天主教輔仁大學英國語文學系學士班畢業成果

ENGLISH DEPARTMENT, FU JEN CATHOLIC UNIVERSITY
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Reflection on the Project of "3D Animation-ibook Technique on Didactics Application"

學　生　：　黃　柏　霖　撰

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70 Years of Ferrari

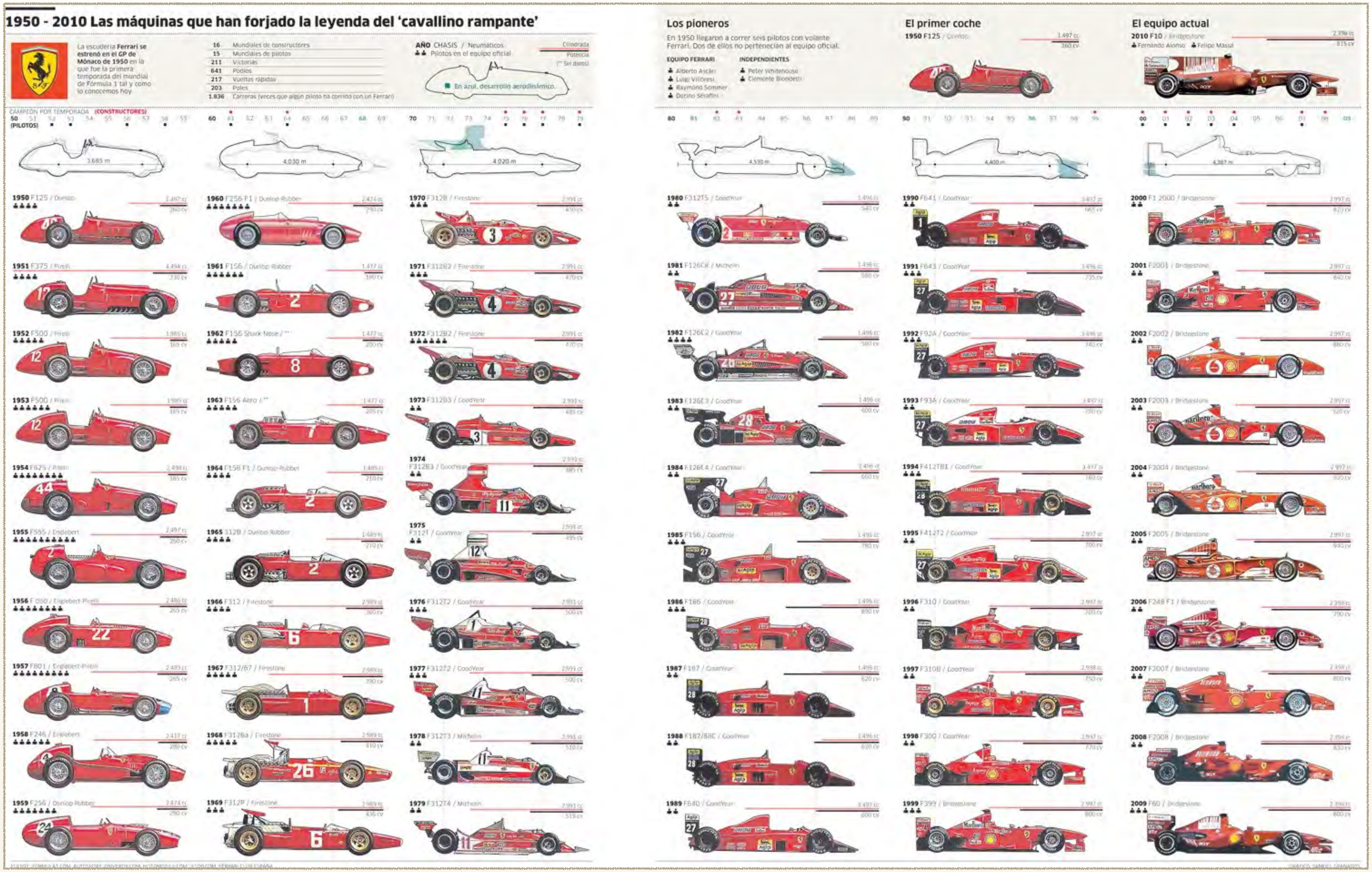
MICHAEL HUANG

Chapter 1

HISTORY

Ferrari N.V. is an Italian sports car manufacturer based in Maranello. Founded by Enzo Ferrari in 1939 out of Alfa Romeo's race division as Auto Avio Costruzioni, the company built its first car in 1940. However, the company's inception as an auto manufacturer is usually recognized in 1947, when the first Ferrari-badged car was completed.

Enzo Ferrari


1950 - 2010 Las máquinas que han forjado la leyenda del 'cavallino rampante'
La escudería Ferrari se estrenó en el GP de Mónaco de 1950 en la que fue la primera temporada del mundial de Fórmula 1 tal y como lo conocemos hoy
16 Mundiales de constructores
15 Mundiales de pilotos
211 Victorias
641 Podios
217 Vueltas rápidas
203 Poles
1.836 Carreras (veces que algún piloto ha corrido con un Ferrari)
AÑO CHASIS / Neumáticos
Pilotos en el equipo oficial
Cilindrada
Potencia
(** Sin datos)
En azul, desarrollo aerodinámico.
CAMPEÓN POR TEMPORADA (CONSTRUCTORES)
(PILOTOS)
Los pioneros
En 1950 llegaron a correr seis pilotos con volante Ferrari. Dos de ellos no pertenecían al equipo oficial.
EQUIPO FERRARI
Alberto Ascari
Luigi Villoresi
Raymond Sommer
Dorino Serafini
INDEPENDIENTES
Peter Whitehouse
Clemente Biondetti
El primer coche
1950 F125 / Dunlop
1.497 cc
260 cv
El equipo actual
2010 F10 / Bridgestone
Fernando Alonso
Felipe Massa
2.398 cc
815 cv
3.685 m
4.030 m
4.020 m
4.530 m
4.400 m
4.367 m
1950 F125 / Dunlop
1951 F375 / Pirelli
1952 F500 / Pirelli
1953 F500 / Pirelli
1954 F625 / Pirelli
1955 F555 / Englebert
1956 F D50 / Englebert-Pirelli
1957 F801 / Englebert-Pirelli
1958 F246 / Englebert
1959 F256 / Dunlop Rubber
1960 F256 F1 / Dunlop Rubber
1961 F156 / Dunlop Rubber
1962 F156 Shark Nose / **
1963 F156 Aero / **
1964 F158 F1 / Dunlop Rubber
1965 312B / Dunlop Rubber
1966 F312 / Firestone
1967 F312/67 / Firestone
1968 F312Ba / Firestone
1969 F312P / Firestone
1970 F312B / Firestone
1971 F312B2 / Firestone
1972 F312B2 / Firestone
1973 F312B3 / GoodYear
1974 F312B3 / GoodYear
1975 F312T / GoodYear
1976 F312T2 / GoodYear
1977 F312T2 / GoodYear
1978 F312T3 / Michelin
1979 F312T4 / Michelin
1980 F312T5 / GoodYear
1981 F126CK / Michelin
1982 F126C2 / GoodYear
1983 F126C3 / GoodYear
1984 F126C4 / GoodYear
1985 F156 / GoodYear
1986 F186 / GoodYear
1987 F187 / GoodYear
1988 F187/88C / GoodYear
1989 F640 / GoodYear
1990 F641 / GoodYear
1991 F643 / GoodYear
1992 F92A / GoodYear
1993 F93A / GoodYear
1994 F412TB1 / GoodYear
1995 F412T2 / GoodYear
1996 F310 / GoodYear
1997 F310B / GoodYear
1998 F300 / GoodYear
1999 F399 / Bridgestone
2000 F1 2000 / Bridgestone
2001 F2001 / Bridgestone
2002 F2002 / Bridgestone
2003 F2003 / Bridgestone
2004 F2004 / Bridgestone
2005 F2005 / Bridgestone
2006 F248 F1 / Bridgestone
2007 F2007 / Bridgestone
2008 F2008 / Bridgestone
2009 F60 / Bridgestone


FERRARI
F1 WORLD
CHAMPIONS
Alberto Ascari
Juan Manuel Fangio
Mike Hawthorn
Phill Hill
1961
John Surtees
1964
Niki Lau
1975 - 1
Niki Lauda

Chapter 2

BEGINNING

The Ferraris in 1940s

Ferrari 125 S

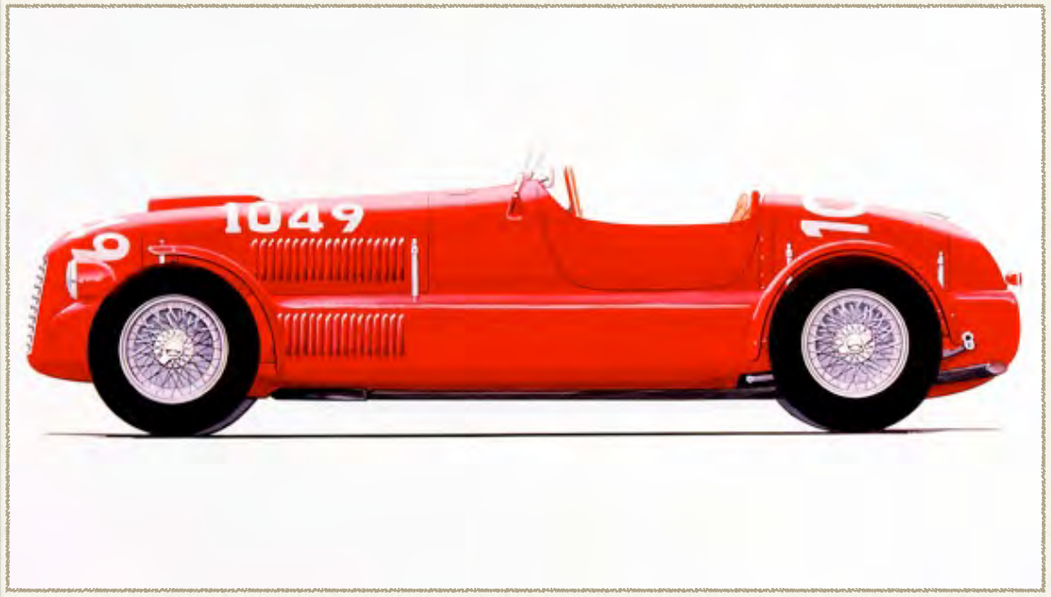
125 S (1947)

- *1.5 litre naturally aspirated V12*
- *118 horse power*
- *5-speed manual gear box*
- *Top speed: 210km/h*

Ferrari 125 S

This was the very first car to wear the Ferrari badge. The V12 engine was designed by Gioacchino Colombo with contributions from Giuseppe Busso and Luigi Bazzi. Sport and competition versions of the 125 S were built with different bodywork although the chassis and running gear of the cars remained basically identical.

The 125 S's debut on the Piacenza circuit was, in the words of Enzo Ferrari himself, "a promising failure." In fact, Franco Cortese had to pull out because of a problem with the fuel pump while leading the race. However, over the following four months, the 125 S was back on the track 13 times, winning six of its races



166 INTER SPORT (1948)

- *2 litre naturally aspirated V12*
- *130 horse power*
- *5-speed manual gear box*
- *Top speed: 215km/h*

Ferrari 166 Inter Sport

The Tipo 166 two-litre engine spawned a whole range of sports and single-seater models. In fact, the 166 Sport provided a crossover point between the two categories because, as the Ferrari catalogue of the day pointed out, it could be adapted for international races (hence the name Inter) for two-seater and single-seater sports cars. This was possible thanks to the fact that the lights and the mudguards could be attached and detached to suit the rules, making this a multipurpose model.

Ferrari 166 MM

166 MM (1948)

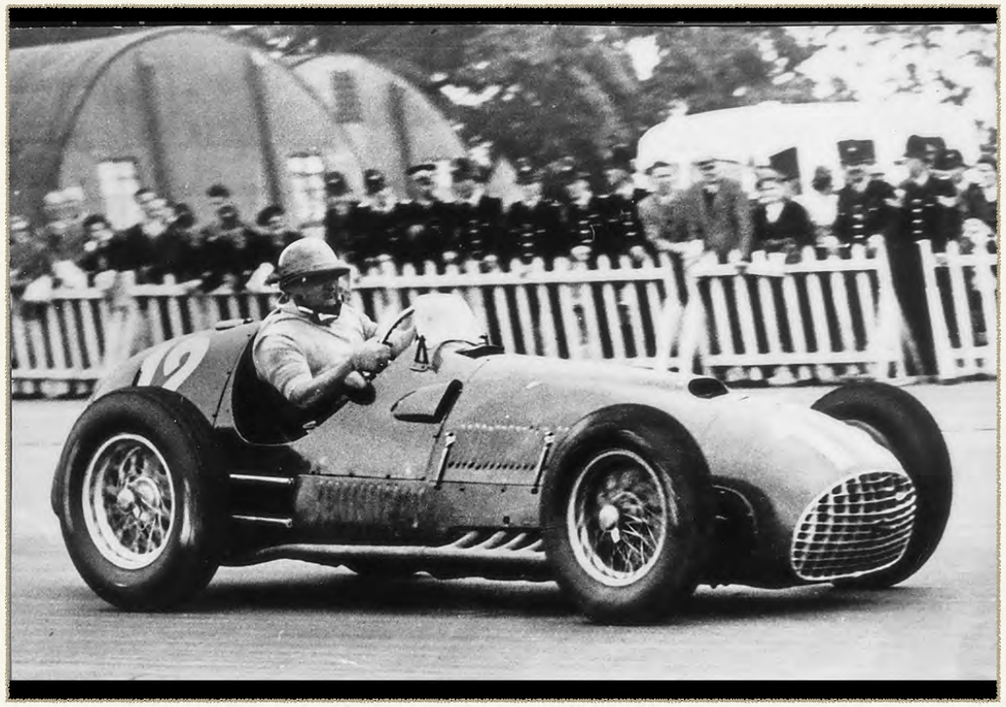
- *2 litre naturally aspirated V12*
- *140 horse power*
- *5-speed manual gear box*
- *Top speed: 220km/h*

Designed for long distance competition, the 166 MM took its name from one of the world's most famous road races, the Mille Miglia, in which the Maranello cars were to triumph again and again. Its coachwork was built by Touring using the "Superlight" method. The 166 MM was both extremely light and extremely dynamic whilst still maintaining significant structural stiffness. The 166 MM's engine was also modified for run on "normal" commercially available fuel.

Chapter 3

GROWING

The Ferraris in 1950s



125 S (1951)

- *4.5 litre naturally aspirated V12*
- *375 horse power*
- *4-speed manual gear box*
- *Top speed: 278 km/h*

Ferrari 375 F1

The cylinder capacity of the aspirated engine was brought to the limit of the regulations with 4493 cc in time for the Italian GP at Monza on 2 September 1950, where Ascari finished second, after his car stopped and he took Serafini's, sharing the points.

The first win finally came on 14 July 1951 in the English GP at Silverstone. The Argentinean José Froilàn Gonzalez managed to beat the Alfa Romeos, taking the 375 F1 to victory. Two weeks later, Ascari won the German Grand prix and, later, at Monza. But it wasn't enough to overtake Fangio for the drivers' title, due to the defeat at Barcellona when the tyres gave out.

D50 (1956)

- *2.5 litre naturally aspirated V8*
- *265 horse power*
- *5-speed manual gear box*
- *Top speed: /*

Ferrari D50

When Lancia withdrew in 1955, Ferrari inherited its material, putting the modified D50 on the track for 1956 and, above all, a driver of Fangio's ability. The Argentine returned the world championship title to Maranello at the end of an extremely hard-fought season. Fangio had three victories, taking the drivers' championship thanks to the generosity of Collins (who won two races). The Englishman gave him his own car for the last race at Monza, allowing him to come second and fight off Stirling Moss's challenge.

The car (designed for Lancia by Jano, who continued to perfect it for Ferrari) is characterised by the two side tanks originally for fuel, but then reduced to the sole function of wheel guards. It also has a trestle-type chassis, where the engine is part of the resistant structure.

Ferrari 250 California

250 CALIFORNIA (1957)

- *3 litre naturally aspirated V12*
- *240 horse power*
- *4-speed manual gear box*
- *Top speed: 252km/h*

Ferrari 250 California

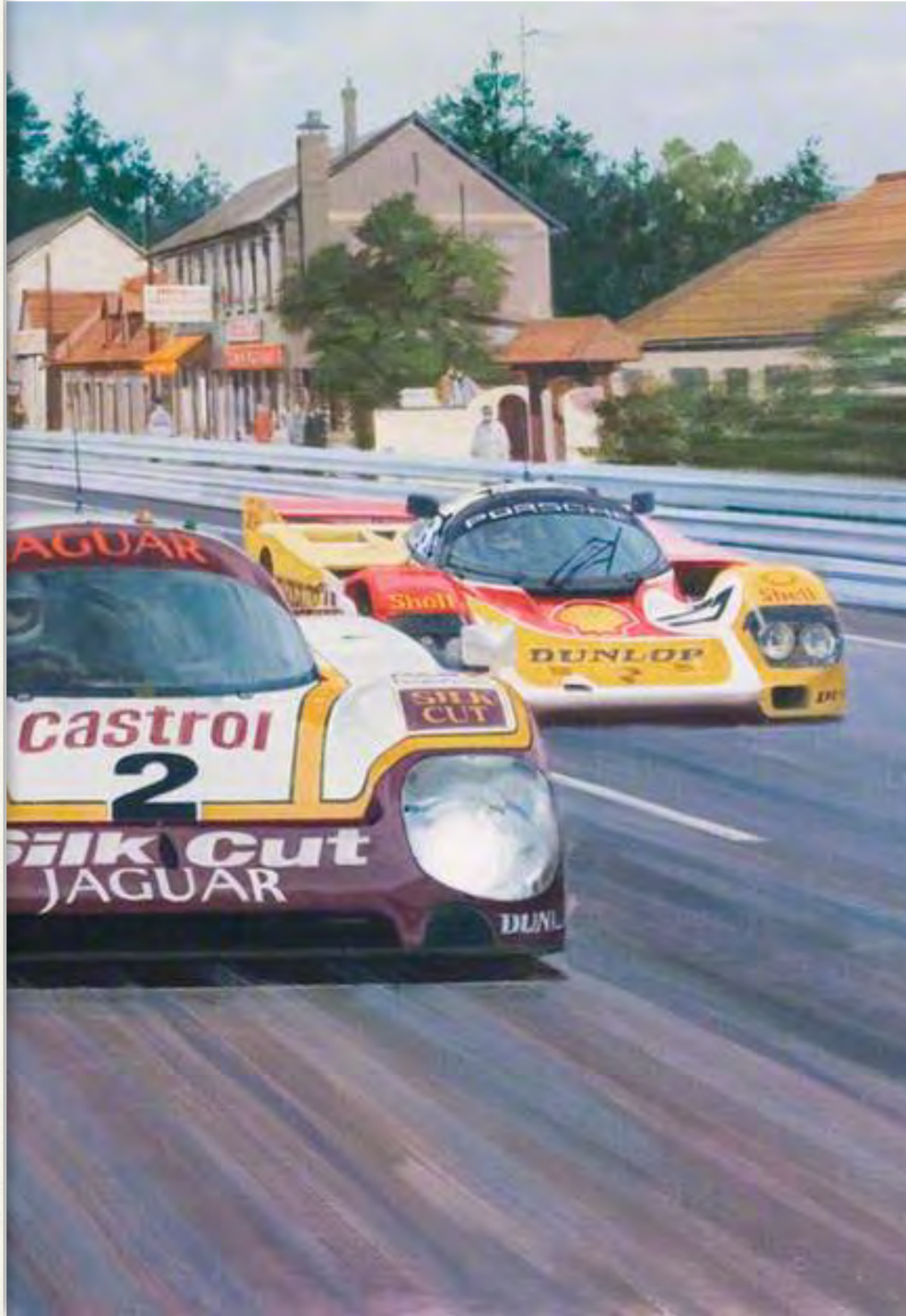
The term ‘spider’ in the model name is something of an anomaly, as the California is really a cabriolet or convertible, with a full folding hood. However, it was in effect an open-top version of the 250 GT Berlinetta alongside which it was produced. Thus, the term spider differentiated it from the concurrently produced 250 GT cabriolets, which were allied to the road-going 250 GT coupés. With two open cars in the production model line-up, it can be seen that open cars were in vogue at the end of the fifties.

This model was constructed in two distinct series: the ‘LWB’ (long wheelbase) between 1958 and 1960, although a prototype was built in late 1957, and the ‘SWB’ (short wheelbase) from 1960 to 1962. The latter example wasn’t actually completed until early 1963, with sub-divisions relative to body and mechanical details. A removable hard-top was available for both series

Chapter 4

FROM TRACK TO ROAD

The Ferraris in 1960s



Ferrari 156 F1

156 F1 (1961)

- *1.5 litre naturally aspirated V6*
- *190 horse power*
- *5-speed manual gear box*
- *Top speed: /*

Ferrari and its drivers dominated the scene in 1961, winning both the Drivers' and Constructors' titles with the 156 F1. The 156 F1 was the new single-seater developed from the previous year's F2, of which it retained everything except for the engine architecture which adopted a 120° vee-angle between the cylinder banks instead of the 65° used on the Dino series. This solution meant that the centre of gravity could be lowered to improve stability. The car looked different too, thanks to a slender nose cone and two angled air-intakes. The same car was actually used again in 1962, albeit with more modest success.

The 156 F won five of its eight Grands Prix (three with Phil Hill, and one each for Wolfgang Von Trips and Giancarlo Baghetti). The battle for the title culminated the German and the American driver at Monza. Tragically, however, Von Trips' car went off the track and ploughed into the spectators, killing 13 of them. Hill, unaware that his friend and team mate lay dead, won the race and title, but his joy soon vanished when he learned the terrible news.

Ferrari 250 GTO

250 GTO (1962)

- *3 litre naturally aspirated V12*
- *300 horse power*
- *5-speed manual gear box*
- *Top speed: 280km/h*

Ferrari 250 GTO

Charisma came not only from its innumerable racing victories, but from the unique sum of its parts – stunning looks, a highly competitive chassis and a thoroughbred V12 engine.

The 250 GTO model was the pinnacle of development of the 250 GT series in competition form, whilst still remaining a road car. It made its public debut at the annual pre-season Ferrari press conference in January 1962, and was the only front engine model on display, with its monoposto and sports racing counterparts all having a mid-engine configuration

330 P4 (1967)

- *4 litre naturally aspirated V12*
- *450 horse power*
- *5-speed manual gear box*
- *Top speed: 320 km/h*

Ferrari 330 P4

With styling very similar to that of the 330 P3, this model was powered by a V12 engine that had been radically redesigned by Franco Rocchi. The most obvious modification was the introduction of a three-valve cylinder head – two inlet and one exhaust. Fuel feed was provided by a Lucas injection system. The chassis was slightly shorter than the 330 P3's, and the new suspension system improved roadholding. The car won numerous races and earned its place in the history books after a memorable 1-2-3 at Daytona.

Chapter 5

70S

The Ferraris in 1970s

Ferrari Dino 246 GTS

DINO 246 GTS (1972)

- *2.4 litre naturally aspirated V6*
- *195 horse power*
- *5-speed manual gear box*
- *Top speed: 235 km/h*

Ferrari Dino 246 GTS

With the sales of the Dino 246 GT stable, Ferrari looked to increase its popularity still further by introducing an open version. The 246 GTS made its debut at the 1972 Geneva Motor Show and reactions were immediately very positive. The styling retained the individual, attractive lines of the 264 GT, with the added advantage of a practical targa top for open-air driving.

At about the time that the Dino 206 GT gave way to its successor the 246 GT during 1969, Enzo Ferrari was reaching an agreement with Gianni Agnelli of Fiat to take over the production car side of the Ferrari business. At this time Enzo Ferrari was already over 70 years of age, and apart from securing the long-term future of the production car business, it freed him from the day to day responsibilities of it, and gave him more time to devote to his first love, the racing department.

312 T (1975)

- *3 litre naturally aspirated flat 12*
- *495 horse power*
- *5-speed manual gear box*
- *Top speed: /*

Ferrari 312 T

The 1975 was the 312 T, which inaugurated the hugely successful 12-cylinder series with the famous trasversale (transverse) gearbox. After an 11-year wait, Ferrari was back at the height of its success, taking both the Drivers' and Constructors' titles in the same year. Niki Lauda brought the Scuderia five victories (Monaco, Belgium, Sweden, France and the United States) and Clay Regazzoni won at Monza on the day his team mate became World Champion.

This was not merely due to the new gearbox which made the car shorter and concentrated its mass: what it lacked in static weight on the rear axle was added as aerodynamic load, thanks to a more prominent wing that had to be compensated for by the front one. The suspension was modified too, with more inclined spring-shock groups on the front axle and short-armed parallelograms on the back one. The car also proved very reliable thanks to Lauda's pickiness during the development stages.

512 BB (1976)

- *5 litre naturally aspirated V12*
- *360 horse power*
- *5-speed manual gear box*
- *Top speed: 302 km/h*
- *0-400m: 13.7s*

Ferrari 512 BB

At its debut at the Paris Show in 1976, the 512 BB was equipped with a 5-litre version of the 12-cylinder boxer. The new engine proved a great success, giving the same power at lower revs, better torque and a smoother delivery than the earlier version in the 365 GT4 BB. The Pininfarina coachwork differed only slightly from the previous model in certain details which not only made it look even more elegant but also helped improve engine cooling.

Chapter 6

80S

The Ferraris in 1980s

Ferrari 126 C2

126 C2 (1982)

- *1.5 litre naturally aspirated V6*
- *580 horse power*
- *5/6-speed manual gear box*
- *Top speed: /*

Only tragedy saw Ferrari lose out on what looked like a sure-fire Drivers' title in 1982. On May 8, one of Ferrari's and the world's most popular drivers Gilles Villeneuve was killed practice. Barely three months later, Didier Pironi, who had a very strong lead in the rankings having won Imola and Zandvoort, was severely injured in the German Grand Prix warm-up and had to pull out of the rest of the season. The 126 C2 proved itself to be quite a competitive car and in the end, won the Constructors' title, thanks in part to Patrick Tambay (first at Hockenheim) and Mario Andretti, who were called in to replace the two unlucky drivers.

The car was a development of the previous model but was about 20 kg lighter. It retained the engine solution with twin overhead compressors with just one wastegate valve. Each compressor received the exhaust gas from a line of cylinders and fed the opposite line to achieve a kind of fluid dynamic balance. The race for power had also begun and this was achieved by increasing the supercharged pressure.

288 GTO (1984)

- *2.9 litre naturally aspirated V8*
- *400 horse power*
- *5-speed manual gear box*
- *Top speed: 305km/h*
- *0-100km/h: 4.9s*

Ferrari 288 GTO

Announced by Enzo Ferrari in September 1983, and unveiled at the Geneva Motor Show in March 1984, the GTO (also known unofficially with the 288 prefix) sparked off a wave of enthusiasm. The legendary name, the stunning styling by Pininfarina, the engine with its seemingly inexhaustible power (2.8 litres and 8 cylinders) and the widespread use of composite materials, made the GTO the closest thing to a racing car.

The 288 appellation refers to the total cubic capacity of the engine and number of cylinders, 2.8 litres with 8 cylinders. Obviously, the “GTO” model name was a retro touch referring to the legendary 250 GTO of the early sixties, to which it was intended to be the spiritual successor in GT racing, albeit stillborn as already noted.

Ferrari F40

Ferrari F40

F40 (1987)

- *3 litre twin turbo V8*
- *478 horse power*
- *5-speed manual gear box*
- *Top speed: 324 km/h*
- *0-100km/h: 4.1s*

The F40 continued the extreme machine philosophy cultivated by its predecessor the GTO, but took it to new levels. It was greeted with great enthusiasm by enthusiasts and the number of examples eventually built exceeded the company's wildest dreams. During the mid eighties there were various spy pictures in motoring magazines of a radical prototype(s) around the streets of Maranello, with all sorts of hypothesis as to its raison d'etre. It subsequently transpired that the car was what became known as the "Evoluzione", a test bed for the upcoming F40.

Chapter 7

90S

The Ferraris in 1990s

512 TR (1991)

- *5 litre naturally aspirated V12*
- *428 horse power*
- *5-speed manual gear box*
- *Top speed: 314km/h*
- *0-100km/h: 4.8s*

Ferrari 512 TR

The 512 TR was the evolution of the Testarossa and production started in 1991. The interior was redesigned to increase comfort and ergonomics and the exterior facelift was designed to improve aerodynamics.

The 12-cylinder boxer was subject to a series of modifications, one of which was to lower the chassis to lower the car's centre of gravity and thus improve road-holding and reduce the roll axis. Power was upped by 38 bhp and the 12-cylinder's already generous torque was also increased.

Ferrari 412 T2

412 T2 (1995)

- *3 litre naturally aspirated V12*
- *690 horse power*
- *6-speed electro-hydraulic gear box*
- *Top speed: /*

Due to the new regulations, limiting the engine capacity to three litres, it is decided to upgrade the 412 T1 into the 412 T2, but without any major innovations, because the new, smaller 10-cylinder engine, considered to adapt better to the new 3-litre-rule, is in an advanced stage. The aerodynamics are revised with the sides shortened to fit the radiators and other accessories, the air inlets are now more square compared to last year's and the wheel base as well as the whole car are shortened. The tank has a reduced capacity of 140 litres.

This car is a step ahead compared to last year's single-seater, but still not able to bring Ferrari back into the fight for the title. Jean Alesi wins in Canada: Alesi and Berger are also successful on other races, conquering 73 points for a third place in the Constructors' standings, won by Benetton. The Drivers' Title is won again by Michael Schumacher, who will race for Ferrari in the next season.

Ferrari F50

F50 (1995)

- *4.7 litre naturally aspirated V12*
- *520 horse power*
- *6-speed manual gear box*
- *Top speed: 325 km/h*
- *0-100km/h: 3.87s*

Ferrari F50

The F50 was the Ferrari "extreme machine" of the nineties taking over the mantle from the F40. As with the F40 it was also a celebration model, this time heralding fifty years of Ferrari as a car manufacturer, albeit in reality a little early. At the unveiling of the new model at the 1995 Geneva Salon, Ferrari President Luca Di Montezemolo stated that only 349 examples would be produced, one less than they thought that they could sell. A definite change in marketing strategy, brought about by the change in market conditions, after the slump at the beginning of the decade.

Chapter 8

NEW CENTURY

The Ferraris in 2000s

F1-2000 (2000)

- *3 litre naturally aspirated V10*
- *805 horse power*
- *7-speed electro-hydraulic gear box*
- *Top speed:/*

Ferrari F1-2000

2000 was a record-breaking year for Ferrari which took 170 points, 10 wins and 10 pole positions. But most of all it was the year of the double World Championships. After 21 long years, Ferrari ruled the world once again with Michael Schumacher crowned World Champion after nine wins. Thanks to the valuable contribution of Irvine's replacement, Rubens Barrichello, the Scuderia also took the Constructors' title for the second year running.

The season proved an emotional rollercoaster. Schumacher managed a triple whammy (Australia, Brazil and San Marino) at the start, then won at the Nürburgring and Montreal, taking a comfortable lead. However, July turned out to be disastrous for him. He retired at Magny-Cours and was eliminated from the running right at the start at Zeltweg and Hockenheim. However, Barrichello saved his teams face in Germany with his first F1 success at the end of a thrilling wet race. Hakkinen took Budapest and Spa. Schumacher and Ferrari arrived late at Monza but the Italian event marked the start of an extraordinary run: four consecutive poles and four wins for Michael who became World Champion at Suzuka with one race still to go. Ferrari crowned a brilliant season with the Constructors' title in Malaysia.

Ferrari Enzo Ferrari

ENZO FERRARI (2002)

- *6 litre naturally aspirated V12*
- *660 horse power*
- *electro-hydraulic F1 6-speed gear box*
- *Top speed: over 350km/h*
- *0-100km/h: 3.65s*

Ferrari Enzo Ferrari

Over the years Ferrari has introduced a series of supercars which have represented the very pinnacle of the company's technological achievements transferred to its road cars. These include the GTO, F40 and F50.

This family of extreme performance cars was joined in 2002 by the Enzo Ferrari, which was the expression of the latest Formula 1 technology and know-how

FERRARI SCUDERIA SPIDER 16M (2008)

- *4.3 litre naturally aspirated V8*
- *510 horse power*
- *F1 Superfast - 6 speed gear box*
- *Top speed: 315 km/h*
- *0-100km/h: 3.7s*

Ferrari Scuderia Spider 16M

Celebrating the win of the 2008 formula 1 constructor's world title this car bears the name Scuderia Spider 16M.

The Scuderia Spider 16M is the drop top 8-cylinder rear engine sports car. The Scuderia Spider 16M combines the 430 Scuderia's innovative content with the pleasure of driving the open F430 Spider.

The Scuderia Spider 16M is a special limited series of just 499 unique cars, dedicated to the most passionate clients, who recognize its virtue and its exclusivity.

The Scuderia Spider 16M joins the actual 8-cylinder mid-rear engine models.

Chapter 9

LATEST

The Ferraris in 2010s

599 GTO (2010)

- *6 litre naturally aspirated V12*
- *670 horse power*
- *electro-hydraulic F1 6-speed gear box*
- *Top speed: 335 km/h*
- *0-100km/h: 3.35s*

Ferrari 599 GTO

Ferrari's new extreme V12 berlinetta, the 599 GTO, delivers a lap time of just 1 minute and 24 seconds at Fiorano, making it the fastest road-going model in our history

This limited edition special series of just 599 is the new pinnacle of Prancing Horse sportiness and has benefited to an enormous degree from technological transfers from the track. Many of the cutting-edge solutions sported by the 599 GTO are also the product of the Maranello engineers' experience in the development of the 599XX, the prototype experimental car of which, as its legendary moniker suggests, the 599 GTO is the road-homologated version.

Ferrari LaFerrari

LAFERRARI (2013)

- *6.3 litre naturally aspirated V12 + electric motor*
- *750 horse power*
- *7-speed DCT*
- *Top speed: over 350km/h*
- *0-100km/h: < 3s*

Ferrari LaFerrari

The LaFerrari represents Ferrari's most ambitious project yet to push the boundaries of technology on a road car, drawing together the finest expression of the marque's technical capabilities in both GT and Formula 1 engineering.

It boasts the most extreme performance ever achieved by a Ferrari production car and features the most advanced and innovative technical solutions which will, in the future, filter down to the rest of the Ferrari range.

The LaFerrari is Ferrari's first ever production car to be equipped with the F1-derived hybrid solution – the HY-KERS system – which combines an electric motor producing over 150 CV with the most powerful incarnation yet of Ferrari's classic V12, with 800 CV at 9000 rpm

FERRARI 458 SPECIALE APERTA (2014)

- *4.5 litre naturally aspirated V8*
- *605 horse power*
- *7-speed F1 dual-clutch transmission*
- *Top speed: 320 km/h*
- *0-100km/h: 3.0s*

Ferrari 458 Speciale Aperta

Dedicated to just 499 Ferrari collectors, the 458 Speciale A is the most powerful spider in Prancing Horse history, effortlessly marrying extreme performance with the sublime pleasure of drop-top driving. Its aluminium retractable hard top, which takes a mere 14 seconds to deploy or retract, helps reduce the weight difference with the Speciale coupé to just 50 kg.

The 458 Speciale A sports the most powerful naturally-aspirated road-going V8 engine ever built by Ferrari. It punches out a massive 605 cv (135 cv/l specific power output) and 540 Nm of torque at 6000 rpm yet only generates 275 g/km of CO2 emissions. The three international Best Performance Engine awards the V8 has won are acknowledged on a special plaque in the cockpit.

FERRARI F12 TDF (2015)

- *6.3 litre naturally aspirated V12*
- *780 horse power*
- *7-speed F1 Dual-Clutch gearbox*
- *Top speed: over 320 km/h*
- *0-100km/h: 2.9s*

Ferrari F12 tdf

The F12tdf is a concentration of technical innovations which involve all those areas central to Ferrari's DNA: engine, aerodynamics and vehicle dynamics. As a result, in terms of acceleration, roadholding and agility, the new berlinetta is second to none.

The F12tdf's performance is assured by the 780 cv, naturally-aspirated V12 derived directly from the F12berlinetta's multi-award-winning engine. The car's exhilarating dynamic behaviour, specifically its lateral acceleration in corners, is due to an 8% increase in the ratio of the front tyres compared to the rear ones.

The car's natural tendency to oversteer as a result of the change in tyre sizes is compensated for by the innovative rear-wheel steering system – known as the Virtual Short Wheelbase, which is integrated with the other vehicle dynamic control systems – that guarantees the steering wheel response times and turn-in of a competition car while increasing stability at high speed.

Chapter 10

70

Celebrating Ferrari's 70th birthday

LaFerrari Aperta

LaFerrari Aperta

LaFerrari Aperta

LAFERRARI APERTA (2017)

- *6.3 litre naturally aspirated V12 + electric motor*
- *950 horse power*
- *7-speed F1 Dual-Clutch*
- *Top speed: over 350 km/h*
- *0-100km/h: <3s*

Ferrari LaFerrari Aperta

Ferrari's unique core values have been raised to a whole new level in the car launched to mark the 70th anniversary of the foundation of the company.

Designed for Ferrari's most passionate clients, the LaFerrari Aperta is the new limited-edition special series model, and just a few examples – all of them already accounted for - of this spider version of the acclaimed LaFerrari supercar will be built.

The intensive development work carried out by Ferrari's technicians targeted the car's chassis and aerodynamics and has produced a roadster that delivers the same performance, torsional rigidity, beam stiffness and drag coefficient characteristics as the coupé.

The Aperta retains the LaFerrari's hybrid powertrain comprising an 800 cv 6,262 cc V12 (specific power output 128 cv/l, compression ratio 13.5:1) coupled with a 120 kW electric motor, for a total power output of 963 cv. The dynamic control systems integrated with the active aerodynamics remain unchanged.

Chapter 11

QUIZ

Just for fun

Question 1 of 4

Ferrari was founded in

- **A.** 1947
- **B.** 1945
- **C.** 1877
- **D.** 1943

◀ Check Answer ▶

Michael Huang
403110149
3D E-Book Making
Reflection on the course
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The improvement of technology brings us so many conveniences and it changes our life in many ways. Education, one of the most important mission of human kind, also welcome its change in the technology tide. With the popularisation of electronic devices, it is a trend to let students to learn on tablet computers, as it can offer more diversity of studying. Therefore, learning the ways to make e-books can benefits me a lot, and offer me more skills to educate students.

Learning the ways to make e-books on Mac will certainly brings me a lot benefits and advantage, since MacOS and iOS are in the unique closed eco-system that Apple created, and there are over a hundred million users using Apple products like iPads and iPhones. Learning making iBooks will not only enables me to create books on Mac computers, but also on portable devices like iPads and iPhones. This will give me a better stage to perform, no matter on the education, or on other aspects and fields, it enables us to do more things.

Through out the semester I learned a lot from Professor Liu, who has been always kind and patient to all the students in class. He teaches not only the methods to make iBooks, but also teaches us the ways to create animations and 3D models, which can enrich the content in iBooks and make readers understand the content in a much interesting way, making the reading experience better. It can not only use in iBooks but can also use in other aspects. In the world that people prefer picture than words, it is helps so much. Professor Liu always offers his kindest help to us when we need, and he is always patient with the problems that we encounter. I learn not only skills of making iBooks from Professor Liu, but also the patience and how to be a kind person.

During the production of my final project, I spend a lot of efforts and passion, putting as many as what I have learn into my work. The project is a tribute to Ferrari, the Italian legendary supercar maker welcomes its 70th anniversary. Named Ferrari, this work takes the readers walk through the glorious 70 years of Ferrari, including the classic and marvellous supercars that Ferrari had made, and the wonderful racing history that Ferrari had created. I selected some of the most stunning super cars that Ferrari had made in the past 7 decades, making it into a memorial iBook. There are also some little quiz for the readers to try out how much they understand the history of Ferrari, and have gun.

Overall, I learned a lot from the lesson and I acquire the skills of making iBooks on Mac. I am grateful of what I learned and I believe it will benefit me a lot someday in the future.