter limit on Group 4. This outlawed the bruising big-block Fords and Chaparrals (though, ironically, the 289- and 302-cubic-inch GT40s remained eligible). The new regulations gave Ford an easy out. The following week, Don Frey announced that Ford was canceling its Le Mans effort and would instead focus on NASCAR, Indy cars, drag racing, and the Can-Am series. It was almost exactly four years since Henry Ford II had authorized his lieutenants to beat Ferrari no matter how much it cost. And it had cost plenty.

Ford publicly admitted to having 50 employees working full time on the Le Mans program. To that, add exotic materials, dyno testing, wind tunnel time, and the cost of providing the lion's share of financing for Kar-Kraft, Shelby American, and Holman & Moody. Internal Ford documents listed expenses for the sports car program at \$500,000 in 1963, \$2.1 million in 1964, \$2 million in 1965, \$7.2 million in 1966, \$7.6 million in 1967, and \$1 million on 1968 before the plug was pulled. Those, of course, were the "hard" expenses. Who knows how much money just disappeared into slush funds or failed to get budgeted in the first place? "As you know," Frey said, "money can go to a lot of different places in big-time racing, and we spent money like a drunken sailor." Or, as Homer Perry put it: "When you get a Henry Ford edict saying, 'You'd better win or else' coming down through the company, all bets are off."

Wyer estimated the costs of the Le Mans program at \$2.2 million in 1964, \$4.5 million in 1965, \$7 million in 1966, and \$7 million in 1967. Frey's off-the-cuff figure for Le Mans in 1966 was \$8 million, and Passino said another \$8 million was spent on Le Mans in 1967. Factoring in the budget numbers, it seems likely that Ford spent close to \$25 million on the GT program, and John Wanderer, who saw the vast sums of Ford money that passed through Holman & Moody, says even this figure may be conservative. By standards of the time, this was a staggering amount of money. But Lee Iacocca had spent \$75 million developing the Mustang, which puts the racing program in perspective. Yes, Ford paid a lot of money to win Le Mans, but not enough to worry a mighty corporate empire that had yet to suffer the shocks of the oil embargoes of the 1970s and the depredations of ferocious competition from Japanese automakers in the 1980s. This was a company, after all, that reported profits of \$210 million in the first quarter of 1966 alone. So racing was just a drop in the bucket. And, as Leo Beebe said, "Ford got its money's worth from that program over and over again, and, as far as I'm concerned, they still are."

At Ford, racing was essentially a marketing tool. This was a fundamental contrast to Ferrari, where racing was a function of Enzo's thirst for victory, and Porsche, where the motorsports

program was driven by the engineering department. Despite all the lip service paid to the notion that racing improves the breed, there was no realistic expectation that any of the lessons learned on the Le Mans prototypes would be applied to street cars. In many cases, the people running the racing program had no background in motorsports and decisions were often made on the basis of public relations, sometimes with disastrous results. On the other hand, since Ford wasn't philosophically committed to racing as anything more than a marketing initiative, it had no trouble quitting cold turkey. Just how little the Le Mans program meant in big-picture terms can be seen in how easily Ford divested itself of its motorsports-related properties in England.

After winning Le Mans in 1966, Ford lost interest in the GT40s being built and supported by FAV. At the end of the year, the company's fixed assets were sold for pennies on the dollar to John Wyer, who joined forces with John Willment to form J.W. Automotive Engineering. JWA continued to build GT40s under contract to Ford. At the same time, Wyer also resurrected his moribund racing program, based on his conviction that a small-block Ford could be a race winner. To finance the team, he secured sponsorship from Gulf Oil, which also provided the iconic powder blue-and-orange livery worn by JWA Fords (and, later, Porsches). Meanwhile, Wyer commissioned Len Bailey, who'd been one of the original engineers on the Ford GT project, to design a lightweight version of the GT40. The so-called Mirage performed creditably with the small-block, even winning the championship round at Spa in 1967 in the absence of the big-block cars.

In 1968, when the FIA limited the engine size for prototypes to 3.0 liters, Wyer found himself in the right place at the right time. Although the Mirage wasn't homologated for Group 4, the small-block GT40 was. So Wyer amassed a stable of GT40s. Since there were no 3.0-liter engines durable enough to power prototypes in endurance racing, GT40s were able to compete for overall victories. Typically powered by a 5.0-liter, 302-cubic-inch V-8, JWA GT40s won five of the 10 races in the World Championship of Makes in 1968, earning the title for Ford. The highlight of the season was an excellent victory at Le Mans by Pedro Rodriguez and Lucien Bianchi, who beat the Porsches on merit. "It was a bit of a nail-biter because we were down to one car, and there was a long way to go," said John Horsman, who'd stayed with Wyer after the break with Ford and served as executive director of JWA. "But we managed to pull away even going very gently. We were not racing as such. We were just driving to keep our cushion and not go any faster than we had to."

The next year, the GT40 was past its prime. At Le Mans, a Porsche 917 outqualified JWA's star driver, Jacky Ickx, by nearly 15 seconds, and with four hours to go in the race, the GT40 was seven laps behind the leader. But the front-running 917 and 908 both broke, and Ickx and Hans Hermann, driving a wounded Porsche 908, battled furiously over the last hour. "We'd put on new pads a couple of laps before so the brakes were perfect," Horsman said. "That meant Jacky could outbrake the Porsches at the Mulsanne corner or coming up to the Ford Chicane. So he felt he had the race in hand. But we didn't know that in the pits."

Ickx beat Hermann by a mere 100 yards in the most electrifying finish in Le Mans history. Even more amazingly, he was driving the same chassis, GT40P/1075, that had won the race the previous year. Not bad for a car that Ford had declared obsolete back in 1965.

Although this was the last victory for a GT40 in major competition, the cars continued to race into the 1970s. Nowadays, they can be seen on the historic-racing circuit, though rising values—an ex-Steve McQueen GT40 sold at auction in 2012 for more than \$11 million—make them more likely to be found in museums and private collections. Ford, ironically, had virtually no interest in the cars for many years. And, in fact, it owns only one Ford GT. But it's the most important one—the big, red Mark IV with a roof blister that driven by Gurney and Foyt to victory at Le Mans in 1967.

In the years since then, plenty of cars powered by Ford engines have run at Le Mans. But as a corporate entity, Ford steered clear of the Circuit de la Sarthe for nearly half a century. Then, at a press conference held the day before the 2015 edition of the race was flagged off, Ford Motor



Above: Ford will mark the 50th anniversary of its 1-2-3 finish at Le Mans in 1966 by returning in 2016 with a racing version of its wasp-waisted Ford GT supercar. But it will be powered by a fuel-efficient twin-turbo V-6 instead of a thundering big-block V-8. Ford Motor Company

Company executive chairman Bill Ford announced that his company would return to Le Mans the following year with a racing version of its sexy supercar-to-be, the Ford GT. Back in 1966, Bill Ford – the great-grandson of Henry Ford – had been a wide-eyed 9-year-old spectator when the company scored its historic 1-2-3 victory with the original Ford GT. “I never saw a more thrilling thing in my life,” he told the assembled media.

Ford’s return to Le Mans after a hiatus of five decades was a sign of how much the automotive landscape had changed – and how much it had remained the same – since 1966. While Henry Ford II, motivated partly by ego, had gone sports car racing in search of overall victories no matter what the cost, Bill Ford and the budget-conscious brain trust in Dearborn kept their eyes on the bottom line. Ford circa 2015 had neither the will nor the inclination to get sucked into a billion-dollar cage battle in the prototype class against Audi, Porsche and Toyota. Instead, Ford chose to follow the path blazed by thundering Dodge Vipers in the 1990s and bright-yellow Chevrolet Corvettes ever since, racing the factory hot rod in the GT class against Ferrari, Porsche, BMW, Aston Martin and General Motors.

In many ways, though, Ford followed the model it had pioneered so successfully during its heyday. Construction and development of the chassis was farmed out to a small company outside the United States – Multimatic Motorsports, a Canadian specialty manufacturer with a long history of working with Ford and other automakers on street cars and racing programs. To run the cars, Ford hired Chip Ganassi Racing with Felix Sabates, a team battle tested in Indy car, stock car and sports car racing. Now, as in the 1960s, the heart of the car was a piece of homegrown Detroit muscle. But this time around, Ford designed the engine to win with efficiency rather than brute strength. Replacing the hulking V-8 of yore was a 3.5-liter V-6 EcoBoost motor featuring twin turbos and direct injection. Coincidentally, it was expected to make roughly as much power as the old iron-block 427 with half the displacement.

Ganassi planned to race two cars in the North American-based Tudor United SportsCar Series and two more in the FIA World Endurance Championship. The Ford GT’s first race was scheduled to be the Rolex 24 at Daytona in January 2016. All four cars were slated to race at Le Mans the following June. Some teething pains seemed inevitable. After all, even with a blank check signed by the Deuce himself, Ford didn’t win Le Mans during the 1960s until its third try. Then again, prolonged failure didn’t appear to be an option as Ford embarked on a new Le Mans program. “I’m not here for the food,” Ganassi said after the press conference. “I’m here to win.” With any luck, it won’t be long before the new Ford GT creates some history of its own.

Above: Racetrack testing of the Ford GT began in the spring of 2015 under the auspices of Multimatic Motorsports, which is building and developing the new car, and Chip Ganassi Racing, which is campaigning it in North American and international sports car races. Ford Motor Company



Endnotes

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1. "The greatest defeat" – *The Fastest Fords*, Ludvigsen, 34.
2. "There was, in my mind" – *The Certain Sound*, Wyer, 156.

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1. "They counted the screws" – *Memoirs of Enzo Ferrari's Lieutenant*, Gozzi, 79.
2. "He never started work" – Ford Motor Company interview transcript, 1-28-86.
3. "With him, none of this" – Dave Friedman interview.
4. "Toward the end of the Robert" – DF interview.
5. "Iacocca was also" – DF interview.
6. "In late 1962, there had been" – DF interview.
7. "Dottore Ingenerere" – *Enzo Ferrari: The Man*, Yates, 303.
8. "My rights" – *Ford: The Dust and the Glory*, Levine, 485.
9. "Provoked the rupture" – *Le Briglie del Successo*, Ferrari, 237-8.
10. "But here it is written" – *Ferrari's Lieutenant*, 79.
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14. "They were talking about winning" – Preston Lerner interview.
15. "Deadly boring" – *Motor Sport*, September 2008.
16. "He was a genius" – PL interview.
17. "Our intention was to develop" – DF interview.
18. "The one thing that really stuck" – *Motor Sport*, November 2009.
19. "It all came to nothing" – *Motor Sport*, September 2008.
20. "I was in the passenger side" – PL interview.
21. "I thought it was the most beautiful" – *The Certain Sound*, 122.
22. "He asked if I could develop" – *Racecar Engineering*, October 2007.
23. "It allowed you to input" – *Racecar Engineering*, October 2007.
24. "Well behind schedule" – *Certain Sound*, 127.
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5. "The exhaust note" – *Road & Track*, September 1964.
6. "From the start" – Phil Hill, *A Driving Life*, Hill, 144.
7. "I didn't expect it" – *John Surtees: World Champion*, Surtees, 148.
8. "Apart from the engine" – *Road & Track*, May 1965.
9. "For many weeks" – *Autosport*, 6-26-64.
10. "Well, for God's sake" – *McLaren Memories*, Young, 167.
11. "As far as I was concerned" – *McLaren Memories*, 166.
12. "Maybe America didn't" – *Sports Illustrated*, 6-29-64.
13. "A tall craggy individual" – *The Certain Sound*, 141.
14. "Just win Daytona" – DF interview.
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16. "The car was a dream" – PL interview.
17. "We were amateurs" – DF interview.
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20. "To me, this was" – *The Certain Sound*, 146.
21. "The only reason" – *Racing in the Rain*, Horsman, 66.
22. "I don't know anything" – *Dust and Glory*, 501.

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8. "It's bloody awful" – DF interview.
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18. "I hit a kilometer marker" – PL interview.
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16. "Next year, Ferrari's ass" – DF interview of Max Muhlman.
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18. "We'll never know" – *Car and Driver*, September 1965.
19. "The race was almost" – *The Certain Sound*, 159.
20. "When a single" – Ford GT and Sports Car Department memo, 6-28-65.
21. "You'll come around" – *Henry: A Life of Henry Ford II*, Hayes, 94.
22. "This is a victory meeting!" – *Dust and Glory*, 517.
23. "Teardown of the engines" – *Racing in the Rain*, 78.
24. "You got your ass whipped?" – Ford Motor Company interview transcript, 1-28-86.

Chapter Five:

1. "Confusion has reigned" – Shelby American memo, 7-6-65.
2. "Shelby was one of my" – DF interview.
3. "Carroll Shelby had" – Holman-Moody, Cotter, 135.
4. "Ralph wanted the fastest" – *Los Angeles Times*, 6-11-04
5. "It was a political football" – DF interview.
6. "Homer was tough and gruff" – PL interview.
7. "Jacque Passino was the most secretive" – DF interview.
8. "You must understand" – PL interview.
9. "The Mulsanne is great" – PL interview.
10. "We knew we didn't need" – PL interview.
11. "It's a cooking engine" – *Road & Track*, October 1965.
12. "They always had at least" – *Alan Mann: A Life of Chance*, Mann, 167.
13. "The vehicle's lap times" – Shelby American report, 10-22-65.
14. "The 427 CID engine" – Shelby American report, 12-14-65.
15. "We saw a lot of things" – PL interview.
16. "Keeping the politics" – DF interview.
17. "It was not a happy" – Alan Mann, 167.
18. "My dad felt like he worked" – PL interview.
19. "Shelby once told me" – DF interview.
20. "No one knew how" – *The Unfair Advantage*, Donohue, 53.
21. "The Mark II was a really good car" – DF interview.
22. "Whilst it was a" – PL interview.
23. "I was in the shower" – DF interview.
24. "Were primarily due to" – Le Mans Committee progress report, April 1966.
25. "Neither car had sufficient" – Le Mans Committee progress report, April 1966.

Chapter Six:

1. "I don't know what" – PL interview.
2. "Alas, after bombing" – *Autosport*, 4-8-66.
3. "I stayed in the operating" – *Henry*, 95.
4. "When Walt went by the pits" – DF interview.

5. "The two Alan Mann" – Ford report, 5-5-66.
6. "Ken Miles reported" – Holman & Moody report, 5-1-66.
7. "No significant defects" – Ford report, 5-7-66.
8. "The throttle, clutch" – Macura, SAE paper 670066.
9. "It's all in here" – *Popular Mechanics*, September 1966.
10. "More material than" – *Road & Track*, September 1966.
11. "It was so big" – PL interview.
12. "Fruit cup racing" – PL interview with Wes Moss.
13. "We ate every can" – DF interview.
14. "Operation Overkill" – *The Certain Sound*, 152.
15. "That was really using" – PL interview.
16. "You better win" – Mike Teske Archives / Ford Motor Company photo.
17. "That racetrack was really kind of neat" – DF interview.
18. "Let's drive the door-handles" – PL interview.
19. "So ends my contribution" – DF interview with John Collins.
20. "When Chris and I first saw" – DF interview.
21. "The finest moment" – *Road & Track*, September 1966.
22. "It was nearly perfect" – *Car and Driver*, September 1966.
23. "We thought we had won" – DF interview.
24. "There will be a reduction" – *Los Angeles Times*, 6-26-66
25. "I don't honestly know" – Ford Motor Company interview transcript, 3-3-82.
26. "We will be back next year" – UPI, 6-20-66.

Chapter Seven:

1. "I heard my dad" – PL interview.
2. "Can we get him" – PL interview.
3. "As Miles corrected" – *Los Angeles Times*, 8-18-66.
4. "This material necessitated" – Lunn, *The Original Ford GT*, unpublished monograph, 9.
5. "It was a very strong car" – PL interview.
6. "We were interested" – Ford press release 3-14-66.
7. "It was a whole lot" – *Authorized Shelby*, 409.
8. "Everybody hated the" – DF interview.
9. "The engineers were" – PL interview.
10. "They threw a security" – *Motor Sport*, March 1967.
11. "We got so good" – DF interview.
12. "When the transmissions failed" – DF interview.
13. "The Ford pits became" – *Road & Track*, May 1967
14. "It's beautiful" – *Car and Driver*, May 1967.
15. "The Mark II was" – PL interview.
16. "Christ, if you have" – DF interview with Homer Perry.
17. "They told me" – PL interview.
18. "We made it a much" – PL interview.
19. "We took the old body" – PL interview.
20. "We did the work" – PL interview.
21. "Phil Remington designed" – PL interview.
22. "Some things just" – *Hot Rod*, www.hotrod.com/features/celebrities/1307-take-5-with-phil-remington/
23. "It is significant to" – Ford memo, March 1967.
24. "He went end over end" – PL interview.

Chapter Eight:

1. "For the first time in my racing" – DF interview.
1. "The Vingt-Quatre Heures" – *Autosport*, 6-16-67.
2. "It's hard to describe" – *Paul Hawkins*, 121.
3. "They were hard to miss" – *Car and Driver*, September 1967.
4. "Prior to leaving Los Angeles" – Shelby American memo, May 1967.
5. "By the time a car" – *Autosport*, 6-23-67.
6. "Anyone could see" – *Motor Trend*, September 1967.
7. "Perfect" – DF interview with Gordon Chance.
8. "Fiddle fuddlers" – DF interview.
9. "That car's absolutely lethal" – *Authorized Shelby*, 457.
10. "Nobody expected Foyt" – DF interview.
11. "As race cars go" – *Car and Driver*, September 2007.
12. "Quite apart from being" – PL interview.
13. "Panic circle" – *Autosport*, 6-23-67.
14. "If the Mark IV had" – Ford Motor Company interview transcript, 8-20-08.
15. "Don't go wide at" – *New York Times Magazine*, 7-9-67.
16. "Hell, boy, we'd be" – *NYT Magazine*, 7-9-67.
17. "They're playing a" – *NYT Magazine*, 7-9-67.
18. "His lap times were as slow" – *Car and Driver*, September 1967.
19. "Our cars could out-accelerate" – *Autosport*, 6-23-67.
20. "Shucks, that wasn't so tough" – Foyt, Libby, 193.

21. "Foyt doesn't make mistakes" – *Motor Sport*, July 1967.
22. "You better start counting" – *NYT Magazine*, 7-9-67.
23. "He's talking to the mechanics" – PL interview.
24. "I had no idea what happened" – PL interview.
25. "How can you install" – PL interview.
26. "I didn't know if Mario" – *Time*, 6-23-67.
27. "It's terrible. There's pieces" – *NYT Magazine*, 7-9-67.
28. "He was all over me" – PL interview.
29. "I wanted to say" – Ford Motor Company interview transcript, 8-20-08.
30. "I understood what he" – PL interview.
31. "Suddenly, there was an" – *Autosport*, 6-23-67.
32. "Now I know what GT" – *Autosport*, 6-23-67.
33. "Did you ever see" – *Motor Trend*, September 1967.
34. "We finish with a sprint" – *NYT Magazine*, 7-9-67.
35. "Runs like a clock" – *NYT Magazine*, 7-9-67.
36. "Tell 'em not to go" – *NYT Magazine*, 7-9-67.
37. "This year, no one could" – *Motor Trend*, September 1967.
38. "What I did with the champagne" – *Victory Lane*, November 2013.
39. "We have nothing left to prove" – *Motor Trend*, September 1967.

Epilogue:

1. "Have you ever flown" – *Henry*, 97.
2. "Interim program, now in progress" – Ford memo, 5-24-67.
3. "As you know, money" – DF interview.
4. "When you get a Henry Ford" – DF interview.
5. "Ford got its money's worth" – DF interview.
6. "It was a bit of a nail-biter" – PL interview.
7. "We'd put on new pads" – PL interview.
8. "I never saw a more thrilling" – Ford press conference, 6-12-15.
9. "I'm not here for the food" – Marshall Pruett interview, 6-12-15.

Roy Lunn sidebar:

1. "We are emigrating" – PL interview.
2. "I'm looking 30, 50" – PL interview.

Phil Remington sidebar:

1. "We had some really good" – PL interview.
2. "Phil is a human generator" – PL interview.
3. "Rem is a remnant" – PL interview.
4. "Without him, the program" – PL interview.
5. "I just changed payrolls" – PL interview.
6. "It was my job to build" – PL interview.

Le Mans 1966 sidebar:

1. "We were told to finish" – *Car and Driver*, September, 1966.
2. "It took me something" – PL interview.
3. "I worked for the Ford" – *Dust and Glory*, 538.
4. "Not printable, of course" – Bruce McLaren letter.
5. "I don't know what they told Ken" – DF interview.
6. "We had three cars running" – DF interview.
7. "I've regretted it" – *Authorized Shelby*, 428.
8. "Shelby was later" – *Car and Driver*, September 1966.
9. "Looking pretty gray" – PL interview.
10. "I don't know what" – DF interview.
11. "Leo, the officials" – *Dust and Glory*, 539.
12. "How the French" – *Sports Car Graphic*, September 1966.
13. "I've been accused" – DF interview.
14. "Screw it" – PL interview with Phil Remington.
15. "I'm disappointed" – AP, 6-20-66.
16. "It's up to them" – *Authorized Shelby*, 430.
17. "You beauty" – *SI*, 6-27-66.
18. "We wuz robbed" – PL interview with John Horsman.
19. "Ford made no bones" – McLaren letter.
20. "You think about" – DF interview.
21. "In 1966, Ford didn't cost" – DF interview.

Race Results

DATE	RACE	CAR	CHASSIS	MODEL	DRIVERS	TEAM	START	FINISH
4/19/1964	Le Mans Test	#9	GT/101	Mark I	Jo Schlesser	Ford Advanced Vehicles		12
	Le Mans Test	#10	GT/102	Mark I	Roy Salvadori	Ford Advanced Vehicles		19
5/31/1964	Nürburgring 1000 Kilometers	#140	GT/102	Mark I	Phil Hill/Bruce McLaren	Ford Advanced Vehicles	2	DNF
6/22/1964	24 Hours of Le Mans	#10	GT/102	Mark I	Phil Hill/Bruce McLaren	Ford Advanced Vehicles	4	DNF
	24 Hours of Le Mans	#11	GT/103	Mark I	Richie Ginther/Masten Gregory	Ford Advanced Vehicles	2	DNF
	24 Hours of Le Mans	#12	GT/104	Mark I	Richard Attwood/Jo Schlesser	Ford Advanced Vehicles	9	DNF
7/5/1964	12 Hours of Reims	#4	GT/102	Mark I	Phil Hill/Bruce McLaren	Ford Advanced Vehicles	3	DNF
	12 Hours of Reims	#5	GT/103	Mark I	Richie Ginther/Masten Gregory	Ford Advanced Vehicles	2	DNF
	12 Hours of Reims	#6	GT/105	Mark I	Richard Attwood/Jo Schlesser	Ford Advanced Vehicles	6	DNF
11/29/1964	Nassau TT — Preliminary	#91	GT/103	Mark I	Phil Hill	Ford Advanced Vehicles		3
	Nassau TT — Preliminary	#97	GT/104	Mark I	Bruce McLaren	Ford Advanced Vehicles		16
	Nassau TT	#91	GT/103	Mark I	Phil Hill	Ford Advanced Vehicles		26
	Nassau TT	#97	GT/104	Mark I	Bruce McLaren	Ford Advanced Vehicles	DNS	
2/28/1965	Daytona 2000 Kilometers	#72	GT/104	Mark IA	Bob Bondurant/Richie Ginther	Shelby American	2	3
	Daytona 2000 Kilometers	#73	GT/103	Mark IA	Ken Miles/Lloyd Ruby	Shelby American	3	1
3/27/1965	12 Hours of Sebring	#10	GT/104	Mark IA	Phil Hill/Richie Ginther	Shelby American	4	DNF
	12 Hours of Sebring	#11	GT/103	Mark IA	Ken Miles/Bruce McLaren	Shelby American	3	2
4/11/1965	Le Mans Test	#7	GT/111	Mark IA Roadster	Richard Attwood/John Whitmore	Ford Advanced Vehicles		6
	Le Mans Test	#9	GT/105	Mark IA	Attwood/Whitmore/Trintignant	Ford Advanced Vehicles		3
	Le Mans Test	#10	GT/104	Mark IA	Bonrurant/Miles/McLaren	Shelby American		4
	Le Mans Test	#11	GT/103	Mark IA	Bruce McLaren	Shelby American		7
4/25/1965	Monza 1000 Kilometers	#68	GT/104	Mark IA	Chris Amon/Umberto Maglioli	Shelby American	8	DNF
	Monza 1000 Kilometers	#69	GT/103	Mark IA	Ken Miles/Bruce McLaren	Shelby American	5	3
5/9/1965	Targa Florio	#194	GT/111	Mark IA Roadster	Bob Bondurant/John Whitmore	Shelby American		DNF
5/23/1965	Nürburgring 1000 Kilometers	#10	GT/112	Mark IA Roadster	Richard Attwood/John Whitmore	Ford Advanced Vehicles	6	DNF
	Nürburgring 1000 Kilometers	#11	GT/104	Mark IA	Amon/McLaren/Hill	Shelby American	5	8
	Nürburgring 1000 Kilometers	#12	GT/103	Mark IA	Phil Hill/Bruce McLaren	Shelby American	2	DNF
	Nürburgring 1000 Kilometers	#16	GT40P/1003	Mark IA	Maurice Trintignant/Guy Ligier	Ford France	9	DNF
6/20/1965	24 Hours of Le Mans	#6	GT40P/1005	Mark IA	Ronnie Bucknum/Herbert Müller	Shelby American	5	DNF
	24 Hours of Le Mans	#7	GT40P/1004	Mark IA	Bob Bondurant/Umberto Maglioli	Shelby American	3	DNF
	24 Hours of Le Mans	#14	GT40P/1006	Mark IA	Innes Ireland/John Whitmore	Ford Advanced Vehicles	10	DNF
	24 Hours of Le Mans	#15	GT/109	Mark IA Roadster	Maurice Trintignant/Guy Ligier	Ford France	13	DNF
	24 Hours of Le Mans	#1	GT/106	Mark II	Bruce McLaren/Ken Miles	Shelby American	4	DNF
	24 Hours of Le Mans	#2	GT/107	Mark II	Chris Amon/Phil Hill	Shelby American	1	DNF
2/6/1966	24 Hours of Daytona	#87	GT40P/1016	Mark IIA	Richie Ginther/Ronnie Bucknum	Holman & Moody	6	DNF
	24 Hours of Daytona	#95	GT40P/1031	Mark IIA	Walt Hansgen/Mark Donohue	Holman & Moody	3	3
	24 Hours of Daytona	#96	GT40P/1012	Mark IIA	Chris Amon/Bruce McLaren	Shelby American	7	5
	24 Hours of Daytona	#97	GT40P/1011	Mark IIA	Dan Gurney/Jerry Grant	Shelby American	11	2
	24 Hours of Daytona	#98	GT40P/1015	Mark IIA	Ken Miles/Lloyd Ruby	Shelby American	1	1

DATE	RACE	CAR	CHASSIS	MODEL	DRIVERS	TEAM	START	FINISH
3/26/1966	12 Hours of Sebring	#1	GT/110	X-1	Ken Miles/Lloyd Ruby	Shelby American	5	1
	12 Hours of Sebring	#2	GT40P/1031	Mark IIA	Dan Gurney/Jerry Grant	Shelby American	1	DQ
	12 Hours of Sebring	#3	GT40P/1032	Mark IIA	Walt Hansgen/Mark Donohue	Holman & Moody	4	2
	12 Hours of Sebring	#4	GT40P/1016	Mark IIA	A. J. Foyt/Ronnie Bucknum	Holman & Moody	10	12
	12 Hours of Sebring	#24	AM GT-2	Mark IA	Graham Hill/Jackie Stewart	Alan Mann	3	DNF
	12 Hours of Sebring	#25	AM GT-1	Mark IA	John Whitmore/Frank Gardner	Alan Mann	7	DNF
4/3/1966	Le Mans Test	#1	J-1	J-Car	Chris Amon/Bruce McLaren	Shelby American		1
	Le Mans Test	#2	GT40P/1012	Mark IIA	Miles/McLaren/Amon/ Bianchi/Hill/Stewart	Holman & Moody		2
	Le Mans Test	#3	GT40P/1011	Mark IIA	Walt Hansgen	Shelby American		9
	Le Mans Test	#32	AM GT-1	Mark IA	John Whitmore	Alan Mann		4
	Le Mans Test	#33	AM GT-2	Mark IA	Jackie Stewart	Alan Mann		3
	5/22/1966	Spa 1000 Kilometers	#4	GT40P/1012	Mark IIA	John Whitmore/Frank Gardner	Alan Mann	2
6/19/1966	24 Hours of Le Mans	#1	GT40P/1015	Mark IIA	Ken Miles/Denny Hulme	Shelby American	2	2
	24 Hours of Le Mans	#2	GT40P/1046	Mark IIA	Chris Amon/Bruce McLaren	Shelby American	4	1
	24 Hours of Le Mans	#3	GT40P/1047	Mark IIA	Dan Gurney/Jerry Grant	Shelby American	1	DNF
	24 Hours of Le Mans	#4	GT40P/1032	Mark IIA	Paul Hawkins/Mark Donohue	Holman & Moody	11	DNF
	24 Hours of Le Mans	#5	GT40P/1016	Mark IIA	Ronnie Bucknum/Dick Hutcherson	Holman & Moody	9	3
	24 Hours of Le Mans	#6	GT40P/1031	Mark IIA	Mario Andretti/Lucien Bianchi	Holman & Moody	12	DNF
	24 Hours of Le Mans	#7	AM XGT-2	Mark IIA	Graham Hill/Brian Muir	Alan Mann	6	DNF
	24 Hours of Le Mans	#8	AM XGT-1	Mark IIA	John Whitmore/Frank Gardner	Alan Mann	3	DNF
2/5/1967	24 Hours of Daytona	#1	GT40P/1012	Mark IIB	Bruce McLaren/Lucien Bianchi	Shelby American	7	7
	24 Hours of Daytona	#2	GT40P/1015	Mark IIB	Ronnie Bucknum/Frank Gardner	Shelby American	10	DNF
	24 Hours of Daytona	#3	GT40P/1047	Mark IIB	Dan Gurney/A. J. Foyt	Shelby American	1	DNF
	24 Hours of Daytona	#4	GT40P/1016	Mark IIB	Mark Donohue/Peter Revson	Holman & Moody	12	DNF
	24 Hours of Daytona	#5	GT40P/1031	Mark IIB	Mario Andretti/Richie Ginther	Holman & Moody	5	DN
	24 Hours of Daytona	#6	GT40P/1046	Mark IIB	Lloyd Ruby/Denny Hulme	Holman & Moody	9	DNF
4/1/1967	12 Hours of Sebring	#1	J-4	Mark IV	Bruce McLaren/Mario Andretti	Shelby American	1	1
	12 Hours of Sebring	#2	GT40P/1031	Mark IIB	A. J. Foyt/Lloyd Ruby	Holman & Moody	3	2
4/9/1967	Le Mans Test	#1	J-3	Mark IV	Bruce McLaren/Mark Donohue	Shelby American		5
	Le Mans Test	#2	GT40P/1016	Mark IIB	Bruce McLaren/Mark Donohue	Holman & Moody		4
6/11/1967	24 Hours of Le Mans	#1	J-5	Mark IV	Dan Gurney/A. J. Foyt	Shelby American	9	1
	24 Hours of Le Mans	#2	J-6	Mark IV	Bruce McLaren/Mark Donohue	Shelby American	1	4
	24 Hours of Le Mans	#3	J-7	Mark IV	Mario Andretti/Lucien Bianchi	Holman & Moody	3	DNF
	24 Hours of Le Mans	#4	J-8	Mark IV	Lloyd Ruby/Denny Hulme	Holman & Moody	4	DNF
	24 Hours of Le Mans	#5	GT40P/1047	Mark IIB	Frank Gardner/Roger McCluskey	Holman & Moody	6	DNF
	24 Hours of Le Mans	#6	GT40P/1015	Mark IIB	Jo Schlesser/Guy Ligier	Ford France	14	DNF
	24 Hours of Le Mans	#57	GT40P/1031	Mark IIB	Ronnie Bucknum/Paul Hawkins	Shelby American	5	DNF

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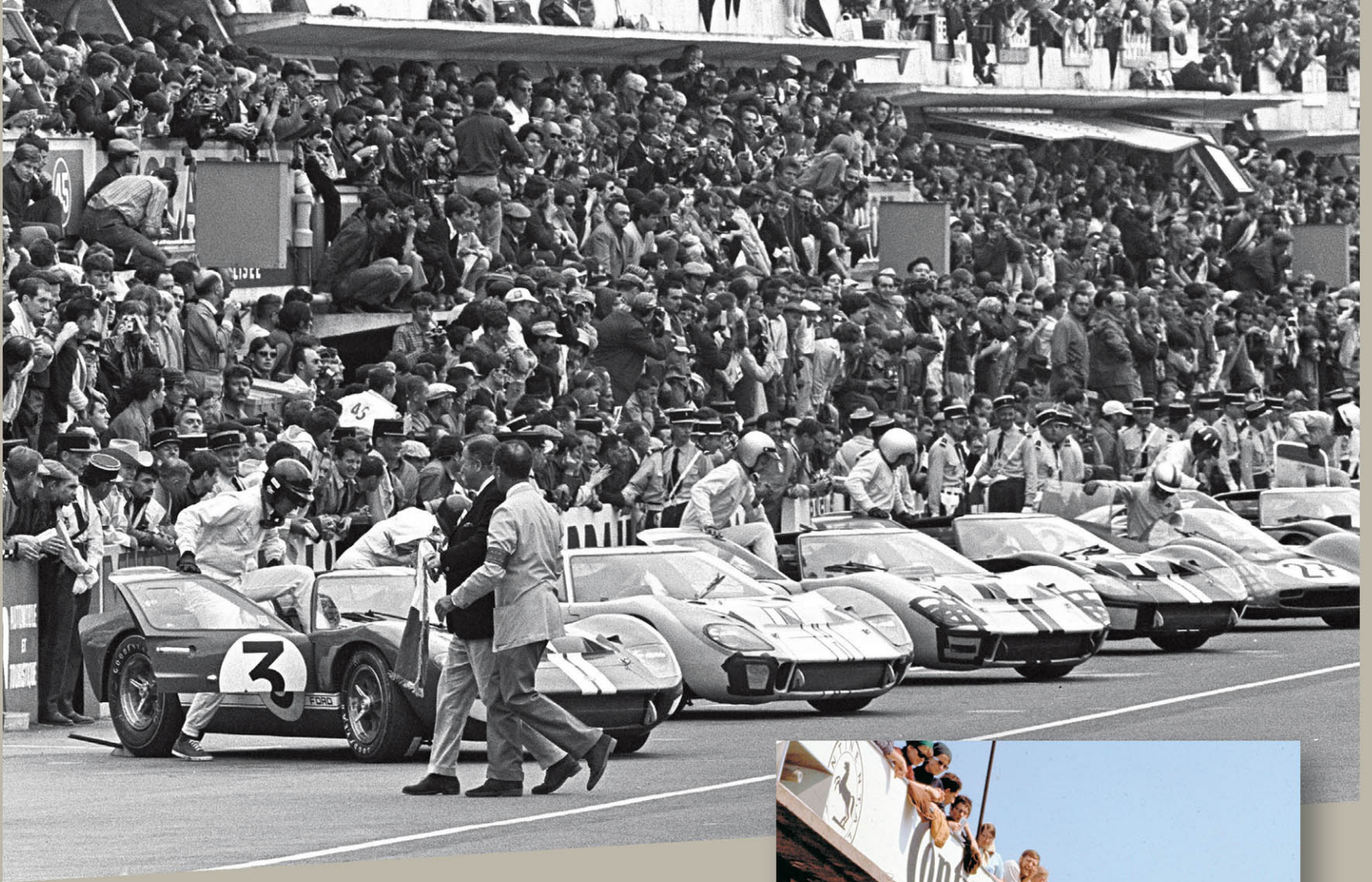
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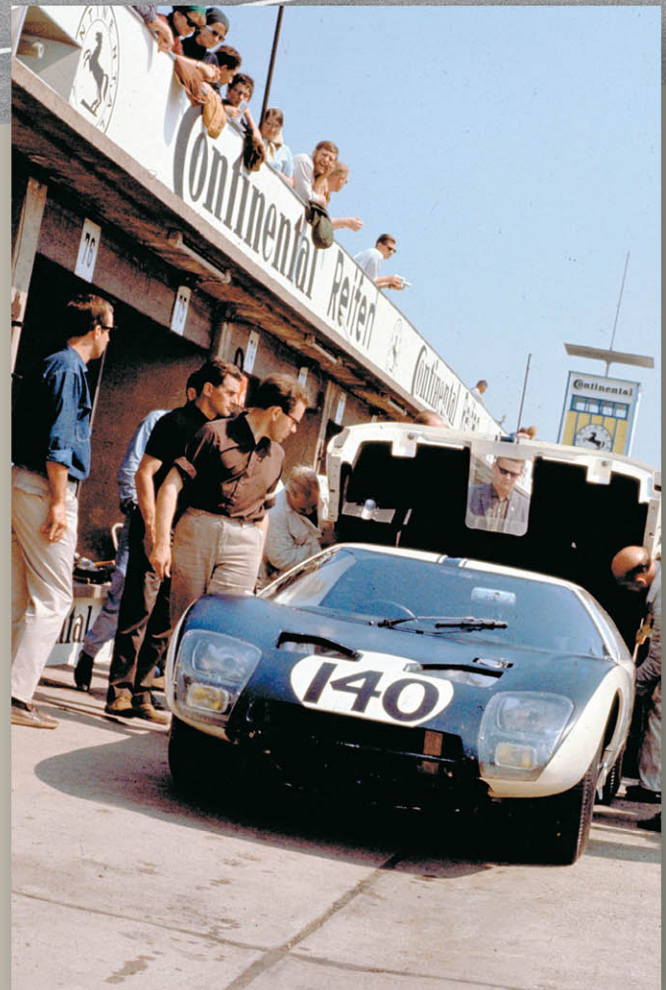
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