

Pictures: "Motor Cycle" UK.

Elf - X "Experimentale"

The worlds of car and motorcycle racing don't have much in common....least of all the paths of thought trod by the various designers in the respective fields. In motorcycle racing, the engine seems to be the factor upon which most designers concentrate (though the Yamaha monoshock did mark a giant step forward in chassis construction). However, with

factories building square-fours, transverse fours, twins, threes, transverse and vee-sixes, two-strokes or four-strokes, it is easy to see that the motorcycle designer's priority lies very much with the power unit.

In car racing it's a lot different. Ferrari's flat-12 is a constantly updated design with over five years behind it, the Alfa Romeo is a similar layout proven in years of

sports car racing and the Cosworth-Ford, still a leader in GP racing, celebrated its tenth anniversary last year! Apart from the turbocharged 1½litre Renault and the V12 Ligier Matra, there is very little new in the world of Grand Prix car engines.

Development in car racing goes along the lines of better handling and better aerodynamics.

However, there are signs of the times changing in motorcycle racing and it may be more than just a coincidence that it is a Frenchman breathing the wind of change.

Andre De Cortanze has a lot of experience in the field of car design and this experience shows in the revolutionary Elf-X that was unveiled in Paris earlier this year. The "X" stands for "Experimentale" and that's all the bike is at present. French rider, Michel Rougerie will test the machine throughout the coming season and race it when it is ready and proven. Meanwhile his normal actual racing program will be done with conventional machines.

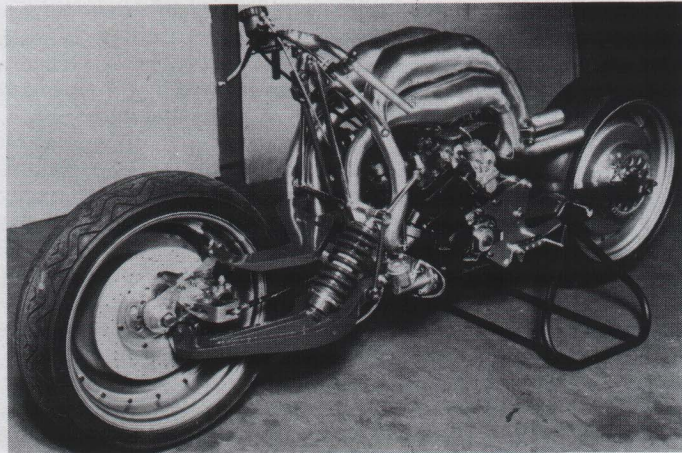
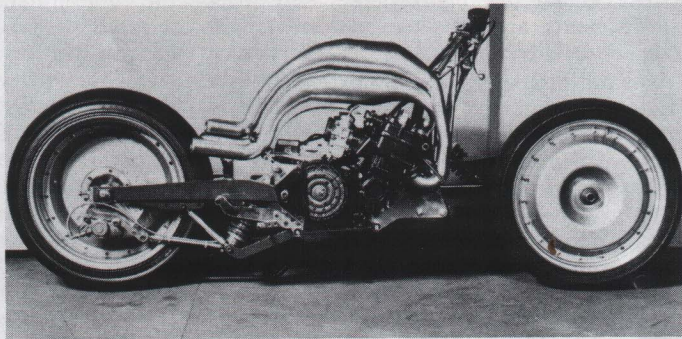
Supporting De Cortanze in his venture to change the face of motorcycle racing are the giant Elf petrol concern...a French company with strong national ties that have long been a leading name in Formula One, Formula Two

and sports car racing. Coincidentally, Elf are heavily-involved with both the Renault and Ligier/Matra GP car projects so are obviously more than willing to support any designed with fresh ideas in his mind.

Basic design principles of the Elf-X are the use of the engine as a load-bearing unit, car-type suspension, hub-centre steering and some drastic re-thinking on the subject of weight-distribution and aerodynamics.

The nett result of the basic concepts is a 750cc Yamaha-powered race weighing in at a mere 288lbs! The nucleus of the machine is the power unit, which has strengthened mounting-bosses to carry the suspension components. Both front and rear suspension arms attach directly to the engine!

Front suspension is unusual (even more unusual, that is!) in that it has both upper and lower pivoted arms. This prevents the steering axis in the hub-centre from tilting too much under suspension movement and it permits a suspension geometry arrangement that utilises the brake torque to cut out front-end dive under braking. The Elf-X is designed to maintain a level plane under braking rather than have all the weight shift forward as the front forks compress. This, says De Cortanze, is one



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of the worst inherent features of conventional chassis design.

Suspension travel is controlled by a single Formula One De Carbon car racing shock absorber attached to the lower arm. A similar unit, mounted low beneath the back of the engine and compressed by a bell-crank arrangement, controls rear suspension movement. Both front and rear wheels are complete alloy discs, for maximum rigidity. Grand Prix car disc brakes are mounted in the dished portion of these wheels, both as an aid to air penetration and to combat the effects of rain on the brake.

The front wheel is attached only to the left-side of the massively-constructed front swinging arms.

Beneath the engine is the fuel-tank, bevelled at the sides for cornering clearance and packed with multi-cellular foam to minimise fire-risk in the case of a crash (another idea borrowed from the car racers).

Stainless steel lightweight exhaust pipes sweep up over the top of the engine and obviously weigh must less than a full tank of gas. The reversing of the positions of the exhaust pipes and the petrol tank make for an incredibly low centre of gravity.

A heat shield prevents exhaust pipe heat from upsetting carburation and the inside of the light (29lbs including the fuel tank) plastic bodywork is sprayed with zirconium to keep the heat from the rider. The bodywork is also well-ventilated to admit cool air and get rid of heat from the engine and transmission.

The De Cortanze design is a radical one indeed by motorcycle racing standards and even he is treading warily. So many "world beaters" have been promised and never materialised that he is taking the sensible approach of keeping the Elf-X "experimentale" until all concerned are satisfied that it is a competitive project.

Practice sometimes has a habit of taking no notice of theory but, by all the laws of mechanics and design, the Elf-X seems to be a likely candidate for the Grand-Prix winner of the not-so-distant future.

GRAND PRIX ROAD RACING.

VENEZUELAN GP. MARCH 19.

250cc: 1, K. Roberts (Yamaha). 2, C. Lavados (Yamaha). 3, P. Fernandez (Yamaha). 4, K. Ballington (Kawasaki). 5, O. Chevalier (Yamaha). 6, M. Lega (Morbidelli).

350cc: 1, T. Katayama (Yamaha), 2, P. Fernandez (Yamaha). 3, P. Pileri (Morbidelli), 4, K. Ballington (Kawasaki). 5, P. Pons (Yamaha), 6, C. Sarron (Yamaha).

500cc: 1, B. Sheene (Suzuki), 2, P. Hennen (Suzuki), 3, S. Baker (Suzuki). 4, S. Parrish (Suzuki). 5, R. Pietri (Yamaha), 6, G. Voght (Yamaha).

SPANISH GP. APRIL 16.

250cc: 1, G. Hansford (Kawasaki). 2, K. Roberts (Yamaha). 3, F. Uncini (Yamaha). 4, K. Ballington (Kawasaki). 5, J. Ekerold (Yamaha). 6, M. Grant (Kawasaki).

500cc: 1, P. Hennen (Suzuki) 2, K. Roberts (Yamaha). 3, T. Katayama (Yamaha). 4, J. Cecotto (Yamaha). 5, B. Sheene (Suzuki), 6, S. Baker (Suzuki).

AUSTRIAN GP. APRIL 30.

500cc: 1, Kenny Roberts (Yamaha). 2, Johnny Cecotto (Yamaha). 3, Barry Sheene (Suzuki). 4, Marco Lucchinelli (Suzuki). 5, Tepi Lansivuori (Suzuki). 6, Michel Rougerie (Suzuki).

350cc: 1, Kork Ballington (Kawasaki). 2, Franco Uncini (Yamaha). 3, Takazumi Katayama (Yamaha). 4, Jon Ekerold (Yamaha). 5, Olivier Chevalier (Yamaha). 6, Michel Rougerie (Yamaha).

SIDECAR: 1, Rolf Biland/Ken Williams (Yamaha). 2, Mac Hobson/Kenny Birch (Yamaha). 3, Alain Michel/Stu Collins (Yamaha). 4, George O'Dell/Cliff Holland (Yamaha). 5, Bruno Holzer/Kurt Meierhaus (Yamaha). 6, Gote Brodin/Eric Wickstrom (Yamaha).

FRENCH GP, MAY 7.

1, Kenny Roberts (Yamaha). 2, Pat Hennen (Suzuki). 3, Barry Sheene (Suzuki). 4, Christian Estrosi (Suzuki). 5, Wil Hartog (Suzuki). 6, G. Rossi (Suzuki).

350cc: 1, Greg Hansford (Kawasaki). 2, Kork Ballington (Kawasaki). 3, Jon Ekerold (Yamaha). 4, Tom Herron (Yamaha). 5, Vic Soussan (Yamaha). 6, Patrick Fernandez (Yamaha).

250cc: 1, Greg Hansford (Kawasaki). 2, Kenny Roberts (Yamaha). 3, Kork Ballington (Kawasaki). 4, Jon Ekerold (Yamaha). 5, Tom Herron (Yamaha). 6, R. Roche (Yamaha).

SIDECARS: 1, Rolf Biland/Ken Williams (Yamaha). 2, Alain Michel / Stu Collins (Yamaha). 3, Mac Hobson / Kenny Birch (Yamaha). 4, George O'Dell / Cliff Holland (Yamaha). 5, Bruno Holzer / C. Mierhaus (Yamaha). 6, Werner Schwarzel / Andreas Huber (ARO).

ITALIAN GP. MAY 14.

500cc: 1, Kenny Roberts (Yamaha). 2, Pat Hennen (Suzuki). 3, Marco Lucchinelli (Suzuki). 4, Steve Baker (Suzuki). 5, Barry Sheene (Suzuki). 6, Wil Hartog (Suzuki).

350cc: 1, Kork Ballington (Kawasaki). 2, Greg Hansford (Kawasaki). 3, Takazumi Katayama (Yamaha). 4, Michel Rougerie (Yamaha). 5, Franco Uncini (Yamaha). 6, Marco Lucchinelli (Yamaha).

250cc: 1, Kork Ballington (Kawasaki). 2, Greg Hansford (Kawasaki). 3, Franco Uncini (Yamaha). 4, Tom Herron (Yamaha). 5, Patrick Fernandez (Yamaha). 6, Mario Lega (Morbidelli).

SIDECAR: 1 Rolf Biland/Kenny Williams (Yamaha). 2, Werner Schwarzel/Andreas Huber (ARO). 4, Jean-Francois Monnin / P. Miserez (Yamaha). 5, Dick Greasley/Graham Russell (Yamaha). 6, Bruno Holzer / K. Meierhaus (Yamaha).

WORLD CHAMPIONSHIP POINTS. (to MAY 21).

500cc: 1, Kenny Roberts (Yamaha) 57 pts. 2, Pat Hennen (Suzuki) 51, 3, Barry Sheene (Suzuki) 47. 4, Steve Baker (Suzuki) 23. 5, Johnny Cecotto (Yamaha), Michel Rougerie (Suzuki) 18.

350cc: 1, Kork Ballington (Kawasaki) 50 pts. 2, Takazumi Katayama (Yamaha) 35. 3, Greg Hansford (Kawasaki) 31. 4, Patrick Fernandez (Yamaha) 23. 5, Jon Ekerold (Yamaha) and Franco Uncini (Yamaha) 18.

250cc: 1, Greg Hansford (Kawasaki) 42. 2, Kork Ballington (Kawasaki) 41. 3, Kenny Roberts (Yamaha) 39. 4, Franco Uncini (Yamaha) 20. 5, Olivier Chevalier (Yamaha) & Tom Herron (Yamaha) 17.

SIDECAR: 1, Rolf Biland/ Kenny Williams (Yamaha), 45 pts. 2, Mac Hobson/Kenny Birch and Alain Michel / Stu Collins 22. 4, Bruno Holzer / Karl Meierhaus 18. 5, Werner Schwarzel/Andreas Huber (ARO) and George O'Dell / Cliff Holland (Yamaha) 17.

F750 ROAD RACING.

ITALY, APRIL 2.

1, J. Cecotto (Yamaha). 2, S. Baker (Yamaha). 3, C. Sarron (Yamaha). 4, G. Hansford (Kawasaki). 5, S. Asami (Yamaha). 6, P. Pons (Yamaha).

FRANCE, APRIL 9.

1, J. Cecotto (Yamaha). 2, K. Roberts (Yamaha). 3, S. Baker (Yamaha). 4, I. Takai (Yamaha). 5, P. Pons (Yamaha). 6, C. Estrosi (Yamaha).

GREAT BRITAIN, APRIL 23.

1, K. Roberts (Yamaha). 2, J. Cecotto (Yamaha). 3, P. Pons (Yamaha). 4, C. Sarron (Yamaha). 5, H. Rigal (Yamaha). 6, W. Willing (Yamaha).

WORLD CHAMPIONSHIP POINTS (to MAY 21).

1 Johnny Cecotto (Yamaha) 42pts. 2, Kenny Roberts (Yamaha) 27pts. 3, Steve Baker (Yamaha) 22, 4,

Patrick Pons (Yamaha) 21. 5, Christian Sarron (Yamaha) 18. 6, I. Takai (Yamaha) and Greg Hansford (Kawasaki) 8.

500CC MOTOCROSS

SWITZERLAND, APRIL 9.

1, H. Mikkola (Yamaha). 2, R. De Coster (Suzuki). 3, B. Lackey (Honda). 4 J. Van Velthoven (KTM). 5, G. Wolsink (Suzuki). 6, A. Vromens (Suzuki).

First Moto Placings: Mikkola, De Coster, Van Velthoven, Vromens, Lackey, Graham Noyce (Honda).
Second Moto Placings: Mikkola, Wolsink, Lackey, De Coster, A. Malherbe (KTM), Van Velthoven.

AUSTRIA, APRIL 16.

1, B. Lackey (Honda). 2, H. Schmitz (Maico). 3, H. Mikkola (Yamaha). 4, R. De Coster (Suzuki). 5, A. Malherbe (KTM). 6, G. Noyce (Honda).

First Moto Placings: Lackey, Schmitz, Mikkola, J. Bruno (KTM), J. Van Velthoven (KTM), Malherbe.
Second Moto Placings: De Coster, Lackey, Schmitz, Noyce, Malherbe, Mikkola.

FRANCE, APRIL 30.

1, Heikki Mikkola (Yamaha). 2, Brad Lackey (Honda), 3, Hakan Andersson (Husqvarna). 4, Andre Malherbe (KTM). 5, Hubert Schmitz (Maico). 6, Roger De Coster (Suzuki).

First Moto Placings: 1 Lackey, 2, Mikkola. 3, Malherbe. 4, Schmitz, 5, Andersson. 6, Gerrit Wolsink (Suzuki).

Second Moto Placings: 1, Mikkola. 2, Lackey, 3, Andersson. 4, De Coster. 5, J. Bruno (KTM), 6 Malherbe.

DENMARK, MAY 7.

1, Heikki Mikkola (Yamaha). 2, Brad Lackey (Honda). 3, Gerrit Wolsink (Suzuki). 4, Roger De Coster (Suzuki). 5, Andre Malherbe (KTM). 6, Jaak Van Velthoven (KTM).

First Moto Placings: 1 Mikkola, 2 Lackey, 3 De Coster, 4 Wolsink, 5 Malherbe, 6 Hubert Schmitz (Maico).
Second Moto Placings: 1 Mikkola, 2 Wolsink, 3 Lackey, 4 De Coster, 5 Malherbe, 6, Van Velthoven.

WORLD CHAMPIONSHIP POINTS (to MAY 21).

500cc: 1 Heikki Mikkola (Yamaha) 102 pts. 2, Brad Lackey (Honda) 92. 3, Roger De Coster (Suzuki) 61. 4, Andre Malherbe (KTM) 48. 5, Gerrit Wolsink (Suzuki) 46. 6, Hubert Schmitz (Maico) 38.

125CC MOTOCROSS

AUSTRIA, APRIL 9.

1, G. Rahier (Suzuki). 2, G. Rond (Yamaha). 3, A. Watanabe (Suzuki). 4, J. Churavy (CZ). 5, S. Lerner (KTM). 6, V. Kudiakov (CZ).
First Moto Placings: Rahier, Rond, Watanabe, Churavy, Lerner, A. Massant (Honda).

Second Moto Placings: Rahier, Rond, Watanabe, Kudiakov, Lerner, Churavy.

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