

The Chapman Report



Published by the Golden Gate Lotus Club

www.gglotus.org November 2006

Parties, Toys and Politics

First the Holiday Party, December 9th.. The site will be Ristorante Capellini (in the wine cellar), 310 Baldwin Ave., San Mateo, 650-348-2296

There will be appetizers and a Ceaser Salad with the following entree choices:

Halibut Piccata, Grilled Alaskan Halibut Picatta with oven roasted asparagus, portobello mushrooms, red and yellow bell peppers & clams

Pollo Arrosto, Herb-roasted free-range chicken with wood-oven roasted vegetables

Agnello al Forno, Oven-roasted rack of baby lamb, roasted vegetables, and red currant jelly

Melanzana Al Forno (Vegetarian), Eggplant breaded, baked with mozzarella cheese and pomodoro sauce

Dessert will be Classic Tiramisu

Cost will be \$34 per person. Payment can be made by check, or preferably by PayPal on the GGLC website. Last day to sign-up and make entree selections will be December 2nd

Another upcoming event is the election for club President and Vice-President, which will take place at the November meeting. Nominations for Prez are:

Clark Vineyard

Dick Ryan

Alexander Komlik

The 'runner-up' will be the VP. Though Scott Hogben is not running for re-election, this may be a refferendum on his claim that Porsche 944's are WMD, and that they cost less for the 12K dealer service than the Elise 12K dealer service. The promise of a trophy from the ABCM is also an issue. VOTE at the meeting. Voting may be available through the website.....not confirmed at this time.

The final big event to come is the annual Toy Rallye on December 3rd. We still may need some volunteers to man some of the checkpoints. This event is lots of fun and the weather has often been good to us. Check the GGLC website for further information.



Name this bike?

November Meeting

Friday, November 17th., 7:30 PM

Host: Joe Ficarra



Name this bike?

Calendar

- | | |
|-------------------|---------------------------|
| November | GGLC Meeting |
| Host: Joe Ficarra | Officer Elections |
| December 3 | Toy Rallye |
| Fremont (start) | |
| December 9 | Xmas Party |
| Capelli's | |
| December 25 | Santa puts a turbo in all |
| members' | stockings |

for more and up to date information these GGLC and other events check the GGLC website at www.gglotus.org

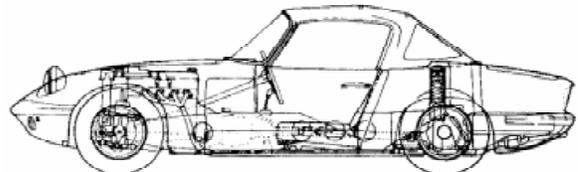
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RUNNIN' ROUND THE RING

by Dick Ryan

A September business trip put the Flash Racing Ltd. Team in Luxembourg on Friday with my next set of meetings Monday morning in Frankfurt. Guess what's in between these cities? The Nurburgring Nordschleife!

Saturday morning we took the hotel shuttle bus to the Luxembourg airport to pick up our rental car. I had Hertz reserve an Opel Vectra Coupe (the base car that Opel races in the German DTM touring car series). Someone had canceled the reservation, and we went in circles about that for a while. We finally got a Ford Mondeo diesel. It is bigger and slower but all of our bags fit in the trunk.

We wandered northwest through the Luxembourg and German countryside avoiding the motorways. We got lost once or twice but that was OK. We got to the Ring about noon.

Nurburg's Nordschleife (or North Course) is one of the most famous racetracks in the world. It was built from 1925 to 1927. It hosted the German Grand Prix until 1976 when it was declared too dangerous for really high-speed cars (due to Niki Lauda's fiery crash). It is 20.8 km (about 9.4 miles) long with a shit load of turns (73). Its nickname is the "Green Hell" because it is so long and is lined with green trees. You can buy "tourist laps" and drive your own car (or bike) around.

There was a driver's school there Thursday, Friday and half of Saturday (for \$2,000 driving your own car). They must have had 500 or 600 cars for the school. Every driver wanted to show off how much testosterone was flowing through his veins. There were burnouts and fast moving cars everywhere. It was an absolute zoo.

The Nordschleife didn't open until 5:15 p.m. for tourist laps because of the driver's school. (Normally, it opens at 8 a.m.) So we bought tickets for the museum, pit and paddock tour of the Grand Prix circuit (the descriptions

were all in German) and a tourist lap (\$20). When you buy your tourist lap ticket at the museum, you get a second lap free. We had a good lunch in the restaurant at Start/Ziel. About 4:30 we head over to the Nordschleife's starting point, about 2 km from the Grand Prix circuit.

The small (maybe 60 spaces) parking lot was about 3/4 full. I picked a parking space that would be a quick, easy entry into the starting lanes. (We needed to get our 2 laps in, and drive an hour or so to the next hotel to arrive by 8 p.m.) The lot filled up quickly. Cars would circle the lot 5 or 6 times looking for a spot to park until the Nordschleife opened. Then the surrounding roads started to fill up. (When we left about an hour later, the one road we took out had a 1 km backup.) Then the tour bus arrived and parked in the middle of the main entrance. It was packed with tourists. A few of the drivers/riders killed some time by having a few beers before going out. Probably not the world's best idea if you wanted to stay on the track later.

Then there were the motorcycles. There must have been two or three hundred motorcycles parked everywhere and going around and around the area. Each one was a full-bore road racer. There were more Elises and Exiges than I have ever seen before. Porsche was the most numerous make, 40 or 50 of them. I didn't see a single Mercedes Benz and very few BMWs. The starting area was packed with spectators who were there just to watch the cars and bikes start out.

Everyone's blood pressure rose as the clock crept towards 5:15. It seemed like the whole world was coming to a testosterone crescendo. Sure enough, at 5:14 Connie (FRL's EVP of Lunch) decides she needs some cookies out of the trunk. I could have killed her.

Oh yeah, let me tell you about Connie. She seems to think driving on a racetrack is dangerous. Before we left on the trip I showed her some info on the tourist laps. She thought we would die, so she decided she didn't want to go out in the car with me. As the start time approached, the subject

of her getting out of the car never came up.

About 5:25 the tour bus heads for the starting lanes and the rush was on. Two or three hundred cars and a million bikes head for 2 car and 2 bike starting lanes. Driving a rental car and not being concerned about scratching the bodywork gave me an advantage in the one half MPH traffic jam. We get into the far left lane behind the widest Porsche I have ever seen (he must have had steamroller tires). People would hear the diesel rattle and give us funny looks. We certainly seemed to be the most normal "road car" there. Inch up to the starting gates; put your ticket (just like a BART ticket) into the slot, the screen says something like "1 runden" and the gate opens.

Head out, through a very tight chicane and onto the Nordschleife. Connie mumbled something about getting out of the car but I ignored her. I had a track map but that was useless at speed, so we never really knew what kinds of turns we were approaching. I had made the decision that I was not going to go really fast. Who knew what the tires and brakes were like on the Hertzmobile. Slower traffic was to stay to the right and passes were only made on the left.

The first few km were a maze of Porsches, TVRs, Corvettes, and really fast bikes screaming by. Imagine heading down into T-3 at Sears, starting to turn in, and having 3 bikes (at a 50 degree lean) going by. Connie could not believe the closing speeds and how close the bikes got to us as they went by (a matter of inches). We soon caught up to Mr. Blue Helmet. This biker would go through the tight turns very slowly and rip down the straights. I would stack up behind him in the turns and then couldn't catch him on the straights. I slowed for a while to let him get way ahead, then caught back up to him. Finally, I got a run out of a chicane (with no other traffic behind us), got by him, blocked him down the short straight and never saw him again.

Then we came upon one of the tricky curves. There must have been a hundred spectators watching from the

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sidelines. We decided that they were all just there to watch the wipeouts. About 4 or 5 sections were lined with spectators waiting for crashes. We didn't see any crashes on the first lap.

Diving down a hill into a 90 right we caught the tourist bus. All the people on the bus were watching out the windows for the traffic to pass them. I found a space and moved left onto the fast side of the track. Imagine driving a Vee, passing a bus entering T-11 at Laguna, in the middle of a Corvette and motorcycle race. It was a maze of flashing colors.

Because of the mass of vehicles waiting to get out early, the first lap was full of traffic. We only passed a few cars and bikes. We popped over a hill and onto the really long straight (maybe 2 km) to end the first lap. This is the finish and start section for the tourist laps. So way up in the distance is a long line of stopped traffic waiting to exit the track, us (and many others) off the accelerator, and multiple Porsches coming up from behind at 130 mph.

Back into the starting lanes, ticket into the machine and out again before Connie could say, "I want out." This lap had much less traffic, so I got to drive the racing line for a large portion of the lap. Now I get to pass more cars and bikes, the diesel clattering wildly. Only once did I come into a corner too fast, brake hard and had to correct (with Connie screaming). This is now real fun.

Then we come to the first waving yellow. There were very few turn workers around the track (maybe 5 in the whole 9+ miles). Round a bend and a worker is standing on the right hand berm waving a yellow flag. (I would have never stood where he was standing.) Arm out the window and slow. Round the next bend and there is a bike into the guardrail. About 6 or 8 bikebuddies and 3 or 4 cars have stopped (on the track surface), to help him; it's a real parking lot. Didn't look too bad. Back up to speed.

Down the track is another worker with a waving yellow. The little blue car that passed us a few turns ago has quit and is parked on the grass. No big deal. Back up to speed.

Further down the track, there is a

guy in black leathers running down a small hill on the right side of the track wildly waving his hands, slow down. One of the track rules is: if you have to stop your vehicle, you must display the international red triangle breakdown sign. We round the uphill bend and a tall lady in leathers is standing right in the middle of the track. She has a white cloth bag with a red triangle pulled over her helmet that she is now holding in her outstretched hand. 10 meters past her, is her bike parked on the right side of the track. Didya have to stand right in the middle of the track???? Couldn't you have rolled the bike off the track surface???

On our first lap when we got to the Karousell, I just looked at it and went around the far outside (on the right side). This is a 180-degree left hand bend that is about 40 or 50 meters in diameter. I have seen photos of the greats of motor racing going around this one. Caracciola in a Mercedes Benz Silver Arrows. Rosemeyer in the Auto Union. Clark in the Lotus, Von Tripps in the Ferrari. This is truly a world famous turn.

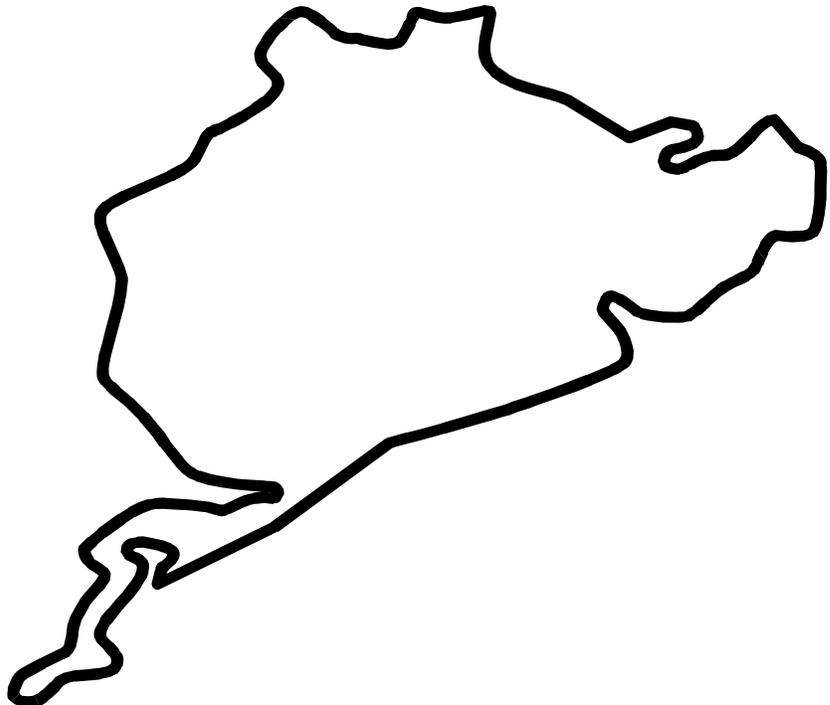
On the far outside the Karousell's surface is slightly banked to the inside. On the inside of the turn the track

surface is very steeply banked (probably 45 degrees). There is no middle choice here. If you did go down the middle, I don't think any of the car's wheels would touch the surface and the underside of the car would be ground down significantly.

On the second lap, we were clear of traffic so I dropped into the Karousell's steep banking. Exiting it is like getting shot out of a gun. I would have paid hundreds of \$\$ for a photo of us going through that one.

One of the German traditions is to paint graffiti on the track surface before the big races. A number of the track's sections were painted from side to side with all colors of paint. The drivers must love this when it rains (which it does frequently).

After our 2 laps, as my blood pressure dropped to normal levels, we drove to St. Goar on the Rhine River and got our hotel room. 4 story walk up, so most of our bags stayed in the car. Sunday we wandered down the Rhine and toured a few castles. Lunch in a wine garden. Then onto Frankfurt and our hotel.



Tesla on Lotus

by Martin Eberhard,
CEO, published Tuesday,
July 25th, 2006 *(abridged
by the editor)*

Holy smokes! There is no way I can respond to all your comments, but thank you everyone for writing. This time I will discuss one common thread that many of you raised: what exactly is Tesla's relationship with Lotus? Along the way, I will address a few other threads from your feedback. Once again, I am writing without Marketing's filters, so I apologize in advance for any "pc" slips.

Much as I love cars, I am the first to admit that neither I, my co-founder, Marc Tarpenning, nor our original investor (and chairman of our board), Elon Musk, is an automotive engineer. We have quite a few excellent automotive engineers at Tesla now, but three years ago, we did not. (Several have worked for Lotus in the past, but that's another story.) We wanted the first Tesla car to handle like a proper sports car, so we approached Lotus Cars, known to make the finest-handling sports car on the road. (Marc and I cornered Roger Becker at the 2004 LA Auto Show and convinced him that Tesla was worthy of consideration.)

Since our first meeting with Roger Becker, Tesla has built a strong, friendly relationship with the team at Lotus, focused primarily on bringing a great new sports car to the market quickly and efficiently. Our relationship has several aspects, which I will begin to explore in this article:

Tesla has licensed key technology from Lotus, principally related to structure and safety

Tesla has contracted Lotus Engineering for various engineering and styling jobs

Lotus Cars is the contract manufacturer for the Tesla Roadster, with Tesla as a key supplier to the factory in Hethel.

Technology

For those of you who don't know, the Lotus Elise's chassis is a work of genius. Richard Rackham's insight was to construct the entire chassis out of a collection of custom aluminum (aluminium, as he calls it) extrusions that are bonded (glued) together. Extrusions are strong and easily manufactured with complex cross-sections. Bonding allows for thinner aluminum than welding as it has a larger material area to transfer loads between members and avoids material degradation due to the heat of welding. You Lotus fans will attest: the Elise is a proper Lotus, and Colin Chapman would be proud. It is light, stiff, nimble, and quick. It is also small, spartan, quirky, and not for everybody.

Some have suggested that the Tesla Roadster is built on a Lotus chassis. This is not true. Tesla licensed the Elise chassis technology, but Tesla's UK-based chassis engineering team designed the Roadster's chassis using that technology. The suspension and occupant protection systems are very similar. But here are a few key differences:

Tesla re-engineered the main chassis rail extrusions, making them stronger and thereby allowing us to lower the doorsill height by 2 inches, drastically improving ingress/egress. (Elon and I are both more than 6' tall, so improving ingress was a requirement!)

At the same time we changed the way the chassis rails bend just behind the seats. Lotus simply bends the rails. Tesla instead miter-cuts the rail, then bonds them together at the exact correct angle with a custom bracket. This solution works with the new extrusions to lower the sills, and reduces manufacturing complexity.

We eliminated the box section that surrounds the gas tank on the Elise. The Tesla Roadster achieves equivalent (actually slightly higher) stiffness with the structural box that encloses the battery pack

We designed a unique rear sub-frame, to accommodate a battery pack and electric drivetrain rather than a gas tank, engine, and exhaust system

We lengthened the Tesla Roadster's wheelbase by 2 inches – rearward of the seats, giving us a tad more room for the battery pack, shifting the weight forward to keep the distribution reasonable, reducing ride choppiness, and giving the car a little more sophisticated look

We beefed up the composite crash structure at the front (one of Lotus's clever innovations) to accommodate the higher weight of the Tesla Roadster

The suspension geometry is identical to that of the Lotus, though we strengthened many components, again to accommodate the increased weight

We use larger brakes – both front and rear

And of course, our engineers extensively modeled the new Tesla chassis starting with the computer models so carefully built by Lotus. We are right now proving what the computer models told us through harsh durability and safety testing on real cars. So far, things look good. (Though very painful to slam brand new cars into a concrete barrier!)

Tesla also licensed key safety systems from Lotus. Obviously, we did this to save time and money. But it goes deeper than that. Many suppliers of critical safety systems (principally airbags and ABS brake systems) are geared up to work with very large OEM manufacturers. Over the years, Lotus has carefully cultivated relationships with suppliers for these systems, and the result is a "federalized" Elise with all the right systems. By using these systems unchanged – and with Lotus as a supply chain partner for them – we have access to components that we might otherwise not be able to acquire at all.

By using Lotus's airbag system and surrounding dashboard hardware, we achieved interior safety compliance. Some components consequentially look like an Elise: the steering wheel and its column; the upper dashboard molding including the passenger airbag hatch, etc.

But we felt that much of the Lotus interior was too spartan (and too

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uncomfortable) for the Tesla Roadster. So we redesigned most of the interior:

We completely redesigned the seats, widening them by several inches, replacing Lotus's fiberglass with carbon fiber, upgrading the padding material to the finest space-age foam available, and re-styling the looks

We designed our own beautiful, exposed carbon-fiber console that (can you believe it?) includes a cup holder

We included a custom, color LCD display for all kinds of interesting information about the power train, the battery system, etc.

We included a superior Blaupunkt radio with iPod connector and with optional satellite radio and satellite navigation system

We carpeted the floor to reduce noise and heat transfer from the road (floor mats are also available)

We designed our own doors with electrically-activated latch (giving it that "shaved" look – no visible door latch), leather-trimmed door panels, controls for the power windows, central locking, and electric trunk release

As mentioned above, we lowered the doorsill by 2 inches to accommodate both taller and shorter people (and people wearing skirts and heels

Engineering and Styling

Lotus Engineering principally does engineering and design work for other car companies. I dare say that few major car companies have *not* hired Lotus Engineering for some work or other over the years. Tesla hired Lotus Engineering for various bits of analysis, engineering, supply chain help, and of course, body styling. This time, I will focus on styling.

In the beginning, I thought that we would carry over some of the Elise body panels – just because the cost of tooling so many parts seemed daunting when Tesla had practically no money.

But Elon Musk (who, as a McLaren F1 owner, has pretty high expectations for a car's looks) pushed me not to be such a wimp. Supercars are not made of fiberglass, and our market will demand a more sophisticated look than that of the Elise. Once I was convinced that carbon fiber was

the way to go, everything Elise went out the window except (if you will forgive me) the front and side windows.

Though expensive and time consuming, this decision gave us the opportunity to fix a few things: unlike the Elise, the Tesla Roadster includes federally-compliant 2.5 mph bumpers, federally compliant HID headlights, and all LED rear lights.

A car's windshield is an expensive and tricky bit, entangled with safety, rollover protection (when you consider the windshield surround), legal visibility requirements, waterproofing, interaction with the wiper, etc. It made a whole lot of sense to use the Elise "glass house" and rubber seal system. However, even there, we improved: the Tesla Roadster's glass has an expensive but effective UV- and IR-reflecting layer embedded in it to keep the cabin cooler on hot days.

Lotus certainly is not the least expensive car factory in the world, and the exchange rate to the Pound Sterling keeps getting worse, so for us, the Hethel factory is limited as a contract manufacturer only for high-end cars. But they are great partners for the Roadster.

Tesla Position

The Tesla Roadster does indeed carry some Elise DNA. But it is a very different car, designed to meet different goals and deliver a different experience. We at Tesla are quite pleased with our friends at Lotus, but our destiny is to become a full-blown car manufacturer, with our own factory and a broad product line. I expect that Lotus Engineering will continue to do work for Tesla for a long time – for example, who knows ride and handling like they do? But they are only one resource for us as we grow.

end



No, not the new Lotus or Tesla. This is the Mercedes Smart, sports version.



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Lotus Bytes/Ebay Watch: *editor*

A missed opportunity for a great gift at the Holiday Party. From Ebay, a lamp made from the tranny housing of a Sprite.



On another note, I took over an old Autoshop this year, with one room full of old car parts. Most are not useable, except for three Weber DCOE 50's, apart but in their boxes.

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Opinions expressed in the Chapman Report are those of the authors and do not represent those of the GGLC or its officers.

Submissions to the Chapman Report are accepted and encouraged. Please email them to chapmanreport@gglotus.org in MS Word, rtf or ASCII text. Submissions may also be mailed to Jim McClure, 11238 Bubb Road, Cupertino, CA 95014.

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Classifieds

(non-commercial ads are free to GGLC members and will run for three issues before requiring renewal)

FOR SALE: 1966 Lotus Elan Coupe. Color BRG. Webers and Knock off wheels. Engine, Transmission and brakes rebuilt, with less than 2000 miles. Has +2 wheels and flared wheel wells. Body has usual F/G checking but looks and drives great. Ca black plate car, no rust. \$15000 925 484 1697 (11/06)

For Sale: 72 Elan Sprint DHC. Red Imron paint. 51,000 miles on very optimistic speedometer (higher rear end ratio) so real mileage is less. New water pump in '04. Runs reliably. No surprises. It has a few seal leaks, but not from the engine. In the same family for 20+ years. Needs some cosmetic work (carpets, paint touch up), but nothing major about which I am aware. It has never let me down. Car was at the '05 WCLM. Reason for selling: garage space, motorcycle and we live in snow country. Price \$13,800. Location: Tahoe City, CA (50 miles from Reno, NV) Call or e-mail for more details or photos. Bard Wilmar 530-386-3138 or Bard@LotusElan.org.

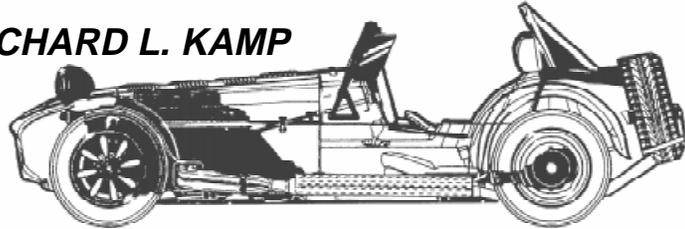
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Wanted: Anyone have a running car they want to donate to Santa Clara High School? The car would get full IRS value, as we use it for training, not auction wholesale. EMAIL jim mcclure, hornetconsulting@yahoo.com (11/06)

Wanted: Front and rear suspension parts for 1989 Esprit. I need all of the hard bits except for the rear upper suspension links. Contact Mike Griese (mike.griese@att.net). (09/06)

FOR SALE: '69 s4 fixed head. please feel free to call me a 805-559-7772. thanks, david (9/06)

FOR SALE: 2005 Elise. Silver,Tan. 2000 miles, Sport&Touring. Argray exhaust \$40,000. Paul Camusi 530-343-0443 (10/06)

Parts Wanted: Front and rear suspension parts for 1989 Esprit. I need all of the hard bits except for the rear upper suspension links. Contact Mike Griese (mike.griese@att.net). (10/06)

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