

Lamborghini Murciélago R-GT at Salzburgring

# RoceoRice

Test by Roberto Giordanelli./ Photography by Michael Ward

TESTING THE AWESOME REITER ENGINEERING GT1 LAMBORGHINI AT AUSTRIA'S SALZBURGING CIRCUIT



first saw it two years ago, testing at Spa. The noise it sent ricocheting around the Ardennes forest was so menacing that when the car returned to the pits, I was oo scared to even look at it. Now I have to drive the thing on ice, and at an unfamiliar circuit.

Here we had the perfect ingredients for a career-limiting monumental shunt. However the bravest man at the Salzburgring race circuit was not me or some chisel-jawed racing hero, but race team boss Hans Reiter for trusting anyone with his monster Murciélago R-GT, or his 'baby', as he calls this GT1 class racing car. Some baby - compared with a regular Lamborghini Murciélago, the Reiter Engineering R-GT packs half-as-much-again in the power-toweight department. This is one rock-hard mother of an angry rodeo bull. Now imagine that bovine bollide on a tricky track surface that is icy, wet and dry all on the same lap.

Fast, furious and unforgiving, no gentleman drivers are allowed to race in GT1. It is for pro-drivers only, and with one German eyebrow raised, race boss Reiter says, "Even zen, zer are professionals und professionals."

For 2007 Reiter Engineering will compete in FIA GT1 and the Le Mans 24 hour race. Hans Reiter is also joining forces with the Austrian race team of S-berg for a joint attack in GT1 with Murciélagos, and GT3 with Gallardos. Sportscar manufacturers keep a watchful eye on GT racing. Some get involved, some don't. Those that get involved have two things to worry about: cost and failure. Those that don't get involved have only one worry, and that is not being involved.

But what about the private teams? Manufacturers don't like supporting privateers. This is because they have little control over the team, and are terrified that a loose-cannon privateer may do something silly that could damage the manufacturer's brand. Reiter Engineering has some limited factory help. Lamborghini collaborates with Reiter and sells him the cars considerably cheaper as they are in a partially built state.

# PETER KOX



Date of birth: 23 February 1964 Place of birth: Eindhoven, Netherlands First race: 1984 FF2000 Euroseries First victory: 1985 Toyota Cup

## **Recent Career**

1st - Silverstone 1000kms with Menx 1st - FIA GT race Silverstone with Aston Martin Racing

4th - Le Mans 24 Hours with Prodrive Ferrari 3rd - Valencia round of FIA GT with Lamborghini ALMS

American Le Mans Series with Prodrive; Sebring and Le Mans with Velogx Prodrive Racing 1st - GTS Class at Le Mans

ETCC with BMW Team Netherlands. Class win, 2 further podium places, Ferrari 550 Maranello GTS ALMS

## 2001

Champion - Super Production Cars with BMW Ravaglia Motorsport

Race winner - FIA GT Prodrive Ferrari

2nd - European Super Touring Cup with JAS Honda. Winner five races

# **Structure and Engine**

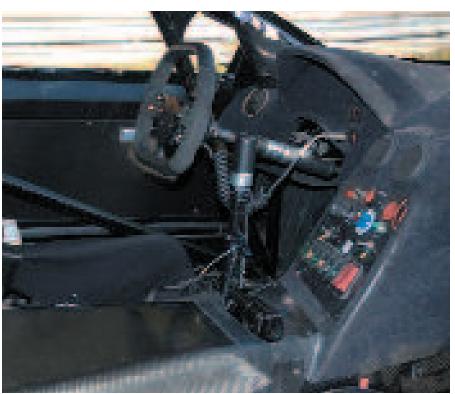
The Murciélago R-GT here is the Reiter test car and spare car. It is in Le Mans specification. This means low drag bodywork. Downforce is still there but reduced to give more straight-line speed. Karl Marx won't mind if we say that downforce is the opium of the tyres, as religion is the opium of the people. Some of the front apertures are gone as are the sill entry vents for the engine bay. Front splitter and rear spoilers are smooth low drag versions.

The V12 4-cam motor in the production Murciélago LP640 is the current incarnation of the engine which Ferruccio Lamborghini used in the 1960s to frighten Ferrari. And Reiter's Murciélago is the ultimate evolution of the model. The GT1 rules dictate a 70mm diameter intake restrictor for engines up to 6-litres. This means reducing the capacity of the standard 6.2-litre engine. The restrictor strangles the engine, which calls for a total internal



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redesign including a short-stroke crankshaft. Maximum effective rpm is now only 7000rpm, which is nothing to an engine that was designed to work to more than 8000rpm. The redesign has had to down-shift the power-band. It is not easy to maintain the car's 580-600bhp with less revs due to a pea-shooter air intake diameter – not to mention downsizing from 6200cc to 6000cc. While the Murciélago R-GT can pull like a locomotive from any rpm, its real powerband is now between 5700-6700rpm. For racing, this demands gear changes at the right time, with each up-shift dropping the revs by about 1000rpm. The original power curve, where power rises to a peak and tails off, is gone. This car quickly attains its maximum power. Normally this 600bhp figure would only be at peak revs, a momentary



flirtation at high engine speeds. Here peak pulling power comes early and stays with you, Hans drawing a flat line in mid-air with his finger to describe the torque curve.

Top gear is longer as the low-revving Lambo reaches 314km/h (196mph). No car gets near its top speed on a race circuit. This is because it takes about 10kms for any car to max-out, and the straights on race tracks are rarely as much as 1km.

Looking purposeful in its military blue-grey colour, much of the body is made in carbon-fibre. The underside has a flat bottom with a prominent rear diffuser in its evil-looking tail. A standard road-going Murciélago weighs 1650kg. To convert it into a racing car you have to add a very heavy roll cage and then remove as much weight as possible. By this method Reiter reckons you can get the overall weight down to 1200kg. If you start with nothing and build a car from scratch, you can get the overall weight down to 1050kg. The rules state a minimum weight of 1125kg. This means that ballast and strength can be added in favourable positions to improve the handling and safety, while also ending up with a lighter and much guicker car.

At rest, this car has a weight distribution of 42% front, 58% rear. While the Murciélago's horsepower has been shifted down the rev band, its overall power is the same as standard at 600bhp. A significant weight reduction has greatly improved the power-to-weight ratio from 363bhp/tonne of a regular Murciélago to 533bhp/tonne for the R-GT, a massive 47% improvement. For reasons of ⇒

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weight saving, brake discs are carbon, though with such large diameter discs, Reiter reckons that steel discs are just as good as carbon. Formula One cars need carbon brakes because the F1 rules stipulate 13in diameter wheels and hence minuscule brake dimensions and the need for carbon discs.

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# **Track Test**

Be scared when you read this. Hold a cushion or something. Cars are like horses and angle-grinders. They know if you are frightened. If they sense your fear, they bite you. Reiter's Murc is intimidating to look at, intimidating to sit in and needless to say, intimidating to drive. GT driver Peter Kox gives me a 10 second briefing as I strap myself to the raging bull. He tells me four things. "When you change gear, really mean it. The brakes feel light but you must trust them. The car weaves at high speed on the straight. And finally, you need lots of time in this car, which you don't have." Thanks Peter.

Before driving the GT1 Murciélago, I learn the circuit in a stealthy Reiter Engineering modified Gallardo. The company sells top quality upgrades for several Lamborghini models (see www.reiter-engineering.com). The monster Murciélago is lapping the circuit with Peter Kox at the wheel. I think I am going quite quickly in my Gallardo when the wailing Murc R-GT hurtles past like a meteorite in a ball of freezing spray. My immediate thoughts are, "That car is a god and so is whoever is driving it." I return the Gallardo the pits.

Hans Reiter would make a great poker player. I am about to snatch his 'baby' and he is as cool as a cucumber. I clunk the sequential gear lever into first gear. The clutch pedal is only used to move off from rest. A shudder and a numbered light on the dash confirms the action. No matter how scary, you have to show a car who is boss. I release the race clutch and shout



at the menacing car" "Right you \*\*\*\*, I am in charge here!"

I may be in charge of the car, but the track is now in charge of me. The low winter sun doesn't kiss the long pit straight or many of the other turns. Overnight ice is reluctant to melt in 3?C temperatures. Now I am on track in the Murciélago, hurtling past the Gallardo. Now I am a god. But unlike gods, or politicians, I am not infallible. This GT1 racer takes no prisoners. If I make a mistake, there is no cushy torture chamber or Guantanamo Bay for me, just a hyper-speed appointment with the cold steel of the armco barrier. Slippery cornering moments are bad enough but more worrying is loss of control in sixth gear. You have to be super-quick to catch a slide. You must anticipate loss of grip in order to correct it.

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# GT RACING

GT Racing's governing body is the FIA which runs the major international series, with many countries running their own national GT series under the FIA's technical regulations. Modern GT racing has been inspired by, and evolved from, decades of Le Mans cars. The golden years of GT racing were in the late 1960s and early 1970s. Today there is healthy resurgence with cars like the Aston Martin DBR9 and Maserati MC12. Reiter's Murciélago came a creditable 6th at Brno and 8th at the Budapest and Dijon rounds of the championship. See www.fiagt.com

The rules for GT1 are fairly free. This means that to be competitive you do not modify a road car. Instead, you start with a blank sheet of paper and virtually build a prototype in the shape of the original car. The cost is so vast that there are relatively few GT1 cars, which means that GT1 is always under threat. GT2 allows fewer modifications and GT3 even less. The recent success of GT3 means that there are so many cars and competitors, that rival GT3 championships are taking hold.

Then you must undo the corrective input before the car reacts or you will get into a terminal tank-slapper.

The dry-sump engine sits very low in the chassis, making a big difference to the way a Murciélago feels compared with its Diablo ancestor. There is no four-wheel drive and no ABS in GT1, which makes it hard on the drivers, although traction control is OK for 2007. Without traction control. power must be fed in just so. Too slow and you are nowhere, too fast and ditto. With most of the Murc's weight on the rear wheels, throttle use is far less critical than on, say, a 😂





# TECHNICAL SPECIFICATIONS

Engine:	6000cc V12, 48v, 4-cam alloy,
	mid-mounted.
Bore x stroke:	87mm x 84mm
Compression ratio:	Over 12:1
Power:	600bhp @ 6500rpm
Transmission:	6-speed paddle shift, rear-wheel drive
Brakes:	Steel ventilated discs (front and rear),
	no ABS
Suspension:	Double wishbone, coil-overs,
	anti-roll bars, all adjustable
Tyres:	335/710/18 and
	300/650/18 Michelin slicks.
Dimensions:	(L)4580mm, (W) 2045mm, (H)1125mm
Kerb weight:	1125kg (ballasted up from 1050kg)
Top speed:	314km/h, 196mph
0-62mph:	2.9sec

Maserati Trofeo race car; although the motivated Maser spoils you with its ABS. A lack of ABS on this Lambo adds stress to the driver's job. No simple mashing of the middle pedal. No, with the Lambo, you need a delicate touch while all hell is going on around you. Brake too early and you get swamped by the opposition. Too late and you flat-spot £1000 worth of tyres in a nanosecond. Definitely pro-drivers only.

The commotion that is going on violates all senses and feels more intimidating than with the GT cars of old. Visibility is very poor, with no centre mirror due to the solid bulkhead, just a pair of wobbly door mirrors angled at the trees and the sky. The Reiter team has given the car some toe-out at the front and rear to help turn-in, but it makes the car terrifyingly spooky on the straights. The light controls make it a bit of a video game. But unlike a video game, there is no 'resume' button if you get it wrong.

Then there is the noise. Oh my God the noise. Apart from



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the one-in-a-billion who manage to get into this legendary Lambo, observers hear the hair-raising Doppler scream from the mental 6-litre V12; perfectly apt as Mr Doppler used to live in Salzburg. To bystanders it is 'The Sound of Music', yes, that film was shot here too. You would swear that the motor is running close to the 18,000rpm of current Formula One engines, but you would be wrong. So wrong. Reiter says that in this case the motor's 7000rpm sounds like 18,000rpm because of the mods to the engine and the harmonics of the special exhaust system, and that the exhaust outlets are so close together. The test drive is over. I fought the bull, but I did not win. Let's call it a draw. An eye-to-eye stand-off with another of Lamborghini's furious fighting bulls.

# Conclusion

I loved this monster but I would have to tame it, or certainly tweak it. The beast bombards the driver vet somehow lacks feel. The team was experimenting with toe-out in order to improve turn-in and reduce low-speed understeer. The downside is a very nervous animal at high speed that will weave about alarmingly, requiring much concentration and driver input on the long straights. I put these thoughts to the team, which is always a risky business. They don't know about my 40 years of hands-on motorsport. Think about it -agroup of clever engineers and professional drivers spend a couple of years honing a car, and then along comes some pen-pusher who tells them how they should be doing it.

The team said that the light steering and brakes are to reduce driver fatigue on endurance events and that given enough tracktime a driver becomes au fait with the diminished feel. OK, agreed. This reinforces Peter Kox's point about needing lots of track time in this car. As for the toe-out and high speed snaking, they say that the lap times are quicker and that it is not as bad on different tyres. I believe toe-out is the work of the devil, and  $\boldsymbol{I}$ am not convinced. Rather than suggest alternatives, I quit while I am still ahead and went to look for a cushion. ai