W154

Back on the Track

Rare 1939 Grand Prix Car Runs Again

One of only 16 ever built; one of only eight that survive; and the only one in running condition. The W154 Silver Arrow was one of the best race cars built in the prewar era and this example, last raced by Mercedes-Benz in the 1939 Yugoslav Grand Prix, may be the rarest in existence, because it is now in running condition, restored as closely as possible to the condition in which it raced in its day. Capable of logging a road circuit at speed, this magnificent machine allows us to experience not only what these incredible machines looked like, but what they sounded and felt like on the track in those bygone days.

In September the Collier W154 took to the track at Lime Rock Park in Connecticut, at speed for the first time since the late 1940s.
W154: THE HISTORY

There were nine Grand Prix races in 1938 and eight Grand Prix races in 1939. Driven by men who are now legends – Rudolf Caracciola, Hermann Lang, Richard Seaman, and Manfred von Brauchitsch – the brilliant Mercedes-Benz W154 won 12 of those 17 events, plus 10 second-place finishes. Four times the three-car team swept the podium.

If not total domination, the W154 still enjoyed two of the best seasons in Grand Prix history. Beyond that, the W154 is not only the very pinnacle of prewar automotive engineering, but one of the most charismatic and seductive four-wheeled personalities of all time. The W154s must be counted among the greatest racing cars ever.

Sixteen W154s were built. Half survive. Mercedes-Benz owns two, in its Classic Museum collection. There is one in the Deutsche Museum in Munich and one in the National Museum in Prague. One that was formerly owned by Nellie Corner was in the Samsung Collection until a year ago. It’s now in a private collection in Germany. One is now in the Arturo Keller Collection in California. The Schlumpf Museum in Mulhouse owns both a complete car and a second chassis without a body. Then there is the car in our photos, now owned by Miles Collier’s CH Motorcars in Naples, Florida.

The Collier car is chassis No. 15, the penultimate W154 built. It was raced by Mercedes-Benz only once, in a race that was held only once. The 1939
Yugoslav Grand Prix was run around a 1.73-mile circuit in a Belgrade park. Unfortunately for everyone, the race was held on September 3, 1939. On September 1, Nazi Germany had invaded Poland and two days later, the very morning of the Belgrade race, Great Britain and France declared war against Germany.

Only five cars started - Hermann Lang's W154 and this one, driven by Manfred von Brauchitsch, the Auto Unions of Tazio Nuvolari and Hermann Muller, and the obsolete Bugatti of local driver Bosko Milenkovic, who finished the shortened 50-lap race 19 laps behind. Lang retired after a stone broke his goggles and von Brauchitsch finished eight seconds behind winner Nuvolari after spinning out while in the lead.

But that's not the best part of the story. Von Brauchitsch was the son of an Army major, a former officer-cadet, and the nephew of the highest-ranking officer in the German Army, Commander-in-Chief Field Marshal Walther von Brauchitsch. Manfred skipped breakfast before the Yugoslav GP to take a taxi to the Belgrade airport. He was physically hauled off the last plane out by Mercedes team manager Alfred Neubauer and ordered to race that day. Only later did Neubauer realize that von Brauchitsch wasn't patriotically rush-

These pages: The workmanship evident when the chassis and engine are exposed is mind-blowing. Everywhere there is an ounce of unnecessary metal, the pieces have been drilled for lightness.

ing home to re-enlist as a German officer; he was on a flight to neutral Switzerland!

After the Belgrade GP, the end of the 1939 racing season, not only were Lang and von Brauchitsch shipped back to Germany, but all the W154s were returned to the Mercedes-Benz race shops. Even though World War II had already begun, it was that quiet autumn fondly remembered in later years as the "phony war." Mercedes engineers began prepping the cars for what they confidently expected to be the Grand Prix season of 1940.

Once the British began bombing the industrial centers of Germany, eventually flattening the Mercedes-Benz factory, the W154s were shipped by truck and train to various parts of Eastern Europe, where they were hidden as far away as possible. There are many stories about the postwar rescue of the W154s, some true, some apocryphal. After the war, Mercedes-Benz actually discovered the two W154s the company still owns thrown into a Berlin junkyard. The Schumacher cars came out of Poland, others were found in Czechoslovakia.

Romanian Mercedes mechanic Roman Josef claimed he rescued the two cars that are now owned by Arturo Keller and Miles Collier from under a pile of debris on a Bucharest railway loading dock. In another story, the cars were seized by the Russian Army, turned over to the Romanian Union of Culture and Sport, then mysteriously made their way into the hands of Josef.

In any case, what is substantiated is that in the late '40s, Josef took the W154 that was most complete, the one now owned by Collier, got it running, and drove it in a local hillclimb. He ran out of fuel halfway up the hill, damaging the front and rear of the car and ending up in the hospital with two broken legs.
Thirty years later, still mildly damaged, the W154 became the subject of an extended cloak-and-dagger tale as some well-known collectors are said to have handed over $50,000 in cash, made a sizable donation to the national soccer team, and delivered 50 trucks for government use to get the car out of Romania. Whatever the truth; in 1995 the car turned up in Switzerland, owned by a German collector.

The body and chassis were then partially restored by Walter Kern in Basel, with the engine redone in Germany with help from Mercedes-Benz. A new aluminum body was made for the car, though the original body panels were saved. The car was bought by Symbolic Motors of San Diego in 1999, sold to Japan, then repurchased by Symbolic and sold to Collier in 2003.

Typical of Mercedes-Benz, every part of every car is numbered and meticulous records were kept. The front suspension backing plate, the brake shoes, the rear axle housing; every little part is numbered. On the other hand, the mechanics were involved in the high-stakes business of winning Grand Prix races against formidable competition. They weren't worried about preserving "matching number" parts for future collectors. For example, after Seaman crashed and was killed at Spa on June 26, 1939, parts from his W154 were used on other team cars later in the season.

To say that any one W154 is "pure" is a fool's game. There were 16 chassis, but 24 engine blocks. Of the cars that survive, the most authentic is the one in Prague. It's chassis No. 10 with engine No. 20. That chassis and engine were together for the entire 1939 season. The car that Arturo Keller owns has the chassis that Lang usually drove in 1939, but with the engine from the car that von Brauchitsch usually drove. The car in the Collier collection has von Brauchitsch's chassis, but Lang's engine!

**W154: The Restoration**

When W154 No.15 was delivered to Florida in 2003, Scott George and the crew at Collier's CH Motorcars found water in the crankcase and minor internal damage thanks to leaking water pump seals. They carefully removed the engine and shipped it to England. It was then totally rebuilt by specialist Dick Crosthwaite at Crosthwaite and Gardiner. The CH Motorcars mechanics put the rebuilt engine back in the chassis and in November of 2008, shipped the W154 to Paul Russell's shop in Essex, Massachusetts.

One of the unique and wonderful things about Paul Russell and Company is that they are as much industrial historians as car restorers. Between their research and that done by Collier, they ended up with a 4-inch thick notebook of photos and history.

Russell and George started the project by examining the W154 in the Prague museum, photographing, measuring, and making notes from what is acknowledged as the most original W154. They did everything from examine the horsehair stuffing in the seat to measuring the contour of body panels to improve the fit of the panels that had been made in Switzerland.

As Russell puts it, "This was a phenomenally special project to be involved with. Incredible! First there is the privilege of working on this car, and then the great experience of working for Miles Collier. Mr. Collier is probably the most sophisticated collector in this country, perhaps in the world. He has a great concept of the big picture, of the overall view, of the very meaning of restoration." On other cars, he's told me, "I want this car as good as new... but if you..."
External detail, paint, and trim is exactly as the car was raced in 1939, including the lighting on the Mercedes star.

make it better than new, you’ll have ruined the car!"

"I like to think that we bring something to the table, too, in our historical perspective and our way of studying all the resources available. We try to understand how the car was put together. But even more, we try to understand the philosophy of the time, the methods available, the outlook of the people who were doing the work. That’s an integral part of the project for us."

"This was a three-stage effort. First, over just three months we straightened the bodywork, repainted it, and numbered it to look the way it did when von Brauchitsch drove it at Belgrade in 1939. I call this a curbside restoration. It was displayed this way at the Amelia Island Concours in March 2009.

"At Amelia, as it came down off the truck, Mr. Collier was walking around looking at the car. We all understood that it was a work in progress, that the chassis was not done. But the outside was finished, right down to the hand-painted numbers and the Mercedes Star on the nose with the little lightning bolts in the Star, just as they were done in that day. And then Mr. Collier stops and says, ‘Where are the boots?’"

"‘I said, ‘What are you talking about?’ ‘He gets out his BlackBerry and starts scrolling through pictures in file folders. He comes up with a picture from 1939, he zooms in, and sure enough, the car has these little leather boots over the shock absorbers. That’s the kind of detail Mr. Collier picks up on, and I just love that.

"‘After Amelia, we started the second stage, a complete mechanical and cosmetic restoration that had to be ready for static display at Pebble Beach in August, less than five months later. Mr. Collier also asked us to make a new set of bodywork that covers only the left side and displays the remarkable details of the engine and chassis on the right side, the way he will display the car in his collection.

"Then we had less than a month after the car came back from Pebble to get the car set up, tested, and safe to run at racing speeds for Labor Day weekend at Lime Rock.

"‘After Amelia in March, we stripped the whole car to the bare frame. When it was ‘restored’ in Switzerland, the frame had been painted battleship gray. Our research told us none of the W154 frames had ever been painted. The frames were welded together from chrome-moly tubing, then heat-treated to normalize the metal. We did a lot of research on this to get it just right.

"Mercedes used a special heat-treatment in which the steel is brought up to 1,100 degrees F and then steam is introduced into the oven. The steam reacts with the carbon at the surface of the steel and creates a hard, corrosion-resistant, blue/black finish that looks a lot like gunmetal bluing. It’s almost like case-hardening the metal.

"In all the years I’ve been restoring cars, I’ve never seen nor heard of any car other than a Mercedes Silver Arrow with this finish on the frame. We went through a lot of trouble to find someone who has an oven large enough to take a whole car chassis and who knew how to produce this finish. It’s really something of a lost art.

"The engine had already been professionally and correctly restored by Dick Crosthwaite, but externally, most of the original hardware had been lost at some previous time. When it came to us, it had modern Aeroquip fuel lines and things like that. So once the engine was reinstalled in the frame, we had to fabricate all the original fittings.

"The cooling tubes that connect from the radiator to the engine are round, then have a flattened oval profile to fit beneath the bodywork, then become round again. Those had been lost over the years, so we took measurements from other W154s and made those tubes. We had to make a variety of small parts that had been lost, things like the tube for the pop-off valve on the supercharger.

"From the Smithsonian Institution, which is restoring a prewar German aircraft, we learned that all of the hardware, things like oil and fuel line fittings, is identical between the aircraft and this car. The Smithsonian sent us samples so that we could make new lines and fittings, down to the minutiae of having the little manufacturer’s stamp, FWJ, on the hose clamps.

"Or take the condenser for the alcohol fuel that originally sat in front of the radiator.
WHAT'S IN A NAME?
Larger-than-life personalities and wonderful stories have always surrounded the mythical Silver Arrows. As a result, there has been much confusion about the 1938 and 1939 Mercedes-Benz Grand Prix cars, even down to the correct name. Properly, all of the 3.0-liter racers built in 1938 and 1939 are known, from their chassis number prefix, as W354. The 1938 V-12 engine with twin single-stage superchargers — one for each bank — is called M154. It produces about 466 hp.

Nevertheless, in old magazines, in George Monkhouse's Mercedes-Benz Grand Prix Racing and even in Chris Nixon's exhaustive book Racing the Silver Arrows, you often see the 1939 cars referred to as W163 — particularly the car that ran in the Indy 500 in 1947 and 1948 as the Don Lee Special. This is not correct; there is no such thing as a W163.

M163 is actually the designation for the second version of the V-12 engine, as it was installed in the W154 in 1939. The M163 is basically the 1938 engine, but with one huge two-stage supercharger feeding both banks of the V-12 instead of the smaller twin superchargers of 1938. It produces about 466 hp.

In Belgrade in 1939, Von Brauchitsch raced the car as No. 6, with a red grille to distinguish it from Lang's W154.

"From the photographs of these cars at the races, you always see mechanics with a toolbox sitting on the cow tank. In the old photos, we also could see Mercedes had quick jacks made of steel tubing that were used during pit stops. Based on the photographs, we duplicated the toolbox and quick jacks.

"One of the great pleasures of working with Miles Collier is that he wants everything to be exact. You can show him old photos and say, 'Do you want to take this project to that level?' And he says, 'Absolutely!'

"Spark plugs were a project. Believe it or not, even in the '30s they were already using standard 14 mm sparkplugs. For testing, we were able to use modern NGK plugs. But that, of course, is not authentic. Mercedes used their clutch to have Bosch make a set of correct spark plugs for the car. Each plug cost $1,000. And of course, this is a V-12. But right now, we make do with $40,000 worth of spark plugs.

"Fuel is another whole issue. You can start the engine and warm it up on gasoline. But you can't run it hard. Alcohol fuel is actually a significant part of the engine cooling system. Back in the day, a British Intelligence report referred to the fuel as W3, a mixture of methanol, acetone, benzene, benzol, and nitromethane. Dick Crutchﬁeld recommends 85 percent methanol, then 5 percent each of the other four volatiles.

"The amount of fuel is staggering. Fuel consumption is between 1.5 and 2 mpg. In 1939, with the longer tail, the W154 could carry a maximum of 111 gallons in cow, side, and tail tanks, almost 800 pounds of fuel. Each of the drivers seems to have had his own method of dealing with weight transfer. On fuel was burned, some emptying the tail tank first, to achieve a more neutral-handling car, and others emptying the cow tank first, to retain rear weight bias and make it easier to hang the rear out and slide around the corners. That was part of their driving style.

"There are no manual switches from one tank to another. Each car was individually adjusted to automatically empty the tanks in the order preferred by that individual driver. The mechanics could change the setting in the tanks to accomplish this. Interestingly enough, the shock absorbers are driver adjustable using a lever in the cockpit that regulates a hydraulic cylinder that's connected to the shocks.

"After Lime Rock, we shipped the car back to Florida and it is now on display at Mr. Collier's museum. As you might expect, the car is a lot of trouble to drive and run. When it is on display for even a short time, you must drain all the methanol fuel, flush the whole system with gasoline, and drain all the other fluids. When it is to be run again, it will take several days to get it ready. I'm sure the car will appear at Goodwood at some point, and no doubt at other events.

"Mr. Collier has gone to a tremendous amount of trouble to get the car to this point. I know he believes that people want to see the car run, should see it run and deserve to see it run. He also feels that the car itself deserves to be run. He has this strong sense of responsibility in everything he does. It's a core part of who he is."
W154: The Driving

Over the past 75 years, only a handful of men have driven any of the fearsome Mercedes-Benz Silver Arrows. Indeed, since it was built in 1939, only four men have driven this particular W154. Von Brauchitsch raced it, Josef wrecked it, and recently two lucky drivers took turns racing around Lime Rock for our photo shoot: longtime Scottish amateur racer Murray Smith and fourth-generation Mercedes-Benz restorer Gert Straub from the Classic Center in Fellbach. We took this once-in-a-lifetime opportunity to let them interview each other while Murray was still cooling off in the heat-crackling cockpit of the W154.

Murray: You’ve done a lot more driving in various W154s than I have, but I have to start by saying just how nice this car is to drive.

Gert: I agree. It’s a fantastic car. The throttle response, especially, is absolutely fantastic.

Murray: It’s not like a modern turbo car where the power comes on suddenly. It’s got very linear power all the way up. The steering is very light, and overall, it’s more comfortable than I expected.

Gert: Compared to the W125, which is much more powerful, the W154 is easy to drive.

Murray: Which one is your favorite?

Gert: All the Silver Arrows are my favorites! It doesn’t matter whether it is the W25, the W125, or the W154. All of them are very special.

Murray: I don’t have your basis of comparison, because today is the first time I’ve driven any Silver Arrow. But I’m amazed how friendly it is. When you first get in any car, you have to figure it out: where are the gears, how are the pedals arranged, how delicate is the clutch, how quick is the steering?

The center throttle with right-hand brake pedal doesn’t bother me, but I expected the backwards shift gate to be a problem. But the W154 is easy to shift, easy to steer. And that rush of power… wonderful!

Gert: It is a very well-designed car: state of the art in 1939.

Murray: Can you imagine doing 500 kilometers in one of these in the rain at the Nürburgring or 180 miles per hour through the narrow streets of Pescara?

Gert: Not really! The drivers at that time were very brave, I think!

Murray: I remember reading about the streamlined Silver Arrows at AVUS [track in Berlin] in 1937. They could get two laps out of a set of tires at an average lap speed of 172 mph. Top speed was 240!

That track was really a flat stretch of Autobahn with banked U-turns at each end. They were driving toward each other on a 20-foot-wide concrete lane each direction, separated only by a 6-foot-wide strip of grass. That must have been a thrill!

Gert: Hermann Lang told me a long time ago that at the AVUS circuit in Berlin the front of the car was sometimes lifting off the ground. He had to back off the throttle a little, and then it would drop down again.

Murray: I know that Bernd Rosemeyer, who drove the Auto Unions, said, “If you drive the car too fast, you’ll see the front of the car in
the rearview mirror.” I believe that he was successful because he started as a motorcycle racer and had no preconceived notion of what was “normal” behavior for a racing car.

Gert: The Auto Unions were very difficult to drive because of the engine behind the driver and the cockpit very close to the front of the car. The front-engine Mercedes is much more normal.

Murray: Drive a front-engine Maserati or Alfa Romeo Grand Prix car from the ’30s and then get into the W154. Compared to a Maserati or Alfa of the same era, the Mercedes feels like a modern car.

Gert: You can describe that better than I can, because while I have driven more of the Silver Arrows, you have driven more of their competition.

Murray: Have you ever driven the W196 from 1954-55?

Gert: Yes, it is very simple by comparison.

Murray: Even though the driving position has your legs wide apart?

Gert: That doesn’t matter, to be honest. The W196 has the brake pedal in the middle and the throttle on the right, like a normal car. It also has only 300 hp, nowhere near as much as the W154. So it’s actually quite simple to drive. It also has good brakes.

When this W154 was built, they weren’t very concerned about brakes. They just thought they needed as much power as possible. Brakes were, well...

Murray: At best, the brakes are a little worrisome. I must tell you, I felt a great responsibility today. I was a little concerned when I got into this car. Miles Collier and his people from the Collier Collection are very nice and they know me quite well. But I was still very concerned.

It has nothing to do with the monetary value. Who even knows what this car is worth? Ten million? Twenty million? The actual amount is meaningless. It’s a huge responsibility for the heritage and the rarity. This is more than a car; it’s an historical artifact. When they take the body off and you see the mechanical side, the engineering skill, the machining, the execution of each part, it’s overwhelming. It’s such a privilege to be able to drive it.

Gert: It is not some toy, that is for sure.

Murray: I believe only four people have driven this car at speed since it was built: Manfred von Brauchitsch at Belgrade in 1939, then fellow Roman Josef who crashed it in a Romanian hillclimb after the war, plus you and me today.

Gert: It’s a great honor.

Murray: A great honor, but also a great relief to have brought it back in one piece!