

*Castrol International*

# ACHIEVEMENTS

1970



# Castrol International ACHIEVEMENTS 1970

Another season. New names, new achievements; familiar disappointments and bitter finality.

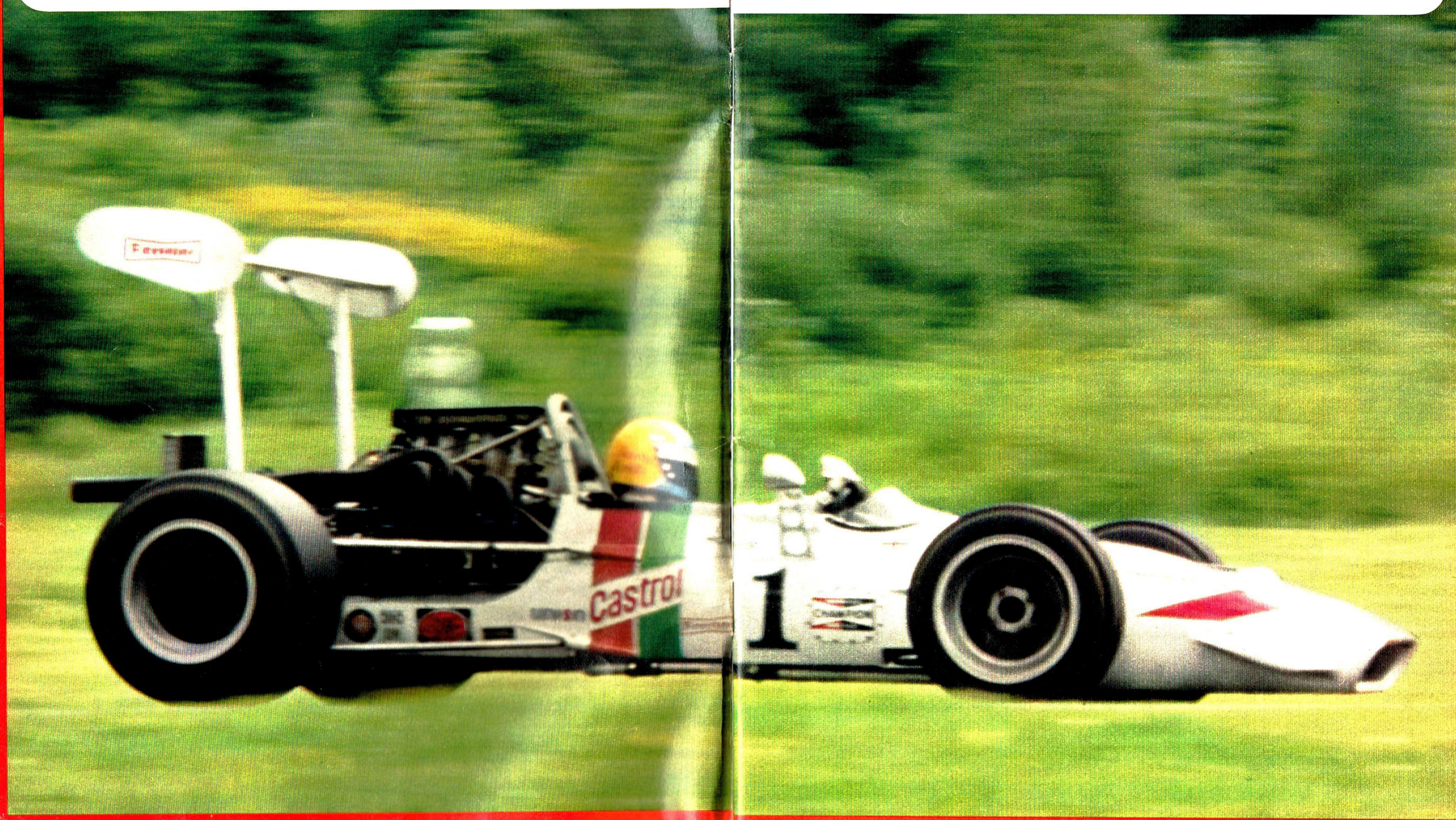
As always, it was the thrills and skills of high-speed competition that the crowds savoured; that spur the recollection of the enthusiast. From massively-supported international occasions to local club meetings, the magnetic pull of the sport was as powerful as ever. Sport at its most

spectacular, manifest in an infinite variety of events on two wheels, and three, and four; in the air and on water. Whatever happened—and wherever—Castrol was conspicuously there, to share and record the spoils of success.

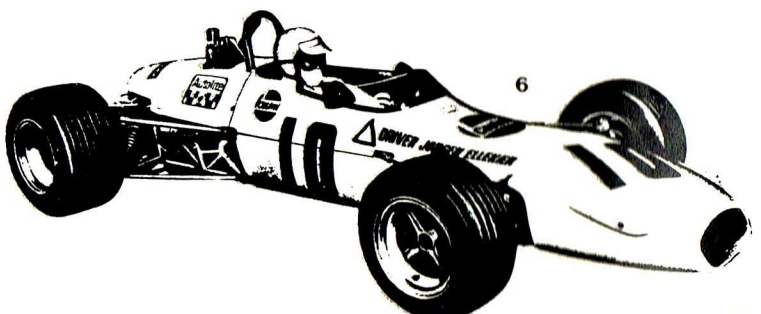
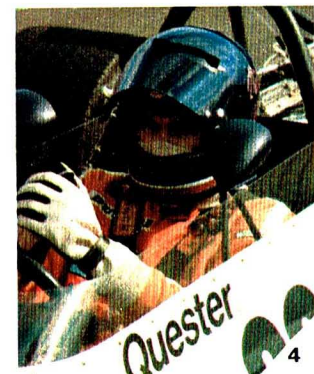
David Hobbs in the Formula A Team Surtees 5A with which he won a resounding victory at Lime Rock, USA, in the SCCA Championship.

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# ONE-UPMANSHIP



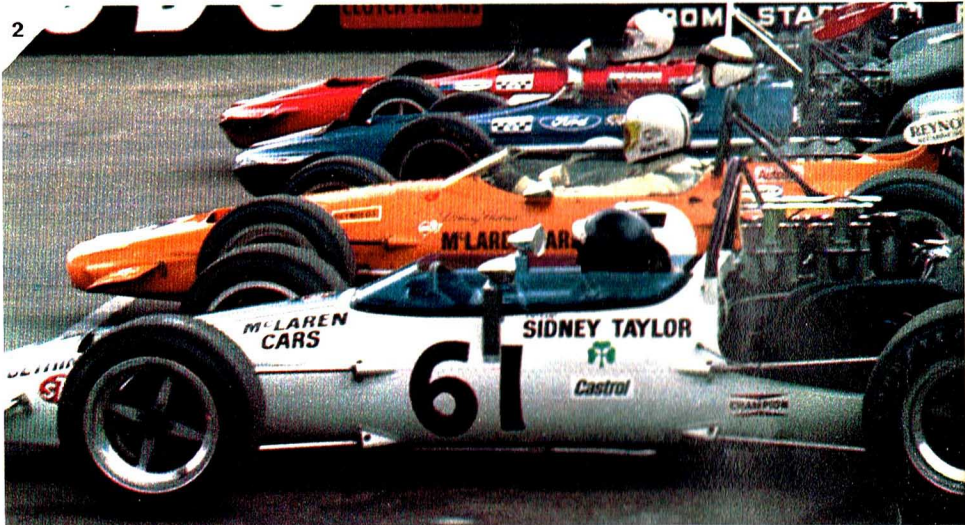
1. Bill Brack, Castrol Lotus GTX, Canadian Championship contender.
2. Start of the combined Formula 1 and F5000 race at the Daily Express Silverstone meeting, with the Chev-powered Sid Taylor McLaren M10B of Peter Gethin in focus.
- 3 & 4. Cockpit studies of BMW drivers Jo Siffert and Dieter Quester.
5. Trevor Taylor, Team Surtees TS 5A.
6. Scandinavian F3 competitor Jorgen Ellekaer at Hockenheim.

Single-seaters made their customary contribution to the spectacle of racing at its fastest and most dramatic. And wherever the world's most skilled drivers met in combat, Castrol oils gave an edge to the reliability of machinery, as some of the year's most outstanding championship victories demonstrate.

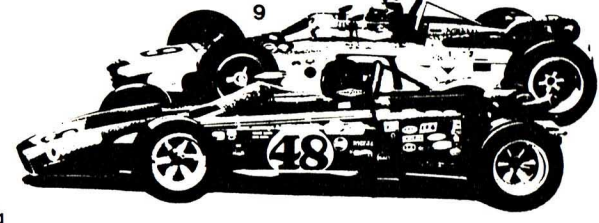
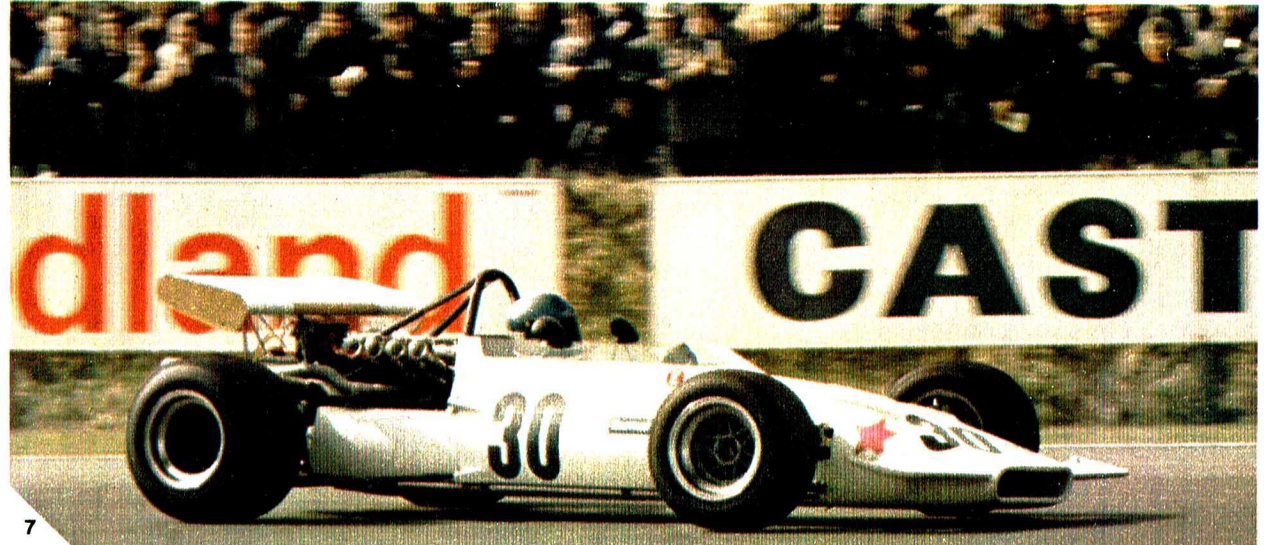
In Formula 2 competition, the BMW Works Team of Jacky Ickx, Jo Siffert, Kurt Ahrens, Hubert Hahne and Dieter Quester, Tim Schenken in a Sports Motors Brabham BT-30, Robin Widdows in an Alistair Walker BT-30 and Japan's Tetsu Ikuzawa in a Lotus 69, were among the leading contenders in an intense, season-long battle.

It was Hubert Hahne's first place at Hockenheim that set the seal of success on the German factory's three years of preparation, their initial championship victory pointing the way to further outright wins at Rouen (Siffert), Salzburg and Langenlebar (Ickx), Hockenheim and Neubiburg (Quester), before the announcement of BMW's withdrawal from the formula.

But it was the single-litre Formula 3 cars which produced some of the season's finest encounters. Tony Trimmer in his Brabham BT-28 carried the flag of Race Cars International, and of Castrol, to victories at Monaco, Snetterton and Brands Hatch. At Monaco he snatched the victor's laurel from Jean-Pierre Cassegrain, at the wheel of a like vehicle, by a margin of 1.1 sec. Mike Beuttler, too, took his Brabham



BT-28 to some famous victories after enduring a series of disappointments in earlier seasons. Italy's Novamotor also brought some powerful competition to bear on the season's F3 events, with Kottulinsky in a Lotus 59 gaining first place at the Osterreichring, and other Brabham, Chevron and Alpine conveyed members of this renowned engine-maker's team performing well throughout the year. Novamotor wear Castrol's colours.



7. Jacky Ickx takes an F2 ride with the BMW-Dornier 70 in round 1 of the European Trophy at Thruxton.
8. Reine Wisell in the Sid Taylor McLaren M10B.
9. Dan Gurney's Indianapolis Eagle, newly powered by a turbo-Offenhauser in place of its familiar Ford engine, showed up well in the hands of its impeccable driver. It gained third place in America's annual 200-lap marathon.
10. Mike Hailwood, Epstein Enterprises Lola T190.
11. Ulf Norinder, Lola T190.
12. Eppie Wietzes gained his second Canadian National title with some excellent driving on often wet and greasy circuits in his McLaren-Chev.
13. Mike Walker in the McKechnie McLaren.
14. Mario Gereda, Auto Dinamic, Formula V winner of the "International Aid" meeting in Peru.

In the popular Formula Ford series, Tony Trimmer again demonstrated his talent with an early-season win in the European Trophy round at Zandvoort in a Lola-Steele T200, while Austrian champion Werner Riedl in a McNamara won the Autolite Trophy and the International Salzburg and Vienna meetings. Ian Taylor at the wheel of a Mike Spence March 708 showed his paces in winning the second round of the European FF Championship at Hockenheim.



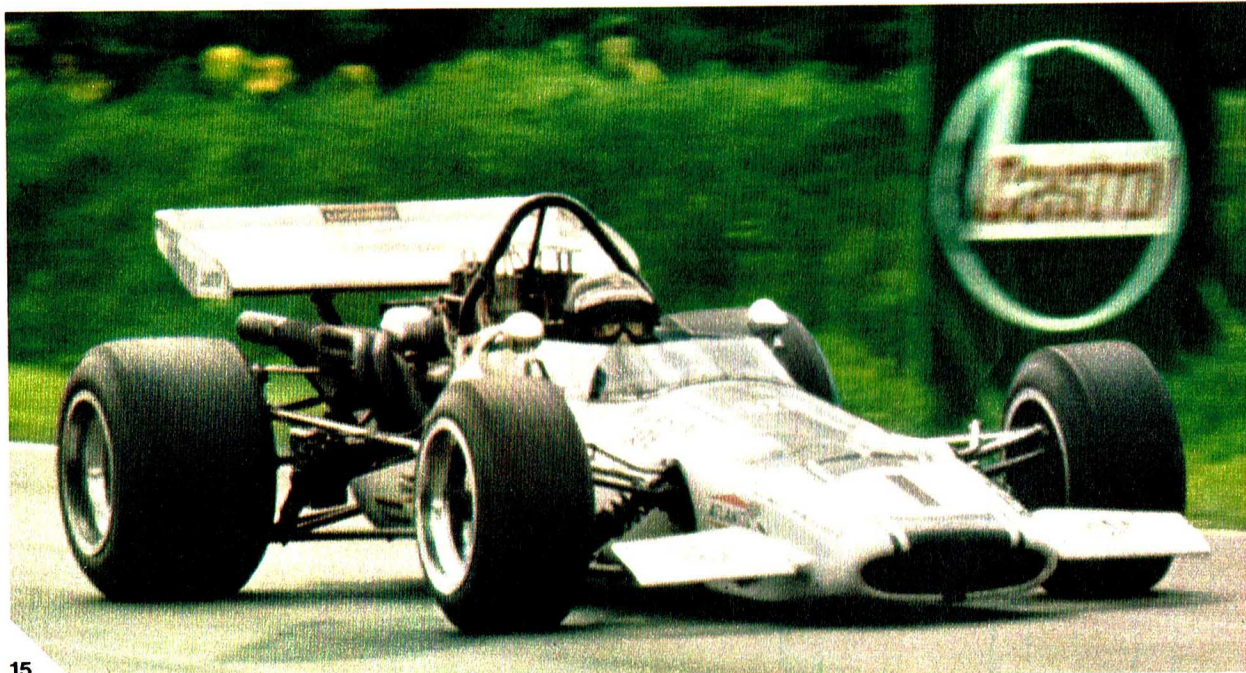
# ONE-UPMANSHIP

Up among the F5000 titans of modern racing, it was Gethin's year with a vengeance. He started with a second place at the Oulton Park Easter Meeting in his M10B McLaren Chevrolet, went on to make his position in the Guards Championship impregnable. With that he retired from the scene to take a not unexpected FI drive. A great season

for him, for Sid Taylor his sponsor and for Castrol. When Gethin wasn't in the front position, Mike Hailwood, Mike Walker, Trevor Taylor, Frank Gardner, Reine Wisell, Howden Ganley or Graham McRae, all carrying the Castrol banner, could usually be relied on to take a front place. In America, too, F5000 and Formula A competition provided

some of the hottest racing of the year, with drivers like Britain's David Hobbs, for Team Surtees, and Canadian Championship victor Eppie Wietzes keeping the Castrol insignia to the fore.

15. In the season's most spectacular run of victories Peter Gethin wrapped up the Guards Formula 5000 Championship in time to depart to FI pastures. It was practically a walkover for Sid Taylor and, of course, for Castrol.



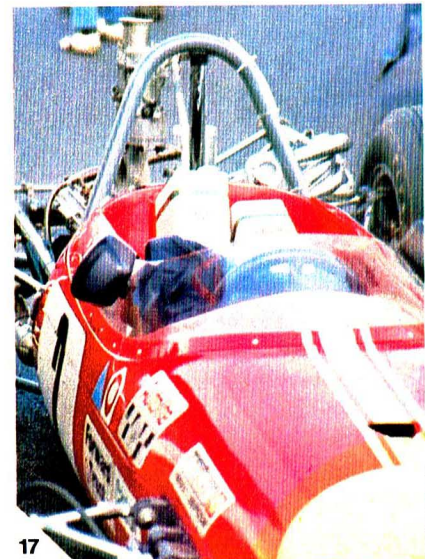
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16. New Zealander Howden Ganley, McLaren-Chevrolet M10B.



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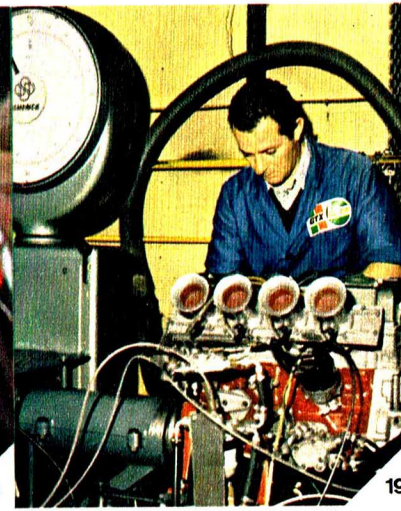
17, 18, 19. Formula 3 panorama. Castrol in the driving seat; Grovewood Award winner Mike Beuttler, BT-28; Novamotor on test bed.



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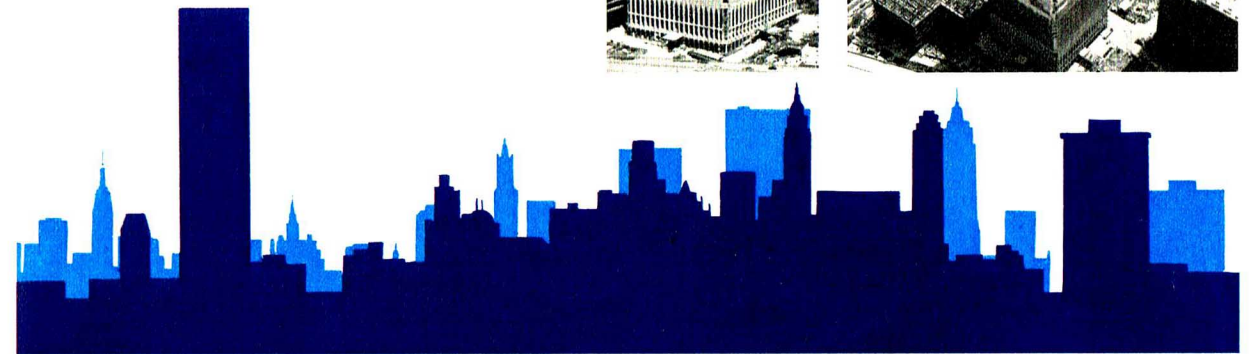
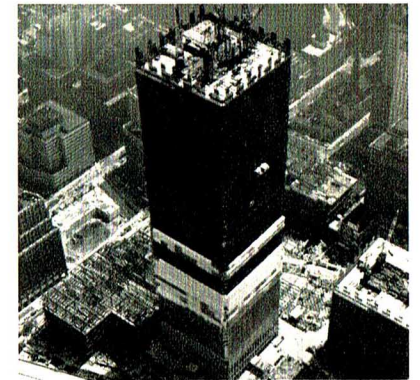
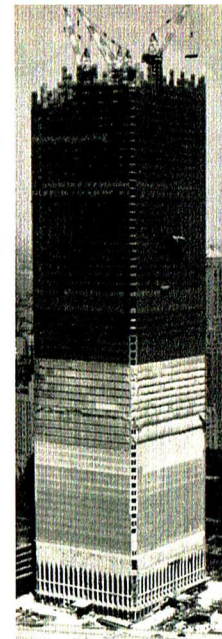
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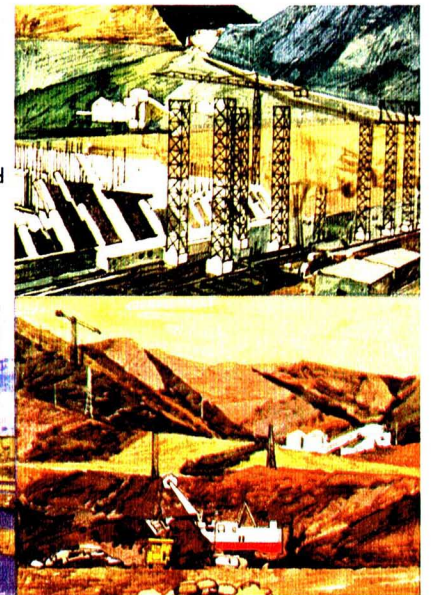
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# GIANT OF MANHATTAN

Up and up it goes. The World Trade Centre dwarfs even such neighbouring giants as the Empire State and Pan-Am structures, projecting its massive double-barrelled frame above the skyline, spreading its limbs into the dense, administrative territory of Lower Manhattan. When completed in 1972 this 1,350 ft building will have absorbed nearly 30,000 man years of labour and a great deal of Castrol-lubricated machine power.

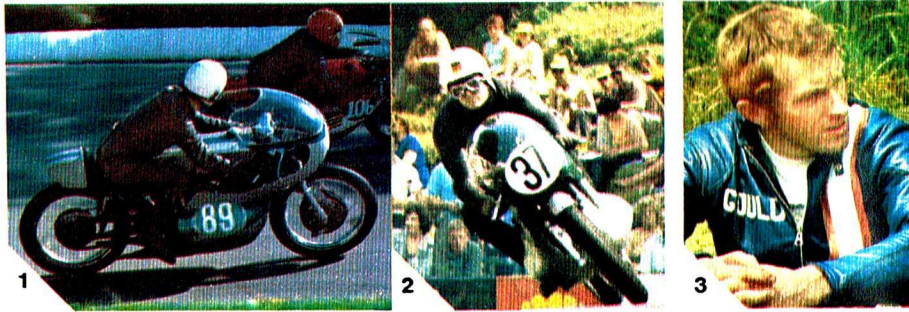


# TARBELA



Civil engineering makes its special and often dramatic claims on the efficiency and versatility of lubricating oils. Pakistan's Tarbela Dam project, the world's largest civil engineering undertaking, demands some of the toughest and most complex constructional machinery for excavation and earth moving, for laying millions of tons of concrete. Castrol plays its part in another remarkable modern achievement.

1. Steve Machin, Yamaha.
2. Dieter Braun, MZ, in Isle of Man.
- 3&4. Rod Gould relaxing and Yamaha mounted.



# CHAMPIONS ALL

Three world champions. A European champion. National champions galore. All on Castrol-lubricated machines.

What a year of two and three-wheel sport! Dazzling competition was served up in road racing, trials and moto-cross, on grass and sand tracks.

Road racing brought vast crowds to the European circuits to witness a season-long demonstration of the incomparable attraction of motorcycle sport at its best. There were close-fought struggles for the top places in every category. As the year drew to a thrilling close, it was Dieter Braun on MZ and Suzuki who clinched the 125cc World Championship, while Britain's Yamaha-mounted Rod Gould led the 250 pack. New Zealander Ginger Molloy (Kawasaki) finished in second place among the 500s, and the incomparable Klaus Enders (with first Kalauch then Engelhardt in the chair) wrapped up the sidecar championship ahead of BMW rivals Auerbacher and Schauzu. And to

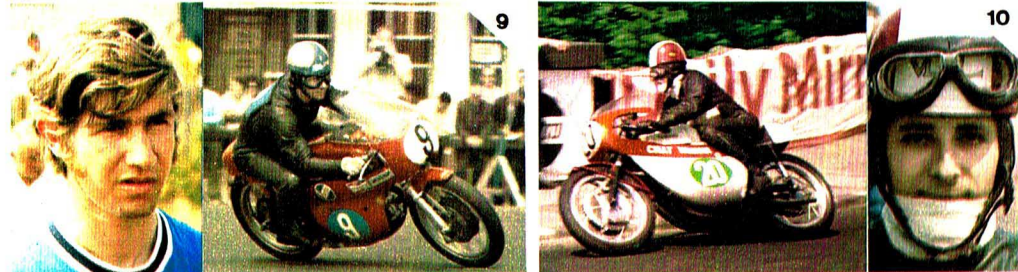
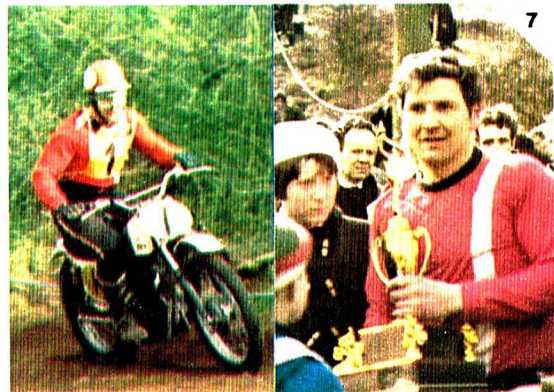
cap a magnificent year for Castrol-lubricated competitors, Aalt Toerson on a Jamathi gained a string of international victories in the 500cc class.

At the world's most renowned international meeting, the Isle of Man TT, Frank Whiteway (Suzuki) gained a magnificent first in the 500cc Production event, with Peter Williams (Norton Commando) only 1.6 seconds behind the overall winner.

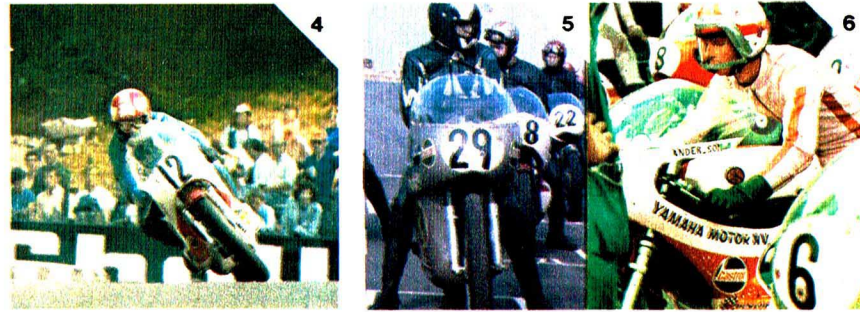
In the British Road-Racing Championships, too, Castrol riders sped to a near monopoly of championships.

# ALL

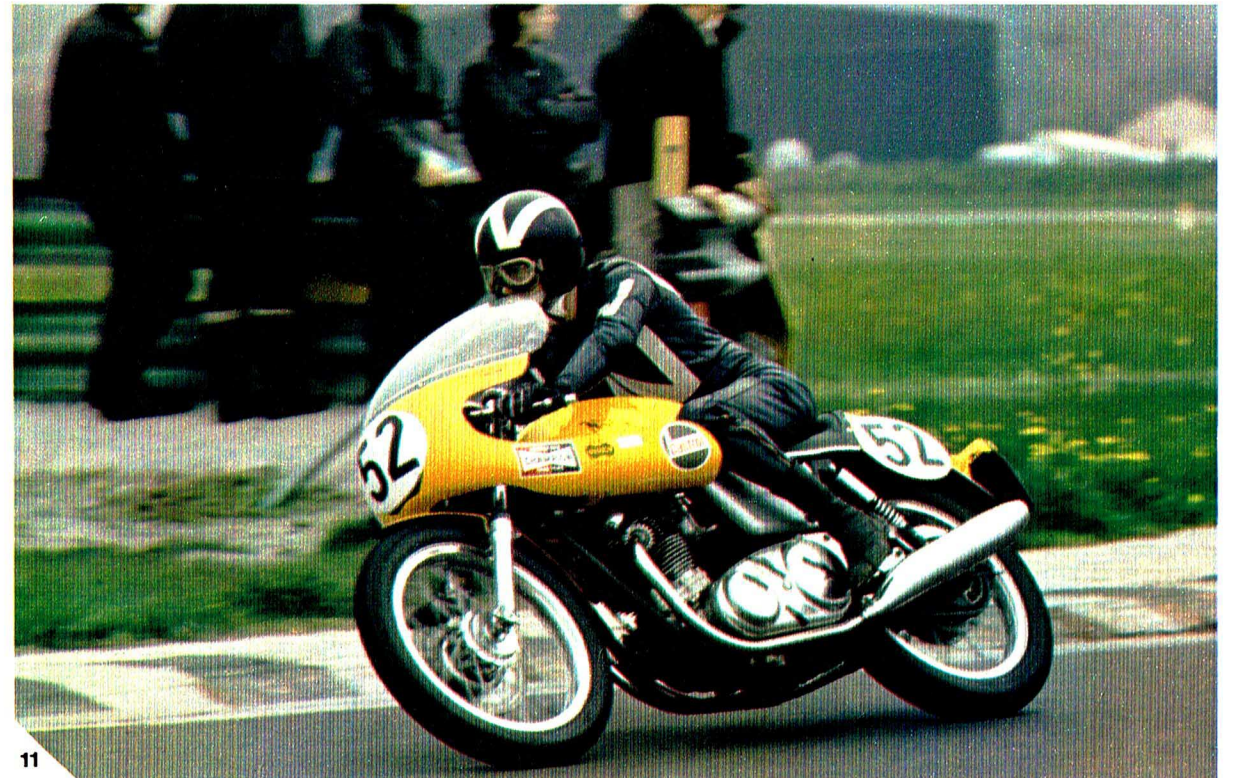
Barry Sheene on his Bultaco swamped the 125cc opposition, finishing some 60 points ahead of his nearest rival. In the 250 class it was Steve Machin (Yamaha) ahead of Barry Sheene, Derek Chatterton and Tony Rutter. Chatterton and Rutter on Yamahas fought to the last round for 350 honours. Derek eventually took first place. Alan Barnett (Seeley) and Peter Williams (Arter-Matchless) contested the 500cc solo class, Williams coming out on top by a three point margin.



7. John Banks, winner of the Independent Television Moto-Cross Championship, on his 500cc BSA Scrambler.
8. That man Miller demonstrates his remarkable skills during a visit to Wellington, New Zealand.
9. Alan Barnett, 350 Aermacchi.
10. Derek Chatterton, 350cc Yamaha, in the Isle of Man Man TT.



5. Peter Williams (Arter-Matchless).
6. Swedish Champion Kent Andersson (Yamaha).

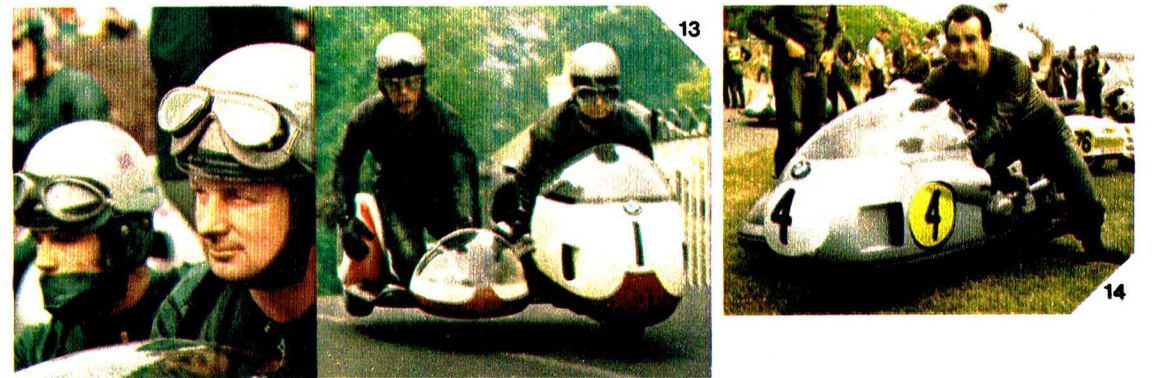


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11. Peter Williams with 750 Norton Commando, shared with Charlie Sanby, in Thruxton 500 Production event.

Chairmen 1970

12. World Champion BMW ensemble of Klaus Enders and Wolfgang Kalauch winning the 500cc sidecar event in the Isle of Man TT.
13. Georg Auerbacher with Hans Hahn, BMW, second in the World Championship;
14. Siegfried Schauzu with Schneider in the chair, winners of the 750cc sidecar TT, third in the World Championship, complete a BMW-Castrol trilogy.



14



15



16



17



18

The South African TT at Pietermaritzburg was won by the indomitable Phil Read (350 Yamaha), at record speed. Phil went on to win the 250 event at the Rimini International meeting only to fall in the 350 race and thus end his championship hopes.

Triumph-mounted Gene Romero became the U.S. Motorcycle Racing Champion for the second year running.

In Canada John Dailey and Mick Leece won the National Sidecar Championship on a 750 MGF-Norton combination.

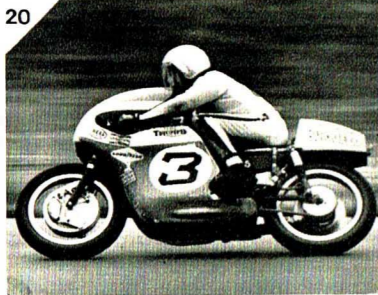
In trials riding it was, of course, Sammy Miller all the way. With his customary series of exhibition bouts he took the European Championship with a nonchalance that belied the opposition's world-class skills. Sammy won the 350cc class in the Scottish International Six Days and took third place overall in that event.

It was the same story in Moto-Cross, with AJS rider Malcolm Davis taking first place in the 250cc British Championship with the like mounted Andy Robertson in second position, and 500cc BSA-mounted John Banks winning the Independent Television series.

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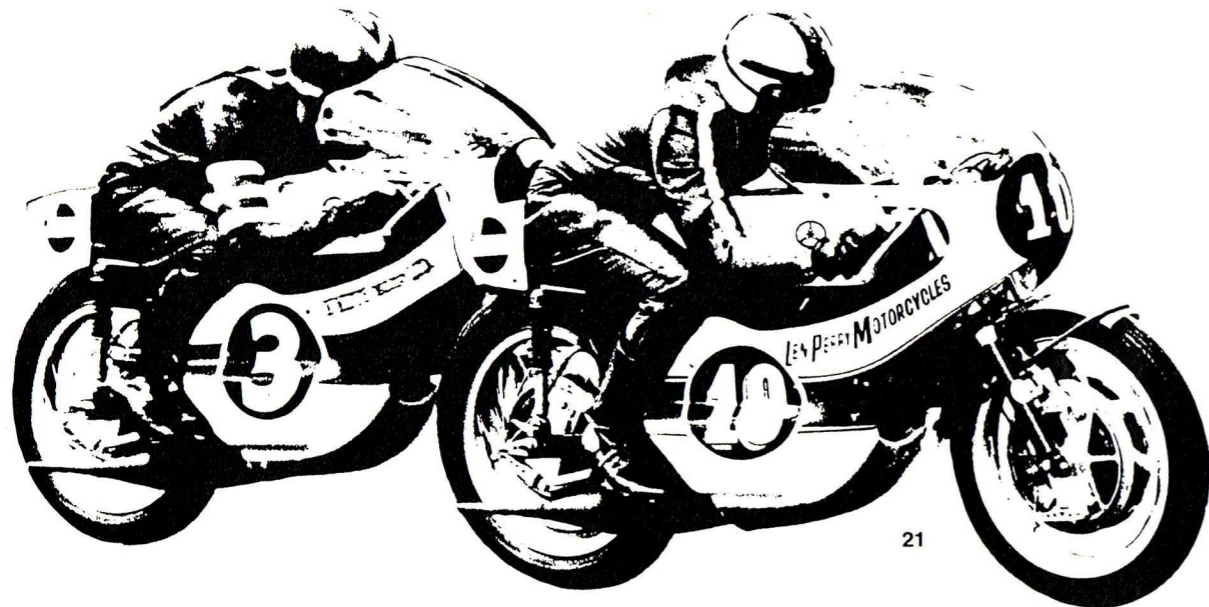


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Italy's Emilio Ostorero won both 250 and 500cc National Championships. And Alan Collison won the New Zealand Open Moto-Cross Championship for the fourth consecutive time.

- 15. Barry Sheene on his Suzuki mount.
- 16. On grasstracks, Hagon rider Chris Pusey took both the 350 and 500 British titles.
- 17. One of the all-conquering Czechs in the International Six Days Trial held in Spain.
- 18. Phil Read, Yamaha, winning Race of Aces at Snetterton.
- 19. Norwegian Jan Odegard won the European 1000 metre Championship, Don Godden, another Hagon exponent, taking second place.
- 20. Gene Romero, American championship winner on his 750 Triumph.
- 21. Kiwi riders: Geoff Perry, 350 Yamaha, winning the New Zealand Junior TT at Pukekohe, from Terry Discombe, Yamaha.



21

# Australia's Great Season



Winning combination. Leo Geoghegan and the Lotus-Waggott on their way to yet another win. Sydney's popular young veteran gave Castrol its first Gold Star Australian Drivers' Championship.



1

A vintage year for Castrol in Australia. GTX made its debut at the Hardie-Ferodo 500 and a Castrol-supported entrant won the Australian Drivers' Championship. Dedicated, 33-year-old Sydney veteran Leo Geoghegan who won the 1969 Japan Auto Federation Grand Prix, gained a victory in the last 1970 Gold Star round of the year at Mallala (South Australia) to take the title, using a new Lotus 59 with locally-designed and built Waggott 2-litre four-valve engine.

1 On the steepest pinch of the 3.8 mile Bathurst public road circuit—Doug Chivas leads the Class 'C' runners in his Valiant Pacer.

2 Datsun works team leader John Roxburgh kept his Datsun 1200 well up in Class A until he clipped a Mazda.



2



**Renault rally victory**

The David-and-Goliath story of Australian rallying was repeated in 1970 when Renault again won the makers' rally championship in the face of intense competition from other factory teams. Their competition manager, Bob Watson, also won the Australian Rally Drivers' Championship.

**Mexico and Back**

But the heroes of the year were probably Sydney drivers Ken Tubman and Andre Welinski, who grimly carried their Austin 1800 into 11th place in the World Cup Rally after stopping to help some injured fellow competitors. The Austin, supported by the Sydney "Sun" newspaper as well as Castrol, won. Tubman, Welinski and photographer passenger Rob McAuley a huge welcome when they returned home.

**Saloon car classic**

Only 60 cars are allowed to start in the classic production-saloon car Hardie-Ferodo 500-mile race, run at Bathurst, 120 miles west of Sydney, on the first Sunday of October.

This year, a quarter of Australia's population watched the event on TV, along with a spectator crowd of over 50,000. And of those 60 cars accepted from this year's 96 entries, 46 were on Castrol, 39 of them on GTX. GTX cars contested and won four of the five classes. Class 'A' fell to Tapsall/Leighton in a Datsun 1200, 'B' to a dealer-entered Datsun 1600 run by Don Smith/Herb Taylor, Class 'C' to dealer-entered Torana driven by Don Holland, and 'D' to the Valiant Pacer of Des West/Peter Brown. Castrol cars took the first 10 places in 'C' class, the first five in 'D', and seven out of the first eight in 'A'.

**Stock motorcycles in opening Castrol 1000**

The Castrol 1000 marked the first full-scale production motorcycle endurance race ever in Australia. Rather than "production" in the normal sense, which allows some modifications, the rules were framed around the Bathurst 500 regulations which demand cars in standard showroom condition. The outright winners—Hindle/Atlee/Ryan (Triumph T120) were on GTX.

The Mazda 1300 made its competition debut in the 500. This was the Class A car of Carne/Leeds.  
 A Mini-Cooper has won a class in the 500 every year since 1963, but this year only one Cooper S was entered—driven by Arthur Olsen/Lynne Keeffe.  
 One of the two all-girl teams in the race—Escort 1300 crew Gloria Taylor/Carole Corness, entered by a women's magazine.  
 Class B fell to this Datsun 1600, capably driven by Don Smith/Herb Taylor.  
 Sydney motoring editor David McKay, GTHO Falcon.  
 Making its competition debut, a Fiat 128 ran capably in the hands of Bob Forbes/Peter Finlay in Class A.  
 Glamour girls of the Hardie-Ferodo 500—Christine Cole and Sandra Bennett in the Holden Dealer Team Torana XU-1.  
 Outgunned on brakes this year, the hitherto

invincible 1200 Toyota Corolla finished fifth in Class A, driven by Max Stewart.  
 Sydney driver Barry Ferguson and navigator Dave Johnson made it a "Castrol" Southern Cross by winning in their Holden Dealer Team Torana against a crack international field that included British Leyland-Castrol works drivers Andrew Cowan and Brian Culcheth in Mini Coopers, as well as Safari winners Hermann and Singh.  
 Hard at it in the 1970 international Southern Cross Rally, British Leyland works team leader Evan Green.  
 1970 Australian Rally Championship winners for Renault-Castrol. National rally champion Bob Watson and navigator Jim McAuliffe in their Gordini-Alpine 1300, make a night creek crossing.  
 Winner of Class C in the Hardie-Ferodo, in a Torana, the consistent Don Holland, surrounded by some of the GTX girls on the grid before the start of the 500.  
 Le Mans start for 1970 Castrol 1000.



## BMW-Dornier

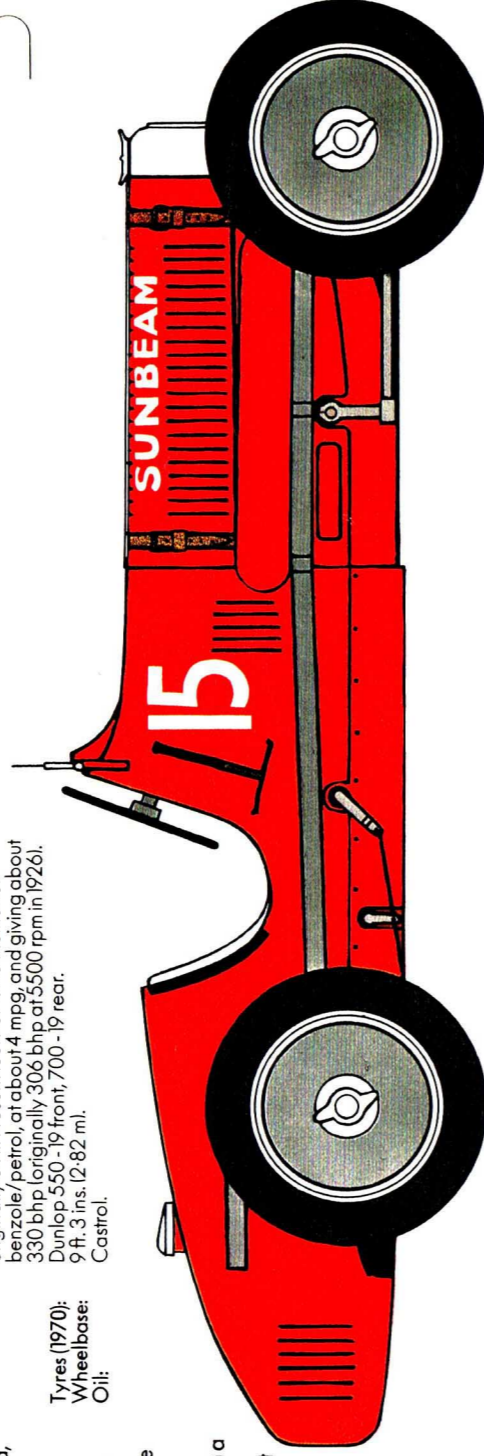
Once a BMW-engined Lola; now a Dornier-made, Len Terry designed monocoque with a much modified BMW engine. With Hahne at the wheel, gained the Munich factory's first-ever single-seater championship victory at Hockenheim in 1970.

Engine began with ingenious, if complicated, Apfelbeck head with radial valve arrangement which gave high power output but inadequate torque. Redesigned in 1968, retaining side-by-side inlet/exhaust ports, with twin cams and 4-valves per cylinder, each camshaft operating one set of diametrically opposed inlet and exhaust valves. Further modified in 1970 for one works car, with parallel inlet and exhaust porting, giving better torque curve but slightly reduced power.

## 1925 V12 Sunbeam Tiger

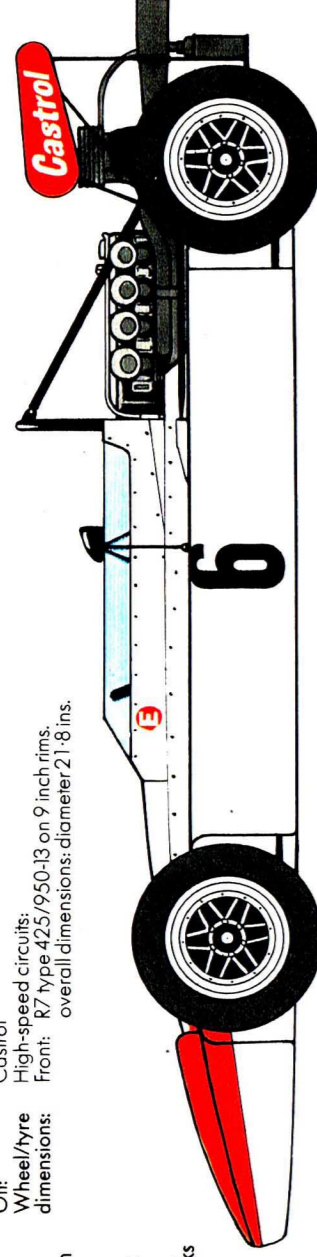
Designed by the Italian Bertarione for Sunbeam to attack the World Land Speed Record. It succeeded in 1926, driven at 152.3 mph by Sir Henry Seagrave. The smallest-engined car ever to hold this record, it was raced and sprinted extensively thereafter. Early in the 1930s Sir Malcolm Campbell bought it and had Reid Railton redesign the chassis and brakes. In 1952 Sir Ralph Millais bought it in pieces and had it restored. In 1962 it did a standing kilometre at Brighton in 26.08 seconds. Later the engine was rebuilt with plain instead of roller bearings, since when the car has been a fine performer in Vintage Sports Car Club events, driven mostly by Neil Corner. Recent successes: Motor Sport Trophy, Brooklands Memorial Meeting; Seaman Trophy, Oulton Park.

**Engine:** virtually two 1924 Sunbeam GP engines on a common crankshaft; 12 cylinders. Bore 67 mm, stroke 94 mm. Capacity 4 litres supercharged. Compression ratio now 6.75 to 1 (formerly 8:1, originally 6:1). Present fuel 75/10/15 methanol/benzole/petrol, at about 4 mpg, and giving about 330 bhp (originally 306 bhp at 5500 rpm in 1926).  
**Tyres (1970):** Dunlop 550-19 front; 700-19 rear.  
**Wheelbase:** 9 ft. 3 ins. (2.82 m).  
**Oil:** Castrol.



**width (inflated)** 9.6 ins.  
**tread** 6.9 ins.  
**Rear:** CR84 type 450/1300-13 on 12 inch rims.  
**overall dimensions:** diameter 21.7 ins.  
**width (inflated)** 12.8 ins.  
**tread** 10.4 ins.

**Slower circuits:**  
**Front:** CR84 type 450/1100-13 on 10 inch rims.  
**Rear:** CR82 type 550/1360-13 on 14 inch rims.



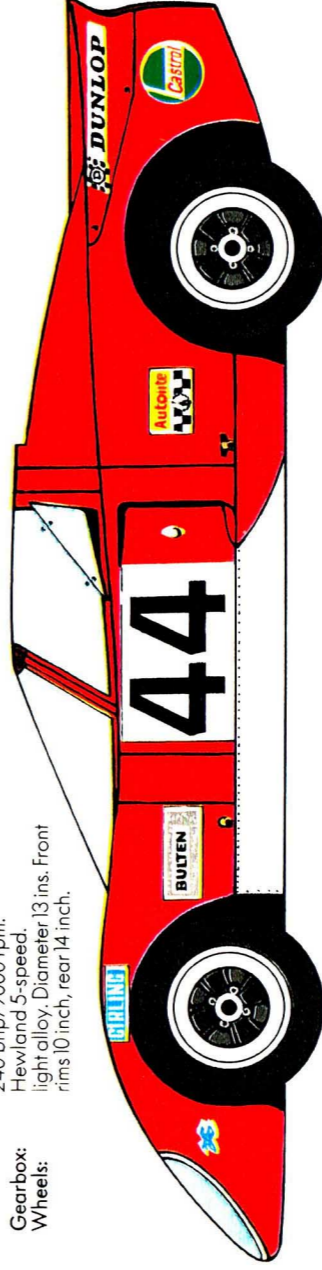
**Frame:** Rigid monocoque.  
**Suspension:** Unequal wishbones, coil springs, front and rear.  
**Engine:** 4-cylinders, 4 valves per cylinder, 3 plugs per cylinder. Kugelfischer fuel injection. Bore 89 mm, stroke 64.2 mm. Capacity 1598 cc.  
**Transmission:** 250 bhp/10,800 rpm. Compression 11:1.  
**Wheels:** Hewland 5-speed.  
**Tyres:** Magnesium alloy.  
**Wheelbase:** 7 ft. 5 1/2 ins. (2.28 m).  
**Oil:** Castrol  
**Wheel/tyre dimensions:** High-speed circuits: Front: R7 type 425/950-13 on 9 inch rims. overall dimensions: diameter 21.8 ins.

Chevron works entered Cosworth-powered B16s won the European 2 litre Trophy for Sports Cars in 1970.

## CHEVRON B16

**Frame:** multi-tubular with stressed panelling reinforcement around centre section, roll-over cage incorporated.  
**Suspension:** front, lower wishbone with top linkage and radius arm. Rear, lower reverse A-wishbone with top linkage and radius arm. Helical springs, telescopic coaxial dampers.  
**Engine:** Cosworth FVC 4-cylinder 1790 cc 2-ohc. 240 bhp/9000 rpm.  
**Gearbox:** Hewland 5-speed.  
**Wheels:** light alloy. Diameter 13 ins. Front rims 10 inch, rear 14 inch.

**Tyres:** Dunlop 4.75/11-50-13 front, 5.50/13-60-13 rear.  
**Wheelbase:** 93 inches. (2.3 m).  
**Oil:** Castrol.

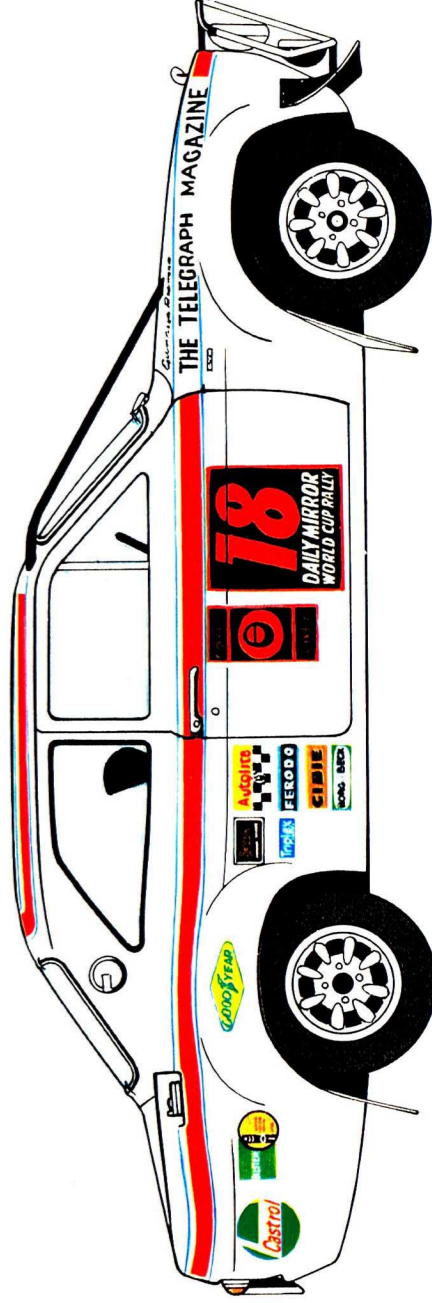


**Engine:** 4 cylinder ohv 1634 cc derived from standard Corina 1600. 2 Weber 45DCE carburetors; dry sump lubrication system with 2 1/2 gallon tank for Castrol oil; Lucas IAC alternator; Mahle pistons; Smiths electronic rev-counter; Lotus flywheel; Borg and Beck clutch with manual adjustment.  
**Gearbox:** ZF 5-speed close-ratio all synchromesh.  
**Final Drive:** 4-6:1 limited slip differential by Salisbury in Taunus axle.  
**Wheels:** Minilite Elektron, 6 x 13.  
**Tyres:** Goodyear 195/70-13 Rally Special.

**Brakes:** 9.6 in. discs front and rear, dual circuit.  
**Suspension:** front, Macpherson struts and coil springs; rear, half-elliptic springs and radius arms, rigid axle, Bilstein nitrogen-filled shock absorbers front and rear. 30 gallons in three tanks.  
**Fuel:** Castrol.  
**Oil:** Castrol.  
**Wheelbase:** 7 ft. 10 1/2 ins. (2.4 m).  
**Weight:** 17 1/2 cwt.  
**Performance:** standing 1/4 mile in 16.5 seconds; maximum speed 103 mph.

World Cup Rally-winning FORD ESCORT driven by Hannu Mikkola and Gunnar Palm.

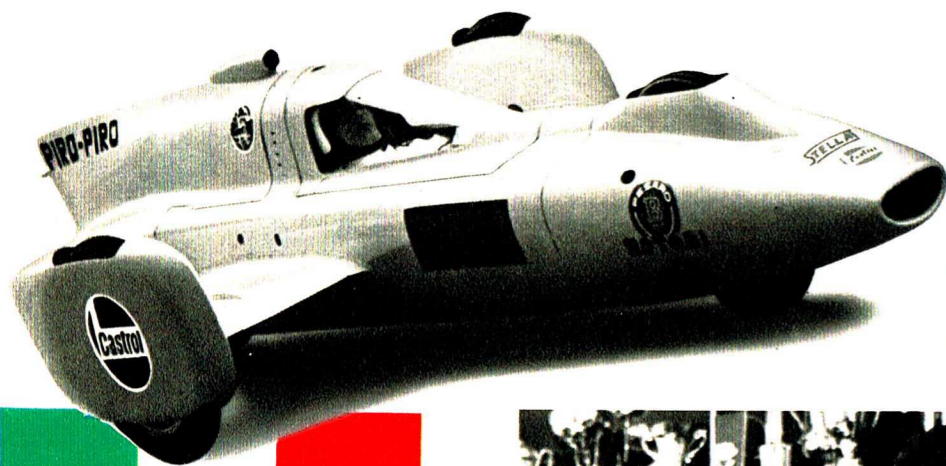
## FORD ESCORT





# INTERNATIONAL

# SPORT



The streamlined Castrol special, powered by a Motobi 250cc motorcycle engine and driven by S. Stella, which broke three international K250 class records at Monza in May. They were: 10 km in 3 min 41 sec (average speed 162.895 km/h); 10 miles in 5 min 42 sec (average 169.106 km/h); 100 km in 34 min 54 sec (average 171.895 km/h).



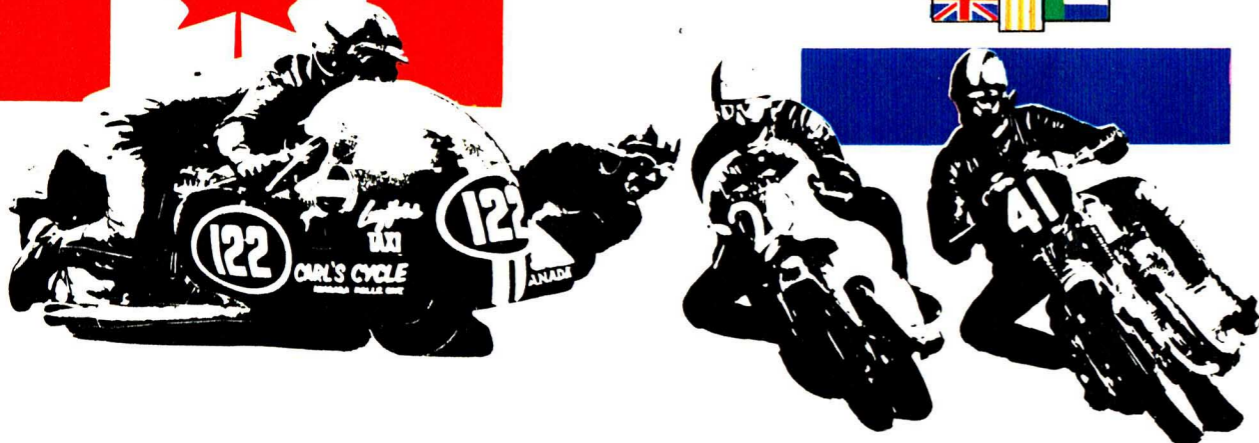
Emilio Ostorero, Italian Moto-cross champion.



Lou Hermann, Canadian three-wheeler exponent, comes out of a fast left hander at Mosport, Ontario.

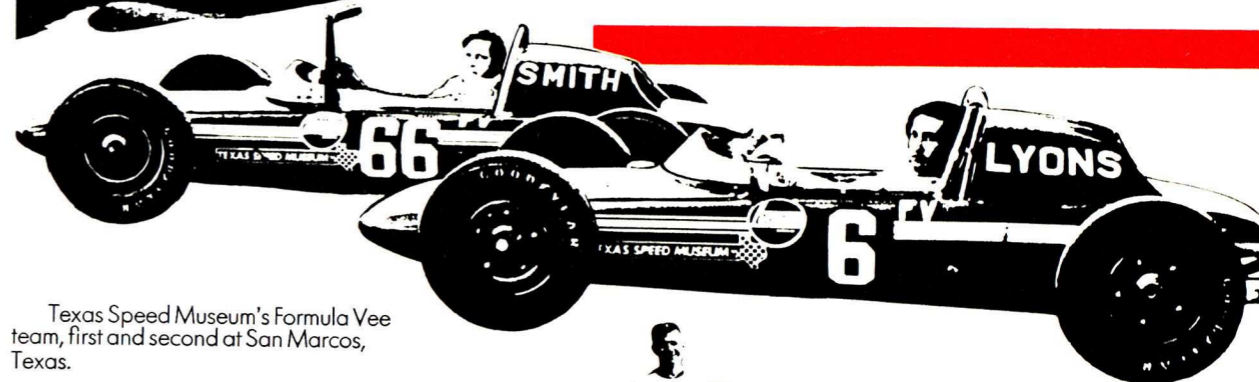
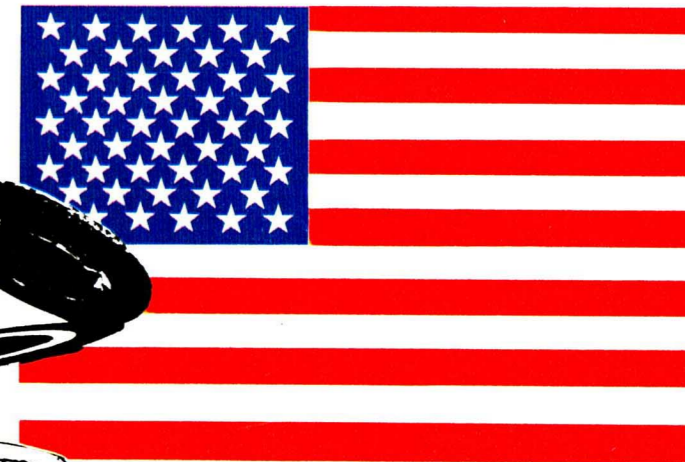


South Africa's Castrol 2 hour race—M. Grant and B. Hoskins on Hondas.



# REVIEW

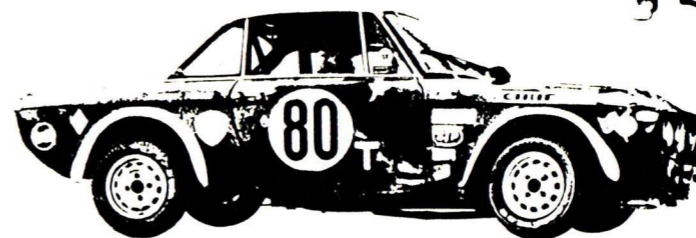
U.S. ex-champion Gary Nixon made a working visit to the Mallory Race of Year meeting, astride a Trident. His verdict on British motorcycle racing—fantastic!



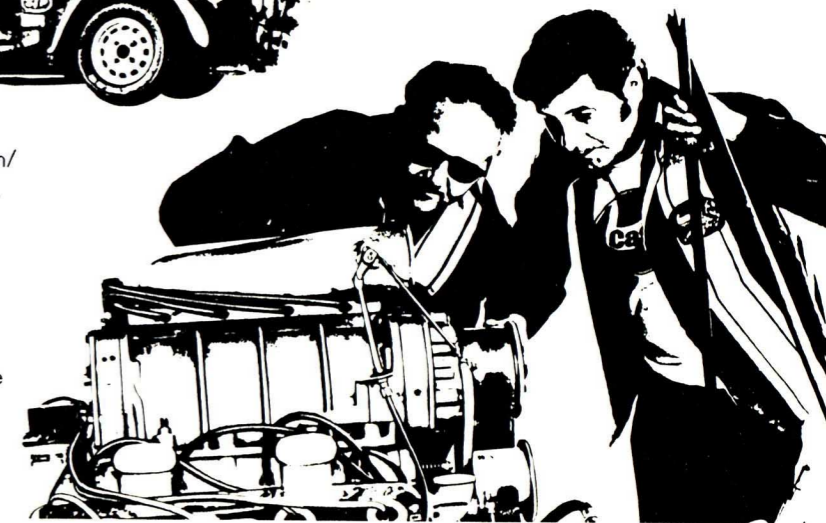
Texas Speed Museum's Formula Vee team, first and second at San Marcos, Texas.



Buddy Criscoe and Mustang, National Hot Rod class record holder.



Somewhat battered, the Kennedy/Samm/Tillson Lancia at Sebring.



Arnie Swensen and Bob Lani take a close look at their blown Chrysler power unit.

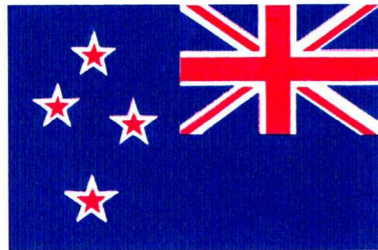
**INTERNATIONAL**  
**SPORT REVIEW**



Ford Escort and driver, Henry Bradley, before the touring car event at the International Aid meeting, Peru.



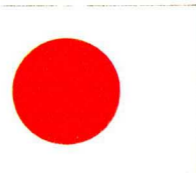
Harris—father and son—New Zealand Trials Champions.



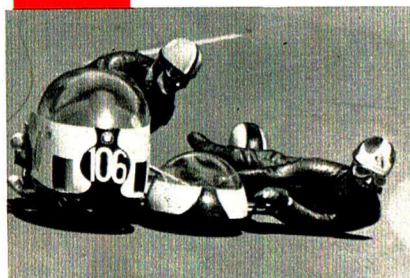
Canadian Bill Brack, Castrol-Lotus 70.



Taking the flag at a Japanese Club event.



Relaxed style for Formula 3 driving at Marakesh.



French sidecar champion, BMW-chaired Joseph Duhem and 250 solo champion Christian Bourgeois, Yamaha.

# CLUBMEN 70

**BRITISH**



Jeff Goodliff, Lotus Elan, Castrol-BARC Hill Climb Champion.

Out and about again at vintage, sports, saloon, and racing car meetings, at hillclimbs, rallies and autotests, on two, three and four wheels, at one-make and all-makes events, wherever there's a chance to show the paces of their painstakingly-prepared and maintained machinery. The Clubmen. Our cameraman captured some of them in action in 1970.



Alison Davis, Diva 10F.



David Hepworth, Brabham Oldsmobile, runner up, RAC Hill Climb Championship.

### Quiz Kids

Liverpool Motor Club proved themselves Britains most knowledgeable automotive quiz kids when they won the 1969/1970 Castrol Guards Quiz.

The semi-final and final rounds were held at Birmingham's Savoy Hotel, under the chairmanship of broadcaster Raymond Baxter. In the semi-finals, Chess Valley beat the Bristol Aircraft Company MC and Liverpool beat Mid-Cheshire. And in a close-fought final Liverpool had the edge on the Chess Valley team from Hertfordshire. They were rewarded with a sparkling new Castrol Caravan—which quickly came into prominent use at club meetings.



Jeremy Lord, Astra, Motoring News GT Championship.

David Howells, Triplex Championship winner in his Ford Falcon.

**COME FLOOD OR SNOWSTORM**  
CASTROL-MOTORING NEWS  
RALLY CHAMPIONSHIP

The Castrol-Motoring News Rally Championship brought some magnificent sport to the 15 clubs that organised 1970's events. Competition was intense, friendly and skilful.

At the Tavern MC's Bristowe it was the Ford Escort TC of Chris Beynon and Lyn Andrews that took the honours. At Yorkshire's Seven Dales meeting it was the Bob Bean/Paul Stephens Escort TC. The Welsh Marches made it three for the Escorts, this time with Jimmy Bullough and Don Barrow in control. With the Swansea Club's Vales event, a Mini Cooper driven by Will Sparrow and Nigel Raeburn broke the Ford stranglehold and the same crew did it again in the Aberdare Nutcracker. After that the Escort-Mini battle raged. In the Midlands Dubonnet Rally the Clarke/Smith Escort was on top but the Sparrow/Raeburn Mini was not far behind. With the Manx and Gremlin events, Jimmy Bullough, now with the British Vita team, maintained a narrow lead among the drivers, though he was only third in the Gremlin, and yet another Escort, this time crewed by Pierson/Francis, had entered the



reckoning. Bullough's partner Don Barrow led the navigators' section. Come the Teifi Valley MC's Cilwendeg event it was the turn of the Uniroyal Mini Cooper S team of Sparrow/Raeburn again. At the Owen MC's AGBO Rally it was another Cooper S, this time crewed by Rob Lawrence and Davis Stephenson. Bullough's lead was down to a single point over Lawrence. At the Plains Rally, organised by Knutsford & DMC, Pierson and Francis again brought their Escort TC to the fore; and in the

Tour of Mull, George Hill and Keith Wood made it in their Escort TC. In the Dukeries event Bullough and Barrow were second to Beynon and Andrews, a finishing order that was repeated in the Torbay, but that was enough for them to claim the driver and navigator awards.

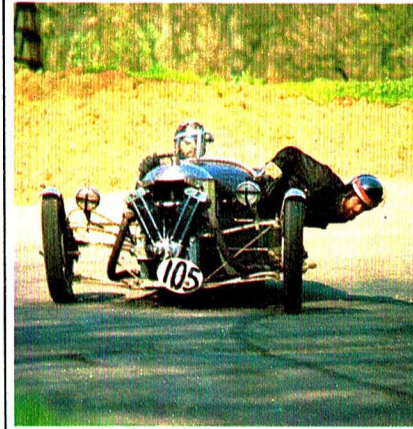
Left: Will Sparrow and Nigel Raeburn (Mini Cooper S) in the Rallye Dubonnet. Right: Jimmy Bullough and Don Barrow (Ford Escort TC), in the Welsh Marches event.



Dan Hobbs, Simca Monthery, winner of the Castrol sponsored V. T. Fellows Production Car Trial.

Start of Barley Mow Autocross.

Perfect Vitesse of C. G. Wagstaff, winner of Castrol/CCC Concours d'elegance.



**UPHILL STRUGGLES**

In the Castrol-BARC Hill Climb Championship, as wide an array of machinery as will be found anywhere in motor sport was in competition from April through to September. At the opening meeting at Brunton they ranged from F5000s to Imp-engined babies and BL-engined Minis. But most eyes were trained on the new Lotus Elan of British Vita's Jeff Goddliiff. He won a close victory at the first meeting, and stormed through the nine-round competition to his third championship in a row—with rear-wheel drive for a change.



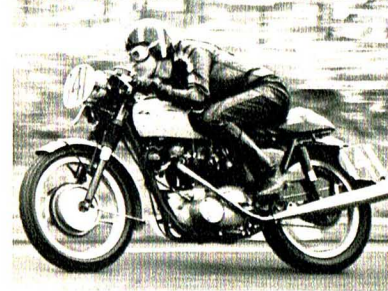
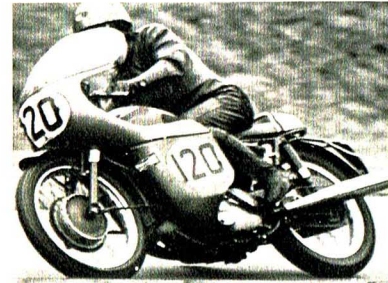
Those dedicated and vitally necessary men of racing, the marshals. Top: exit from Paddock. Clearing oil at Druids. Clearing cars at Thruxton.



**MOTOR CYCLE CLUBMAN**

Clubmen were prominent on two wheels as well as four in 1970's action-packed scene.

In trials, Bultaco-mounted Geoff Chandler and Paul Dunkley rode alongside Sammy Miller, gaining a string of team and class awards. John and Dave Meill, with their 650 Triumph and 1000cc JAP outfits, gave some outstanding performances in the sidecar class of the British Grass Track Championships. And on the road racing front, Geoff Brett (650 Bonneville) with 28 wins to his credit, and Brian Wackett (Egli-Vincent and Triumph), enjoyed another successful season in Britain's club events.



**CASTROL/BTRDA AUTOTESTS  
OBSTACLE RACING**

Again the Flather Star and GTX Trophies brought autotest competitors out in force. There were 20 rounds up and down Britain to test the skills of drivers and the manoevrability of vehicles.

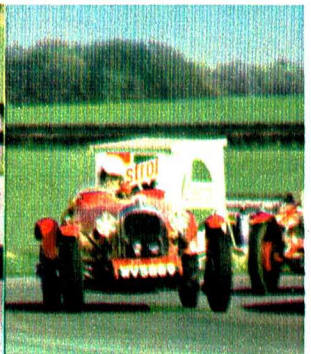
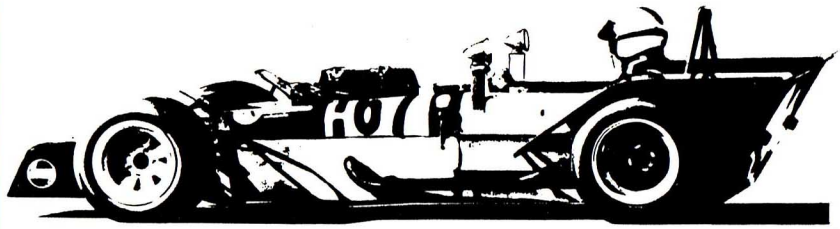
Maurice Bishop in his 4-wheel-steered Mobi 1 took the Flather Star Championship award, while the Castrol Trophy went to runner-up George Holland, Mini Cooper S. Third man Norman Morley started the season in a Morris 1300 and finished it in an Escort Twincam. Peter Noade, VW, was another all-season competitor.



**RACING CLUBMEN**

Ray Mallock, 1.6 Mk8 B Ford-U2; Richard Longman in his Mini Downton 'S'; Elaine Drake takes a vintage and thoroughbred flip in Barry Clarke's 1929 Austin Ulster;

Jaguars are still popular with the Clubmen; this one was driven by Rod Forbes. A sight for nostalgic racegoers—Mick Comber's 1926 Alfa 6C. Rod Mansfield's Dino-Hart 6.

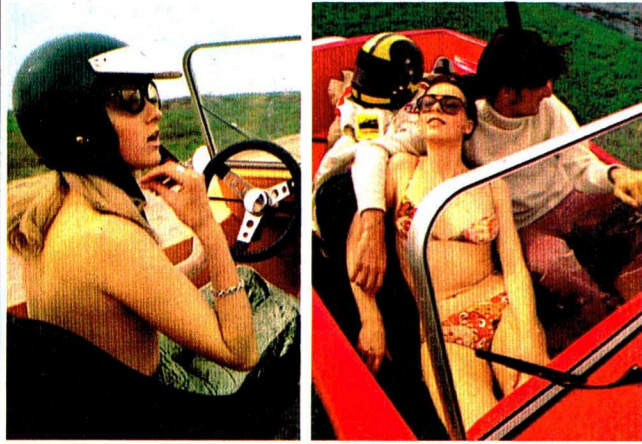


Driver: John Quick, Mechanic: Stuart Davey, Dampers: Koni, Circuit: Thruxton, Oil: Castrol. The car, needless to say, is Quick's familiar E-Type.



# GLAMOUR

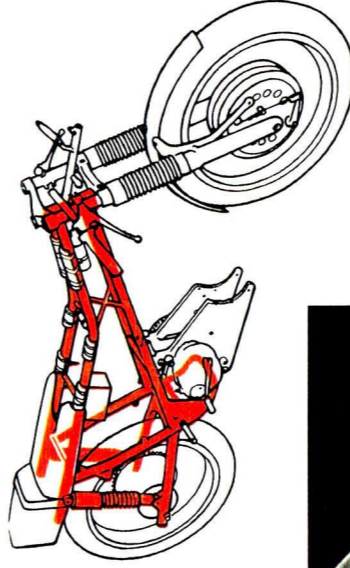
Castrol girls everywhere—at the Lotus factory and Austrian autocross. And who's complaining?



Progeny of Dr. Gordon Blair of Queens University Belfast (thus its name), the QUB may well prove to be the production motorcycle racing engine of tomorrow. It produces 60 bhp, at 7,500 rpm, and they say it is capable of 70 bhp at 8,000 revs with a few adjustments to porting and improved scavenging. Its fuel consumption in racing trim is around 20 mpg. It was all done to test out theoretical data on engines and gas dynamics accumulated over several years and digested by the Queens University

computer. And such was the accuracy of the picture pieced together by Dr. Blair, with the aid of the computer and his research students, that the QUB needed none of the usual slide-rule development work.

Colin Seeley Racing Developments, along with Castrol, supported the project from the beginning and now engines and frames from the famous Seeley factory at Erith are showing every sign of proving themselves on the road racing circuits.



**Specification:** QUB-Seeley, 500 cc.  
**Engine:** Single cylinder two-stroke. Special Amal carburettor.  
**Power output:** Initially 60 bhp/7,500 rpm.  
**Gearbox:** Seeley PGT-5 speed.  
**Fuel tank:** 4½ galls - for short circuits.  
**Wheels:** 7 galls - long distance circuits.  
**Brakes:** Dual 18½ inch diameter drum at front. Single 8 inch diameter drum at rear.  
**Tyres:** Front: 300-18. Rear: 325-18.  
**Lubrication:** Castrol.  
**Weight:** 250 lbs.



## THE QUB-SEELEY

# CROSS COUNTRY RUNNERS

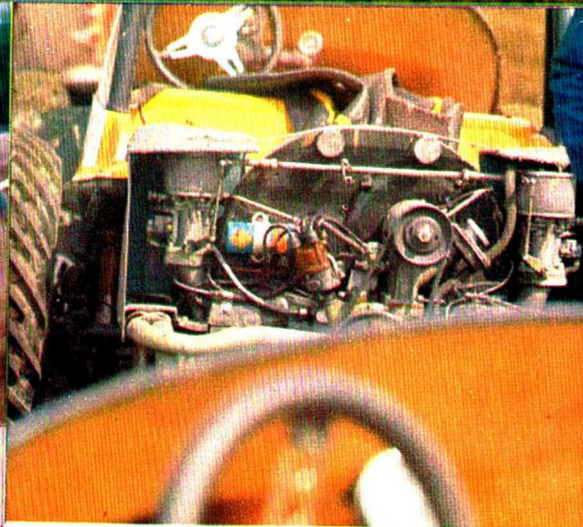
With fields often more than 100 strong and good spectator attendances, autocross and its television offspring rallycross have become popular forms of motor sport, for clubmen and professional drivers alike.

In Britain's televised Rallycross Championship, organised by the Thames Estuary Automobile Club, privateer Hugh Wheldon in a Cooper S beat off the challenge of some powerful works opposition to take the 1969-70 title. Peter Harper in his Sunbeam Imp put up some outstanding performances to gain second place in the championship. Barry Lee, Ford Escort TC, was third. One-two-three for Castrol.

Meanwhile, the Autocross season in Britain and Europe started with the handicap of too much mud and reached its climax amid endless dust. From Austria to Ireland, there were fiercely-contested battles for the national cross-country championships.

## Autocross in Austria

Gerstinger's VW throws up the mud; a psychedelic front for Reinhard Decker; rear view of a neat engine arrangement and a good rough-weather tyre; VW-Buggy in action. Ali Klumpp in his Cross-Porsche gives Karl Mayer's VW Special a push.



## Television Rallycross

First in the U.K. Television Championship, Hugh Wheldon, Mini Cooper S.

## Autocross in Ireland

In Ireland's Castrol Autocross Championship it was anything but a runaway victory, with Conor Linehan, Mini Cooper S, John Hayes, Cooper S, John Tansey, DKW Special, Bob Bradley, B-Special, Dave Ray, Cooper S, and Harry Mooney, VW, spending most of the season within two or three points of each other.



# Oil with a capital C

What is involved in producing a new oil? How, when the world's most renowned name in lubrication is attached to it, can a new product be guaranteed to maintain and enhance the reputation of that name?

The answer is threefold. It lies in the ability to assess, and sometimes to anticipate, the needs of the user. It lies in massive research facilities, backed by a fund of experience ranging from the specialised requirements of aircraft and racing engines to the everyday needs of the private vehicle. And, perhaps most importantly, it lies in thorough and ruthless testing—controlled testing under every conceivable condition of use and abuse.

When Castrol has determined—or predicted—the needs of the user, defined the kind of product that is wanted, and related its benefits to the likely retail cost, the processes of chemical formulation begin. The base fluid and additives are selected. Then come tests of physical characteristics; viscosity, shear strength, load carrying and film properties, thermal stability—all are subjected to searching examination. Then static engine tests.

Power units of every kind are used—diesel, petrol, in-line, vee, rotary, two-stroke and four, depending upon the proposed oil and its application. Cold start, sub-zero and super tropical conditions are simulated. Oil pressures at the highest and lowest attainable temperatures are recorded. If necessary, special engines are made in order to carry out sufficiently thorough tests.

Then road tests. Vehicles of every size and kind are run for countless thousands of miles, under carefully controlled and recorded conditions of load, speed, driving technique, of temperature and atmosphere.

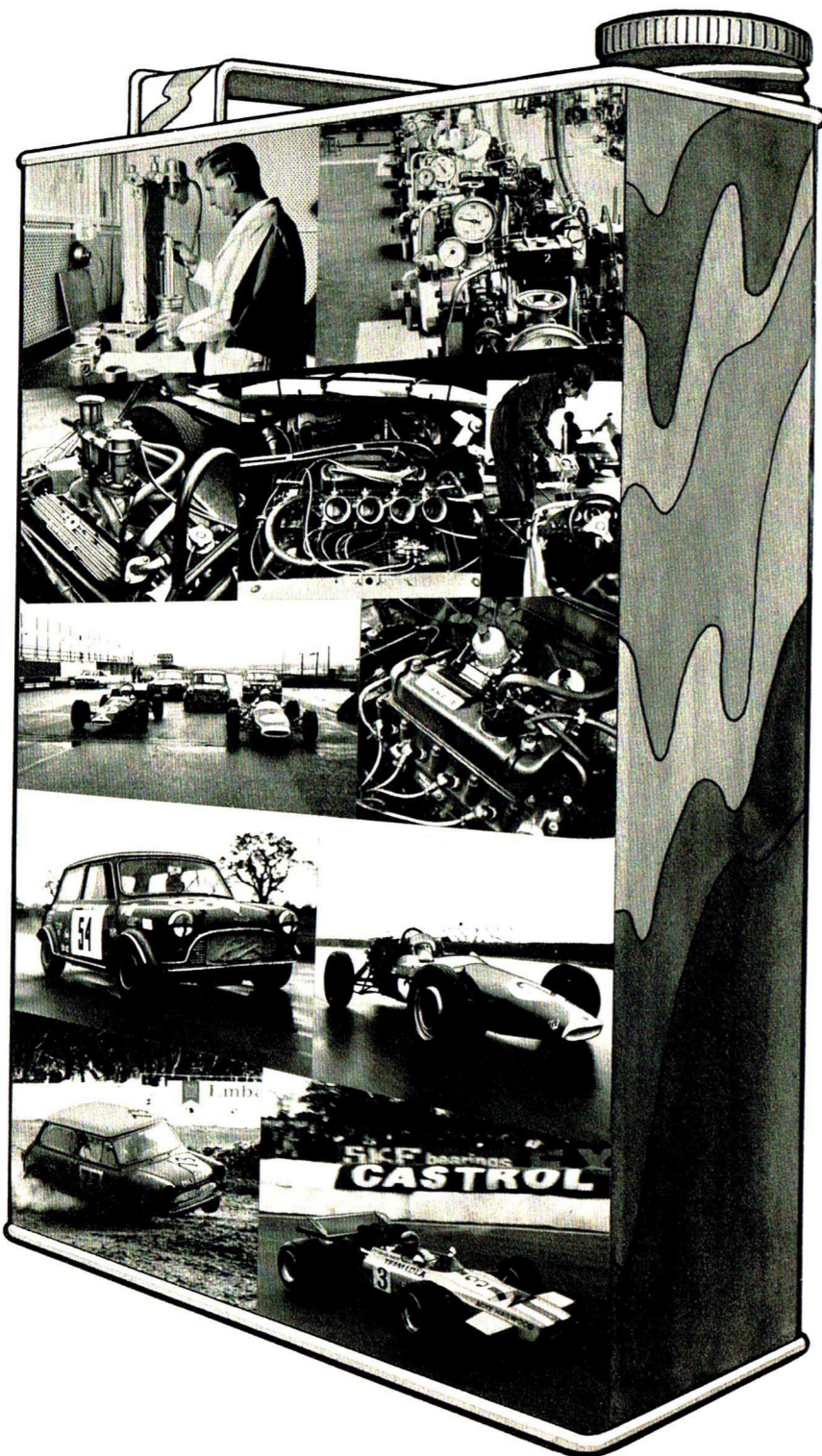
In the case of an all-round high-performance oil like GTX, such tests are carried out at constant speeds, and to the limits of engine endurance. With Castrol's new Competition Oil, vehicles as varied in their performance and mechanical and thermal stresses as an F3 Repco-Brabham, a fuel-injection Mini Cooper S, a Ford Twincam, a VW-engined Formula Vee, a 3-litre Escort and a BLMC 1800 rally car were subjected to relentless, high-speed tests on the Snetterton circuit, under the scrutiny of leading racing and rally drivers.

With any new oil, Castrol Research even carries out tests for such unlikely

abuses as putting an engine oil in an unreceptive gearbox. But that is not all. Motor manufacturers carry out their own tests before giving approval. And for months after a new oil comes onto the market, users' comments are monitored and noted. Close contact between Castrol Research and Production units

ensures continuing product development and improvement.

No wonder GTX has become the world's most prominent multi-grade high-performance oil. No wonder Castrol Competition Oil brought home a string of victories, from Formula 5000 to hillclimbs, in its first year.



It was a crowded all-action season of national and international rallying, despite the attention centred on the World Cup drive from London to Mexico. And it was another good year for Castrol-lubricated machinery.

Saab and Volvo in Sweden. Peugeot in Casablanca. Opel Kadett in Belgium. Escort in Ireland. Mustang in Mexico. Isuzu Bellett in Finland. Toyota in South Africa. Mini Cooper in Denmark. Winners all, on Castrol.



## INTERNATIONAL RALLIES

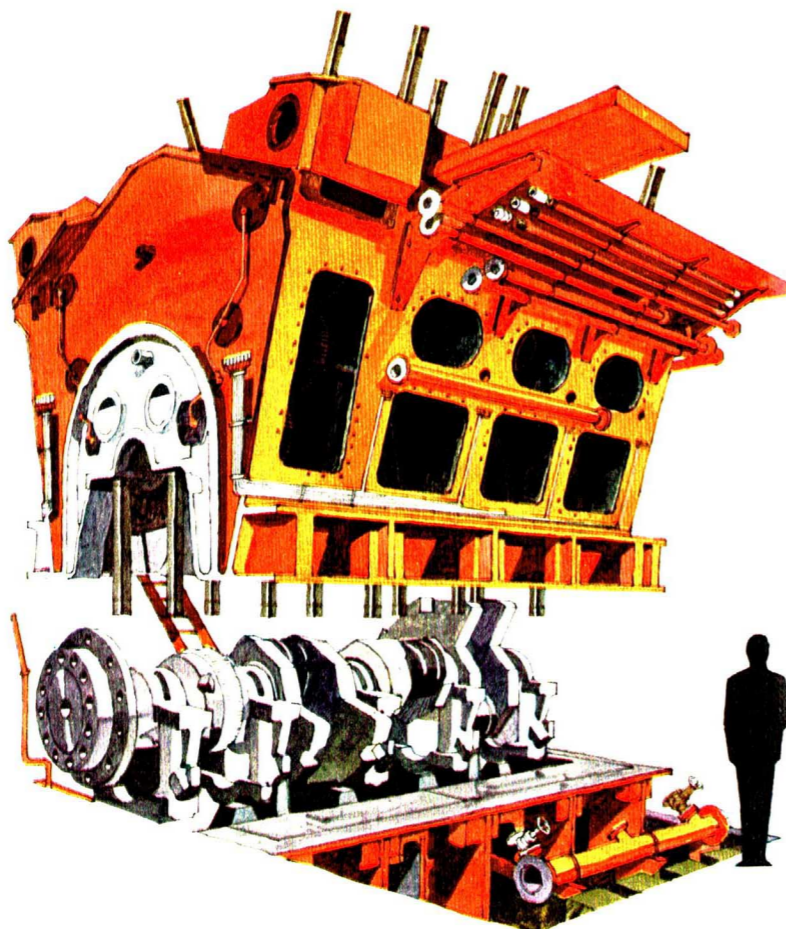


# Power in plenty from Sweden's mighty UDAB Marine Engines

The saloon car designer is happy with 100 bhp, the racing car designer squeezes 450 bhp from his engines. United Diesel A/B expect 20,000 bhp from an 18 cylinder unit. The specification of this generation of turbocharged trunk piston engines from Sweden is sufficient to dwarf the most splendid notions of the big engine enthusiast.

These four-stroke pulse-turbocharged power houses are made in 8, 10, 12, 14, 16 and 18 V-cylinder versions, as well as other in-line configurations. Each cylinder bore is 520 mm in diameter and the piston stroke is 570 mm. All of which adds up to a swept volume of just over 120 litres per cylinder. Rated power output reaches 1150 hp per cylinder at 425 rev/min (yes, 425). The Mep is one that many a racing engine designer would be happy to achieve, 284 psi, though maximum power of about 10 bhp per litre might be considered a trifle low. Brown Boveri turbines, four for the large versions and two for the smaller, rotate at 17,500 rpm to blow on the combustion process within the engine's giant cylinders. Reliable operation has been achieved burning heavy fuel (viscosity up to 3500" Redwood 1 @ 100°F) with 3.5 per cent sulphur content, demanding a high quality lubricating oil. In an engine with such high mechanical and thermal stresses, the lubricating oil plays a vital part. Castrol 220 MXD is the approved lubricant. Each cylinder has four lubricating points and the total amount of oil circulated for protection and cooling equals 12.5 litres per horse power hour, or the equivalent of 100,000 litres every hour for the smaller 8-cylinder engine.

And to swamp any ordinary comparisons, a single conrod (with bearings) weighs well over half a ton, and each cylinder liner weighs fractionally under a ton. The UDAB engine is the answer of one of the world's leading diesel engine manufacturers to the demand for more efficient power sources for super oil tankers, high speed container ships and other advanced ocean-going vessels in operation or planned for the 1970's.



## QUEEN OF THE WAVES

The world's largest civil hydrofoil, the Reina del Mar, was delivered to her Norwegian owners Johs. Presthus Rederi towards the end of 1970. Designed by the Swiss firm Suramar A.G. and built at the Norwegian yard Westermoen Hydrofoil A/S, the Reina del Mar weighs 165 tons, and is more than 118 ft (36 metres)

in length. It has an operational speed of 36.5 knots, and can seat 250 passengers. Main propulsion is by two MTU diesel engines, each developing 4500 bhp at 1900 rpm, using Castrol lubricating oils and hydraulic fluids.



It was, in terms of distance and hazard, a narrow victory. To drive nearly 16,500 miles over some of the world's most rugged – and at times awesome – territory, and to win by a margin of 78 minutes, is tribute both to winners and to the competitors close on their heels. To the superlative Hannu Mikkola and his partner Gunnar Palm in a works Ford Escort must go the plaudits for their victorious drive in the Daily Mirror World Cup Rally. But no less handsomely deserved is the acclaim widely handed out to all the 23 crews, from a starting total of 96, who made the distance. Credit, too, to Castrol – the oil chosen by 16 of those 23 finishers, including the first six in the overall classification.

Driving and navigating with their usual skill, Mikkola and Palm in their very special works push-rod Escort, arrived first at the Aztec Stadium.

Runners-up in a works Triumph 2.5 PI, British Football Association entrants Brian Culcheth and Johnstone Syer.

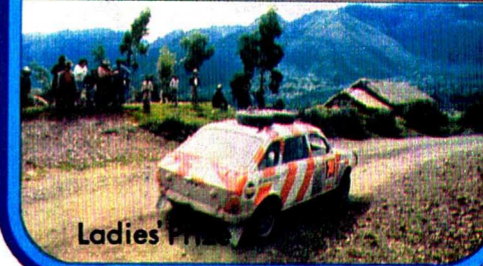
Another successful British Ford team. Third overall, Rauno Aaltonen and Henry Liddon in an Escort. They suffered gearbox troubles early on but survived them to complete a typically professional drive.

The Austin Maxi, Ladies' Prize winner.

Fourth in the alternating Ford-British Leyland finish was the much favoured Triumph 2.5 PI of Paddy Hopkirk/Tony Nash/Neville Johnstone. p28

The Timo Makinen/Gilbert Staepelaere Escort makes its way through Italy. It took fifth place overall. p28

# WORLD CUP RALLY



South American stop for the 6th placed works Escort of Tony Fall and footballer-turned-rally driver Jimmy Greaves. p29

12th place men at Lisbon, the Polish crew Sobieslaw Zosada and Marek Wachowski took their works Escort to 8th position overall at the conclusion of the gruelling South American run. p29





Privateers Reg Redgrave, Bob Freeborough and Phil Cooper, entered by the Royal Navy, turned in a fine performance in their BLMC 1800 to gain 9th place.  
Clad in their Maxi, Ladies Prize winners, Rosemary Smith, Alice Watson, Ginette Derolland, 10th overall.  
Third among the privateers, 11th overall, Australia's Tubman,

Welinski, McAuley trio in a BLMC 1800.  
Helping to break the British stranglehold, Bolivia's Bendek/Hubner/Burgoa in a BMW 2002 TI were thirteenth.  
A Lotus-Cortina in Escort territory—driven by Ron Channon and Rod Cooper, 14th overall.  
Second of the all-lady crews to finish, Jean Denton/Pat Wright/

Liz Crellin in their BLMC 1800.  
A Datsun in the top 23, Dutchmen Rob Janssen/Jacob Dik in 21st place.  
Penultimate crew at the Aztec Stadium, Tony Kingsley, Peter Evans and Mike Scarlett in an Austin Maxi.  
Last home, but none-the-less creditable for that, the Doug Harris/Mike Butler 1.3 Escort GT, pictured

in Italy.  
Winners in victory mood....  
The British Leyland team—plus mascot—in colourful assembly. Offbeat entries...personalities... Castrol service...and Boreham's blue-eyed boys...the almost perfect bearings from Zasada's Escort after more than 16,000 miles of tough rallying—on Castrol.





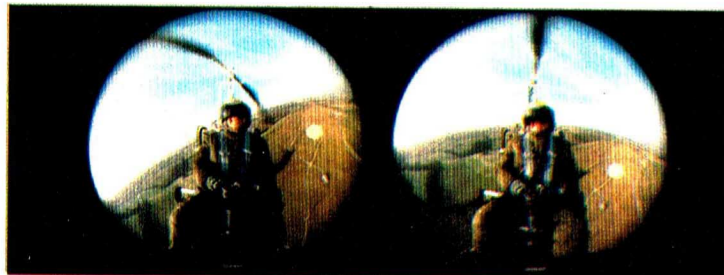
# Mighty jets, mini gyroplanes and diminutive models make 1970's aviation news

Seventy leading civil airlines and ten of the world's airforces rely on Castrol expertise. And this massive international compliment to the technical supremacy and proven reliability of Castrol Aviation lubricants and Stauffer Aerosafe\* hydraulic fluids, extends into other less obvious aviation activities.

In 1970, model aviators met in Britain to compete in the first World Championship for Scale Models at Cranfield in August. Grasping the imagination of more and more air travel enthusiasts, single-seat gyroplanes took to the air in growing numbers.

Air Canada extended the use of Castrol aviation products to their jets in 1970. All the Pratt and Whitney jet engines of their 84 Douglas DC-8 and DC-9 craft are now lubricated by Castrol 205 Synthetic Aviation Oil, as will be their Boeing 747's when they come into service during 1971. Air Canada also use Aerosafe 2300 Fire-Resistant Aircraft Hydraulic Fluid on all DC-8, DC-9 and Vanguard aircraft. BEA, too, are using Castrol lubricants for their entire fleet.

And Pakistan International Airlines among many others use Aerosafe fluids.



## GYROPLANING INTO THE SEVENTIES

A single seat to the freedom and independence of the sky, by the newest, most exciting form of personal transport yet devised—the Gyroplane. The Campbell Cricket, has a range of 150 miles, using an air-cooled 4-cylinder engine with ordinary 4 or 5 star motor fuel, or 100-130 octane aviation spirit. More and more took to the air in 1970.

\*Aerosafe 2300 Fire-Resistant Aircraft Hydraulic Fluids are manufactured by the Stauffer Chemical Company and marketed by Castrol. Aerosafe® is the registered trade mark of the Stauffer Chemical Company.



RAF helicopters in formation at Farnborough.

Nine nations represented by 33 competitors took part in the Castrol-sponsored World Championships for Scale Models at Cranfield in August. Britain's team won several individual awards, including top places in the radio-control and control-line competitions. They also won the radio-control team award. 1 Rear: Mick Charles (Sirocco), Roy Yates (Proctor), Manager Norman Butcher and Terry Melloney (Miles Hawk Speed 6). Front: Albert Briggs (Brigand), Mick Reeves (Zlin 326) and Derek Goddard (Pralz D11). 2 American teamster Hale Wallace (DH Chipmunk Special with red-and-white checkerboard nose). The USA Control-Line team won the C/L Championship. 3 World Champ in Radio-Control Scale, Mick Charles from Eastcote R/C Club, England, a perfectionist modeller with great determination and confidence.



# SPORTS SPECTACULAR

Can-Am, Le Mans, Targa Florio, the BOAC and Nurburgring 1000 kms, Watkins Glen, the Osterreichring. Names to conjure memories and expectations of motor sport at its most spectacular.

Championship meetings from Ireland to Peru in 1970 shared the spectacle of Group 5 and 6 sports cars in fast and usually close combat.

Brian Redman in his final European season displayed all his driving skills in 1970's sports car events, gaining victories in Britain, Europe and America.

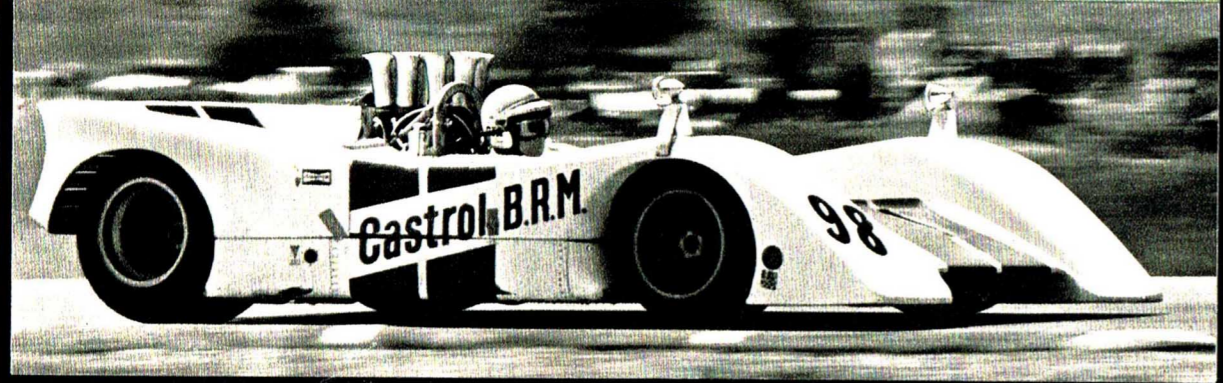
Bosco O'Brien's BMW-engined Chevron B8 at Mondello Park, Ireland.

Peru, as ever, enjoyed its sports car racing in 1970. In the

"International Aid" meeting on the Collique circuit, Frederico Block took his Porsche 906 to the finishing flag ahead of Ecuador's Fausto Morello in a Ferrari 275.

George Eaton and Castrol BRM, off loading and on the road.

Again in Peru, Porsche driver R. de la Riva Agüero was overall winner of the President of the Republic GP.



# THE LONG AND THE SHORT INTERNATIONAL SALOON BATTLES

Saloon cars again made a high-powered contribution to the world racing scene. Diminutive Minis and Imps competed alongside the big Mustangs and Camaros, like very fast babies in pursuit of their big brothers—and not infrequently overtaking them.

Again, the challenge was international, with Castrol-lubricated vehicles carrying their drivers to notable race victories and national championships in Britain, Denmark, Austria, Australia and the Americas.

In the British Saloon Car Championship, it was the fast, imperturbable Frank Gardner who usually led the field in his distinctive red Boss Mustang, followed as often as not by Brian Muir and Roy Pierpoint in their Chevrolet Camaros, Escort teamsters Chris Craft and John Fitzpatrick, and a very speedy combination in the shape of Bill McGovern in a 1 litre Bevan Imp. The latter came through an intensely fought season to win the British Championship.



1. Danish champion Age Buch-Larsen, Escort TC.
2. Hans Akersloot, Alfa GTA, Dutch Group 2 saloon car champion.
3. Barracuda-borne Dan Gurney, pushing the leaders at Lime Rock.
4. Des Donnelly takes his 2 litre Viva GT round Mondello Park, Ireland, in the 28th annual Leinster Trophy meeting.
5. Mazda R100 rounds Woodcote in practice session at Silverstone.
6. George Follmer at Lime Rock in a Trans-Am Championship-winning Ford Mustang.
7. Brian Muir, 5 litre Chev Camaro, at Brands Hatch.
8. Leader of the Danish BMW team, Jens Winther, at the helm of his 2002 T1.
9. Keld Hansen says the Mini Cooper S handles best on Denmark's short circuits— and looks as if he knows what he's talking about.
10. Danish class champion Erik Hojer, Mini Cooper S.
11. Jean Claude Geurie, Escort TC, French saloon champion.
12. Helmut Marko, division 2 winner at the Silverstone TT meeting, in a 1600cc BMW Alpina.
13. Lifting a wheel, Gerry Marshall's 2 litre Viva GT, a consistent performer in the RAC British Saloon Car and Osram Championships.
14. Graded drivers are not often seen in Group 2 events these days, but Jackie Stewart enjoyed his shared Broadspeed outing with Chris Craft at Silverstone.



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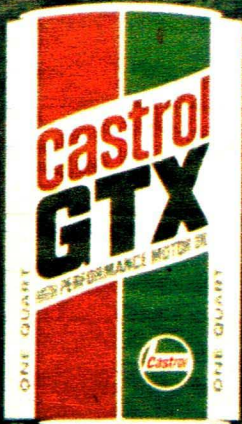


# PIG PAGE

Castrol lubricates them all

1. Roy Ward, 1000cc Mogimp, took five world records at Elvington.
2. Sanders/Posey winning the 6 hrs of Paris powerboat classic.
3. "Eppleton Hall", 56-year-old paddle tug, leaves Britain's Tyneside for a new berth at the San Francisco Maritime Museum.
4. 1906 Renault Tourer in Indian vintage event.
5. World record holder Bryan Smith, 500cc AJS special, at Elvington.
6. Winners of 6 hrs of Liege, Spalding and Percival with their OMC engined powerboat.
7. Brian Wilkinson races the "Miss Castrol bathtub" in Canada.
8. Canadian crowd puller - Snowmobile racing.
9. Up and over. Alan Collison, New Zealand moto-cross champion.
10. Norman Hyde, another world-record cracker at Elvington, on 750 Triumph Trident.
11. British Leyland gas-turbine truck.





Design and production: Creative Group AIM  
Text: Victor Winstone  
Printed by: Rotogravyr AB, Sweden  
Published by: Castrol Limited  
Burmah-Castrol House London N.W.1.

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