



750 Motor Club, North Herts Centre

Hugh Dibley's

**Life as Racing Driver & Constructor
Work in Aircraft Fuel Conservation &
Noise Reduction – started into London Heathrow in 1975**

Racing Driver 1959 - 1974

Racing Car Constructor 1967-72

(Palliser Racing Design Limited)

**1979 Awarded Guild of Air Pilots Brackley Memorial Trophy
For work on Fuel Conservation started in 1973**

Hugh Dibley's talk to 750 Motor Club, North Herts Centre

- **Racing Driver – privateer and semi-professional – Howmet TX Gas Turbine sports racer**

1967-1972 Palliser Racing Design Limited

Development of a new model by a small constructor

Practical effects of aerodynamics

Reason for end racing as racing driver

Work on aircraft Fuel Conservation and Approach Noise Reduction and to Improve Safety on Non Precision Approaches – where unnecessary accidents still happen.

Video of First BOAC 500 Sports Car Race, Brands Hatch, 1967

HPK Dibley's Motor Racing Background

1959–1962 Raced own cars and **mainly** did own maintenance



1959-60 AC Aceca Bristol



1960 Lola Formula Junior



1961 Lola Formula Junior & 1st Lola Formula 1!



1962 Lola Formula Junior

1964–1965 Raced own cars under Stirling Moss Automobile Racing Team



1964 Brabham BT8 2.5 litre Climax Sports Racing Car



1965 Lola T70 Chevrolet 6 litre / 489 bhp



1967 Chevrolet Camaro Modified Saloon

1967 Raced own Camaro

Possible to break even – on miniscule budget by current standards!



**1967 Targa Florio
Jackie Epstein's Lola T70GT**



**1967 BOAC 500 Brands Hatch
David Piper's Ferrari 275LM**



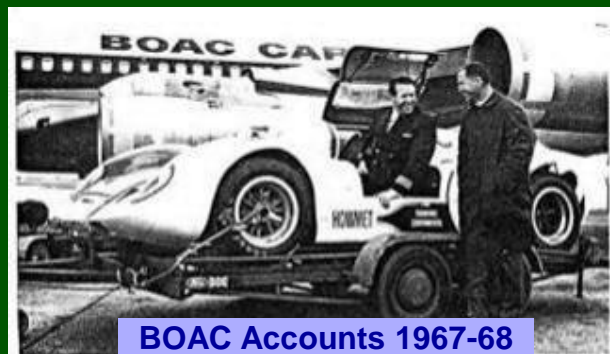
**1968 Brands Hatch, Le Mans,
Oulton Park, Watkins Glenn
Howmet TX Gas Turbine**

**1964-74 drove
BRM, Camaro,
Ferrari, Howmet,
Lola, Lotus,
Porsche**

***mainly in long
distance sports car
races:***

**Brands Hatch,
Daytona, Kyalami,
Le Mans, Lydden
Hill, Nurburgring,
Oulton Park,
Rheims, Sebring,
Targa Florio,
Watkins Glenn**

***for private owners
and works teams
& own Palliser
single seater
Formula Atlantic***



BOAC Boeing 707 First Officer Hugh Dibley in the cockpit of the Howmet TX jet car at Heathrow Airport London. With him is American dentist Dick Thompson. The drivers and their car travelled from the USA by BOAC Boeing 707 freighter to take part in the 1968 BOAC International 500 Race at Brands Hatch.



**1970 Equalling Lydden Hill circuit record
in his own Palliser Racing Design Ltd
company works Formula Atlantic**



**1974 BA 1000 Brands Hatch
Gulf GR6 reserve driver**

Formation of Palliser Racing Design 1967-72

**Len Whimhurst, toolmaker,
after leaving Lola & Brabham.....**

Built his own car at his home in Catford, Southeast London



Lola Cars, Bromley, Kent



Brabhams, Woking



Whimhurst asked Dibley to provide an engine and test drive

At first test session the car came close to the outside lap at Brands Hatch short circuit.....

.....on the latest Goodyear tyres - used by Jack Brabham's Formula 2 team

Formation of Palliser Racing Design 1967-72

Factory set up at North Street, Clapham, Central London

Bob Winkelmann, San Francisco
in 1968 bought and paid for
3 US Formula B Cars



In 1969 Bob Winkelmann
ordered 20 Formula Fords

Marketing strategy was to export
cars to one outlet in the US

UK market supplied when US
demand disappeared

Nearly 100 cars produced. Championships won in UK, USA and South Africa. Wound up in 1972

H Dibley concentrated on aircraft fuel conservation and environmental noise reduction

Hugh Dibley - Motor Racing as Driver & Constructor & Aircraft Fuel Conservation /Noise Reduction 6 Nov 2013 6/96

Hugh Dibley's first cars – most routinely rebuilt!



Riley 9

Bought from scrap dealer for £25 when on RN/RAF Flying Training RAF Syerston near Newark



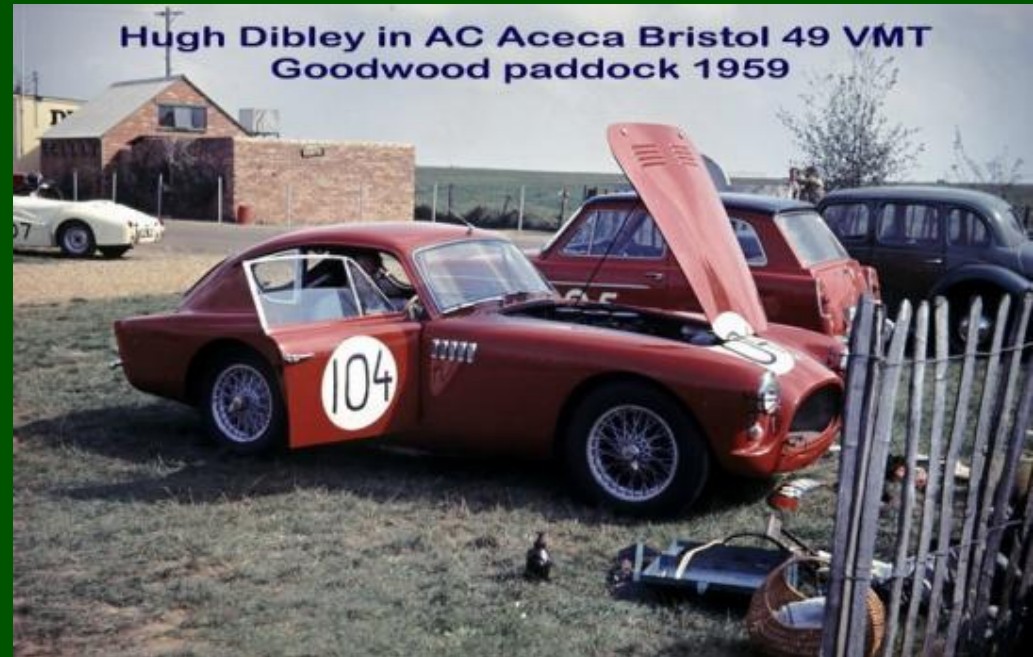
Singer Le Mans



Triumph TR 3



Borrowed Sister's Austin 7!



AC Aceca Bristol (Ex Ron Brightman)

1959 - Started Racing with AC Aceca Bristol



AC Aceca Bristol Goodwood (Madgwick corner)



AC Aceca Bristol Snetterton

***At BARC Goodwood Members' Day – Clerk of the Course
Dixon Cade, on behalf of the Duke of Richmond,
implored me to stop driving so fast before killed myself!***

1960 continued with AC Aceca and eventually First Race with Lola FJ Mk 2 – at First Race Meeting at Brands Hatch Long Circuit



Lola Mk 2 FJ Silverstone Copse



Lola Mk 2 FJ Snetterton

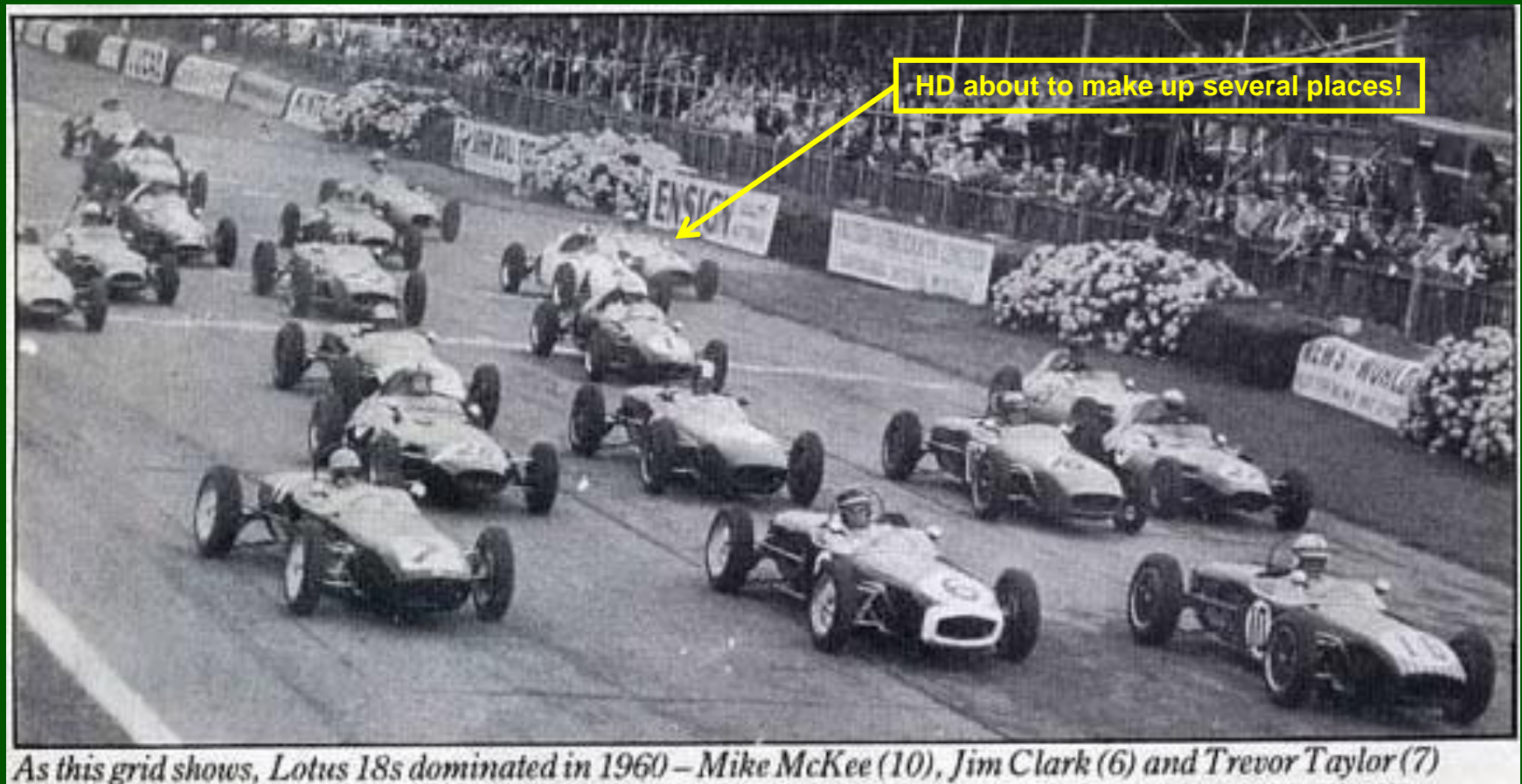


Towed Lola FJ by AC Aceca until
dropped valve when also racing at Goodwood



Then towed by late father's 1934 R-R 20/25
Done for speeding – limit 30 mph with trailer

1960 continued with AC Aceca and Lola Mk 2 FJ



Formula Junior Race Goodwood August 1960 - winner Jim Clark!

1961 - continued Lola Mk 2 FJ – the Lola Mk 3 FJ

Ran Lola Mk 3 as Formula 1 at Brands Hatch in October

Competed at Nassau Speed Week, Bahamas



Lola Mk 3 FJ Goodwood Whitson



First Lola in Formula 1 Race! – Lola fitted 1.3 Ford engine and added lead ballast to bring up weight. Led Mike Spence in Emerson F1 team car who agreed could not have overtaken if had not retired.



Nassau Speed Week, Bahamas. Was regularly flying to Nassau with BOAC on Boeing 707s.



1962 - Lola Mk 5 FJ



**Several Wins at Goodwood Club and National Races –
*Most disappointing – At International Dunlop gave New Tyres 2 seconds Slower***



**Converted old Daimler Ambulance as to
take FJ to avoid 30 mph trailer speed limit**



Lola Mk 5 FJ at Snetterton

Second at Nassau Speed Week Formula Junior Race

Hugh Dibley - Motor Racing as Driver & Constructor & Aircraft Fuel Conservation /Noise Reduction 6 Nov 2013 12/96

**After Winning 1962 Indianapolis –
Jim Clark suggested we could Ferry His New Twin
Comanche from Boston to Gatwick together.....**



**The BOAC 707 Flight Manager George Lace would not
give me the time off – fortunately.....**

**The ferry crew Jim employed took off from Boston and
were never heard of again.....**

1963

**Planned to order Lola Mk 6 Sports Car
but late and commandeered by Ford for GT40.**

**Cut 2 tendons in right forefinger –
10 days in hospital for tendon graft
10 weeks physiotherapy at Hedley Court.**

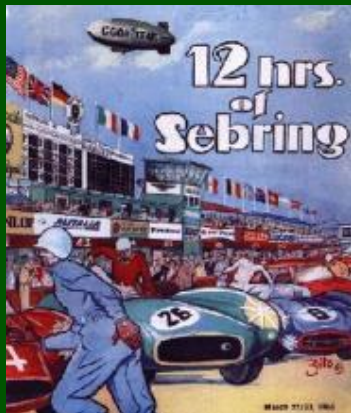
**In Hong Kong for 3 months posting with BOAC
operation to Delhi, Tokyo and Honolulu.
Previous photographs left with a friend were lost.**

1964 – Drove for SMART Stirling Moss Automobile Racing Team

Own Brabham BT8 2.5 litre Sports Racing Car –
Raced throughout UK season & at CanAm in Canada/USA
(*Stirling initially assessed as undriveable at Silverstone!*)

SMART Lotus Elan at Sebring 12 hour Sports Car Race

SMART Porsche 904 – Practised at Silverstone!
Raced at Mosport, Canada



Lotus Elan – lightened by SMART. Did not finish at Sebring due brake failure!



SMART Porsche 904 – after restoration in Germany!

1963-4 Attention starts to be Paid to the Effects of Aerodynamics



Ferrari Prototype Sports Car

Rear Spoilers Start to be Developed



1964 Le Mans Ford GT 40 developed from Lola GT

but not cars come equipped.....



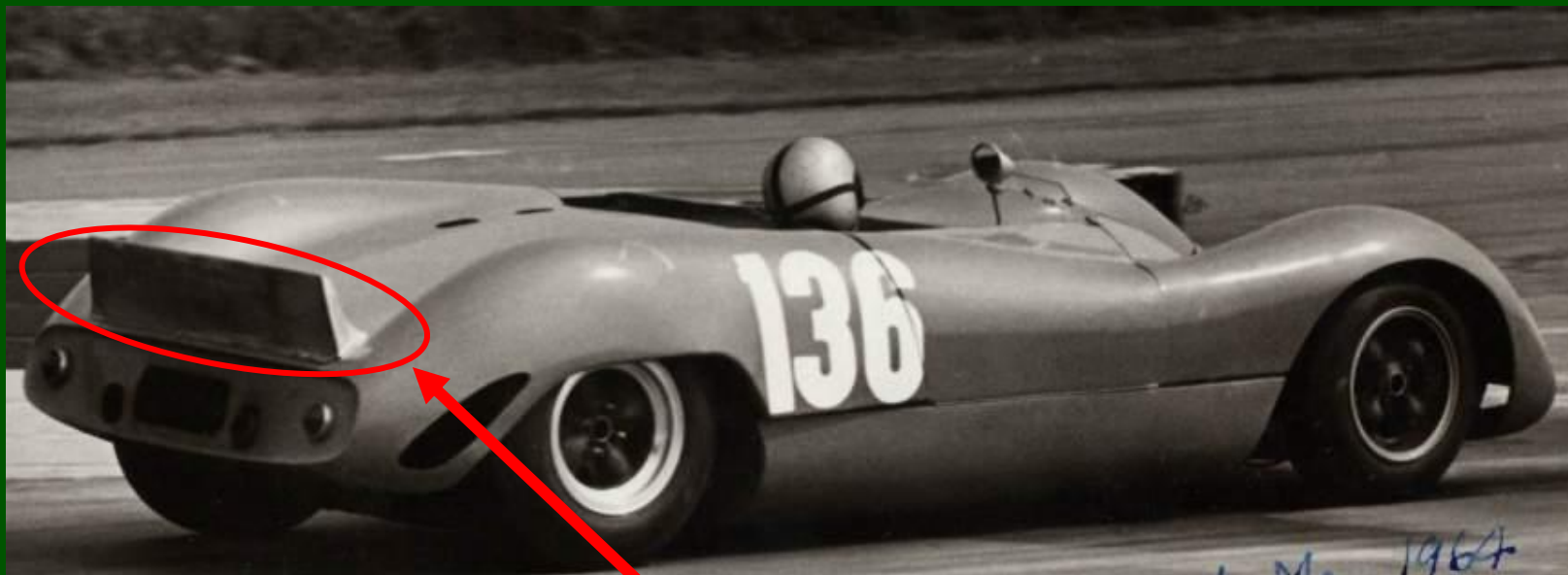
1963 Lola GT ran at Le Mans - eventually



1964 Bruce McLaren new Sports Racing Car

1964 Brabham BT8 Sports Car Delivered Without Rear Spoiler

Assessed as “undriveable” by S. Moss.....

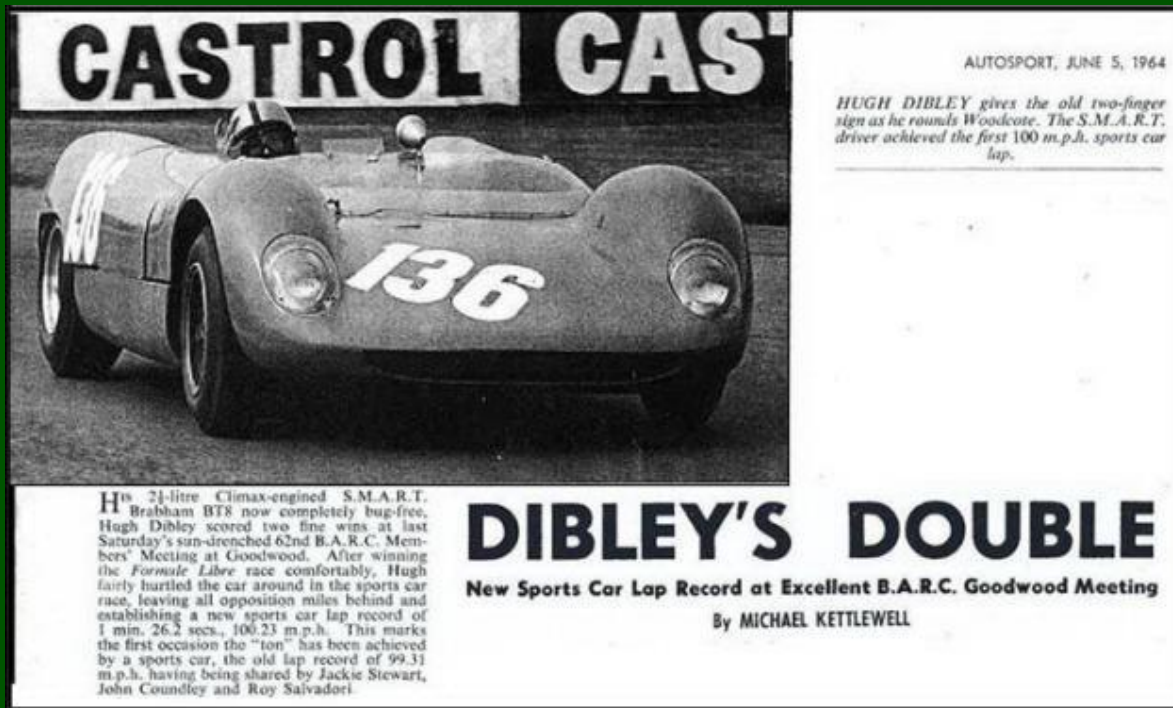


Until self-designed primitive spoiler attached by owner's team!

Then the car went very well

**With Simple Rear Spoiler BT8 Became Very Competitive – 2.5 litre F1 times
Many Class Records and Outright Circuit Record at Aintree & Castle Combe**

**On 31 May 1964 Established New Sports Car Lap Record at Goodwood
Awarded Goodwood Ton – as First 100 mph Sports Car Lap.
Assisted to become Legend of Goodwood in 2008.**



Won Guards Trophy Brands Hatch – Supporting Race to British F1 Grand Prix Second Denny Hulme in 2 litre BT8, Roy Salvadori in Cooper Maserati



The start of the Guards Trophy for sports cars, during the July 1964 British GP meeting. Hugh Dibley's winning Brabham BT8 is seen on the left, with Salvadori in the Cooper-Maserati (#1) to the right and Jackie Stewart's Tojiero-Jag just behind.

Jackie Stewart was driving a slow Tojiero-Jag with zero rear vision – and kindly took the trouble to apologize for not seeing me when I lapped him!

With Jackie Stewart and Jimmy Clark before the 1964 Guards Race at Brands



(Jimmy Clark and I knew the same girl friends!)

Personality Parade in Motoring News 1964

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**HUGH
DIBLEY**



"PILOTE" is a French word for driver; and it is a very accurate description of Hugh Palliser Kingsley Dibley, who is not only a driver of considerable ability and growing reputation but a pilot in the generally accepted British meaning of the word, for at the moment he is the First Officer of a B.O.A.C. Boeing 707 jet airliner—the "driver's mate" as he describes it.

Born in Hong Kong 27 years ago (he comes from a naval family, and his father was in the Royal Navy out there; he is himself, incidentally, still an R.N.V.R. lieutenant) Hugh Dibley has always been interested in machines in general and cars in particular. He took part in his first race in 1959, at a Nottingham Sports Car Club Silverstone meeting, and finished fourth with the ex-Brightman Aceca-Bristol. Fifteen practice laps at Goodwood on the previous day had, however, been less successful, for he was black-flagged twice for wild driving and, as he says, "the Duke said I should never return!"

He continued to race the Aceca-Bristol for some time, scoring three wins with it, and then, with the growing success of Formula Junior racing, turned to single-seaters. He drove Lolas, a rather unusual choice since the Lola Juniors were never particularly successful cars, and his three first places with these cars actually included the first race victory ever scored by a rear-engined Lola—at Goodwood. His overseas travels with B.O.A.C. gave him the opportunity of racing in countries and at circuits not normally accessible to the British club driver, too, and he upheld the honour of this country (and Lola) in 1962 by descending on Nassau during

the Speed Week there and making off with the Formula Junior Championship.

Nineteen sixty-three was a lean year as far as racing was concerned, but this year has seen him as a member of the Stirling Moss Automobile Racing Team, and with a Brabham BT8 as his mount his successes have been numerous, including five wins and four lap records—one of which, by the way (Aintree Club) he has the honour of sharing with Roy James of Great Train Robbery fame. Next season he hopes to race a Lola sports car with a Ford or Oldsmobile engine installed therein.

Dibley's numerous interests outside motoring include music (from Bach to the Beatles—he used to play an organ), while as far as racing is concerned he is inclined to feel that club drivers should do as much of their own maintenance as possible in order that they really understand what goes on—though he qualifies this by saying it's a free world. He also thinks (and he should be a better judge than most) that this country sees the best club racing in the world. Like many motorists he feels that British roads (he runs a Mini-Cooper and a Daimler ambulance) are inadequate for their purposes.

More genuinely amateur in his outlook—though not in his driving—than most other drivers of his present standing, Hugh Dibley is one of the most promising of the current crop of young British drivers. If he continues in his present way (and there seems to be no reason why he shouldn't, apart from his B.O.A.C. commitments) his progress in the future will be well worth watching.

J.H.

1964 Tourist Trophy at Goodwood

3rd on Grid inc 5 F1 Champions– without clutch and failing engine – expired in race

366 Autosport 4 Sept 1964 Goodwood Tourist Trophy STARTING GRID

Graham Hill (Ferrari 330P)	Jim Clark (Lotus-Ford 30)	Bruce McLaren (Cooper- Oldsmobile)
1 m. 24.6 s.	1 m. 23.8 s.	1 m. 23.2 s.
Denis Hulme (Brabham-Climax BT8)	Hugh Dibley (Brabham-Climax BT8)	
1 m. 25.2 s.	1 m. 24.6 s.	
David Piper (Ferrari 250LM)	Frank Gardner (Elva-B.M.W. Mk. 7)	Trevor Taylor (Elva-B.M.W. Mk. 7)
1 m. 26.6 s.	1 m. 26.6 s.	1 m. 26.0 s.
John Coundley (Lotus-Climax 19)	Roger Nathan (Brabham-Climax BT8)	
1 m. 26.8 s.	1 m. 26.6 s.	
Tony Lanfranchi (Elva-B.M.W. Mk.7)	Phil Hill (Shelby Cobra)	Dan Gurney (Shelby Cobra)
1 m. 28.0 s.	1 m. 27.4 s.	1 m. 27.2 s.
Roy Salvadori (Shelby Cobra)	Jack Sears (Shelby Cobra)	
1 m. 28.0 s.	1 m. 28.0 s.	
Innes Ireland (Ferrari GTO)	John Surtees (Ferrari GTO)	Bob Olthoff (Shelby Cobra)
1 m. 28.4 s.	1 m. 28.4 s.	1 m. 28.4 s.
Tony Maggs (Ferrari GTO)	Mike Salmon (Aston Martin DB4GT)	
1 m. 29.6 s.	1 m. 28.6 s.	
Peter Lumsden (Jaguar E)	Peter Sutcliffe (Jaguar E)	Richie Ginther (Ferrari GTO)
1 m. 30.6 s.	1 m. 30.6 s.	1 m. 30.2 s.
Roger Mac (Jaguar E)	David Hobbs (Lotus-Ford 23)	
1 m. 34.6 s.	1 m. 31.8 s.	

PICTURES: PATRICK BENEFIELD

Decisions, decisions, always decisions

FOR SOME, TT PRACTICE
BROUGHT ITS PROBLEMS

"We'll just have to settle
for third, and wait for
McLaren and Clark to
pick up."

"Now John, be reasonable, where can I
get a Cobra from this lot?"

"Didn't you say you had a 7 litre back
at Chesham?"

"Then I noticed it was
missing—the carb I mean."

"Well, I told you, we
should have had an Alko
Seltzer breakfast."

More TT pictures on page 306

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Won 1964 CanAm 2 litre Class at Mosport and Riverside, ahead of Jack Brabham, Frank Gardner, Trevor Taylor, etc.

But was on Goodyear tyres! – Jack Brabham switched to Goodyear for his 1965 Formula 1 season!

Was leading at Laguna Seca when worn fuel line caused a fire – drove to fire guard station & asked him to extinguish the fire. (Unlike in David Piper's Ferrari in practice for the BOAC 500!)

Hugh Dibley seemed set to reproduce his brilliant Mosport and Riverside performances, but a broken fan belt smashed a fuel line and set off a minor fire during the first heat and a burst oil line put him out of the second 53-lap heat. Trevor Taylor took 2-litre honours, a second and a first, giving him the class win with Team Rosebud's Brabham-B.R.M. BT8. Bill Wuesthoff

THE Chaparral vindicated its Riverside defeat with clear victories in both 100-mile heats of the Monterey Grand Prix at Laguna Seca on 18th October. Roger Penske seemed almost untroubled to keep the beautifully prepared glassfibre monocoque ahead of the field, though with Dan Gurney getting the utmost out of his Lotus-Ford 19B there was not much to choose between the two. Third overall in both heats was Shelby Cooper-Ford driver Bob Bondurant.

Hugh Dibley seemed set to reproduce his brilliant Mosport and Riverside performances, but a broken fan belt smashed a fuel line and set off a minor fire during the first heat and a burst oil line put him out of the second 53-lap heat. Trevor Taylor took 2-litre honours, a second and a first, giving him the class win with Team Rosebud's Brabham-B.R.M. BT8. Bill Wuesthoff (Elva-Porsche) was second in this class ahead of Tommy Hitchcock (Brabham-Climax BT8).

LAGUNA SECA is something of an anticlimax after Riverside. The Times G.P. is one of the best motor racing promotions anywhere, and year after year draws capacity crowds to ill-appointed, hot and dusty Riverside—Laguna, on the other hand, is badly promoted and badly organized. The land is leased from the U.S. Army's Fort Ord base, and the track itself owned by S.C.R.A.M.P. That stands for the Sports Car Racing Association of Monterey Peninsula, who leave the running of the meeting to the San Francisco region of the Sports Car Club of America, who turn what should be a classic race into the richest club meeting in the world. Prize money

PENSKE AT MONTEREY

Chaparral dominates sports car race at Laguna Seca

By BILL GAVIN

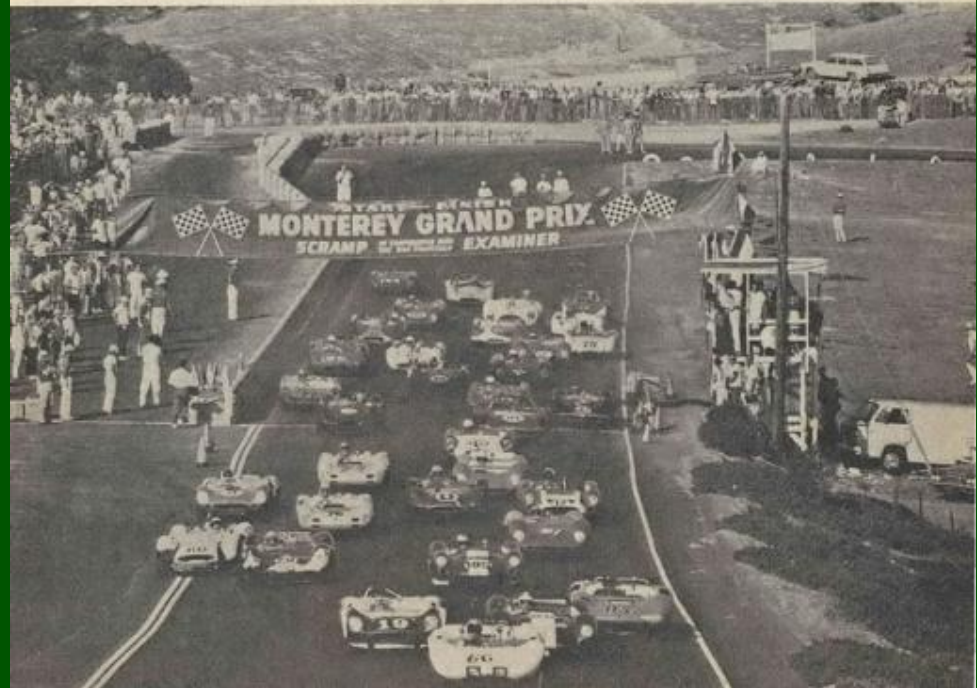
totalled \$30,000 for the feature race, the Monterey Grand Prix. But as any decent S.C.C.A. driver doesn't compete for lucre, they split the meeting with an all-amateur day's racing on Saturday. This means that effectively there is only one day's practice, on Friday, for the only other session is on the morning of race day.

"QUALIFYING" at Laguna is an odd variation of the Indianapolis system. First 10 grid positions, plus \$600, are awarded on Friday's times. The timing equipment records in hundredths of a second, but can't quite cope with more than 10 cars, although

relatively uncomplicated machines like Mercedes McLaren, G. Hill or Brabham efficiently perform this task nearly every weekend with more accuracy than the Laguna apparatus.

Penske had done a day's testing with the Chaparral at Riverside the day after the Times G.P., and his performance in practice at Laguna Seca demonstrated that he had cured the handling problems. He qualified fastest at 1 min. 9.31 secs. Gurney's "Face-setter" Lotus-Ford earned \$100 for second fastest time at 1 min. 9.62 secs., Parselli "Rufus" Jones got one of Shelby's Coopers around in 1 min. 9.87 secs., while Bruce McLaren's best was 1 min. 10.54 secs. Ronnie Bucknum in another Shelby Cooper was fifth, while Jerry Grant, a giant of a man from Kent, Washington, did a 1 min. 11.77 secs. with his Lotus-Chevrolet. This is (was) basically a Lotus 19, but now has beefed-up hindquarters with such subtleties as twin lateral links for the rear suspension. Bob Bondurant (1 min. 11.99 secs.) had a third Shelby Cooper-Ford, just fractionally quicker than Dave Ridenour in a Genie-Comet. The newer Genies are fine-looking motor cars, and the San Francisco B.M.C. firm which builds the Huffaker-designed car are doing a good job. John Mecom's sole entry was also a Genie, this one powered by Chevrolet and pedalled by Augie "Blue Ribbon" Fabst of Milwaukee. Tenth qualifier and fastest 2-litre man was Hugh F. K. Dibley, who was credited with 1 min. 12.41 secs.—which honest Hugh stoutly denied. The clock was little more than a second out, which is better than no time at all (this was precisely what Trevor Taylor got!). A driver is supposed to raise his arm as he approaches the timing tower if he wishes to be timed, for the equipment cannot cope with all the runners. Fields of 33 were permitted on the 1.9 miles, which renders the 30ft-wide track rather

START OF THE SECOND HEAT, with Roger Penske (Chaparral-Chevrolet) storming into an immediate lead ahead of Dan Gurney (Lotus-Ford), Bob Bondurant (Cooper-Ford) and Ed Leslie (Cooper-Ford). Bruce McLaren (No. 47) is well back, having to start from the rear of the grid.



On 27th February 1965 Married Doris Lockhart in Scarsdale, New York
Very competent copywriter working for top advertising agencies



In due course objected to coming third behind racing and flying.
Separated quite equably in 1967 – Doris married Charles Saatchi in 1973.

1965 – Drove for SMART

**In own Lola T70 Spyder Sports Racing Car
with 364cu inch/6 litre Tracor Chev Engine giving 487 bhp.
Maintained by SMART at America Street Garage SE1.**

During that time Stirling bought his own service station in America Street, Southwark, London SE1. It was 'under the arches' with the Waterloo/Kent line running directly overhead. He then acquired his own Paint-a-Car centre which adjoined the garage and racing HQ. I was eventually asked to manage the paint shop, the move from Knightsbridge to Southwark a huge culture shock but fun!



**Third at Silverstone behind Bruce McLaren and John Surtees
In Lola green before repainted in SMART green.
Ran on Firestones rather than the previous universal Dunlops.**

June 1965 – Players 200 Mosport Canada

Lying second and catching John Surtees on Dunlops at end of second heat, when lapping a Lotus 19 up the back straight this suddenly pulled out to overtake a Lotus 23 and pushed me off the road backwards into a tree.

***Foolish error on my behalf as the Lotus 19 had not seen me coming before when I had lapped him many times before.
Car had to be returned to Lola for repair.***

**1965 Guards Trophy at British GP Meeting at Silverstone
Fastest in practice and leading when Tracor Chev engine disintegrated. Lost £500 import duty!**

Bought a Chev engine from garage in Montreal and brought as crew bags on a 707 flight but not the same as a Tracor!

Running Firestones requiring 2 sets of wheels etc also made life more difficult for a privateer!

August 1965 Guards Trophy Brand Hatch – Druids Bend



August 1965 Guards Trophy Brand Hatch – Bottom Bend



After 1965 Tourist Trophy at Oulton Park “Commanded” Jack Brabham’s Queen Air from Gatwick to Rome for Jack Brabham to drive at a F1 Race in Sicily



Drove in 1965 CanAm
St Jovite Montreal, Mosport Toronto, Riverside Los Angeles,
Laguna Seca nr SFO, Kent Washington, Las Vegas.
(Assessed physiologically – found unusual as lacked raw aggression!)



Riverside Drivers' Briefing – names for mother!

1966 Drove Tony Sargeants Lola T70 in major races while Tony drove in club events



**Won 1965 Guards Trophy
at Brands supporting British GP**

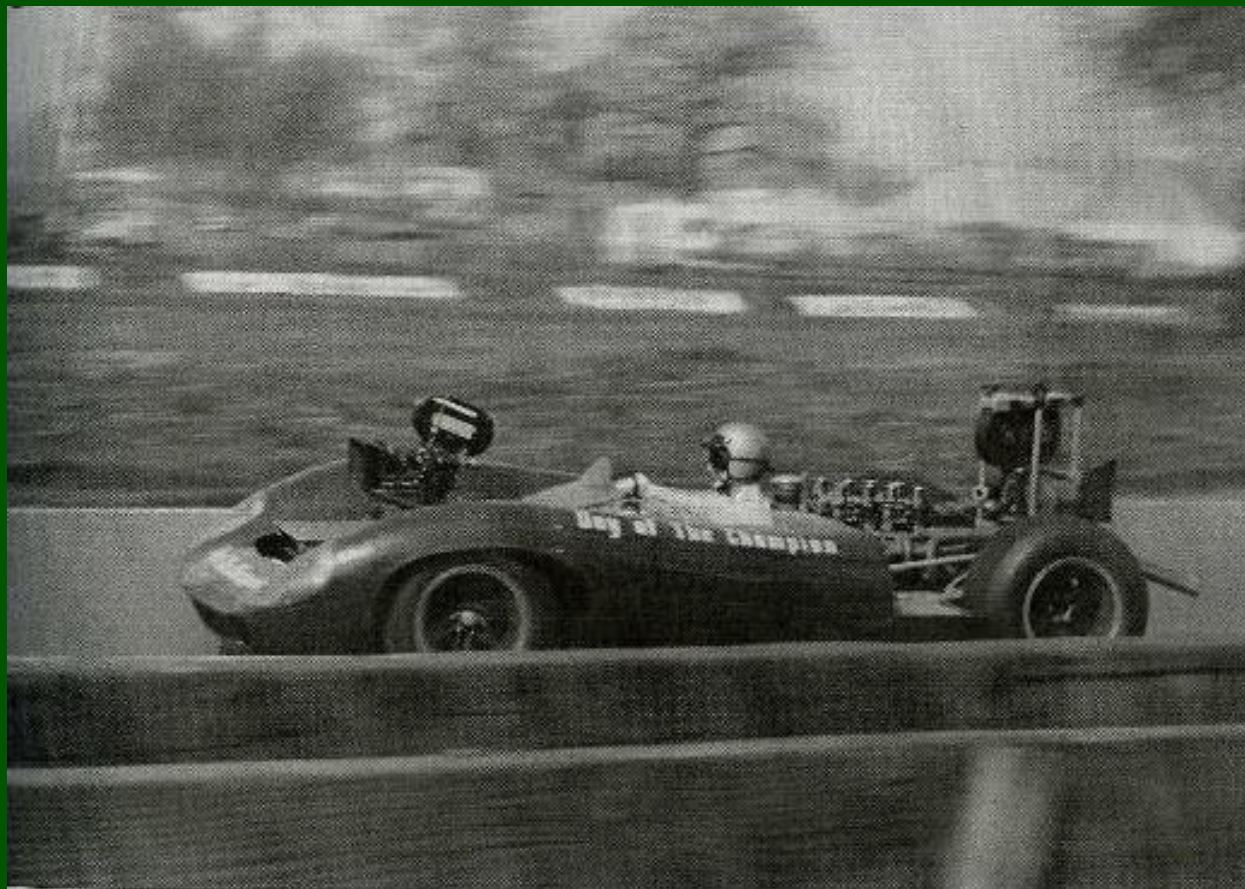


1966 At TT in Oulton Park Doubled for Steve McQueen

Driving repainted Lola T70 in Day of the Champion

Organised by Stirling Moss & Valerie Pirie

Camera Car driven by John Whitmore



The 1966 Tourist Trophy race also featured this unusual T70, on which were fixed cine' cameras back and front. Warner Bros. were using the race for their film *Day of the Champion*.

**1966 Drove Tony Sargeants Lola T70 in major races while
Tony drove in club events**



**Won 1965 Guards Trophy
at Brands supporting British GP**

Then took Tony Sargeant's Lola 70 to the 1966 CanAm.....

Chaparral 2E Chevrolet – First Car with Moveable Wing Highlighted importance of aerodynamics



1966 Jim Hall, Developer and Driver, of Midland Texas

Wing Set for Braking / Cornering

A Personal Aerodynamic Experience at St Jovite

All Cars Became Light at Top of Hill on Straight-Away

Expected View At Top of Hill



View at Top of Hill seen by H Dibley



Car ended upside down on hill
above spectator barrier,
with engine on tree stump

Car Setup before “Flight”



About this time, Tony Southgate
started working with London City
University Aerodynamics
Department



Front Spoiler Evidently Not Effective!

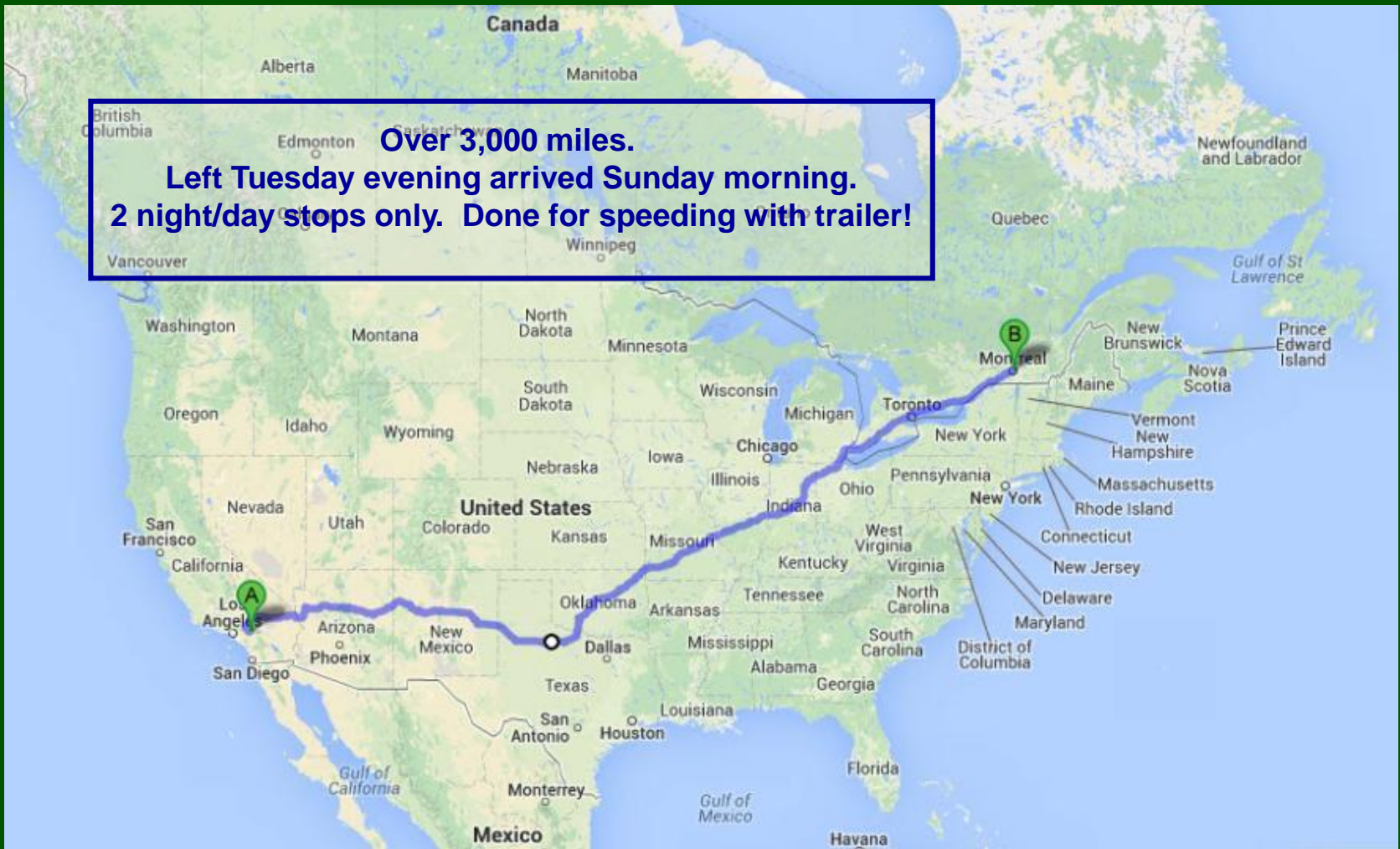
Car after “Donald Campbell” Flight

After Personal Aerodynamic Experience at St Jovite

Flew to Los Angeles/Riverside on Monday.

Bought 1955 Chev Pickup Truck & Trailer drove back with own 1965 Lola T70 – Tuesday to Sunday.

Continued CanAm at Mosport using Tony Sargeant's engine



Car sold & later lovingly restored by aerospace engineer Phil Schmitt



**1967 Drove Chevrolet Camaro at Daytona 500
with Craig Fisher – while canvassing for BOAC 500.
Then brought own Camaro to run in the UK.**



St John Ambulance Combe

By PATRICK McNALLY

Chaparral 2F Chevrolet GT Prototype – BOAC 500 Brands Hatch



1967 Mike Spence, with Phil Hill, Winners of BOAC 500

Wing Faired on Straight

1967 Drove David Piper's Ferrari 275 LM in the 1st BOAC 500 Brands Hatch with Roy Pierpoint, won the Over 2 litre Class



Ferrari 275 LM with Mike de Udi's Lola T70 behind



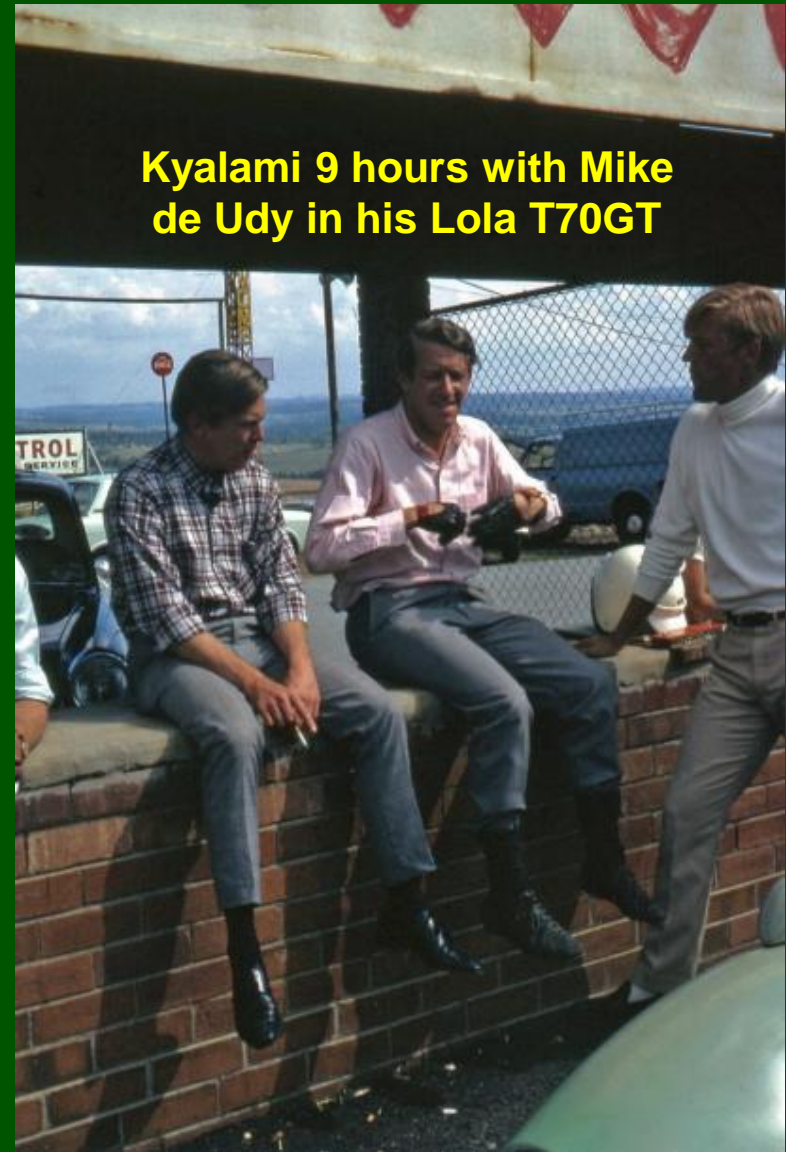
Also drove the CanAm camera car borrowed from Bruce McLaren, for short film shown worldwide – video can be seen later.

Shortly after going out for first practice smelt petrol and then saw flames by right rear window / fuel cap. Stopped immediately at back of circuit rather than drive to marshal's post as at Laguna Seca. so fire marshal had to run to extinguish. Graham Hill stopped to assist.

1967 Also Drove Lolas in Targa Florio & Kyalami 9 hrs

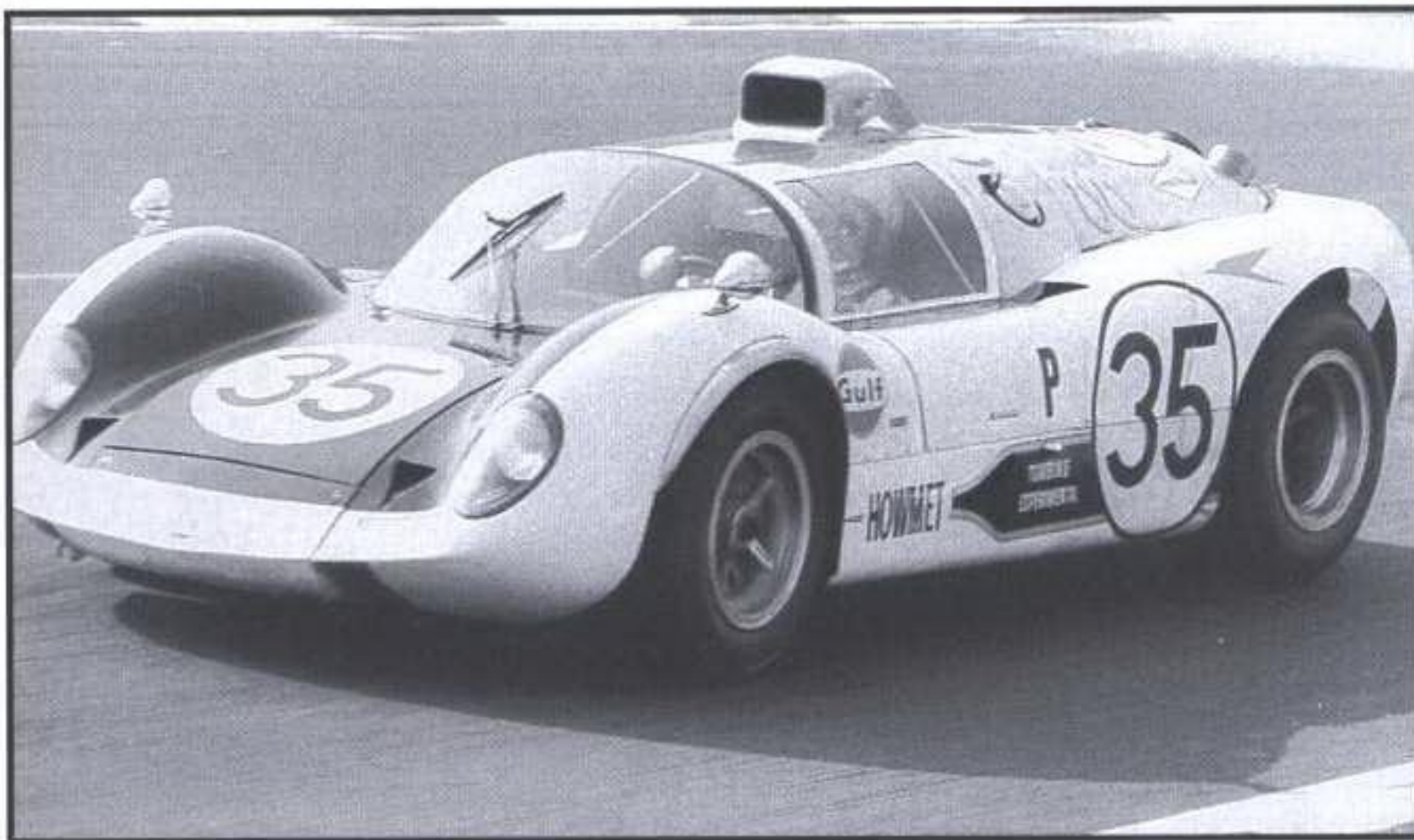


**1967 Targa Florio
Jackie Epstein's Lola T70GT**



**Kyalami 9 hours with Mike
de Udy in his Lola T70GT**

1968 Drove Howmet TX Gas Turbine Sports Racing Car at BOAC 500 Brands Hatch, Oulton Park, Watkins Glenn Le Mans



The Howmet TX of Dick Thompson and Hugh Dibley at Brands Hatch in 1968

Photo: Ferret Fotografics

1968 Drove Howmet TX Gas Turbine Sports Racing Car at BOAC 500 Brands Hatch, Oulton Park, Watkins Glenn Le Mans

In June 1968 at Huntsville, Alabama, USA, the Howmet TX sports racing car driven by Ray Heppenstall became the first, and so far the only, gas-turbine powered car to have won a motor race.



Front & Back cover photos:
The restored TX at Elkhart Lake 1997
(Chuck Haines)

£2.50

Laxton Press

Howmet

Turbine eXperimental

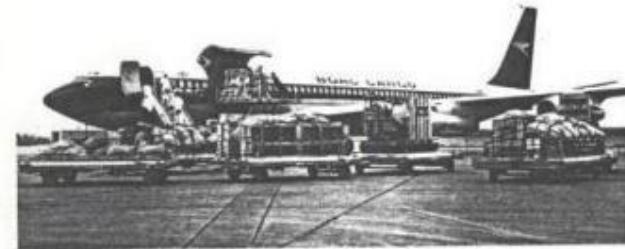
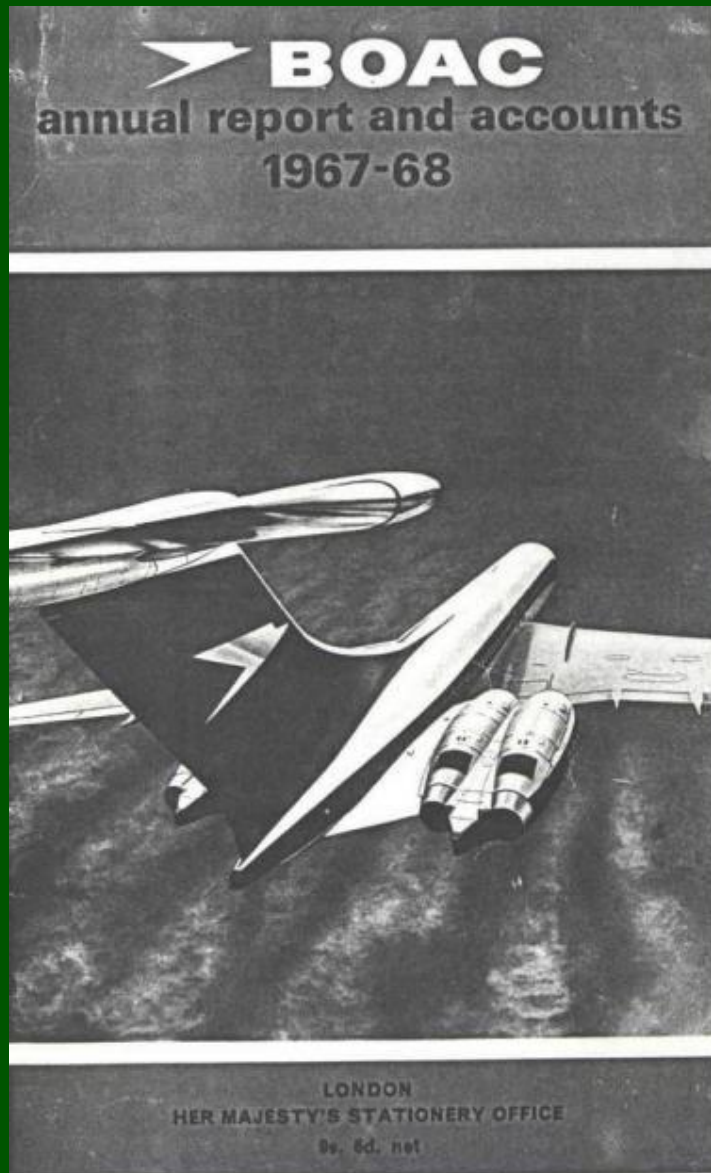


*The Story of the
World's Only Race Winning
Turbine Car*

Pete Stowe

1968 Drove Howmet TX Gas Turbine Sports Racing Car

As John Cooper said - Came across on the on the transporter



A large consignment of drilling rig equipment for Teheran being loaded onto a BOAC Boeing 707-336C freighter. The load, which left on 1 April was one of the largest single consignments to be carried by BOAC and filled the aircraft to its capacity of nearly 40 tons.



BOAC Boeing 707 First Officer Hugh Dibley in the cockpit of the Howmet TX jet car at Heathrow Airport London. With him is American dentist Dick Thompson. The drivers and their car travelled from the USA by BOAC Boeing 707 freighter to take part in the 1968 BOAC International 500 Race at Brands Hatch.

1968 Drove Howmet TX Gas Turbine Sports Racing Car at BOAC 500 Brands Hatch, Oulton Park, Watkins Glenn Le Mans

Who...What...Where...When...?

It's simple.

Send your answers to the above questions to the following address by March 22nd.

BRDC Bulletin
Competition, BRDC,
Silverstone Circuit,
Towcester, Northants,
NN12 8TN.

First correct answer drawn out of the hat will win a copy of Alan Henry's superb Autocourse 50 Years of Grand Prix World Championship Racing book.



EXPERIMENTAL HOWMET TURBINE in for its first pit stop of the race. Fuel — Tire check, windshield washed and driver change in about 20 seconds.

Qualified 2nd at Oulton Park behind Brian Redmond's Lola T70. Lying 4th when stopped for fuel but engine would not restart.

Drove at Watkins Glenn with Bob Tullius — lying 4th when differential drive to rear wheels failed .

1968 Drove Howmet TX Gas Turbine Sports Racing Car

Drove at Le Mans with Bob Tullius



After 2 hours at Le Mans at end of Mulsanne straight brake pedal went to floor to right rear wheel bearing failure.

Prolonged pit stop to change upright – twice! - caused retirement at midnight.

In final session could see Dick Thompson's race times – established fastest lap for Gas Turbine car at Le Mans!

1968 Drove Howmet TX Gas Turbine Sports Racing Car at BOAC 500 Brands Hatch, Oulton Park, Watkins Glenn Le Mans

HOWMET TX

1968 Race History

3/4 February. 24 Hours of Daytona. (FIA Championship)

Ray Heppenstall/Dick Thompson/Ed Lowther (race no.76). The engine of the intended race car broke in practice, so the spare original car was raced. After qualifying 7th in 2m 1.14s, retirement came on lap 35 when the wastegate stuck and Lowther slid into the wall.

23 March. Sebring 12 Hours. (FIA Championship)

Dick Thompson/Ed Lowther/Ray Heppenstall (race no. 76). Qualified 3rd in 2m 49.4s, then retired from the race after 6hr 50 min with broken engine mounts, having been up to 7th place after six hours.

7 April. BOAC 500 Brands Hatch (6 Hours). (FIA Championship)

Dick Thompson/Hugh Dibley (race no 35). Qualified 7th in 1m 34.6s, retired from the race on lap 7 when the throttle jammed open and Thompson hit the bank at Druids corner when in 6th place.

12 April. Guards Spring Cup, Oulton Park (100 miles).

Hugh Dibley (race no. 68). Qualified 2nd, retired on lap 27 from 4th place being unable to restart the engine after a fuel stop.

11/12 May. Cumberland 200 Vandagriff Trophy, West Virginia.

Ray Heppenstall. 1st in practice and finished 2nd in the race to Bob Nagel's 427cu Group 7 McKee-Ford, the lead having changed hands 4 times. The first race finish for the TX - also set a new lap record.

2 June. Grattan, Michigan (100 miles).

Ray Heppenstall. Qualified 1st, but retired from the race after 14 laps with smoke issuing from the engine when running second behind Jerry Hansen's Lola-Chevrolet.

8/9 June. Heart of Dixie, Huntsville, Alabama (57.5 miles).

Ray Heppenstall (race no.76). Finished first in the qualifying race on June 8th, then won the main race the following day at a 91mph average, lapping the whole field, also setting a new lap record.

This was the first ever race win by a turbine powered car.

15/16 June. Marlboro 300, Marlboro, Maryland. (300 miles, 4.5 hours).

Dick Thompson/Ray Heppenstall (race no. 76). Thompson won the qualifying race on June 15th, and with Heppenstall on the following day led the main race from start to finish, at a 64.88 mph average, a new race record. Finished 11 laps ahead of second placed Porsche 911R.

13/14 July. Watkins Glen 6 Hours. (FIA Championship)

Hugh Dibley/Bob Tullius (race no. 67). 9th in practice in 1m 14.6s, the car had been running fourth in the race but in the final hour the differential broke and a repair was jury rigged to allow it to cross the finish line and be classified 12th.

Dick Thompson/Ray Heppenstall (race no. 76). 8th in practice in 1m 13.6s, finished 3rd in the race 19 laps behind winners Ickx and Bianchi in a Ford GT40, having lost 9 mins in pits to replace the voltage regulator & starter. In all the car made 2.5 times as many pit stops as the winning GT40.

10/11 August. Donneybrooke (Brainerd), Minnesota.

Ray Heppenstall. Qualified 1st, finished 3rd in the race, which was won by Jerry Hansen's Lola-Chevrolet.

28/29 September. 24 hours of Le Mans. (FIA Championship)

Dick Thompson/Ray Heppenstall (race no. 22). 20th in practice in 3m 56s, in the race a faulty fuel control unit limited the car to 70% power and kept it down to 100mph on the straight. After seven hours, Thompson crashed at Indianapolis corner and rolled causing severe damage although being unhurt himself. The car had reached 29th place.

Bob Tullius/Hugh Dibley (race no. 23). 24th in practice in 3m 58s, in the race pitted within two hours with a rear wheel bearing gone. A 3 hour rebuild was completed at around 7pm, but the car was finally disqualified in the 7th hour having covered insufficient distance.



BOAC 500, Brands Hatch 1968.

Photo: Ferret Photographics

Formation of Palliser Racing Design 1967-72

**Len Whimhurst, toolmaker,
after leaving Lola & Brabham.....**

Built his own car at his home in Catford, Southeast London



Lola Cars, Bromley, Kent



Brabhams, Woking



Whimhurst asked Dibley to provide an engine and test drive



At first test session the car came close to the outside lap at Brands Hatch short circuit.....

.....on the latest Goodyear tyres - used by Jack Brabham's Formula 2 team

Formation of Palliser Racing Design 1967-72

Factory set up at North Street, Clapham, Central London

Bob Winkelmann, San Francisco
in 1968 bought and paid for
3 US Formula B Cars



In 1969 Bob Winkelmann
ordered 20 Formula Fords

Marketing strategy was to export
cars to one outlet in the US

UK market supplied when US
demand disappeared

Nearly 100 cars produced. Championships won in UK, USA and South Africa. Wound up in 1972

H Dibley concentrated on aircraft fuel conservation and environmental noise reduction

Hugh Dibley - Motor Racing as Driver & Constructor & Aircraft Fuel Conservation /Noise Reduction 6 Nov 2013 49/96

1969 - Palliser WDB2 Formula Atlantic / B Car Body Shape Developed at Specialised Mouldings



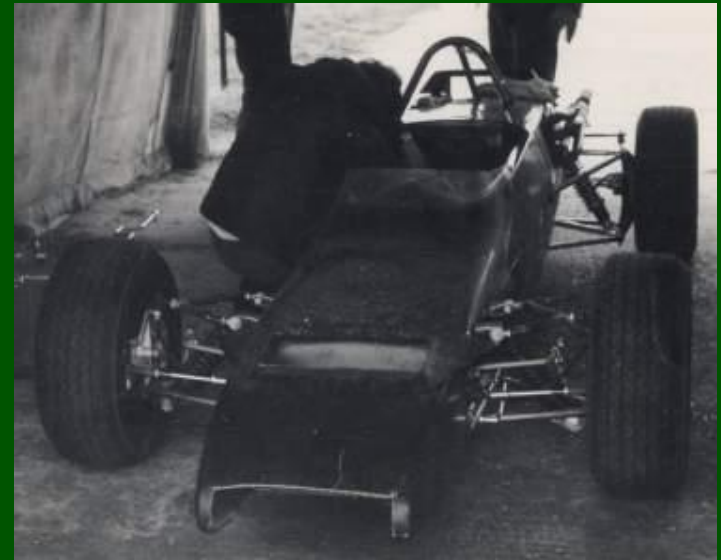
Models and full size mock up to produce body mould looked promising.....

Palliser WDB2 Formula Atlantic / B Car Body Shape Developed at Specialised Mouldings

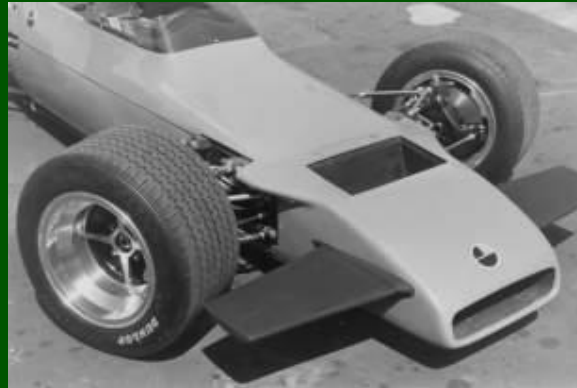
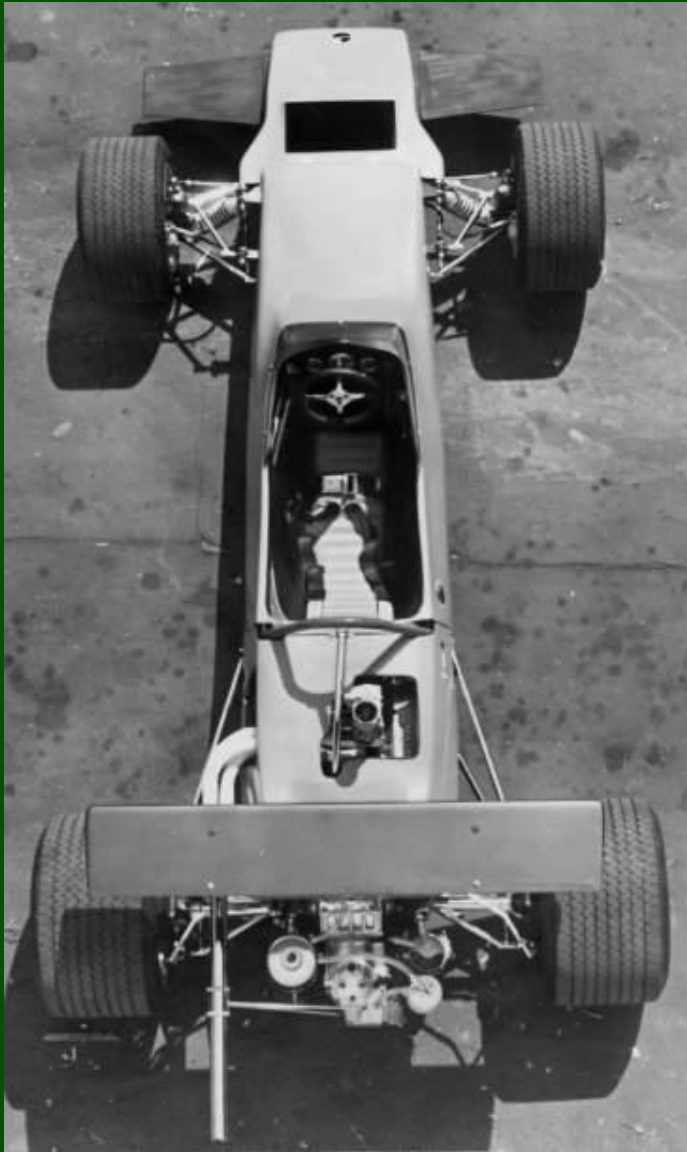


**Cars looked nice and ran well.....
but radiator cooling ineffective and engine overheated so surgery required.....**

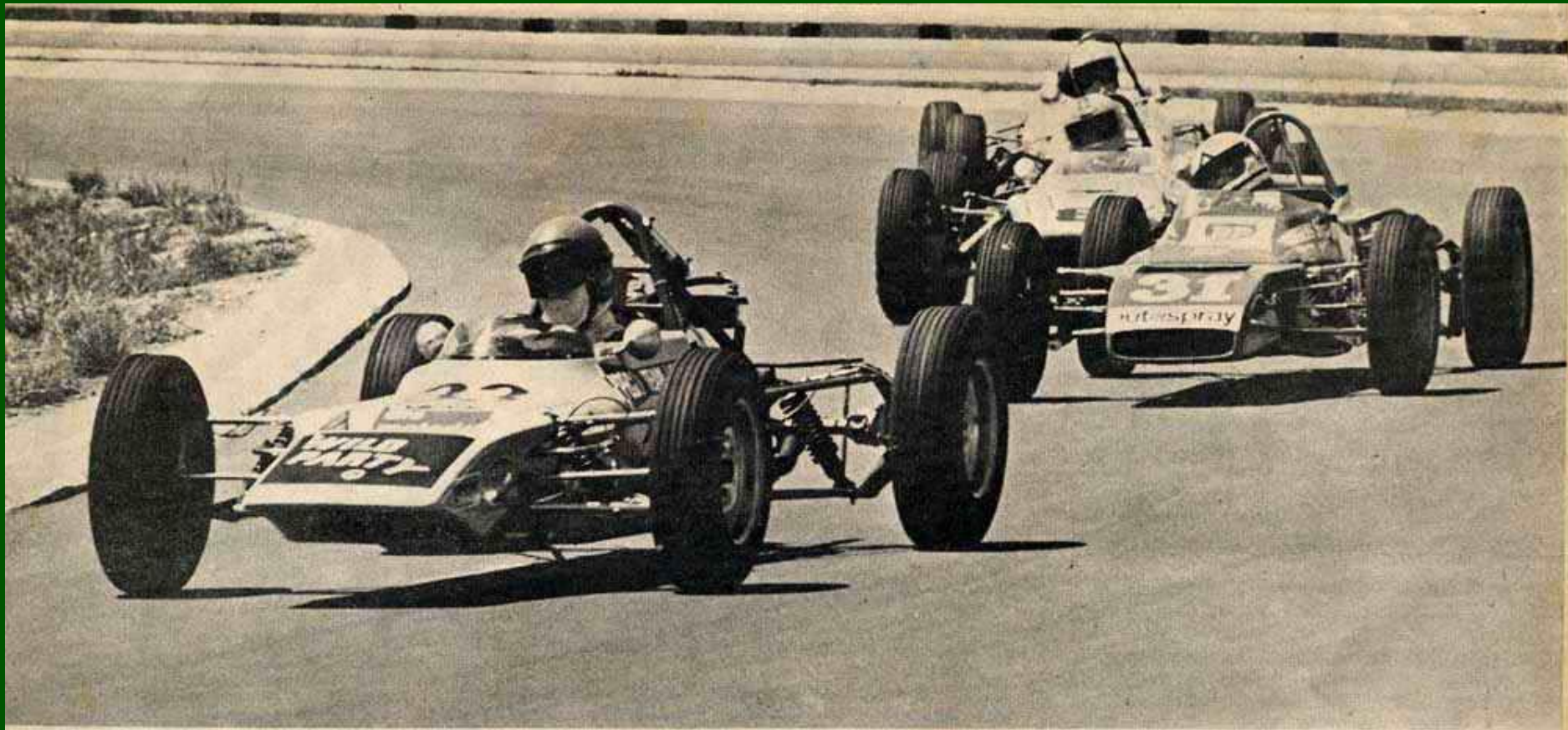
Revision to Cooling intake – Formula Ford



Final Palliser Shape for 1970 – example Formula 3



Palliser Won 3 Formula Ford Championships In USA, UK and South Africa - won by Peter Hull



Mick Formato's Lotus leads Hull's Palliser, Jody Scheckter's Lola and AUTOSPORT correspondent Dave Clapham's Hawke at Goldfields.

Equalling Circuit Record for Lydden Hill – 1970 In prototype Palliser Formula Atlantic



Hugh Dibley equalled Jim Moore's long-standing outright lap record in his Formula B Palliser WDB3.

LYDDEN HILL

Dibley's Palliser equals record

At Lydden Hill last Sunday, the West Essex CC presented nine rather processioned 12-lap races, the highlight being Hugh Dibley, making a rare appearance in his Palliser WDB3 Formula B car, equalling Jim Moore's long-standing outright lap record. Also into the record book went Martin Raymond (Daren Mk 2) and John Masters (1600 U2 Mk 5/6), while Bob Jarvis and Pat Longhurst equalled the F4 lap record.

Monty Gifford's Mini had its usual flag-to-flag win in the 850 race, with Tony Barnard and Will Lawrence running in close company behind the leader until lap 5, when Barnard was moving the grass at the Elbow and Lawrence was so surprised that he spun and finished up in the bank on the outside of the circuit. Barnard carried on to take second place ahead of the Trident car of Geoff Stanley and Alan Rogers, who had made good progress after starting on the 10 secs mark.

The Formula Ford race was gradually being, for there was nobody who could offer a challenge to the semi-works Palliser-BRM of Bob Evans, although Brazilian Jose Pereira did keep his Lola T205 within 5 secs of the Palliser. Richard Croucher in his Merlyn Mk 17 drove a good race to finish a lonely third, while Peter Slade ran in fourth place in his Pringle Mistrals until half-distance, when a play lead came adrift and he fell into the clutches first of Mike Sirett's wedge-shaped Jansin and then of the Race School International Calson of Will Arie.

The race for Clubmen's F100 and GT cars in fact included no F100s, for the only example present, John Covent's Supac, dinged its front end after the first suspension collapsed in practice. The Lotus-engined Daren GT of Martin Raymond sat comfortably on pole position, but it was the CSMA Sprite of Keith Harris which made the better start; however, the improving Harris could only hold the premier position as far as the Elbow, when the new little Daren, scorned past and was never headed. Harris was demoted to third place by the end of the opening lap by John Masters's U2, which had come through from the second row. Raymond and Masters broke their respective class lap records, while behind Mervyn Conn brought his Dino-Hulley up from fifth to third on lap 2, taking Syd Segal's big Squigley at the Elbow and Harris at Pitts. Segal spun out of contention on lap 4 at Chessons, taking a lap to restart and letting into fifth place Guy Diver, who was having a nose-to-tail race with Terry Cockerell; the U2 took the place after Diver's Lola 7 expired on lap 8.

Pole man Colin Rogers (Cooper 5) was left sitting on the grid at the start of the 1-litre saloon thrash, and he was docked 1 min

the Greased Nipple Mini took the lead, only to hit the marshals' post on the Elbow hard enough to put him out of the race; Mervyn Gifford span his 850 at the same time, restarting at the tail of the field. When all the dust had settled U2 man Jon Mowatt emerged the leader just a few lengths ahead of Alan Rogers in another Cooper 5. Rogers pulled off on lap 5 with no clutch, and it was left to John Rowley to take up the challenge, but Mowatt was too much of a Lydden expert and he took the flag 4.4 secs ahead of the westcoastian Tony Thorpe in his Mini 1000 was never far behind in third place.

The Vixen-fangs of Pat Longhurst and Ron Parker and Bob Jarvis EMV had recorded identical times to place themselves on the front row of the F4 grid. Jarvis edged his Team Towley car into Chessons first, and for the first couple of laps was pushed very hard by the Vixens. The Vantage Racing Association variant of Longhurst took over second place from Parker at the Elbow on lap 2 and led a long dice for second place until the penultimate lap, when he had carburation problems and dropped to fourth behind John Cavill (Vixen V85). The Spartan, this week being driven by Mike Wilds, started from the back row after handling problems in practice and was in fifth place before Wilds came to grief at Chessons on the second lap, heading the monocoque of the Sub Sparashoot-designed one.

The 750/1200 race produced the best lead dice of the day, Ron Newitt (Rejo Mk 3) and Nick Conrad (U2 Mk 5/6) regularly swapping places all round the circuit, although the Rejo always led across the line. These two F1200 cars lapped the whole field, Newitt pulling out a 1/8 sec advantage on the U2 thanks mainly to the backmarkers. Richard Gray (Potenza) ran in third place until the last lap when the fifteen V10 of Oliver White, who had passed Trevor Rooster Williams' Septo 24 two laps earlier, just got the verdict in a side-by-side finish.

Andy O'Keeffe's bargain Wallpapers Escort TC, sitting on pole position having been 3 secs faster than anyone else in practice, the large capacity saloon race promises to be another boring affair. O'Keeffe sneaked away from the opposition, led by Brian Cox's "Aggro", 1290 Cooper 5, John Royle's 990 S, Gordon Dawkins is 330 Mowatt's 1300 S and Glyis Swift in the Mini Mowatt had used in the earlier race. Everything ran very smoothly for O'Keeffe until the penultimate lap, when the fuel pump ceased to pump at Pitts; he restarted when the first four cars had flashed by to finish a disappointed fifth, with not even a lap re-

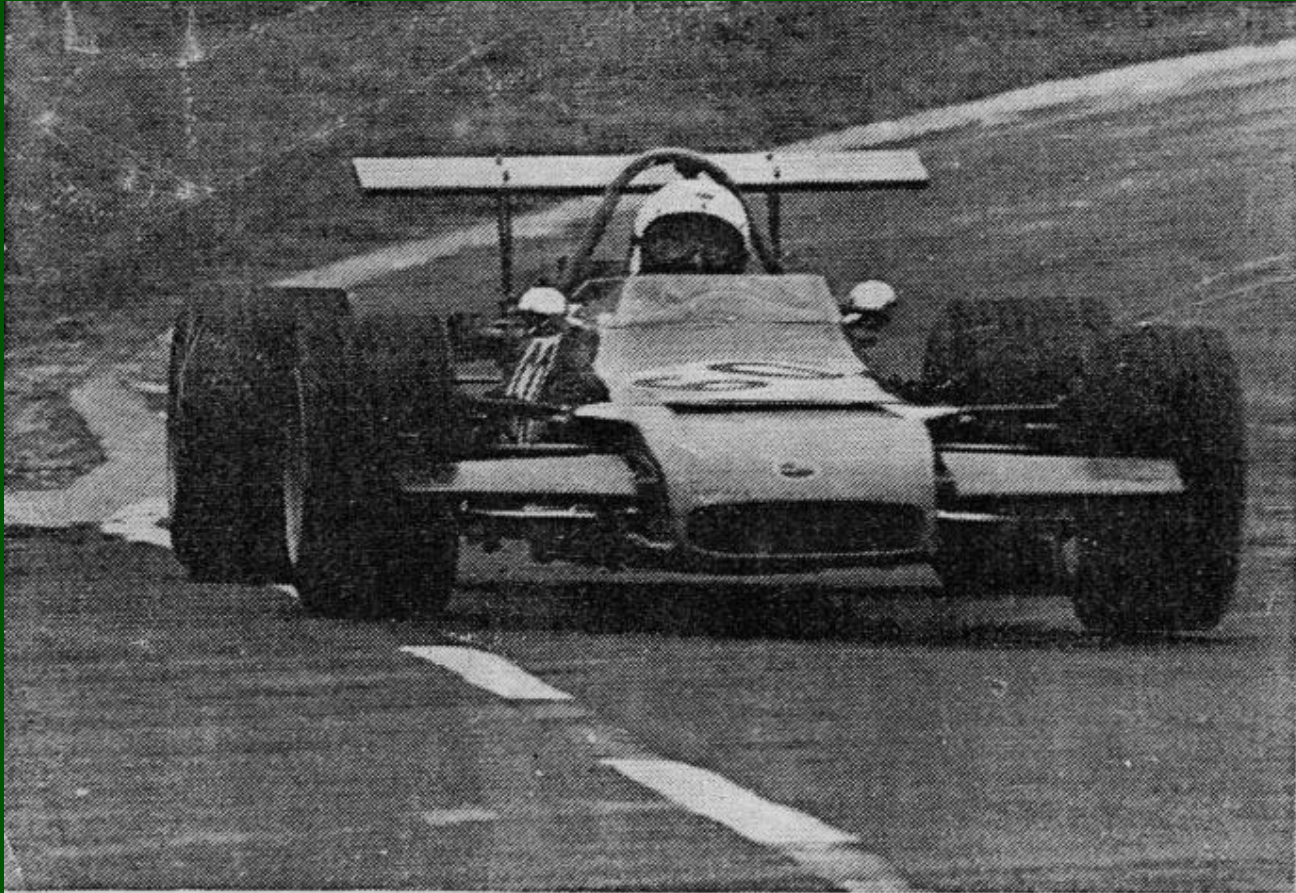
The sports-racing entry was similar to that of the Clubmen's GT race run earlier. In Masters' U2 led Martin Raymond's re Daren off the grid, but this time it was Pete that Raymond passed and pulled another lengthy lead. Again Mervyn Conn Duro was a lonely third, and this time Syd Segal didn't make any mistakes in the Hes 3000 and led Keith Harris' Melway Mac Sprint for the first three laps. The Sprint taking over fourth place but only lead home the Healey by 1 sec. Doug Pitts Mk 1 Lola and the Healey 3000 of Bill Vines closed throughout, the Lola taking sixth spot only 0.4 sec.

Everybody had been waiting expectantly the 1-litre race, for Palliser boss Hugh Dibley had taken one of his new FB cars round practice only 0.3 sec outside Jim Moo two-year-old circuit record set in the A-craft. Dibley shot into the lead and was chasing after that lap record, while Sam the Palliser there was a terrific battle between Bob Jarvis and Ron Parker in their F4 and Roger Hurst in the Leichen-Hurst Race ex-Landrover F3 Merlyn Mk 14. Hurst finishing second just 0.2 sec ahead of Jarvis' E3 who was 1.2 sec ahead of Parker. As Dibley could only equal the lap record 44.0 s as he quickly became caught up in a back markers.

PAUL KIN

Saloon up to 400 cc (12 laps) 1. M. Gifford (Rejo Mk 3) 2. N. Conrad (U2 Mk 5/6) 3. J. Rogers (Cooper 5) 4. S. Segal (Squigley) 5. G. Diver (Lola 7) 6. T. Cockerell (U2) 7. R. Newitt (Rejo Mk 3) 8. J. Royle (Cooper 5) 9. G. Dawkins (330) 10. G. Swift (Mini) 11. A. O'Keeffe (Wallpapers) 12. B. Cox (Aggro) 13. M. Williams (Septo 24) 14. J. White (V10) 15. R. Gray (Potenza) 16. J. Hurst (Merlyn Mk 14) 17. R. Parker (F4) 18. B. Jarvis (F4) 19. H. Dibley (Palliser) 20. S. Conn (Duro) 21. M. Raymond (Daren) 22. P. Masters (U2) 23. T. Thorpe (Mini 1000) 24. M. Gifford (850) 25. W. Lawrence (Cooper 5) 26. G. Stanley (Trident) 27. A. Rogers (Cooper 5) 28. J. Pereira (Lola T205) 29. R. Croucher (Merlyn Mk 17) 30. P. Slade (Pringle) 31. M. Sirett (Jansin) 32. W. Arie (Calson) 33. J. Covent (Supac) 34. J. Diven (Dino-Hulley) 35. J. Moore (Palliser) 36. J. Evans (Palliser-BRM) 37. J. Mowatt (Mini 1000) 38. J. Rowley (Cooper 5) 39. J. Swift (Mini) 40. J. White (V10) 41. J. Williams (Septo 24) 42. 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Equalling Circuit Record for Lydden Hill – 1970



Hugh Dibley's Palliser cars have been achieving numerous successes in Formula Ford events this season. Here "the boss" is seen practising what he preaches in his Formula Atlantic prototype (See Editorial) Equalling Lydden Hill outright circuit record in 1970

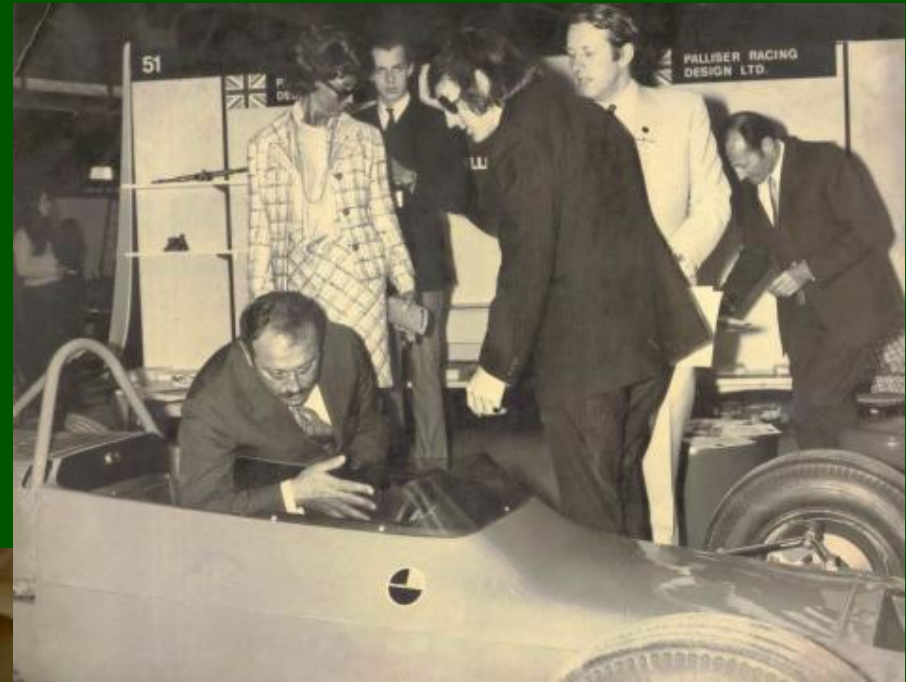
Vern Schuppan won UK 1972 Formula Atlantic Championship in a Palliser
Vern later drove for the Gulf Team that won Le Mans

22 January 1971 Married Marianne Ahlborn



**Initially quite happy with idea of motor racing –
As bilingual in French assisted with Palliser sales at Nice Racing Car Show**

1970 Nice Racing Car Show



As bilingual in French assisted with Palliser sales at Nice Racing Car Show

But after became pregnant became unacceptably nervous for me to continue driving.



Swedish drivers Ronnie Pedersen & Jo Bonnier killed

**Sadly now paralysed in bed after suffering from
hydrocephalus and a stroke in July 2010.
But mentally alert to keep in order!**



Some local Palliser Advertising

TO EUROPE

... The Palliser-Winkelmann Formula Ford. Built in Britain but sold until now only in America where it has out-sold (and usually beaten!) all others.*

So now we can build you a Formula Ford, Formula 3, Formula 2, and, in due course, a Formula 5000. For further details ring Hugh Dibley at 01-622 0755.

Palliser Racing Design Ltd.,
65 North Street, London, SW4
U.S. Agent: Robert Winkelmann Racing,
200 Caledonia Street,
Sausalito, California 94965.



* More Palliser-Winkelmann FF's were registered in 1969 than any other make. (Certified by Formula Ford Register, Detroit, III).

Palliser Racing. London SW4. Why?



5 minutes from Parliament Square, The King's Road, or Earls Court. More important—less than 5 miles from the farthest main line station (King's Cross) and under half an hour from London (Heathrow) Airport.

We're in London because it's close to a lot of people. And because, wherever you are, we can have a vital part on a train or aeroplane to reach you in hours—if we can't deliver it ourselves. With over 100 cars running throughout the world you can be sure we keep a good supply of spares.

We can build you a race-winning car (Formula 2, 3, 5000, Ford, Atlantic, Super Vee, Group 5) and we'll also make sure it keeps winning for you.

If you're building your own car we'll be happy to supply you with the components we make: mag wheels, uprights, drive flanges, etc. Whatever you run if you're short of a part—we'll try to help.

When in London come and see us at 65 North Street—we're never far away.



Palliser Racing Design Limited
65 North Street, London, SW4.
Tel: 01-622 /0752/0755 Telex: 267595.

In February 1971 on BOAC Boeing 747 Nucleus/1st Course as Instructor. So had to wind up Palliser or give up BOAC.

THE ARGUS, THURSDAY, 'APRIL' 29, 1971



COCKPIT of a B.O.A.C. jumbo jet. The autopilot controls for 'blind' landings can be seen on the panel immediately below the windscreen. Capt. Ken Loveless (left) and Senior First Officer Hugh Dibley try out the new machine.

Palliser Racing Design Ltd Advertised in Autosport

Palliser for sale

Palliser Racing Design, the Clapham-based racing car manufacturers run by Hugh Dibley, is up for sale complete with all existing stock and parts and some outstanding orders. Although employing a full-time staff, Dibley has always been able to give only part of his energies to the company he started with Len Wimhurst in the mid-1960s because of his position with BOAC, for whom he is now a First Officer on Jumbo jets as well as a Jumbo pilot instructor. Now these commitments make it impossible for him to direct Palliser personally, and unless a buyer is found for the company it will close down.

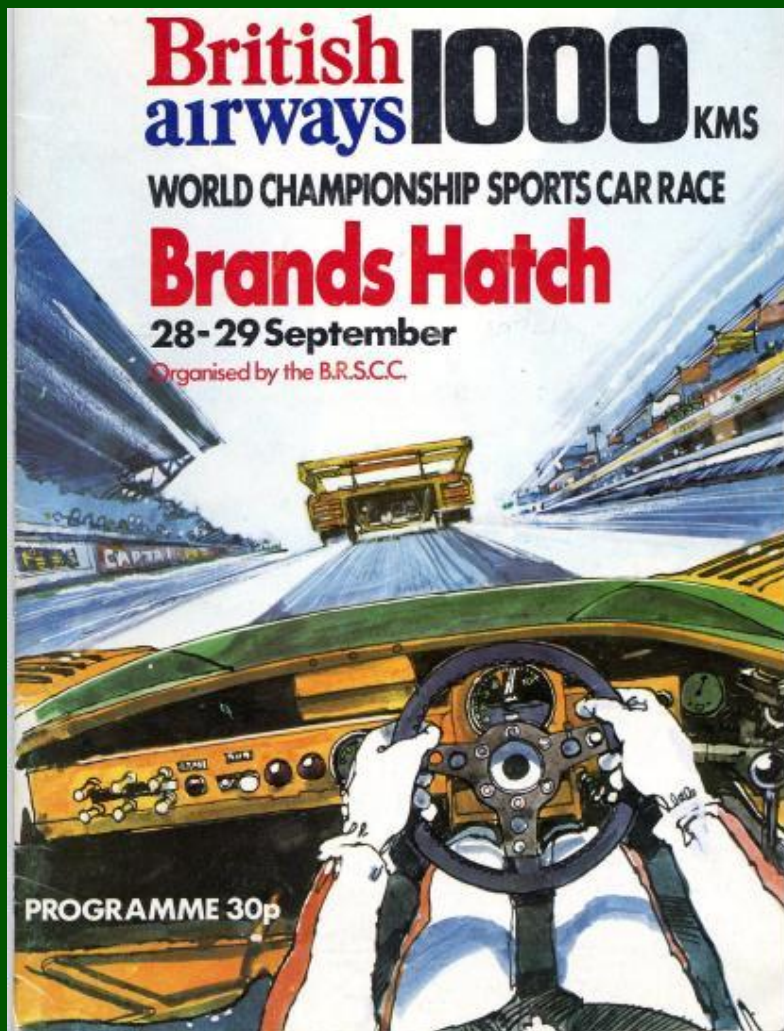
A great deal of Palliser's success was earned in the USA, where in collaboration with Bob Winkleman a large number of cars, particularly Formula Fords were sold. More recently the *marque* has been successful in this country too, and Grovewood Award winner Vern Schuppan used a Palliser to win the Yellow Pages Formula Atlantic Championship last season. This year there should be several Pallisers still racing, including Bob Jarvis' Formula SuperVee and Damien Magee's ex-Lamplough F3 car.

Reply to advert – to meet at BMW dealership in Holland Park Road, Kensington.....

Was Bernie Ecclestone who thought was for Brabhams, which he later bought.

PRDL wound up in spring 1972.

1974 - At recommendation of Jackie Stewart who was consulting for British Airways – Asked John Wyer if could be a Reserve Driver for the Gulf Mirage Team. Allowed to practice at Brands in the dry. Last time drove a racing car.



The men ...



Derek Bell



David Hobbs



Vern Schuppan



Reine Wiest

... and their car



Hugh Dibley, Senior First Officer of British Airways' 747 Fleet, chats with Gulf team drivers Derek Bell (in car) and Vern Schuppan (centre). Hugh, who has entered all past BOAC long-distance races, is a reserve driver this year for the British Gulf team.
(Photograph: Colin Taylor)

The 1974 Gulf GR7 Brands Hatch specifications:

Dimensions	inches	mm
Wheelbase	93.8	2382.50
Track, front	59.1	1501.14
Track, rear	59.0	1498.60
Overall length	170.0	4318.00
Body width	79.5	2019.30
Height, to top of roll over bar	38.0	965.20
Weight, without fuel, approximately	1474 lbs	670 kgs
Engine Cosworth Ford DFV		
Number of cylinders	8	8
Bore	3.373	85.60
Stroke	2.550	64.80
Displacement	182.64 cu in	2983 cc
Compression ratio	11.0:1	
Performance	450 bhp	250 lbs ft
	10250 rpm	8,500 rpm
Valve gear	Double overhead camshaft 4 valves per cylinder	
Lubrication	Dry sump, one pressure two scavenge pumps	
Ignition	12 volt Lucas transistorised single coil with thyristor speed control.	
Cooling	Water	
Transmission	Hewland DG 300 5 forward gears and 1 reverse 9.31 bevel gears	
Clutch	3 sintered plate Borg and Beck 7½" diameter	
Drive shafts	Constant velocity joints, with titanium drive shaft	
Brakes	Lockheed calipers, ventilated discs, outboard front and rear (10.15" diameter 1.10" thick)	
Frame and Suspension		
Frame	Riveted and bonded alloy sheet panning monocoque with T72 aluminium and steel bulkheads engine and transmission acting as stressed members	
Front suspension	Independent unequal length wishbones, coil springs and Koni aluminium dampers	
Rear suspension	Independent, single top link double parallel lower links, and twin radius arms, coil springs and Koni aluminium dampers	
Wheels	Magnesium alloy spoked castings	
Front	13" diameter x 11.6" rim	
Rear	15" diameter x 18" rim	
Tyres	Firestone	
Front	10./20.0 x 13	
Rear	14.8/27.0 x 15	
Steering	Titanium rack and steel pinion	
Body	Kevlar glass fibre reinforced, with Epoxy resin bond	
Speeds in gear at Brands Hatch	First gear 70 mph Second gear 88 mph Third gear 111 mph Fourth gear 136 mph Fifth gear 163 mph	
Ultimate maximum speed of car geared for Le Mans	Approx 200 mph	
Fuel and lubricants	Gulf	



2008 Goodwood Revival – Legends of Goodwood with Marc Devis, owner after restoration in South Africa



2008 Goodwood Revival – Legends of Goodwood



2008 Goodwood Revival – Legends of Goodwood



2008 Goodwood Revival – Legends of Goodwood



2008 Goodwood Revival – Legends of Goodwood



2008 Goodwood Revival – Legends of Goodwood

GOODWOOD LEGENDS – 21st September 2008 Goodwood Revival

<u>DRIVER</u>	<u>CAR</u>	<u>Owner/Contact</u>
1 TONY CROOK	Frazer Nash	John Ure
2 ERIC THOMPSON	Aston Martin DB3S	David Bennett
3 KEN RUDD	AC Ace	Steve Gray
4 NOEL CUNNINGHAM-REID		
5 JACK SEARS	Ford Galaxie	Jack Sears
6 TOMMY SOPWITH	Jaguar Mk1	Nigel Webb
7 MIKE ANTHONY	Lotus MkX	Adrian Hall
8 LES LESTON	Aston Martin DB2	Jean Bloxham's passenger
9 TONY BROOKS	Aston Martin DBR1	Tim Samways
10 SIR JACK BRABHAM	Aston Martin DBR1	Passenger with Brooks
11 TED CUTTING (tbc)		
12 JEAN BLOXHAM	Aston Martin DB2	Tom Alexander
13 MICHAEL SALMON	Aston Martin Project 214	Simon Draper
14 CHRIS LAWRENCE	Morgan Plus4	Keith Ahlers
15 JOHN COOMBS	Jaguar Mk1	Passenger with Tommy Sopwith
16 PETER LUMSDEN	Jaguar E-Type Low Drag	Michael Cowdray
17 PETER SARGENT	Lister Coupe	Neil Smith
18 PETER SUTCLIFFE	Jaguar D-type	Nigel Webb
19 DAVID PIPER	Ferrari 250GT O	Anthony Bamford
20 JOHN RHODES	Mini Cooper S	John Rhodes
21 WARWICK BANKS	Mini Cooper S	Passenger with John Rhodes
22 SIR JOHN WHITMORE	Ford Corina Mk1	Alan Mann
23 ALAN MANN (No)		
24 JOHN FITZPATRICK	Ford Anglia 105E	Passenger with Peter Procter
25 PETER PROCTER	Ford Anglia 105E	Nigel Hume
26 JIM RUSSELL (no)		
27 HENRY TAYLOR (tbc)		
28 RICHARD ATTWOOD	BRMP261	Richard Attwood
29 DAVID HOBBS	Lola T70	Frank Sytner
30 HUGH DIBLEY	Lola T70	Marc Davis
31 PETER GETHIN		
32 DEREK BELL	Lotus 41	Gareth Williams
33 JACKIE OLIVER	Brabham BT18	John Delane
34 JACKY ICKX	Ford GT40	Ford Heritage
35 SIR JACKIE STEWART	Cooper T72	Mike Cooper
36 SIR STIRLING MOSS	Ferrari 250GT SWB/C	Jeremy Cottingham

2008 50 Years of Lola, Huntingdon Parade, 12th October 2008



2008 50 Years of Lola, Huntingdon Parade, 12th October 2008



2008 50 Years of Lola, Huntingdon Parade, 12th October 2008



1958-92

FO Pilot Navigator

DC-7C

Britannia

Comet 4

Training Captain

Flight Manager

B707

B747

TriStar



1994-95 Airbus A340

Director Flight Operations



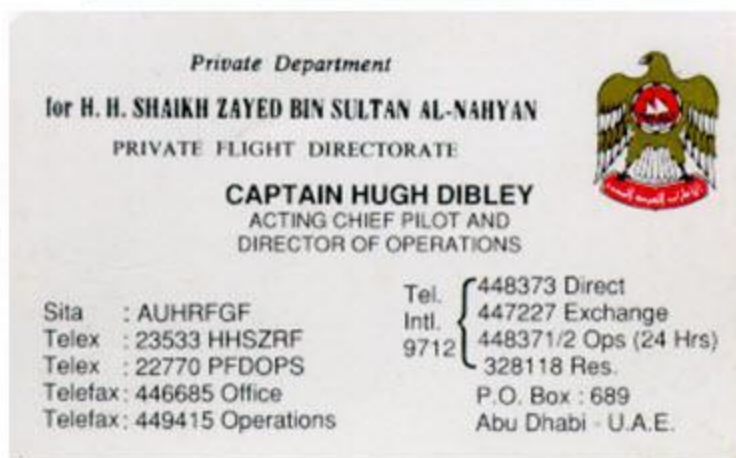
1989-91

A/Chief Pilot

Director Operations

B747 SP

707



1995-2002 Airbus A320/A330/A340

Flight Instructor/Training Captain

Technical Pilot, Support / Flight Data Monitoring



1991-94

Chief Pilot

Flt Tech Advisor

B747



2002 – Aviation Consultant

JAA Simulator Flight Instructor / Examiner

Airbus Training UK Ltd, and other TRTOs

Member RAeS Flight Simulation Group Committee

Chairman RAeS Toulouse Branch

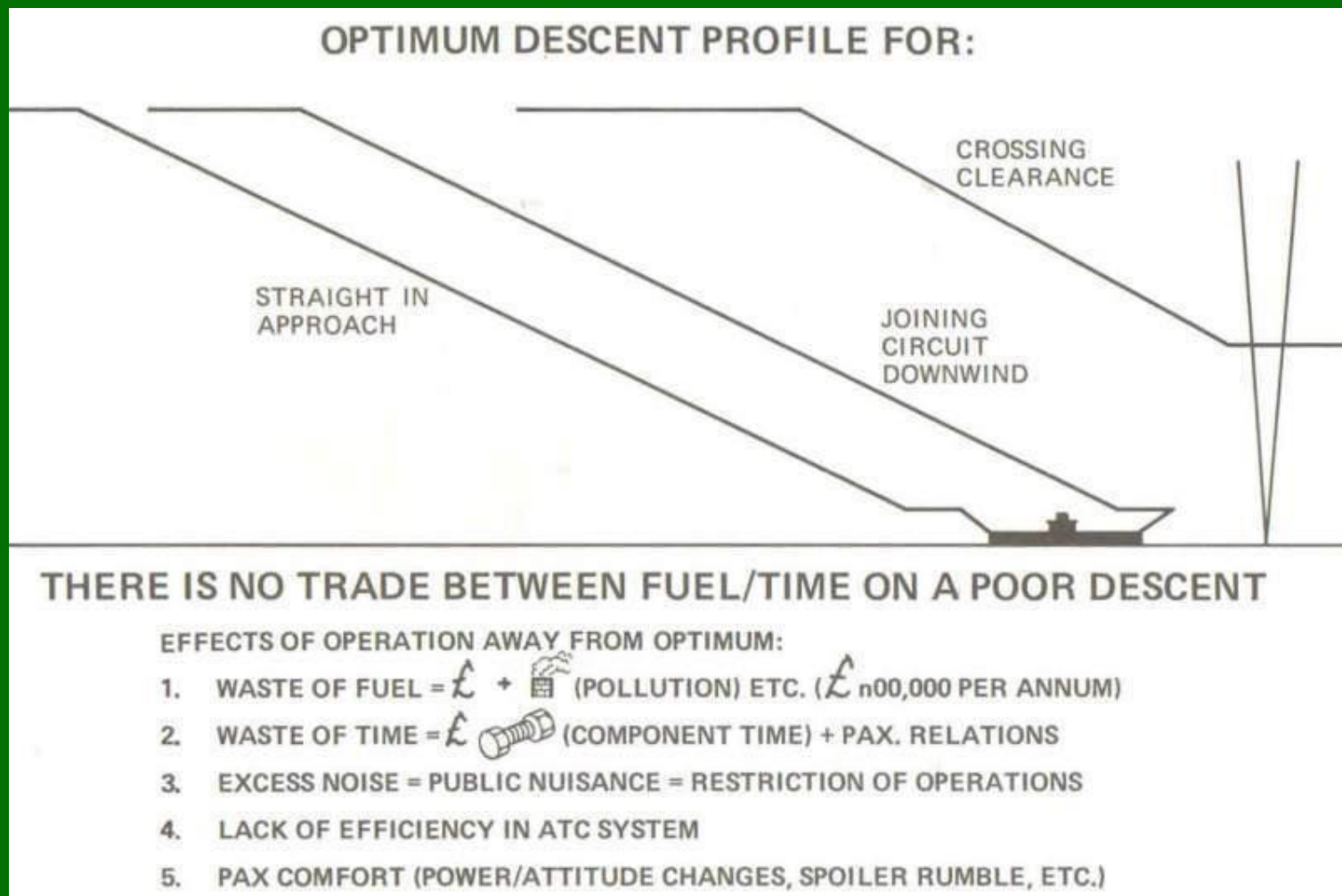
Hugh Dibley's Main Aviation Activities



6. Descent – Large opportunity for Fuel Savings – or Wastage

THERE IS NO TRADE BETWEEN FUEL & TIME DUE TO A POOR DESCENT

Summary of Penalties Cause by Poorly Executed Descents:



(Written in 1973 – some of us were worried about the environment then....)

6. Descent – Large opportunity for Fuel Savings – or Wastage

Circular slide rule primarily designed to help crews follow an efficient flight idle descent profile to comply with an ATC clearance such as to cross 23 DME XYZ at 8,000ft at 250kts.

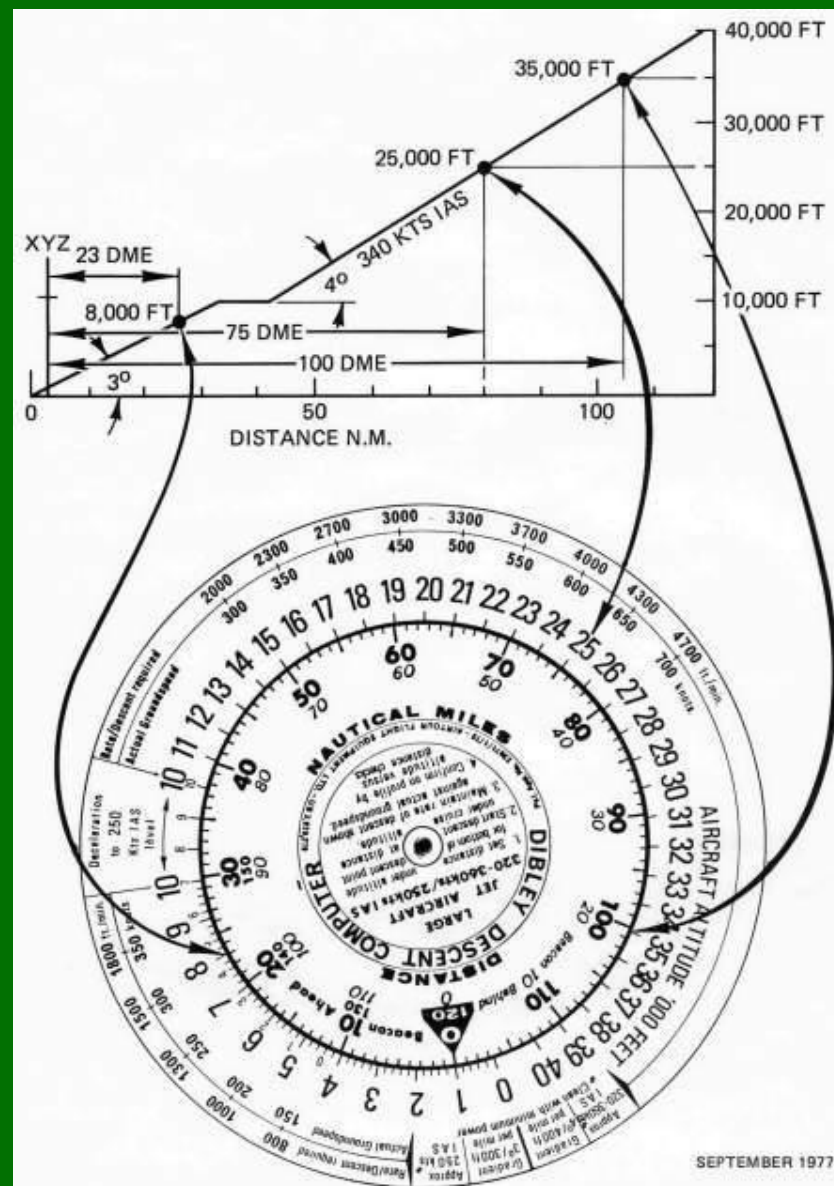
Direct DME-Altitude checks are available throughout to verify on the profile. A fixed gradient of 400ft per mile above 10,000ft is suitable for IAS of 300-340kts according to aircraft weight, and 300ft per below 10,000ft for 250kts IAS after an 8 mile nm deceleration.

Checking the profile mentally, normally by 300ft per mile, requires regular computation of an equation, such as at 50 DME:

$$(50-8-23) \times 300 = 5,700 + 8,000 = 13,700\text{ft}$$

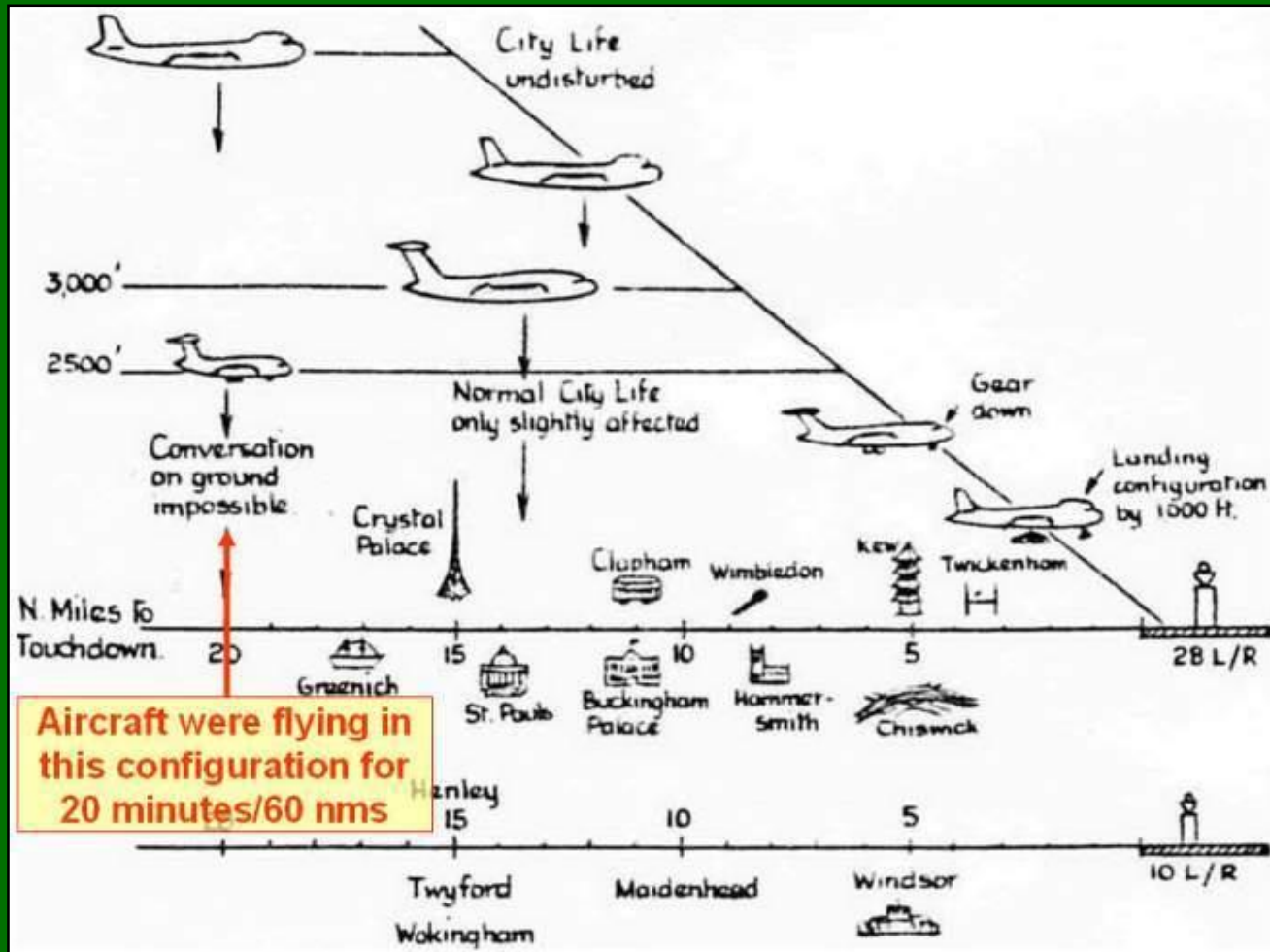
In a survey BOAC B747 pilots estimated their efficiency was improved by at least 10 miles when using the computer, covering the cost of the 2 provided on each aircraft in 1 flight.

Besides minimising fuel burn and noise, following this profile improves safety by keeping the aircraft well clear of the ground into nearly all airfields.



7. Approach – Critical for Fuel Savings & Noise Reduction

This shows that city life need not be disturbed significantly if aircraft are flown level with minimum flap setting above 3,000ft, preferably at least 5,000ft, before descending on the glideslope to the runway with gear up until about 1,500ft to be established for landing by 1,000ft. (On Airbus aircraft the gear can be extended at 800ft, like the Space Shuttle, but this is not the approved procedure.)



7. Approach – Critical for Fuel Savings & Noise Reduction

One operator into London Heathrow required the flaps and gear extension to be confirmed in the Initial Approach Checklist which was completed when leaving the entry points to the London area, so the aircraft could fly with the gear extended for up to 60 miles.

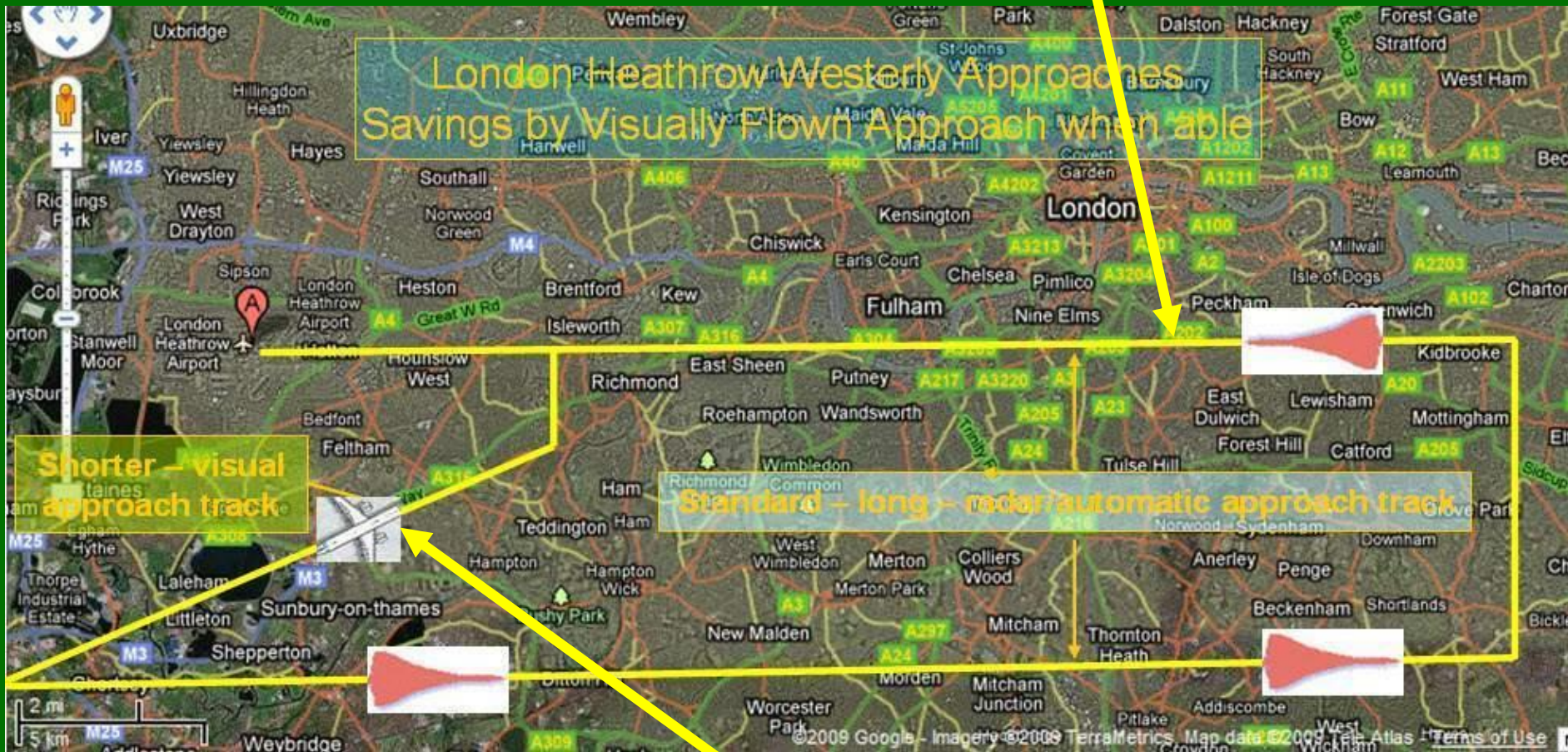
With the extra drag of the gear and flaps the aircraft would descend steeply and then fly at low altitude across central London making conversation impossible when over flying.

Aircraft noise disturbance over central London was a significant factor in the 1971 decision that the third London airport should be built 100km East of London on the Essex/North Sea coast, but this project was terminated after the 1973-4 fuel crisis.



8. Crews Can Save Fuel/Time by Choosing Approach/Runway

Approach tracks into busy airports can be structured with a long lead in for bad weather, and some are flown automatically to follow agreed noise routes.



When traffic and weather permits, crews should be allowed to fly shorter visual approaches

10. Past Examples of Operational Fuel Savings

Example of 8% Immediate Fuel Saving by Crews

Flight data recording showed that an aircraft fleet was not operating efficiently.

A fuel economy newsletter listed the flight segments and what how much extra fuel was being burnt / could be saved by a better operation.

The total extra burn was possibly 26% but this was unlikely to be saved as not all items would occur on one leg. After crews were made aware of the penalties and some changes in procedures an 8% saving was achieved immediately.

Departure/arrival procedures in italics are not optimised in current operations.

EXAMPLE OF POSSIBLE EXTRA FUEL BURN ON A 400 NM SECTOR

Flight Plan for Planned Landing Weight (142,000 kgs) 100 nm Alternate (eg Cardiff for LHR): Fuel Required 18000 kgs (Burn Off 8800 kgs) TOW 152,000 kgs. Fuel burn including Taxi - 9600 kgs. (£1440.00)

Fuel Calculated for Max Landing Weight (162,000 kgs), 300 nm Alternate (eg PIK for LHR) Fuel Required 23,000 kgs.

Fuel carried 28,000 kgs Actual TOW 162,000 kgs.

1979 prices

	Extra Burn	Cost	%Increase
Extra fuel carried (10,000 kgs)			
	300 kgs	£45.00	3.1%
Engines started 2 mins early vice during push back	150 kgs	£22.50	1.6%
<i>Aircraft climbed to 3000 ft with flap, vice cleaning up at 1000 ft*</i>	200 kgs	£30.00	2.1%
Climb Speed 350 Kt vice 300 Kt IAS	150 kgs	£22.50	1.6%
Cruise FL 280 vice FL 350	500 kgs	£75.00	5.2%
.85/340 Kt cruise vice .73/290 Kt Long Range			
Cruise (4 mins difference)	400 kgs	£60.00	4.1%
Not seeking direct routings (8nm saving)	100 kgs	£15.00	1.0%
<i>Late High Speed Descent arriving at LAM level 10 nms early*</i>	200 kgs	£30.00	2.1%
Flap 40 (droop only) selected at 240 Kt vice flying clean as long as possible. (Minimum			
Manoeuvre Speed V ref + 70 = 205 Kts)			
1 hold with 4* flap vice clean	100 kgs	£15.00	1.0%
30 nms Intermediate approach at 210 Kts with 40			
Flap vice clean	200 kgs	£30.00	2.1%
Flap 220 and Gear selected 5 nms early**	150 kgs	£22.50	1.6%
One engine not shut down during taxi	50 kgs	£7.50	.5%
	2500 kgs	£375.00	26.0%

Potential Fuel Saving 26%

* Still the required departure procedure in some states today

** Still frequently seen in current operations

10. Past Examples of Operational Fuel Savings

Example of 8% Immediate Fuel Saving by Crews

Flight data recording showed that an aircraft fleet was not operating efficiently.

A fuel economy newsletter listed the flight segments and

Every little improvement helps



Dep in italics are not optimised in current operations.

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1979 prices

	Extra Burn	Cost	%Increase
Extra fuel carried (10,000 kgs)			
Engines started 2 mins early vice during push back	300 kgs	£45.00	3.1%
with flap, vice	150 kgs	£22.50	1.6%
Kt IAS	200 kgs	£30.00	2.1%
	150 kgs	£22.50	1.6%
at 210 Kts with 40°	100 kgs	£15.00	1.0%
Engines early**	200 kgs	£30.00	2.1%
	150 kgs	£22.50	1.6%
One engine not shut down during taxi	50 kgs	£7.50	.5%
	2500 kgs	£375.00	26.0%

Rolls-Royce spends £800M per year on Research & Development to achieve 1% improvement in fuel efficiency

Potential Fuel Saving 26%



10. Past Examples of Operational Fuel Savings

A contract was secured because the crews' more efficient operation saved 13% fuel compared to the previous operator which covered the crews' cost.

A cargo operator became profitable by, amongst other savings, increasing payloads by reduced fuel reserves and improved fuel consumption.

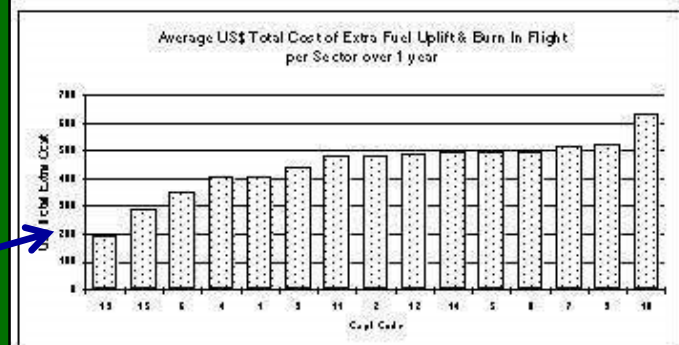
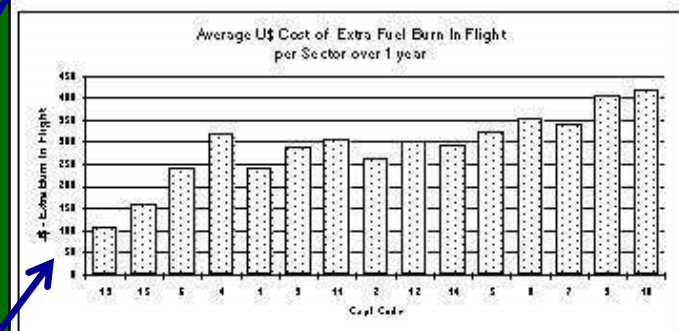
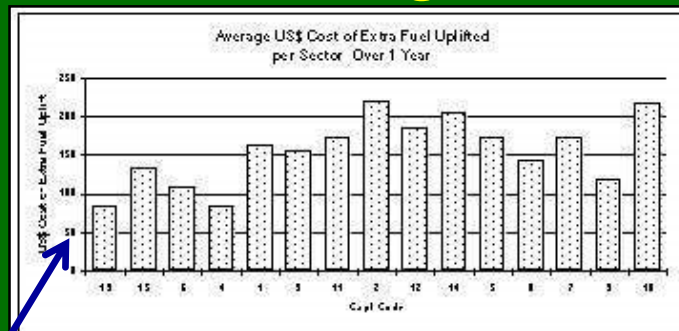
The Fuel Monitoring Graphs show how individual crew performance can vary and affect the profitability of an airline.

The top graph shows the cost of carrying extra fuel based on the Sector Fuel Price Differential.

The centre graph shows the cost of extra fuel burnt in flight, perhaps by non optimum operation of the aircraft – descending early, configuring for approach too soon, etc.

The bottom graph shows the total of the two. The difference between the extremes is over U\$400 per sector which for a year could total U\$100Ks.

Such information must obviously be used sensitively and only be used for encouragement.



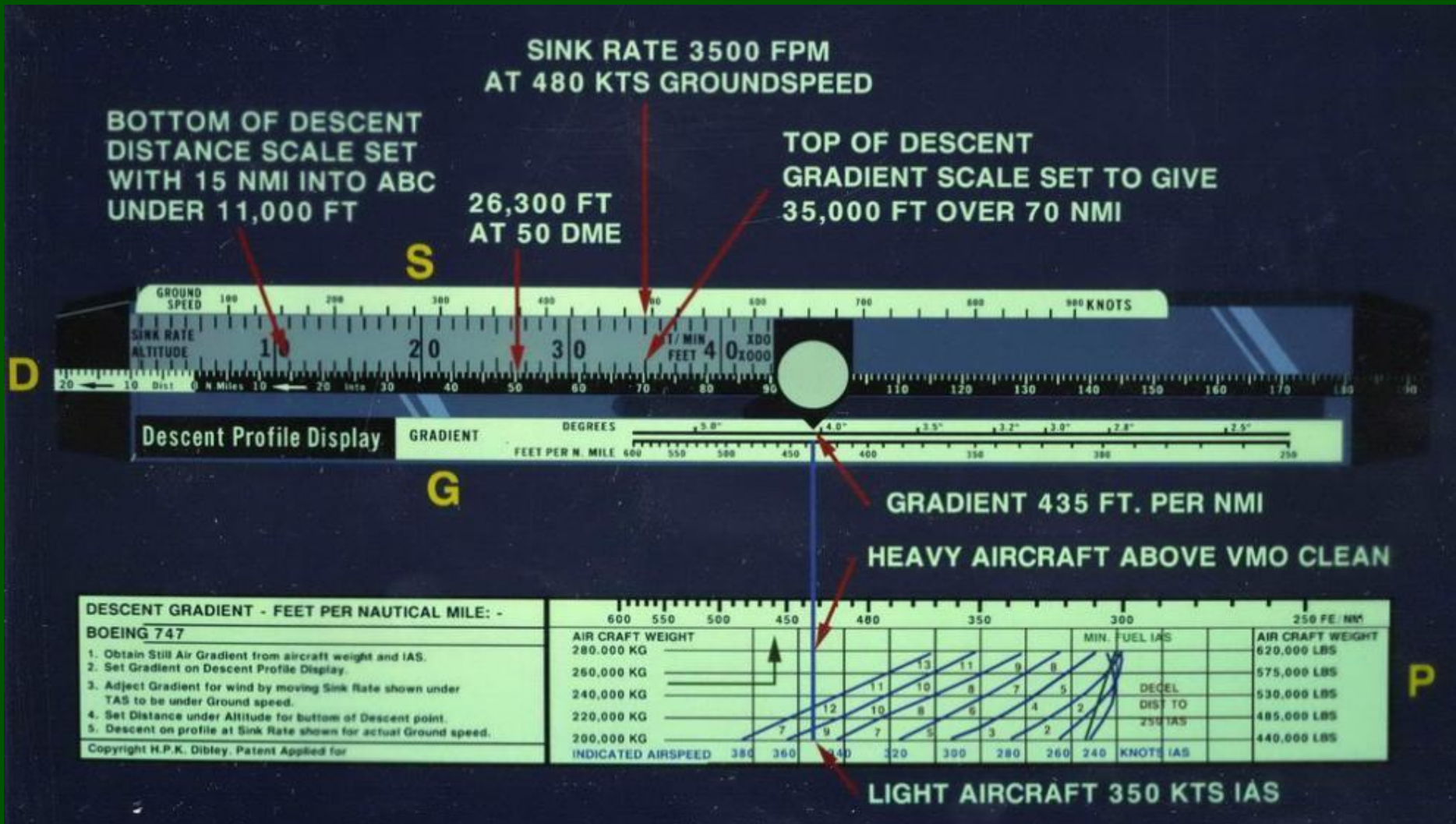
Crew Fuel Monitoring Graphs

Top – Cost of Extra Fuel Uplifted

Centre – Cost of Extra Fuel Burnt

Bottom – Crew's Total Extra Cost

Variable Speed/Weight Descent Gradient Shown on Elastic



Flight Plan:

FROM	TO	Alt	Dist	Time
WASH DC	DULLES	120.1	12.7	12.7
WASH DC	DULLES	120.1	12.7	12.7
WASH DC	DULLES	120.1	12.7	12.7
WASH DC	DULLES	120.1	12.7	12.7

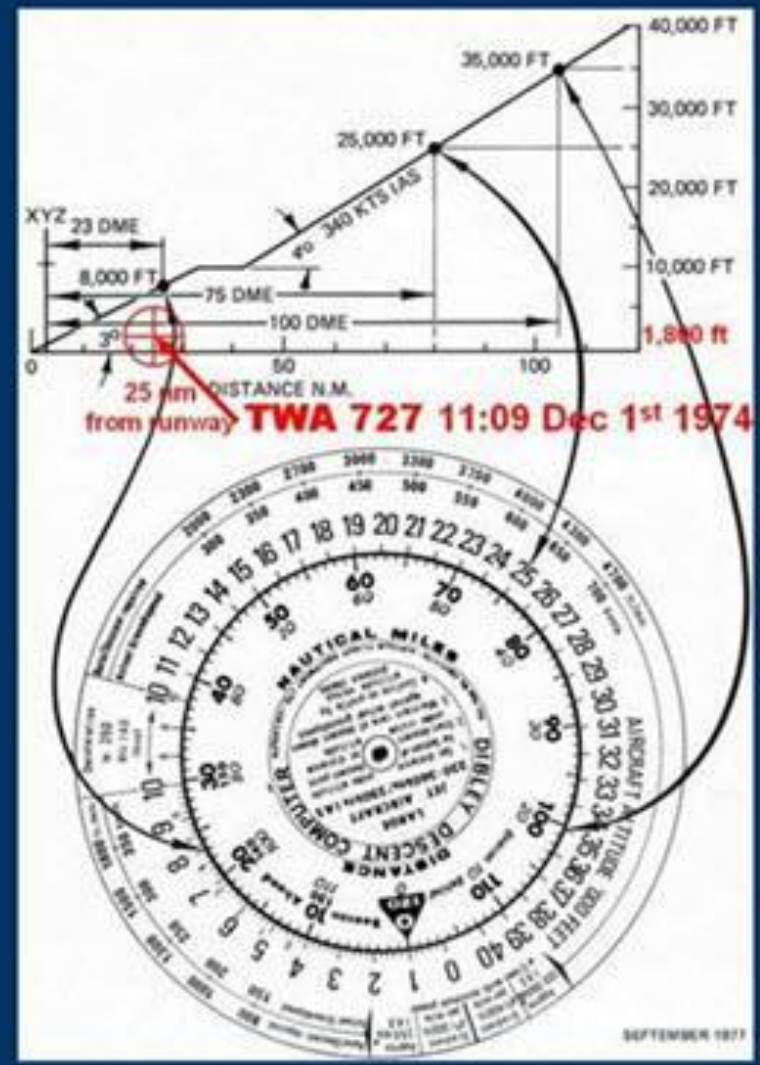
Map:

Hit hill at 1,670ft 25nm from runway

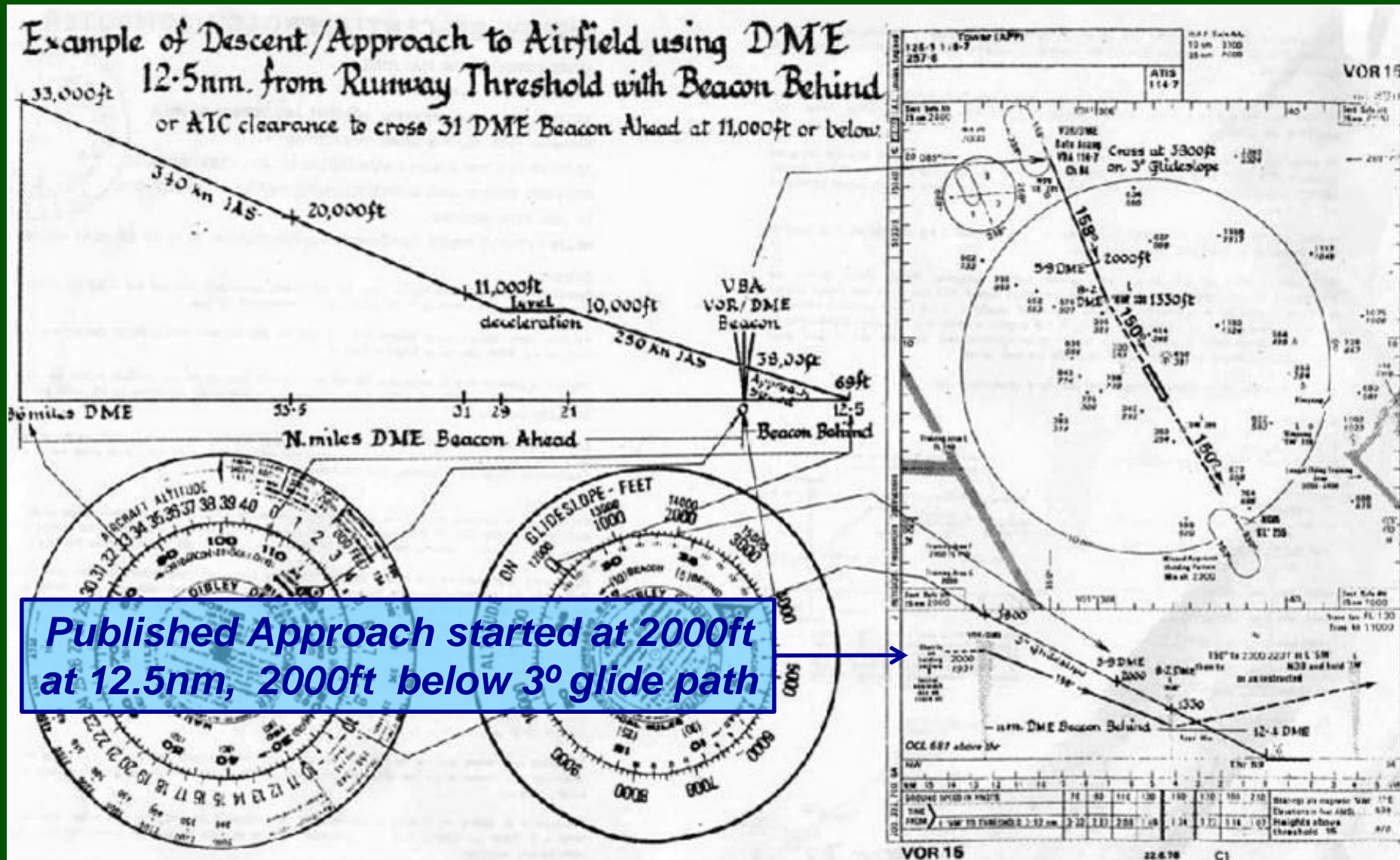
1,800ft 4.8nm from runway

Table:

Alt	Dist	Time
120.1	12.7	12.7
120.1	12.7	12.7
120.1	12.7	12.7
120.1	12.7	12.7

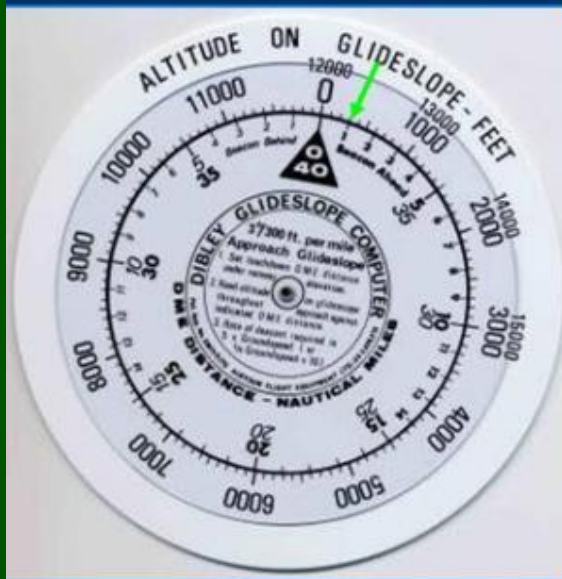


In 1976 Close Call to BAOD 747 flying NPA with 1.5° glidepath



An expanded scale can show a 3rd Constant Angle Approach glide path

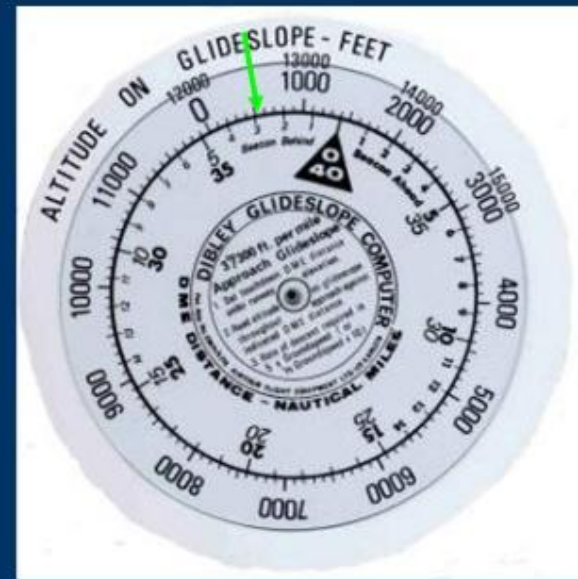
Approach Slide Rule Set for Washington, Nairobi and Toulouse / Guam



IAD 12 – set ahead 1.2 DME at 360 ft



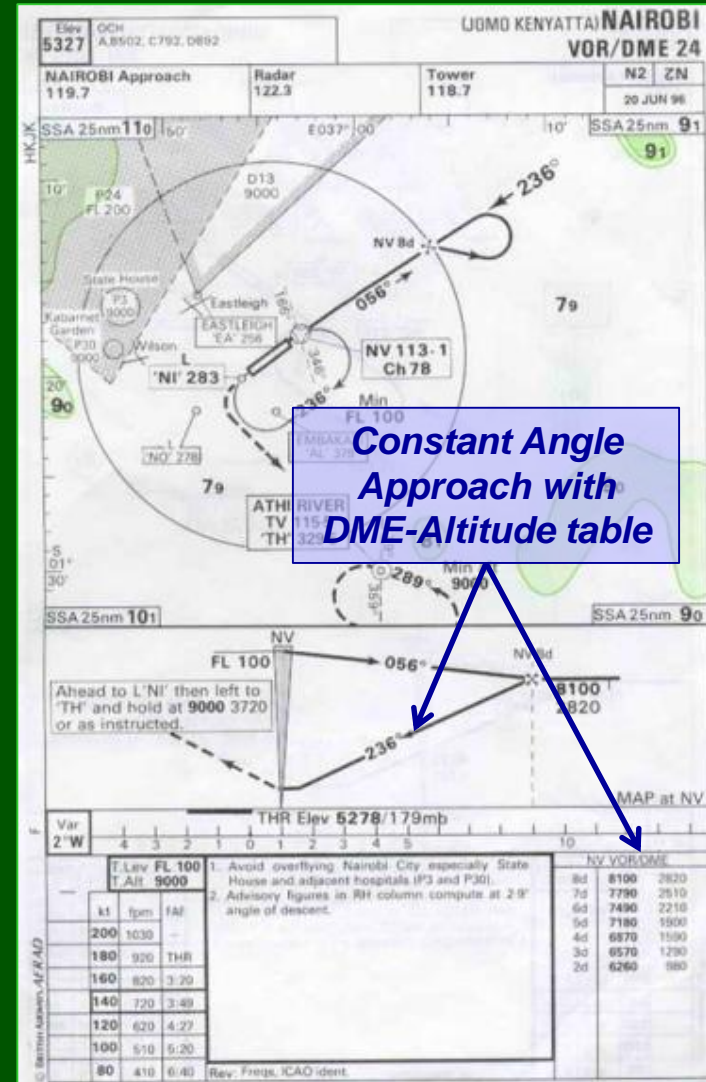
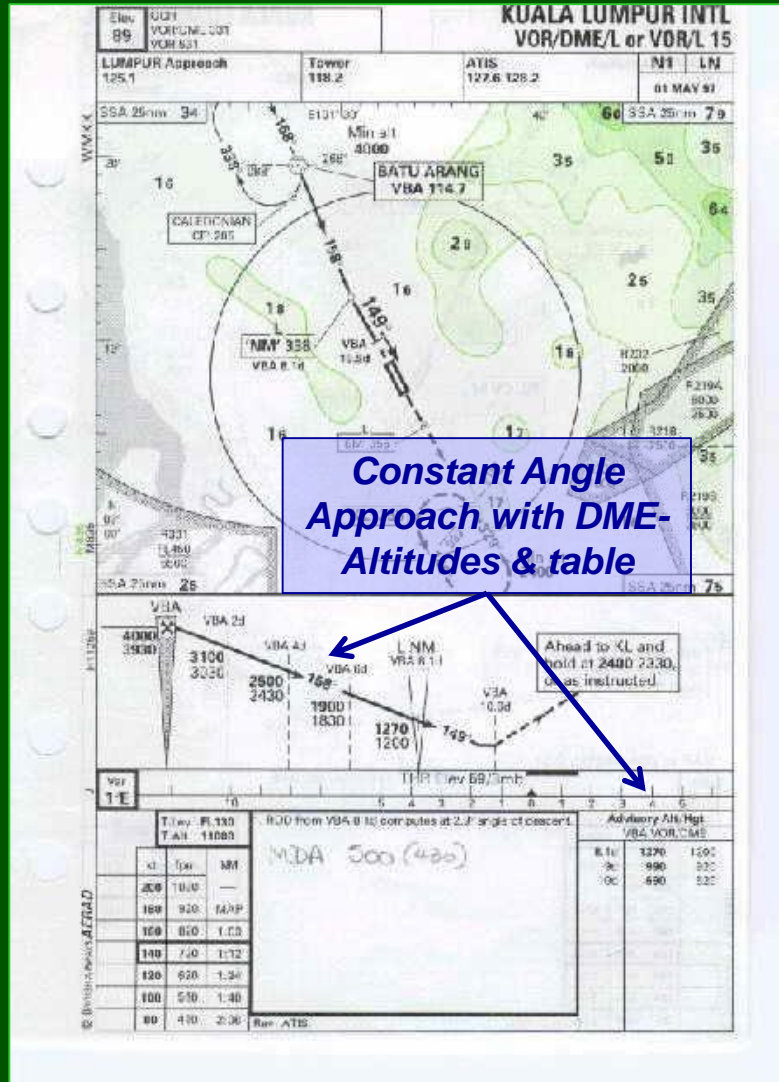
NBO 24 – set behind 1.0 DME at 5,300 ft



TLS 14R – set behind 2.7 DME at 550 ft
or Guam 06 – set behind 3.3 at 310 ft

Table on approach chart can give similar guidance

BA/Aerad Provided DME-Altitude Tables Permitting Constant Angle NPAs starting in 1975

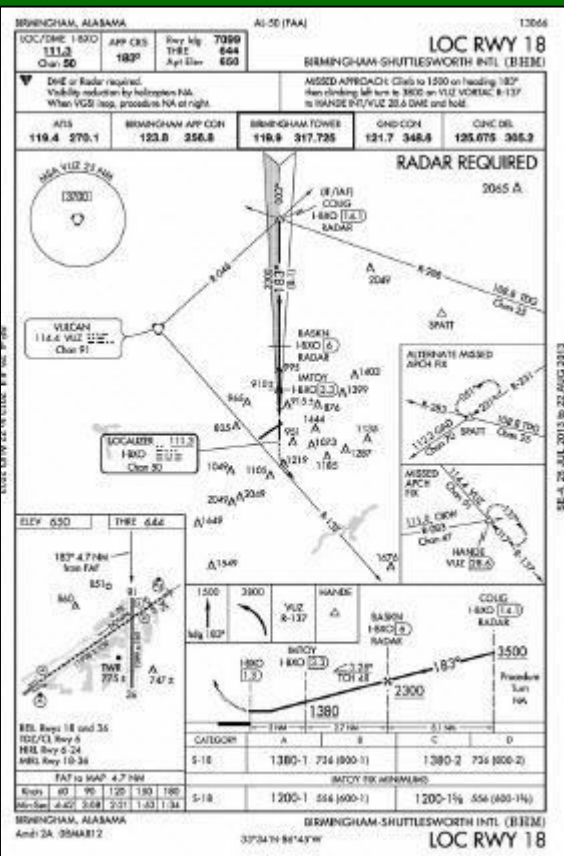


***Let us never have to say –
that accident need not have happened.
.....but only 4 months later...***

Crash: UPS A306 at Birmingham on Aug 14th 2013, contacted trees and touched down outside airport



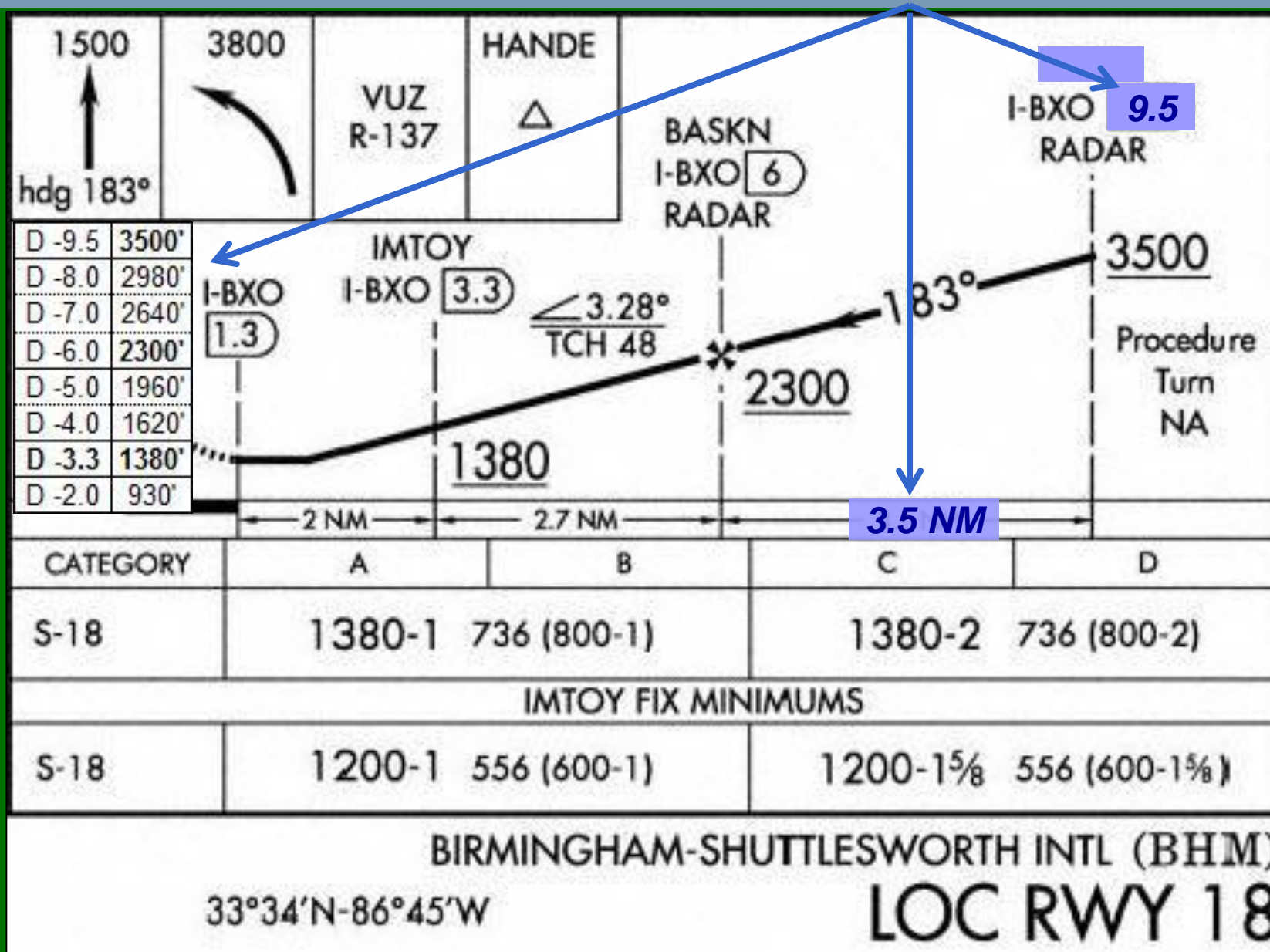
***On 14 Aug 2013 UPS 5X-1354 Airbus A300-600F
155UP freighter crashed short of the runway on a
LOC-DME approach to R/W 18 Birmingham AL.***



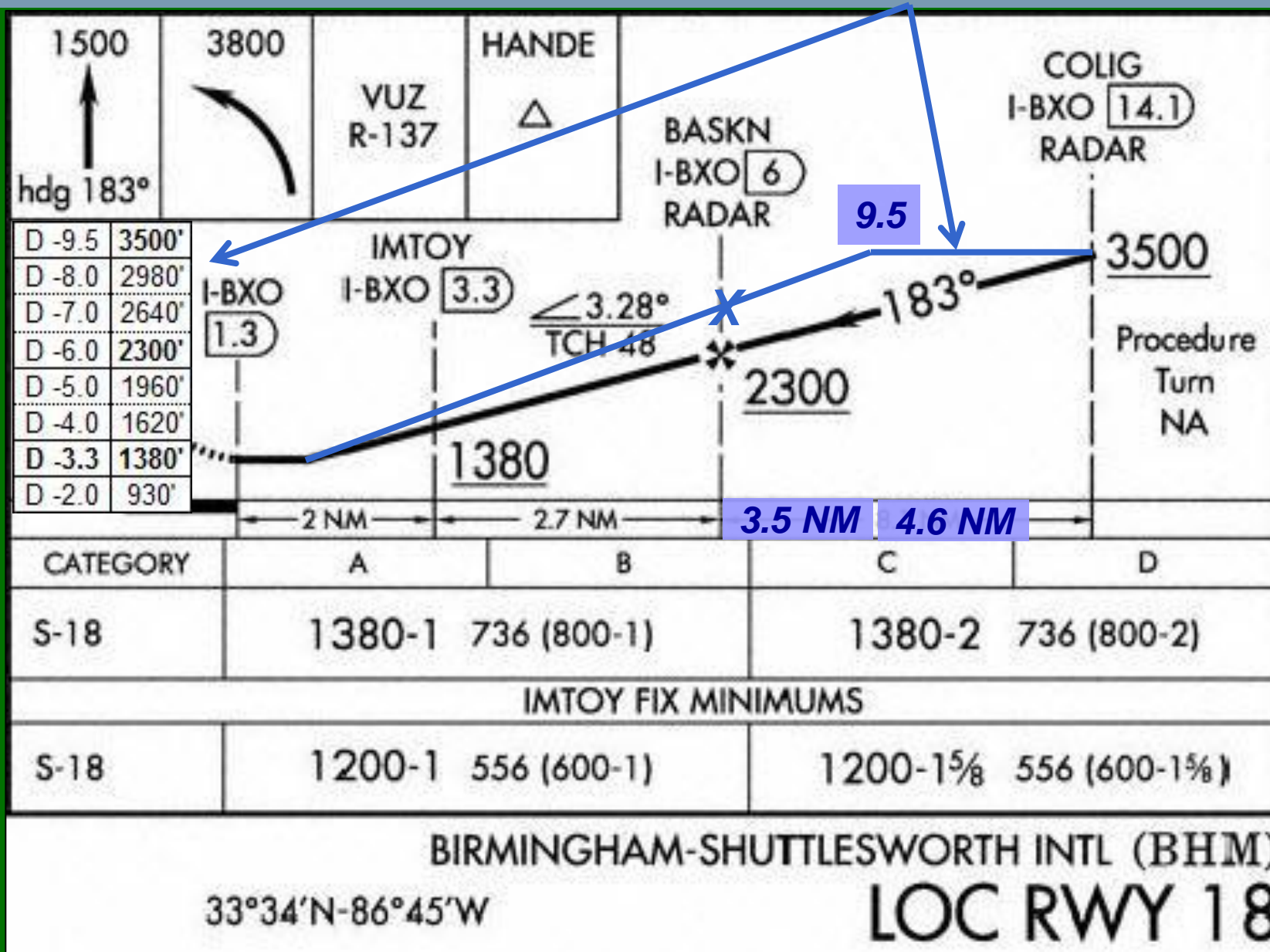
BHM LOC-DME 18		
Gradient:	3.2°	342 f/nm
120 kts	140 kts	160 kts
680 fpm	800 fpm	910 fpm
D I-BXO	Alt QNH	(HAT)
D -14.1	5070'	(4426')
D -9.5	3500'	(2856')
D -8.0	2980'	(2336')
D -7.0	2640'	(1996')
D -6.0	2300'	(1656')
D -5.0	1960'	(1316')
D -4.0	1620'	(976')
D -3.3	1380'	(736')
D -2.0	930'	(286')

The FAA LOC-DME chart does not include a DME-Altitude table, such as on the right showing that the straight line profile is not realistic.

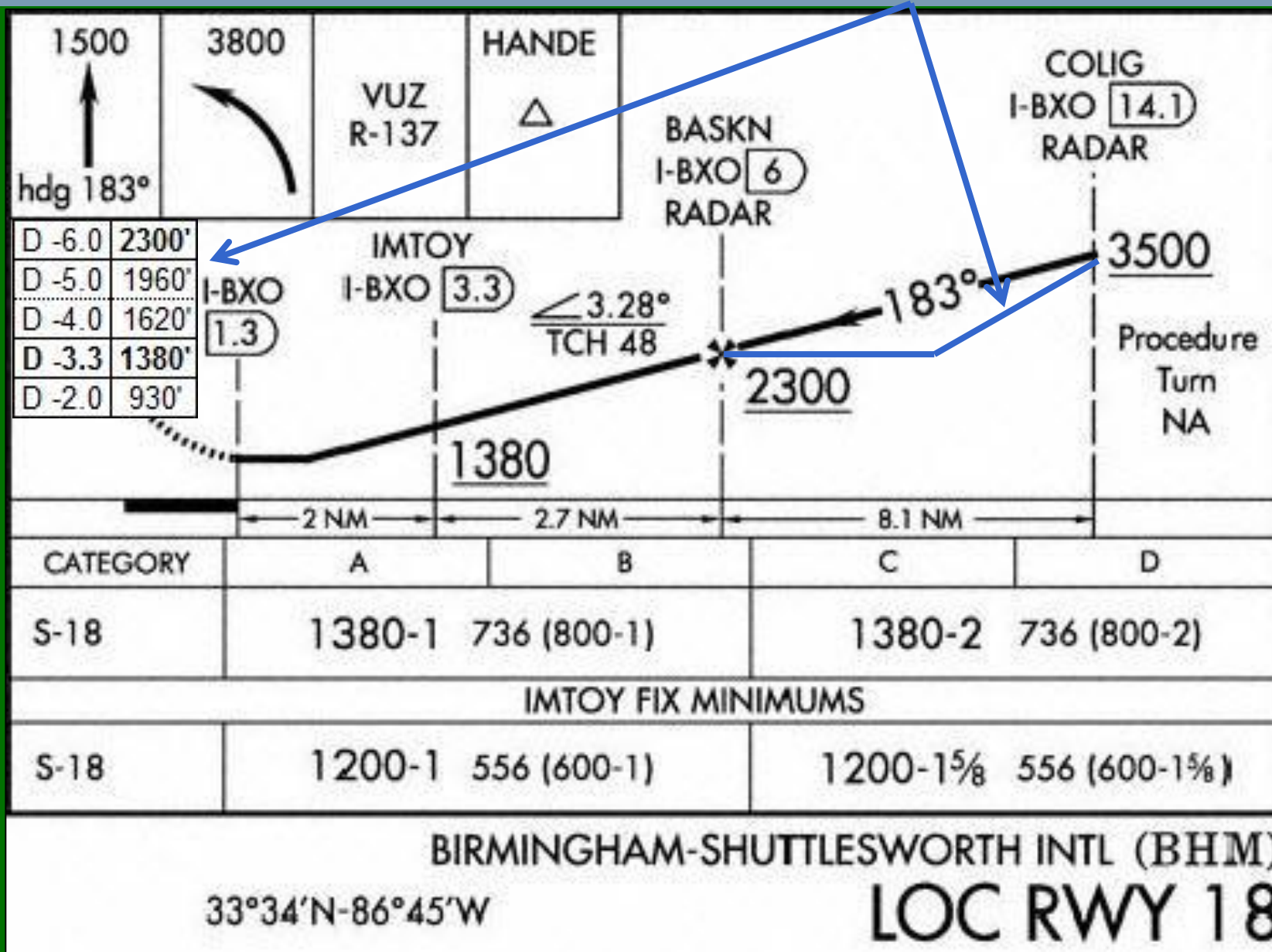
BHM LOC-DME Chart - Correct Distances for Profile



BHM LOC-DME Chart Correct Profile for Distances 1



BHM LOC-DME Chart Correct Profile for Distances 2



Essential Info for Monitoring LOC-DME Approach

It is impossible to know the cause(s) of the accident without further information from the NTSB...but

If the Monitoring Pilot had:

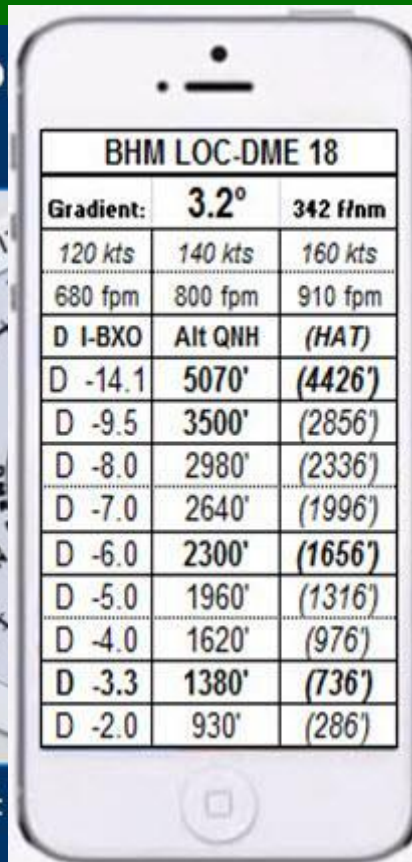
A realistic vertical profile shown on the chart,

A DME-Altitude table allowing accurate monitoring of the glideslope at times suitable to the crew -

The crew would then have the best capability to monitor & maintain the correct glideslope to the runway.

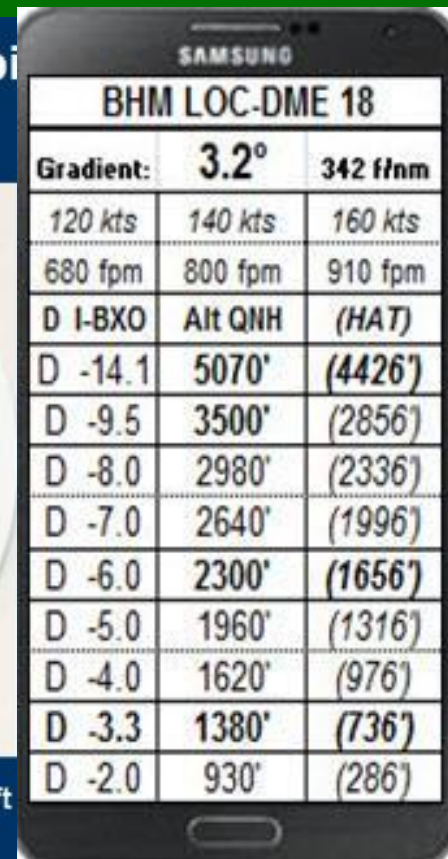
Essential Info for Monitoring LOC-DME Approach

If no chart table available – Use another system



A white iPhone displaying a table for BHM LOC-DME 18. The table lists gradient, speed, and distance data for various altitudes and distances.

BHM LOC-DME 18		
Gradient:	3.2°	342 f/nm
120 kts	140 kts	160 kts
680 fpm	800 fpm	910 fpm
D I-BXO	Alt QNH	(HAT)
D -14.1	5070'	(4426')
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D -4.0	1620'	(976')
D -3.3	1380'	(736')
D -2.0	930'	(286')



A Samsung phone displaying the same BHM LOC-DME 18 table as the iPhone.

BHM LOC-DME 18		
Gradient:	3.2°	342 f/nm
120 kts	140 kts	160 kts
680 fpm	800 fpm	910 fpm
D I-BXO	Alt QNH	(HAT)
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D -3.3	1380'	(736')
D -2.0	930'	(286')

Since the 1970s some operators have NOT provided clear Distance-Altitude checks and failed to train crews to fly Constant Angle Final Approaches with regular/accurate checks to confirm on the glideslope – as Avionics/GPS/EPGWS will provide the solution. Continuing NPA Accidents show this to be incorrect.

By whatever means,
we must make sure that
Non Precision Approaches
with DME/GPS Distance available
do not continue to occur.

End