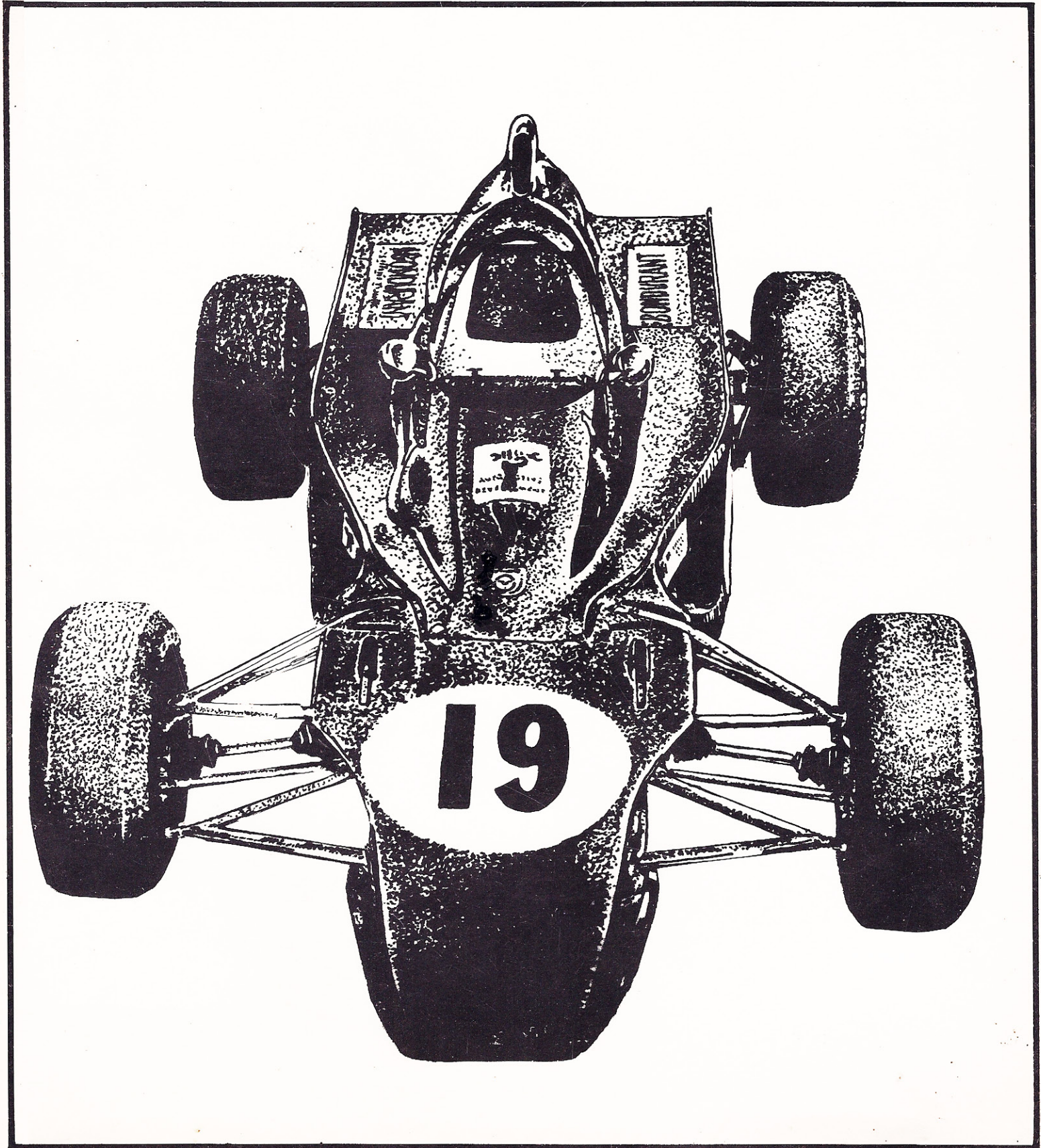


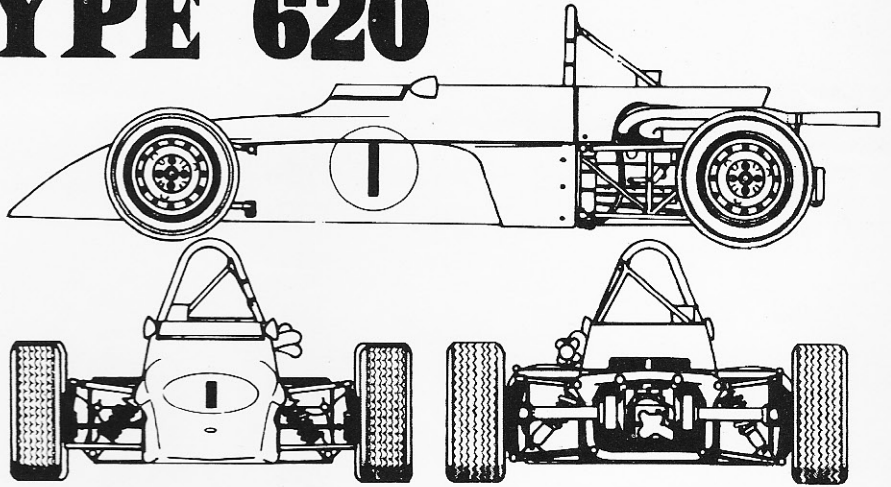
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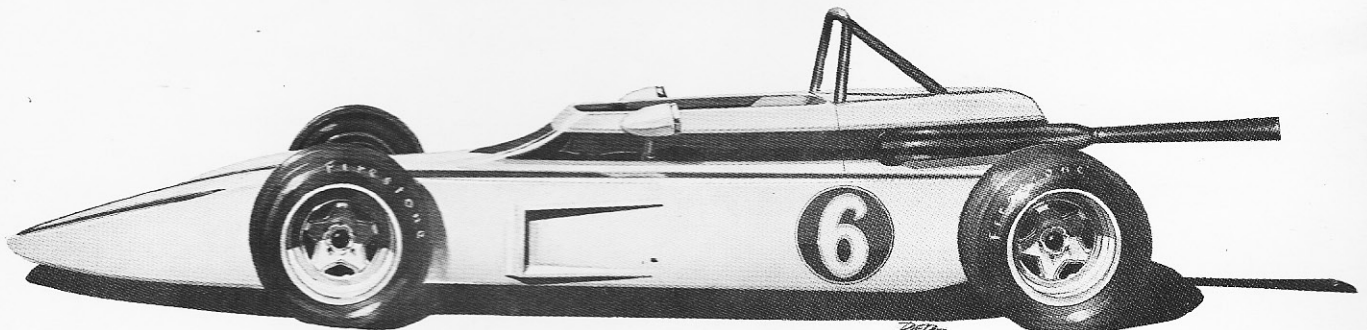
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STAFF:

PUBLISHER: Dick Cooney
 EDITOR: Don Alexander
 ASSOCIATE EDITOR: Ed Pitz
 ART DIRECTOR: Michael Vannatter

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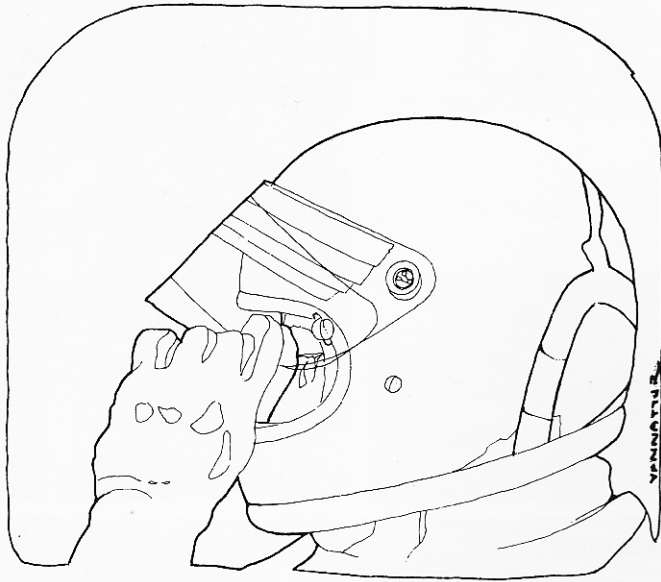
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From the Drivers Seat



By Don Alexander

With the end of the 1973 racing season upon us and the 1974 season rapidly approaching, Motor Racing is facing many problems, some severe, both internally and from sources outside of the sport.

There are two internal problems that I personally find very aggravating. All of the problems are closely related but there is a common solution to most of the stumbling blocks facing formula car racing in this country.

The matters I am referring to are the SCCA/USAC driver exchange hassle and the escalating costs of Motor Racing. I won't even go into the petty internal bickering between the U. S. racing organizations as it's absurdity requires no comment. However, inflated racing costs is much more of a problem.

When a potential sponsor looks at motor racing as an advertising media, he is primarily concerned with the cost per 1000 exposures. No matter what benefits Motor Racing may offer over other media (and there are many benefits along with a few disadvantages), if the cost per 1000 figures are not competitive, they will look elsewhere. It's simple arithmetic: If the cost of racing is reduced, retaining the same spectator appeal, those cost per 1000 figures will drop. In fact, Motor Racing has the potential to overwhelm other media with its exposure, but the cost must be made reasonable. At the current rate, Motor Racing is pricing itself out of the picture. The obvious solution is large numbers of spectators and decreased expenditure for racing teams. Indy crowds and F5000 costs would seem like the ideal circumstance. An American stock block Formula; A USAC/SCCA driver interchange; one 30 race series on ovals and road courses for the U.S. Driving Championship, Ridiculous!!! It would never work!!

Well, why do spectators go to races? Speed, noise, the potential of danger, competition, and heros. A 6 liter stock block formula would make these cars faster than the currant Formula One machinery. The cars would certainly be noisier than the turbo-muffled Offys and Porsches. Formula Vees are potentially dangerous. And the competition: Imagine a field of forty 600 HP Formula Fords with the worlds top drivers. How's this for an entry: Peter Revson, Bobby Unser, Mario Andretti, Emerson Fittipaldi, Al Unser, George Follmer, Jody Scheckter, Brian Redman, Brett Lunger, David Hobbs, A. J. Foyt, Gary Bettenhausen, Carlos Pace, Ronnie Peterson, Carlos Reutemann, Graham McRae, Jacky Ickx, Denny Hulme, Graham Hill, Tony A to Z, and that's only the first heat.

Maybe the solution is to simple for the great, although complex, minds that run Motor Racing in the U. S.

A critical external problem has recently been dropped on us like a bombshell: the ENERGY CRISIS!! Although the effects won't be known for some time, the current situation does not look favorable. There has been some talk of banning Motor Racing, but even if that does not happen, the possible ban on Sunday driving would eliminate spectators with obvious effects. The situation is a bit shakey and I am sure that many sponsors will be reluctant to commit themselves to a program that may never be carried out. On the positive side, the Energy Crisis may be the rallying point to unite the many factions of Motor Racing in this country; something long overdue. However, it may be too little and too late. I'm not especially fond of writing fiction. I hope the mail trucks have enough fuel to deliver FORMULA to you on time. Merry Christmas. ☞

Letters

Dear Don:

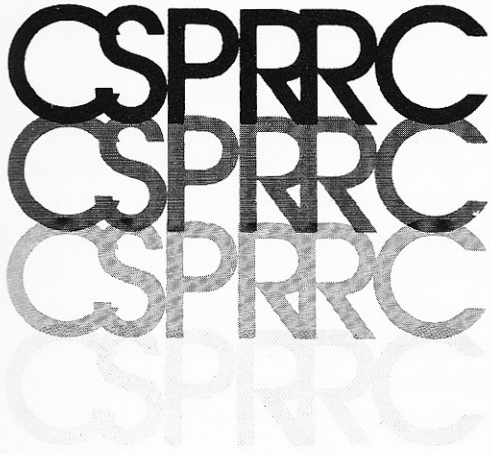
While I can't really agree with your comments with regard to mag wheels vs steel (who really needs to spend an extra 400 bucks)? I would like to comment on the tire situation.

We are very concerned with Formula Ford and have managed to convince Fort Dunlop of the same objective. All you guys in the blimp better watch out.

Although Dunlop was not actively involved in the FF tire war this season I want to emphasize that they will be in 1974 with a tire developed EXCLUSIVELY FOR Formula Ford. We have just received the first batch which we will test at Lime Rock and if all goes well the winner at Road Atlanta will have them on his car.

Sincerely,

Fred Stevenson



By Ed Pitz

Formula A

Not much can be said about the F/A race, for the simple reason that it was a spectacular bore. It drew seven starters and six finishers and the finishing order was set on the second lap.

Predictably, the pole went to Jerry Hansen at IM 19.93s. For this occasion, Hansen bought the Jim Hall/Carl Haas Lola T330 used by Brian Redman in this year's L & M Series. Since none of the other entrants were as well equipped, the race was a foregone conclusion.

Evan Noyes' McRae GM1 took the outside pole with IM 21.47s. Tuck Thomas' Lola T300 recorded IM 24.01s with Bill Temperos' Lola T192 alongside at IM 28.24s. Jim Sechsers' McLaren M10 was fifth fastest with IM 28.58s while Mike Braytons' Eagle was the final qualifier at IM 33.85s. Ed Lowthers' elderly LeGrand was at the back of the grid despite qualifying well outside the limit.

Hansen and Noyes blasted off at the start and left the others virtually standing still. The McRae driver tried very hard but was powerless to prevent Hansen from building up a winning margin of 8.4s.

Bill Tempero lost third to Tuck Thomas on the second lap. Both drivers completed 22 laps, one less than the winners. Sechser retired from fifth on the seventh lap. Brayton inherited fifth place and completed 21 laps with final finisher Lowther another two laps in arrears. Yawn.

RESULTS

CSPRRC F/A RACE — 23 laps (57.5 miles)

1. Jerry Hansen / Waycata, Minn., Midwest Federal Lola T330

30m. 45.79s (113.11 mph)

2. Evan Noyes / Cedarville, Mich., Eagle Creek Aviation
McRae GM1
3. Tuck Thomas / Minneapolis, Minn., Lancer Stores Lola T300
4. Bill Tempero / Ft. Collins, Colo., Cloverleaf Texaco Lola T192
5. Mike Brayton / Newport Beach, Calif., Brayton Eagle
6. Ed Lowther / McMurray, Pa., Gulf Oil LeGrand

Fastest lap -- Hansen -- Lap 4 -- IM 18.76s (115.26 mph) record

Formula B

The F/B race on Saturday was superb; it was the most competitive race for that class in ARRC history. The top three were covered by one second for much of the race and, in true cliff-hanger fashion, it was decided on the final lap.

The Brabham marque held a strong numerical superiority, accounting for 10 of the 18 starters. March were represented by four machines with single entries from Chevron, Elden, Lola, and Meryn.

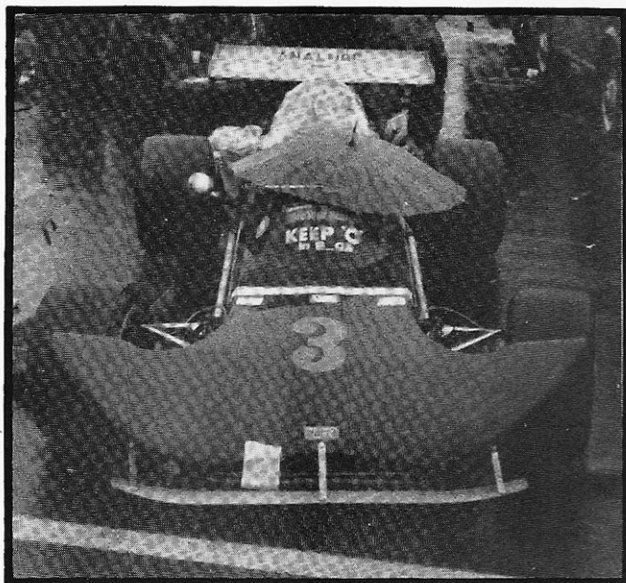
It was an all-white front row that led the field around the pace lap. The ex-Rondel Brabham BT 38s of Tom Klausler and Bill O'Conner topped the qualifying list at IM- 25.84s and IM 25.97s, respectively. Ken Duclos' immaculate Brabham BT40 led the second row with IM 26.04s with John Angus' BT29 alongside at IM 26.20s. Fifth fastest was Sebastiano Varone's March 732 which was only .03 second slower. Tom Pumpelly's Elden PH10 was next up, recording IM 26.60s, while the March 732s of Jim King and Frank Del Vecchio followed at respective times of IM 26.79s and IM 27.49s. Jim Grob's Chevron B20 was clocked at IM 27.71s, .15 second quicker than Bill Middleton's Brabham BT 38.

Mike Hall's Brabham BT 40 sat on the sixth row at IM 28.67s with Chuck Dietrich's similar machine exactly one second slower. Terry Allard's Brabham BT 35 recorded IM 31.68s followed by Byron Hatton's March 722 (IM 32.03s), Bill Mairs' Brabham BT 40 (IM 32.39s), Bill Brown's Brabham BT 29 (IM 33.16s), and Carl McIntyre's Lola T 240 (IM 40.39s). Porter Brownlee's Meryn set at the back with no qualifying time. Jon Milledge was an unfortunate non-starter after recurring mechanical problems with his Brabham BT 40 forced him to withdraw.

Klausler took the initial lead with O'Conner tucking in behind as they entered the first turn. They remained that way after the first of 21 laps, followed closely by Duclos, Varone, Angus, King, Pumpelly, Grob, Middleton, Del Vecchio, Allard, Hall, and Dietrich. There was a short gap, then Hatten, another bunch composed of Mairs, Brown, and McIntyre, and finally Brownlee bringing up the rear.

Everyone began pairing off on lap two. Klausler and O'Conner were "taken on" by Duclos. Varone was falling away slowly into a safe fourth. King and Pumpelly

began a long session of musical chairs for fifth spot. Grob was a strong seventh ahead of a quartet consisting of Middleton, Del Vecchio, Hall, and Allard, the remaining runners falling behind rapidly. Angus appeared in the pits for the first of two stops; while challenging Varone, he spun off at turn 5 and the stops dropped him far out of contention.



Chevron hopes faded on the next lap when Grob pitted with fuel pump maladies, losing several laps. Terry Allard finished his race two laps later when he crashed at turn 3 and removed the right front wheel from his Brabham.

After five laps, Duclos was still searching for a way around the two Brabham drivers who, as teammates, weren't interested in permitting such a thing. Varone's March lay three seconds back in fourth and one second ahead of the Pumpelly-King tear-up, the Elden leading at this stage. Middleton was fighting to stay ahead of Mike Hall and Frank Del Vecchio but was to lose out to the BT 40 driver in a few laps, anyway. Dietrich completed the top ten.

Klausler continued to lead until the ninth lap when O'Conner took over and after a few laps the gap between the two white machines began to widen. Klausler's tires were going off and when Duclos finally took second on lap 16, O'Conner had a good two second advantage. It took Duclos three laps to erase that deficit and the stage was set for a grandstand finish.

It all happened on the penultimate lap at turn 11, as the leaders lapped the Mairs-Brown-Hatten dice for tenth. Mairs allegedly shut the door on the leader who swerved in avoidance which allowed Duclos to nip inside at the following corner for the lead. To cap the confusion, Hatten looped it coming out of the final corner and parked it for the day; post-race inspection revealed a bent wheel.

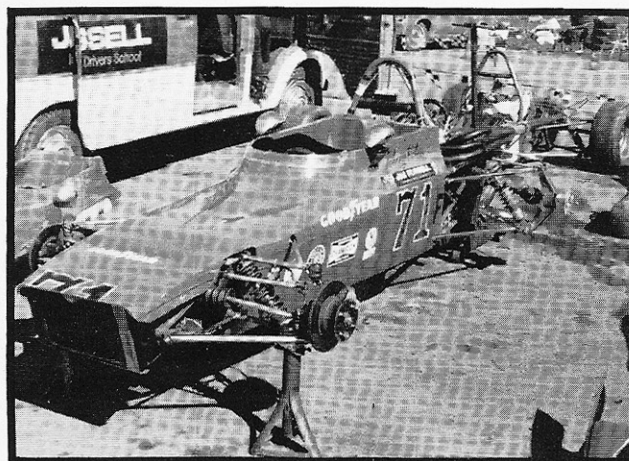
There was still nothing in it and everyone present was waiting to see which car would be ahead on that final lap. Thus, there were many astonished faces when Duclos

dashed down the hill and took the checker — all alone. O'Conner reappeared six seconds behind in third and right on his teammate's tail; he had gone off course at turn 7 leading on to the backstraight.

Varone's March placed fourth, another three seconds in arrears. Jim King finished a lonely fifth after Pumpelly retired on lap 19; the Elden's engine was going sour. Mike Hall moved up to finish sixth.

A lap down came Frank Del Vecchio after a hairy last half of the race. Shortly before retiring, Bill Middleton allegedly spun, forcing the March into the dirt in avoidance. The March's front spoiler was almost torn off and, with no down-force, the front end of the car was lifting at speed on the backstraight.

Dietrich finished eighth with Mairs next up two laps behind the leaders. Brown and Brownlee took the next places while Grob and Angus completed 16 and 15 laps, respectively.



O'Conner got some consolation by chopping 1.7 seconds off Chuck Sarich's lap record to set a new figure of IM 26.32s (106.48 mph).

RESULTS — CSPRR F/B

21 laps - 52.5 miles

1. Ken Duclos / Boxboro, Mass., Trojan Saber Brabham BT 40
30 m 23.6s (104.64 mph)
 2. Tom Klausler / Evanston, Ill., Klausler Brabham BT 38
 3. Bill O'Conner / Evanston, Ill., Traylor Eng. Brabham BT 38
 4. Sebastiano Varone / Portland, Conn., Varone March 732
 5. Jim King / Belleville, Ill., European Motor Garage March 732
 6. Mike Hall / Chicago, Ill., Hall Brabham BT 40
 7. Frank Del Vecchio / Trumbull, Conn., Environmental
Lubricants March 732
 8. Chuck Dietrich / Sandusky, O., Dietrich Motors Brabham BT 40
 9. Bill Mairs / Malibu, Calif., Mairs Brabham BT 40
 10. Bill Brown / Memphis, Tenn., Brown Brabham BT 21
 11. Porter Brownlee / Little Rock, Ark., B & B Merlyn
 12. Jim Grob / Ft. Lauderdale, Fla., Grob Chevron B 20
 13. John Angus / Marina del Rey, Calif., Angus Brabham BT 29
- Fastest lap - O'Conner - Lap 17 - IM 25.32s (106.48 mph) record

Formula C

One of the Friday races drew more than the usual interest. This was for F/C, that embittered class that SCCA has decided should no longer be in existence.

Harry Reynolds, looking for a hat-trick of ARRC F/C wins, put his Brabham BT 28 - Cosworth on the pole at 1:34 .24 Mike Gilbert's Lotus 41 - Cosworth was along side at 1:36 .25 third fastest at 1:36 .39 was a Reynolds arch - rival, Carl Whitney in another Brabham BT 28 Cosworth. Jim Lloyd's similar machine was next up at 1:36 .68, followed by Bill Anspach's Chevron B15 - Holbay (1:37 .47) and Doug Turner's Chevron B 15 MRE (1:37 .59).

Tom Watson's March 703 Lucas recorded 1:38 .50 Rex

Twai's Brabham BT 28 was eighth on the grid at 1:39 .43 ahead of Van Durrett's Brabham - Kawasaki which was timed at 1:40 .00. Bart Brownstein's Brabham BT 21 - Holbay did 1:40 .36 and next to him was Jim Miller's Brabham BT 28 - Cosworth at 1:41 .02. Next was Mikeal Bystram's Brabham BT 21 - Ford (1:41 .36), Raeder's Lotus 59 - Renault (1:42 .23), John Pennington's Tecno - Novamotor (1:42 .32), Norm Kirnberger's Brabham BT 21 - Cosworth (1:44 .36), and Steve Hughes' Chevron B 15 - Cosworth (1:46 .15), Jim Lisca's Lotus - Lucas and Dick Drexler's McLaren - HRE completed the the final row with respective times of 1:50 .92 and 1:55 .25.

While the start didn't exactly do wonders for the eardrums, it was great to watch. Carl Whitney absolutely stormed up from the second row to lead Reynolds, Gilbert, and the rest around the first lap, these three already pulling away from the rest of the field, Anspach was fourth ahead of Lloyd, Twai's, Bystrom, Hughes, (from the eighth row!), Brownstein, Pennington, Miller, Raeder, Watson, Durrett, Kirnberger, Lisca and Drexler. Doug Turner brought up the rear and retired on the second lap after spinning at turn 7 and twisting a suspension pickup point.

With five laps down and 14 to go, Whitney was under constant attack by Reynolds with Gilbert shadowing closely and apparently playing wait-and-see. Anspach, Twai's, and Lloyd were having a hard tussle for fourth, the latter nearly losing it on the turn 12 grass on one occasion. Pennington was driving well and holding off Hughes and a charging Raeder for seventh with Brownstein next up. Bystrom's race ended when the engine went flat while Jim Miller spun at the last corner and dropped out.

After eight laps, Reynolds and Gilbert screamed past the pits by themselves; Whitney was parked out on the course with engine problems — a rotten reward for an excellent performance. With a clear road before him, Reynolds promptly pulled out several seconds on Gilbert and that hat-trick looked almost certain.

Almost, shortly after the halfway mark, Reynolds' engine started to go off song and would only pull 8,000 instead of 10,500 rpm. The Lotus began to reel in the Brabham and, on the 17th lap, Mike Gilbert moved into the lead for good. Reynolds finished a disappointed second by 19 seconds.

Bill Anspach annexed third from Jim Lloyd on the 13th lap, Twai's retiring about the same time. Lloyd slid down the lap charts and was passed by Phil Raeder and Bart Brownstein in the last three laps. John Pennington placed seventh with Tom Watson the final car to complete the distance.

RESULTS — CSPRR F/C

19 laps - 47.5 miles

1. Mike Gilbert / Redmond, Wash., Gilbert Lotus 41-Cosworth
31m 10.74s (92.21 mph)
2. Harry Reynolds / Pottsdam, Pa., Reynolds Brabham BT 28
Cosworth
3. Bill Anspach / N. Palm Beach, Fla., Laminaire Chevron B 15
Holbay
4. Philip Raeder / Delmar, N. Y., Terri Novotny Lotus 59
Renault
5. Bart Brownstein / Ft. Lauderdale, Fla., Brownstein Brabham
BT 21 - Holbay
6. Jim Lloyd / Indianapolis, Ind., Matthews Lloyd Brabham
BT 28 - Holbay
7. John Pennington / Beverly Hills, Calif., Falstaff Tecno
Novamotor
8. Tom Watson / Richardson, Tex., BAP / GEON March 703
Lucas
9. Dick Drexler / Pewaukee, Wis., Drexler McLaren - HRE
10. Norm Kirnberger / Warren, Mich., Kirnberger Brabham BT 21
Cosworth

Fastest lap - Carl Whitney (Brabham BT 28 - Cosworth) - Lap 2

Formula Super Vee

The final formula event took place on Sunday morning. The Super Vees put on a good show and, in typical ARRC fashion, the issue wasn't decided until the final moments.

After qualifying, it was apparent, that it would be a two-car race. Harry Ingle edged Fred Phillips for the pole; the Zink driver's best lap of 1m 32.30s was only .04 second quicker than Phillips' Tui. Ray Heppenstals' Royale qualified third at 1m 33.0s with John Hancocks' Lola T252 next in 1m 33.2s. Howdy Holmes' similar machine started fifth after clocking 1m 33.51s. Tom Bagley's Royale recorded 1m 34.36s to fill the third row.

Jim Fry's Lola T252 led the fourth row in 1m 36.05s ahead of Ron DeMarco's Royale (1m 35.40s), Dick

Cooney's Pacific Formula Tui (1m 35.60s), and Bill Robinson's Royale (1m 35.60s). Defending champion Bob Wheelock's Lola T252 was only .01 second slower and .08 second ahead of John Saucier's Zeitler. Steve Griswold's Tui was timed at 1m 35.84s. John Benton's Pacific Formula Tui was next up at 1m 36.60s. In the 37s bracket were Ben Blankenship's Lola T252 (1m 37.13s), Bill Nees' Hawke DL5 (1m 37.18s), and Ken Cobb's Lola T252 (1m 37.22s). Joe Wedig's Lola T252 was at 1m 39.5s. Chuck Montague's ill-running Crossle 245V was last at 1m 46.2s.

Ingle took the lead at the start and finished the first of 20 laps ahead of Phillips, Heppenstall, Hancock, Holmes, Bagley, Fry, Wheelock, and Cooney, Saucier held tenth from Robinson, DeMarco, Griswold, Benton, Nees, Blankenship, Cobb, Wedig, and Montague.

The early laps were busy ones. Ingle, Phillips, Hancock, Holmes, and Bagley formed a quintet fighting for the top honors. Fry and Wheelock slugged it out for sixth. Cooney held eighth ahead of duelling pairs composed of DeMarco-Robinson and Benton-Heppenstall; the latter driver had spun at turn 3 on the third lap and was trying to make up lost ground.

Ingle and Phillips detached themselves from the others on the seventh lap and the battle was on, the lead going back and forth almost every lap. Phillips led laps 11 - 12, 14, and 16; the Zink was in front on laps 13, 15, and 17. Ingle led narrowly with two laps remaining but on the penultimate lap Phillips suffered backmarker trouble and lost enough time to settle the issue. The winning margin was 2.6 seconds.

John Hancock moved into a clear third when Bagley spun on the 14th lap; however, Hancock's brakes were disappearing and Howdy Holmes slipped past on the final trip down the backstraight.

Tom Bagley's nonsense dropped him to ninth but it took him only four laps to claw his way up to fifth place, setting a new 100 mph lap record in the process. Wheelock out-duelled Fry on the final lap to take sixth, while DeMarco held off Robinson's challenges to the very end. Cooney ended up tenth, the engine having lost power in the early stages. Griswold overhauled Benton on the final lap for 11th. Cobb and Montague were early casualties with broken engines.

At the post-race banquet, Ingle received the President's Cup for his efforts.

RESULTS — CSPRRC F/5V 20 laps - 50 miles

1. Harry Ingle / Charlotte, N. C., Zink 1m 25.4s (99.48 mph)
2. Fred Phillips / Shreveport, La., Phillips Tui BH3
3. Howdy Holmes / Ann Arbor, Mich., Sun Racing Lola T252
4. John Hancock / Austin, Tex., Hancock Lola T252
5. Tom Bagley / State College, Pa., Bagley Royale

6. Bob Wheelock / Houston, Tex., Coca Cola Lola T252
 7. Jim Fry / Michigan City, Ind., Fry Lola T252
 8. Ron DeMarco / Boca Raton, Fla., DeMarco Royale RP9
 9. Bill Robinson / Crestline, Col., Bandido Racing Royale
 10. Dick Cooney / Huntington Beach, Calif., Pacific Formula Tui BH3
 11. Steve Griswold / Berkeley, Calif., Cronus Tui AM29
 12. John Benton / Chicago, Ill., Pacific Formula Tui BH3
 13. Ray Heppenstall / Glenside, Pa., Heppenstall Royale
 14. Bill Nees / Prairie Village, Kan., Nees Hawke DL5
 15. Ben Blankenship / Houston, Tex., Blankenship Lola T252
 16. John Saucier / Midwest City, Okla., Saucier Zeitler
- Fastest lap - Bagley - Lap 17 - 1m 30.27s (100.58 mph) record

Formula Ford

For some reason, the Formula Ford event, generally one of the best of the weekend, was run on Friday and deprived spectators of a first-class show. It was the Cinderella story of the week; an unusual new car steered by a driver who had never won a National, won convincingly from the most impressive assemblage of Formula Fords of the year.

Several thousand heartbeats later, the field streamed under the bridge and down the hill with Earl heading Loft, Kastner, Blackwood, Houston, a short gap, Gleason, Firestone, Moody, Sabin, Ferguson, and the rest, in a, decidedly unscorable mass. Stiles' Lola was definitely last after getting punted off course around the back. The first retirement had already been recorded; Tom Pumpelly's Elden lasted only a few corners before the coil wire fell off, which was unfortunate as Tom had posted laps in 1:33 bracket in morning warm-up and was ready for a charge from the back of the pack.

Earl's ADF drew out a few lengths on the second round and, with three laps completed, the Bob Bondurant School's chief instructor led by one second. Second place was — well, you had to see it to believe it. Having lost second to Kastner on the second lap, Loft took it back on the third; looking for a way past them were Blackwood, Gleason, and Firestone. Rick Houston was dropping behind and, at this point, was holding seventh from Ferguson, Moody, Sabin, Pugh, and Torpy. Louis Lingo's Titan began a long struggle with Dick Schmer for 13th with the rest of the field still closely bunched.

Extending his advantage by a half-second per lap, Bob Earl continued to pull away and led by four seconds after nine laps. The battle for second was still hot and heavy; only 1.5 seconds covering the quintet; Gleason ousted Loft for the runner-up position and, by dint of extremely forceful driving, and using all of the road, he managed to stay there. Firestone had advanced to fourth ahead of Kastner and Blackwood but at this point it became tea for six instead of five.

The newcomer was Bill Pugh's Crossle. Driving magnificently, Pugh emerged from the battle for seventh after seven laps and set about closing the three-second gap to the leaders. In the process, he set the race's fastest lap at IM 34.16s (96.42 mph).

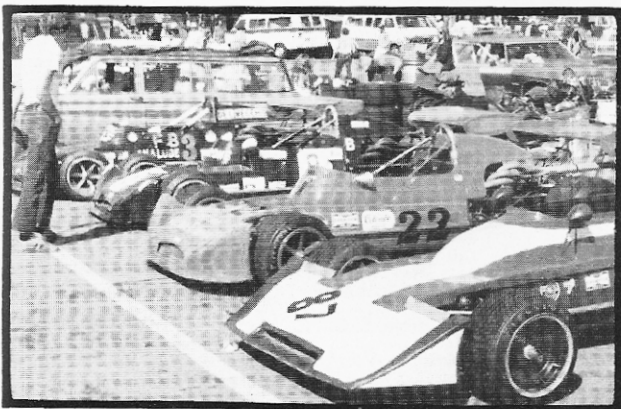
Soon after Pugh had joined the war, misfortune cut down one of this opponents. Dennis Firestone had risen to third on lap 12 but contact with Marty Loft at turn 11 resulted in a cracked A - arm on the KKW Titan; he retired two laps later. The incident allowed Gleason and Pugh to pull out a small gap on Blackwood, Kastner, and Loft.

Back in front, Bob Earl was still well in command, but the ADF's handling had begun to suffer. Earl eased right



off on the 19th and final lap to take the checker .2 second ahead of Gleason and Pugh; ADF designer David Bruns and Jules Williams and Paul White of Automotive Developments were all smiles.

Gleason was a lucky second for his Titan ran out of gas on the cool-off lap. Pugh's excellent third left the Crossle camp in good spirits. Marty Loft bounced back to lead Kastner and Blackwood over the line in fourth place.



dropped to 11th place. Peter Moody held off Dan Torpy and Rick Houston for eighth, the latter driver never showing his practice form. John Stiles turned in a fine performance after his first lap mishap, slicing his way through the field to take 12th.

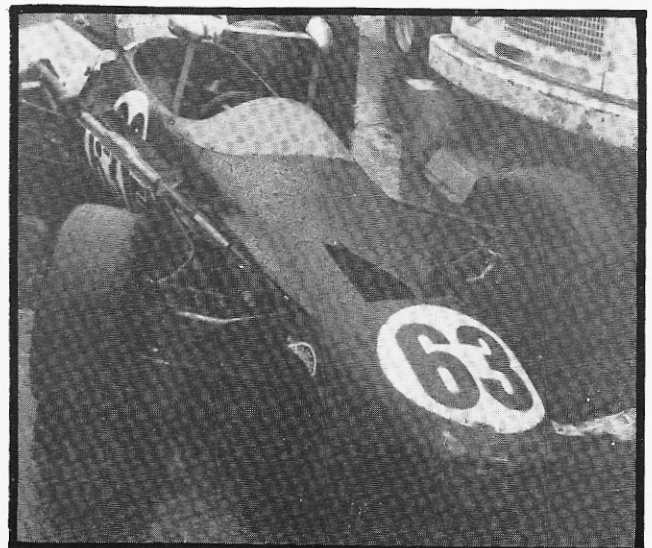
Dick Ferguson and George Sabin had drawn away from their pursuers while tossing seventh back and forth. Sabin wrapped it up after Ferguson spun on the final lap and

RESULTS - CSPRRC F FORD

19 laps - 47.5 miles

1. Bob Earl / Sonoma, Calif., Automotive Developments ADF 30m 15.98s (95.01 mph) record
2. Chris Gleason / Johnstown, Pa., Keystone Auto Products Titan MK 6C
3. Bill Pugh / Lafayette, Calif., Pacific Crossle 25F
4. Marty Loft / Tacoma, Wash., Oly Beer / Import Auto Titan MK 6
5. Johnny Kastner / Rosamond, Calif., JRRDS Merlyn MK24
6. Bob Blackwood / Sausalito, Calif., Blackwood Winkelmann WDF 2
7. George Sabin / Portland, Ore., Olympia Brewing Titan MK 6
8. Peter Moody / Woodbury, Conn., Drawn Metal Tube Titan MK 6C
9. Dan Torpy / Adelphi, Md., Spectrum Lola T200
10. Rick Houston / Houston, Tex., Butch Harris Merlyn MK 20A
11. Dick Ferguson / Los Angeles, Calif., Ferguson Lola T200
12. John Stiles / Houston, Tex., Racing Services Lola T340
13. George Stefanec / Joliet, Ill., Stefanec Crossle 25F
14. Dick Schmer / Ft. Collins, Colo., Woodrube Royale RP16
15. Bill Aslup / Woodstock, Vt., Heron Poma / Fulbore Oil Caldwell D9
16. Dave Weitzenhoff / Akron, O., Jim Harrell Zink
17. Shelly Dobkin / Miami, Fla., Dobkin Royale RP16
18. Tim Cooper / Lake Lotawana, Mo., Rutledge Oil Merlyn MK 20A
19. Vince Muzzin / Northville, Mich., Muzzin Crossle 25F
20. Bob Ferstl / LaPorte, Tex., Racing Services Titan MK6
21. Mike McFarland / Watertown, Wisc., Walter McFarland Elden
22. Louis Lingo / Pembroke Pines, Fla., Competition Racing Titan MK 6C

Fastest lap - Pugh - Lap 8 - IM 34.16s (96.42 mph).



Formula Vee

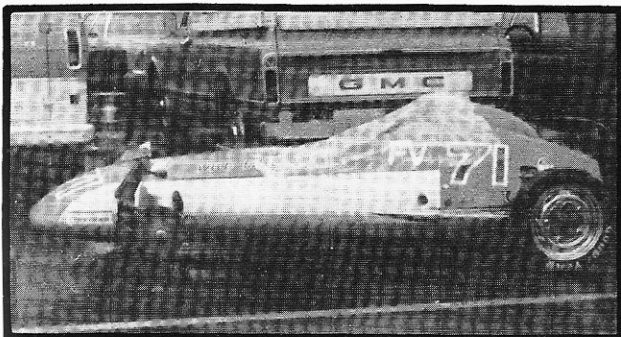
The F/Vee race was typical. Great bunches of cars drafting and slingshotting each other at every corner. There were a couple of unfortunate accidents but, thankfully, driver injury was slight. The car that took the checker first had led all the way comfortably and scored a convincing victory. Until the post-race teardown.

A total of 19 cars assembled on the pre-grid and at the head was 64 year old Harvey Templeton's Shadowfax. His time of IM 44.24s was considerably quicker than the other front row starter, Harold MacDonald's Lynx at IM 45.20s. Behind them, it was fantastically close. Fred Stout's Lynx recorded IM 45.25s ahead of Rollin Butler's Zink and Reeves Callaway's Caldwell, both of whom did IM 45.27s. At .02 second intervals came Larry Wood's Lynx and Bob Klingler's Kwic. Dennis Ura, also Lynx-mounted, was eighth on the grid at IM 45.45s and .1 second ahead of Bob Lazier's Zink.

Kip Laughlin's Zink was timed at IM 45.79s, followed by Lynx driver Bob Cornish at IM 45.81s. Dave Washburn just failed to break in the 45s, recording IM 46.03s in his Zink. Bill Noble's Lynx was close behind at IM 46.07s. The Zinks of Bob Haynes and David Voss were next at IM 46.22s and IM 46.60s, respectively. 17th was Bob Cunningham's Autodynamics, timed at IM 46.86s, while bringing up the rear was Bill Kindred's Zink (IM 47.36s), Dave Webb's Ventura (IM 48.17s), and Bill Robinson's Bandido (IM 52.68s).

The field was closely packed when the green fell and they remained in that state up to the first turn where disaster struck. Dennis Ura was forced into another car and his Lynx reared into the air and cartwheeled eight or nine times on the track; the driver escaped with a severe shaking. Cornish's Lynx suffered body damage in the accident and retired after one lap.

By the time the field returned to the scene, the corner workers had manhandled the wreckage to the inside of the track although the yellow was still flying. Reeves Callaway had made a brilliant start to take the lead at the first corner and was still leading after one lap from Templeton, Klingler, Butler, MacDonald, Stout, Haynes, Wood, Lazier, and the rest.



Almost everyone passed the accident at reduced speed and with arms in the air; Callaway didn't lift off as much as the others and consequently, broke away into a two-second lead after two laps. This was extended to four seconds after five laps; by that time, the field had begun to break down in various warring groups. The first was composed of Templeton, Butler, Klingler, Haynes, Wood, and Lazier although the order was rarely the same elsewhere on the circuit. Fred Stout had been a contender but he parked his Lynx with a blown engine at turn 5 on the fourth lap.

On the sixth lap, Bob Klingler's Kwic plunged off course at turn 11 and hit the barrier at a frightening speed. Metal cutters were needed before the driver could be removed from the car; fortunately, his injuries were restricted to leg bruises.

Callaway remained untouchable for the rest of the 17 laps and took the checker with five seconds in hand. Actually, the Caldwell was ailing; during the race, the fan belt flew off in turn 1 and the car was overheating badly at the finish.

The battle for second was a sizzler; in 17 trips over the line, Templeton led on eight occasions, Butler six times, Wood twice, and Lazier once. Butler took the final verdict with Wood, Lazier, Templeton and Haynes in line astern.

Seventh finally went to Kip Laughlin after a race-long scrap with MacDonald and Voss. Cunningham outfoxed Webb on the last lap for tenth while Bill Noble had the measure of Washburn for 12th. Bill Robinson's ailing Bandido was the final finisher, Kindred's Zink retiring on the last lap.

Then came the post-race teardown. Everyone received a clean bill of health --- except Callaway. The Caldwell was discovered to have oversized intake parts and altered combustion chambers and was disqualified, handing the the victory to Butler.

RESULTS ---- CSPRRC F/V 17 LAPS ---- 42.5 MILES

1. Rollin Butler / Greenville, S. C. , Simoniz Zink
30m 21.0s (85.04 mph)
2. Larry Wood / Columbus, O., Repro Group Lynx
3. Bob Lazier / Vail, Colo., Tivoli Lodge Zink
4. Harvey Templeton / Winchester, Tenn., Templeton Shadowfax
5. Bob Haynes / Columbia, S. C. , C. W. Haynes Zink
6. Kip Laughlin / McLean, Va., Upar Zink
7. Harold MacDonald / Southfield, Mich., Mazuro Motors Lynx
8. David Voss / Richardson, Tex., Voss Zink
9. Bob Cunningham / Northboro, Mass., Tobo Autodynamics
10. Dave Webb / Clearwater, Fla., Kendall Oil Ventura
11. Bill Noble / Manhattan, Kans., Noble Auto Works Lynx
12. David Washburn / Wheatridge, Colo., Trailerland Zink
13. Bill Robinson / Crestline, Cal., Bandido



Gold Rush Series

The West Coast's attempt to produce a professional series seemed to be quite successful. Running 6 races divided between 4 tracks, Seattle, Delta Park in Portland Oregon, and Laguna Seca and Sears Point in California. The series payed out \$6,922.74 in cash awards after all six races. Below are the top five finishers in each formula class.

FORMULA A

1. Bob Allen, Eagle, S. F.30 pts., \$ 51.83
2. Pete Lovely, Lotus, N. W.18 pts., 43.19
3. Merle Brennen, McLaren, Reno 9 pts., 34.55
4. Len Couneau, Surtees, CSCC 4 pts., 25.91
5. Don Infrerra, Lola, S. F. 3 pts., 17.28

FORMULA B

1. Gary Gove, Lotus, N. W.30 pts., \$105.51
2. Mike Fisher, March, Ore.24 pts., 87.92
3. Larry Walters, Brabham, N. W.21 pts., 70.34
3. Ron Southern, Brabham, S. F.15 pts., 52.75
5. Robert Hall, March, S. F. 9 pts., 52.75

FORMULA C

1. Michael Gilbert, Lotus, N. W.33 pts., \$ 46.28
2. Gary Goddard, Brabham, CSCC10 pts., 38.56
3. Les Hill, Tecno, S. D. 9 pts., 26.99
3. Doug Turner, Chevron, CSCC 9 pts., 26.99
4. Mitch Conley, Lotus, Ore., 6 pts., 15.43

FORMULA FORD

1. Marty Loft, Titan MK-6, N. W.34 pts., \$379.46
2. Bob Blackwood, Winkelmann, S. F.22 pts., 316.20
3. William Pugh, Dulaon, S. F.21 pts., 252.97
4. George Sabin, Titan, Ore.15 pts., 189.73
5. Dennis Firestone, Titan, CSCC10 pts., 126.49

FORMULA SUPER VEE

1. Stephen Griswold, Tui 29, S. F.15 pts., \$ 67.87
1. Tom Gloy, Lola, S. F.15 pts., 67.87
1. Dick Cooney, Tui, CSCC 15 pts., 67.87
4. Robert Boyd, Lola, Ore. 14 pts., 40.72
5. Dick Zibert, Lola, S. F. 13 pts., 27.15

FORMULA VEE

1. Bob Klingler, KWIC, S. F.35 pts., \$190.65
2. Robert Cornish, Lynx, S. F.28 pts., 142.99
2. Dick Renard, Fox, S. F.28 pts., 142.99
4. Larry Wilson, S. F.15 pts., 95.33
5. Jerry Anderson, Zink, Ore.11 pts., 63.55

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There have been 11 Pro Formula 'B' races in the U.S. Canada and Venezuela in 1973. 10 have been won by Brabhams. WE ARE THE U.S. IMPORTER FOR BRABHAM RACE CARS

10 of thr 11 Pro Formula 'B' races were won using Brian Hart Motors. WE ARE THE U.S. IMPORTERS FOR BRIAN HART

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Looking back on our first season in the very competitive world of Formula 1, we find that "learning by doing" is a slow, but essential, ingredient in the formula for progress and eventual success.

Since many of you may not be aware of the nitty-gritty details, let's take a quick glance back at 1973 for the UOP Shadow.

Since new kids on the block are not readily accepted, one of the first problems we encountered was one of having to ship our cars to South America without the benefit of support from the Constructors Association. Skip South America and test at Paul Ricard. On the way to South Africa the plane develops engine problems, and the cars arrive several days late for the planned testing sessions. Then the hot South African sun soaks into the black coachwork and softens it up enough to cause Oliver's car to shed its skin at speed. Tony Southgate (designer of the UOP Shadow) commented that we would have never learned this "in ten years of testing in Englandtoo bloody cold there". Next the great Cosworth vibration will cause the engine mountings to pull loose

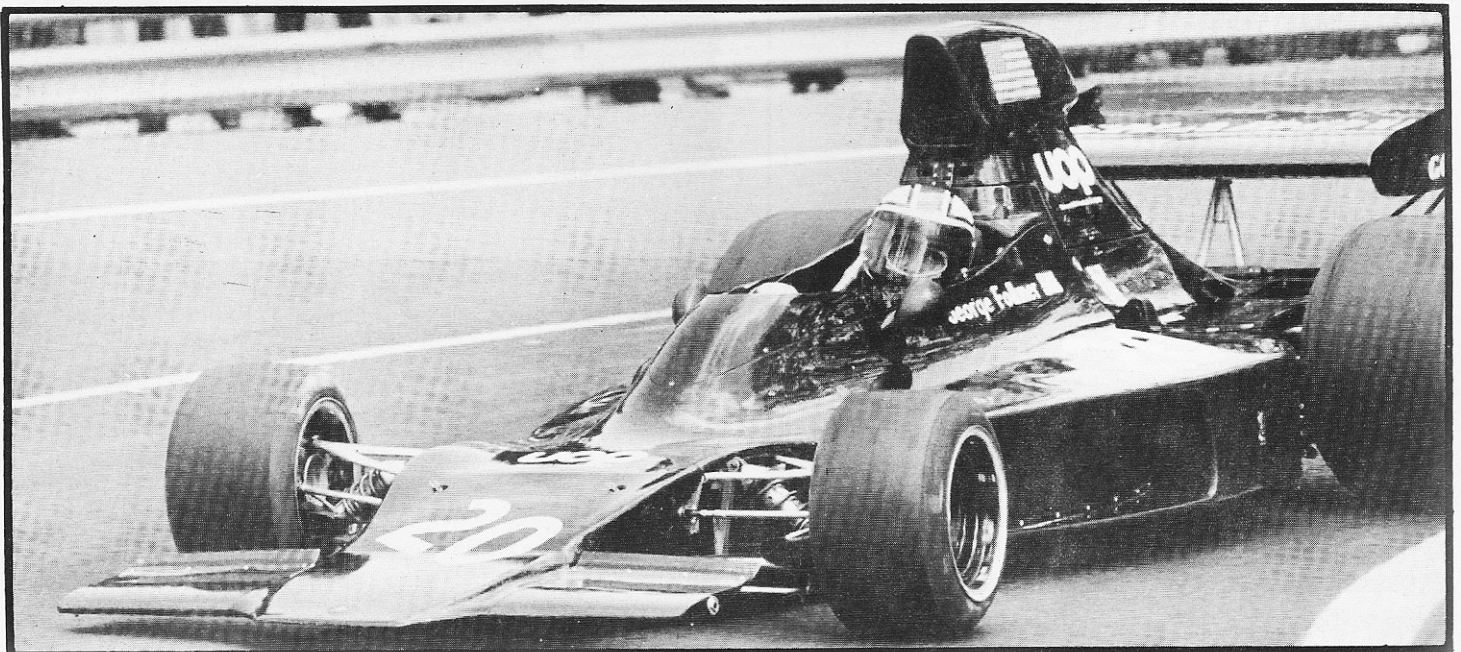
from the bulkhead and the instruments to vibrate to bits. After reinforcement of both cars, George Follmer finishes 6th in the first race for both the car and the driver, to earn one well deserved point in the standings. George ran sixth again in a snowstorm at the non-championship race at Silverstone, and then a strong third at Spain, while "Pitty Patty" won on a flat tire and Peterson's gear box packed up. At Belgium, Jackie got involved in the Formula 1 "junkyard" that was to account for five or six cars on the outside of one turn alone! This crash began a long string of totaled and damaged cars that really set us back with having to build new cars just to make the next race, let alone find time to test. At Monaco, Merzario helped George write off his car in the last five minutes of Saturday qualifying, and at Sweden a brake fitting failed on George's car, sending him into a catch fence and a post that had not been sawed half through as it should have been. At the British GP, George got caught up in the Sheckter aftermath, and Jackie hit Lauda on the start. The Italian GP marked the first time that both cars finished, and the Canadian was a real highlight in our first season, as both qualified well and Jackie drove an inspired race (the first time a UOP Shadow had seen "P1" on the pit board) to lead the race and finish a close third behind Fittipaldi.

A final 1973 season recount shows the UOP team with two thirds, two sixths, one eighth and three tenths.

1974. Good news for the UOP team and American racing fans alike, as Peter Revson has signed as "number one" for the '74 FI season. The personable Revson brings experience, dedication and talent to the UOP effort. The second driver has not been named as of this writing.

The '74 Shadow will be finished by the time this story is in print. The Tony Southgate designed car is all new but similar in appearance to and evolved from refinements

(continued on page 19)



1974 Formula Car Preview

Energy crises or not, 1974 promises to be an interesting year for formula cars. The following is a brief report on what is new for the coming year. We will have more news and more photos in next month's issue, as well as any further details of planned changes.

Formula Fords

TITAN -- Titan introduces the long awaited and overdue MK 8. The body is a wedge shape having side radiators. Front uprights are now fabricated instead of the old Triumph forgings. The car has a slightly shorter wheelbase (approx. 90 inches) and wider track front and rear. Brakes are outboard front and inboard rear. The car is totally new -- not just an update of the MK 6 series. Testing is presently underway in England.

ELDEN -- The proven MK 10 has been upgraded for 1974. Changes include side radiators, a new wedge nose and new back panel. Larger oil coolers are now fitted as standard. Springs and sway bar rates have been changed to make the car better suited to the American racing tires. Special suspension pick-up are standard for the American cars.

LOLA -- The T-340 arrived very late in 1973 and is essentially a '74 car. Changes should be minor and include better cooling.

ROYALE -- The RP-16A is essentially unchanged. The rear suspension has been altered slightly for a lower ride height.

MERLYN -- The 1974 MK 25 Merlyn features fabricated front uprights with full floating axles. The calipers have been changed to the ultra light Lockheed type that Hawke and Lola have been using. The nose is of the shovel type and the back panel has been changed. Merlyn continues to refine its basically excellent and proven car.

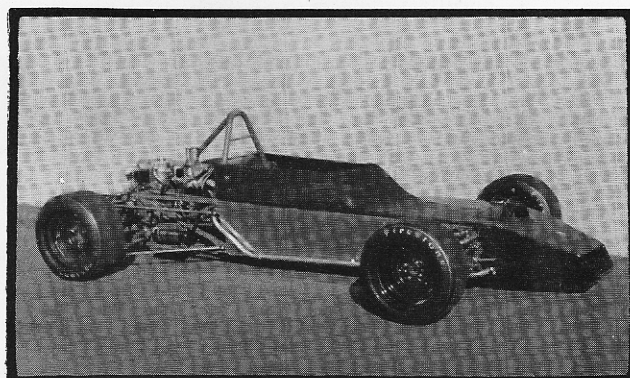
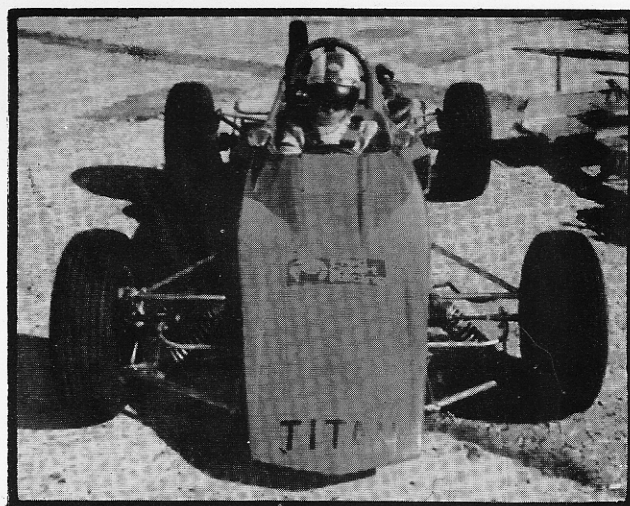
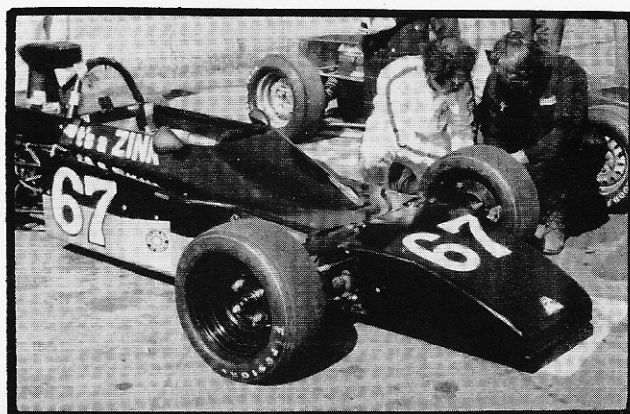
HAWKE -- The DL11 may be the surprise of the year. It is a front radiator design with sheet aluminum sides a la Lola. The calipers are light weight Lockheed and the uprights are fabricated front and rear. The DL 11 has been exceptional in England, having won six races over the last six weeks, indicating the new model is well sorted.

CROSSLE -- With a new car for 1973 few changes are expected on the new Crossle.

ZINK -- The CSPRRC (ARRC) saw the introduction of the new Zink F/F. It features side radiators and inboard front suspension. Unique to the F/F scene, this car is offered in kit form.

ADF -- The CSPRRC winner in F/F was the Automotive Development Car design and built by Dave Bruns. This car is available in limited quantity to those very well heeled. It features everything you need to win a Grand Prix. We will run a special story on this car in next month's issue.

CORSA -- A totally new car being produced in Southern California, it is expected to be tested soon with production starting January 1. The car is quite exciting featuring a body designed by the J. P. L. laboratory.



ELFIN -- The Australian entry in the Ford market, the Elfin type 620, is the same as 1973 type 620 with the exception of utilizing the Webster gearbox in lieu of Hewland. The car has side radiators and wedge nose.

MRE -- VAN DIEMEN -- BOWIN -- DULON -- at press time we have no news on the '74 models of these cars. We will try to have information by next issue.

Formula Super Vee

LOLA -- The changes to the Lola are expected to be minimal with the main efforts going toward revised suspension geometry reportedly based on the test program undertaken on the formula Ford. Eight inch rear wheels are now used.

TUI -- The '74 Supernova TUI will feature a wider and lower monocoque. Eight inch wheels will be standard on the rear. TUI continues to be the only S/V with inboard rear discs.

ELDEN -- Perhaps the most interesting Super Vee for 1974 will be the all new Monocoque Elden. This car has a Falconer design low drag, high down force body. Side air cooling ducts are integrated into the back panel.

ROYALE -- Minor changes are expected for '74.

Formula B

MARCH -- The 74B is very similar to the 1973 Model except that a substantial price increase is expected. The changes in appearance are mostly in the nose piece.


BRABHAM -- At the time of this writing it is uncertain whether Brabham will produce a car applicable to F/B. If they do it will most likely be a front radiator version of the BT-40.

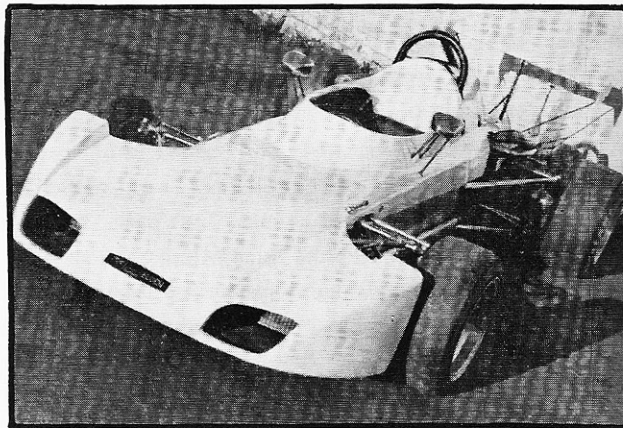
CHEVRON -- A new car is planned, but at this time we have no details.


ELDEN -- The MK 12 B is an interesting new comer to this class. It sports a very clean Falconer body shell. The chassis is monocoque based on Elden's successful F-3 efforts. Wheelbase is 88" and the design features twin radiators with the air exiting to the front suspension.

GRD -- We have no news on the '74 plan for this constructor.

ROYALE -- Royale enters the F/B constructors club with the RP20. This design draws heavily on their F-S-V experience but with major changes.

LOLA -- Lola's entry in F/B (Type 3260) looks very similar to their F/S/V with the exception of the rear wing instead on the S/V back panel. The car has side radiators and should win an award for looks. Alan Smith's BDA is the engine fitted as standard. 






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American Formula Fords

Since the beginning of Formula Ford in the U.S., only one major effort to produce a competitive chassis and sell it has been attempted. This, of course, was the Caldwell D-9. There were other American Fords, but only Caldwell's record of sales and race wins, including the ARRC, qualifies it's mention. There was a recent attempt to revive the Caldwell name in Formula Ford with a new car, but this was shelved when the economic realities were taken into consideration.

Every so often bench racers come to the agreement that the time is near for serious production of an American Ford. They argue that the technology is here in the U. S., the materials of the best quality are here in the U. S., and with the never ending price increases coming from the English manufacturers, that the time is here to be cost competitive.

Well, the time is here for some serious challenges to the English, but as many people really knew all along, an equal chassis costs a lot more to produce in the U. S.

The three leading American challengers are the Automotive Development ADF, the Zink Z10, and the Corsa.

First, the ADF is the product of designer David Bruns' three year program. Bruns' first FF, which was unnamed, was a wedge shaped, side radiator car with inboard rear brakes. The car was very slippery on the straights and proved to be competitive after some sorting, only to be destroyed in an accident at Phoenix. The ADF is Bruns' second effort, built with the aid of Automotive Development, a Southern California FF engine builder. The ADF ran its first race in November -- the ARRC (sorry CSPRRRC) and won! In fact it qualified on the pole and led every lap, winning by a car length. They should quickly prove that the talent and technology is here in the U. S. The ADF features much gimmickery, including inboard front brakes and suspension, rising rate front suspension, a stressed engine, and chrome moly frame, not to mention every type of expensive washer, rod end, hose, etc., that has ever been produced. The results is a rather spectacular price tag. At the time of this writing a complete car with mag wheels will sell for over \$10,000, and a rolling chassis for over \$8,000. This is effectively a 60% surcharge for a competitive Ford made in the U. S.

The second American Ford also debuting at the ARRC was the Zink. The Zink features side radiators, inboard front springs and shocks and inboard rear brakes. The Zink performance was average at the ARRC, but this is a premature judgement of the merits of the car, as all new cars need some degree of sorting. The Zink is less expensive than the ADF and is offered in kit form which should appeal to quite a lot of the low budget racers. Zinks

previous efforts in FV and FSV, including Harry Ingles' ARRC win in the sister car to the Ford, make the production and ultimate success of the car assured.

The third American FF is the Corsa. The Corsa is the product of Hank Paronelli who is long on race car and aircraft experience, having built Formula 1 racing airplanes and having a long involvement in USAC racing, not to mention experience in Formula Ford itself with another car.

The Corsa sports side mounted radiators, chrome moly frame, and American manufactured parts. The Corsa prototype is complete and testing has begun. Once again the tab for the American flag is high. In this case the estimated price for a complete Corsa is expected to be around \$9,000.

In summary, the day of the American made Formula Ford is here, but unfortunately the American price tag comes with it. Any of the above three cars may prove to be extremely competitive in a number of different drivers hands, but until the price drops or the English prices take a dramatic jump, the majority of the Formula Fords racing in the U. S. will be English built for quite a few more years. ☞



The ADF, made by Automotive Development in Orange, California.



The Zink Z10, made by Zink Manufacturing in Charlotte, N. C.

Riverside Super Vee

By Ed Pitz

In a superb Gold Cup finale, Bob Lazier drove his Bill Scott Royale to his second victory of the season at Riverside on October 28. Elliot Forbes - Robinson's Far West Lola moved up from a low grid position to battle with Lazier for most of the race but the La Crescenta driver's chances of a hat-trick failed by a car-length. Sweden's Bertil Roos finished third in his Fred Opert Tui and clinched the championship. His closest challenger, Harry Ingle, placed fourth at the wheel of the Heppenstall Royale followed by Fred Phillips' Tui and Bob Williams' Maka Lola.

ENTRY

The Tui marque held the advantage in terms of numbers, being represented by 16 of the 38 entries. Fred Opert entered BH3s for Bert Everett. Bertil Roos, Hector Rebaque, Fred Van Bueren, and Michel Jordain, the last-named taking the seat vacated by Dave MacMillan. Englishmen John Morrison and Toby St. George Matthews ran under M & S International while Tom Reddy showed up with his Montgomery VW - sponsored machine. More BH3s were fielded for Dick Cooney, John Benton, Dennis Roberts, and Bill Collins under the Pacific Formula banner. AM29s were driven by Don Schoeny, Steve Griswold (Cronus Racing) and Higgs Murphy (Sandalwood / Arden for Men). Returning from the European front, Fred Phillips and his BH3 rejoined the series before dashing off to the ARRC the following weekend.

Spearheading the Royale attack was the Heppenstall RP14 for Harry Ingle who was hoping to erase Bertil Roos' eightpoint lead. Bill Scott Racing entered RP14s for Bob Lazier and Dick Schmer and an RP18 for Richard Melville. Sweden's Venerth Persson drove the Frank Maka RP14 sponsored by Bosch and FVee ace Bill Robinson ran the Aries Racing RP9.

Lolas were also in abundance. Frank Maka, Wink Bancroft, and Bob Williams drove T320s entered by Maka Racing with similar machines in the hands of Dennis Blackwell, Ed Wachs, and Alan Turner. Last year's T252 chassis is still a competitive proposition and there were five of them present for Elliot Forbes-Robinson (Far West Racing), Dick Renard (Cronus Racing), Benny Scott (Leonard Miller), Howdy Holmes (Sun Racing), and Jerry Demele.

The entry was completed by Tom Evans' LeGrand (Lavia Porsche), Bruno Bielcke's Fuchs, Carter Penley's

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Hawke DL8 (California Design), Tom Wootton's RCA-Venture, and Pete Pittman's Aardvark.

QUALIFYING

Two hours of practice and qualifying were allocated to the Super Vees on Friday afternoon. As expected, the times were incredibly close but only for the lower 37 places. Bob Lazier's Bill Scott Royale put a stranglehold on the pole by turning IM 27.474s (104.537 mph) which was considerably faster than runner-up Fred Phillips' IM 28.329s. Harry Ingle led the second row at IM 28.390s but was not satisfied with his engine's performance on Saturday, the Heppenstall team added an engine teardown to their check list.

Alan Turner's Lola was fourth fastest at IM 28.423s, but finished qualifying with a mangled front end, the legacy of a confrontation with the turn 6 wall. Bob Williams suffered engine trouble but not before he set IM 28.565s in his Maka Royale. Benny Scott put the Len Miller Lola into sixth at IM 28.674s ahead of Frank Maka-Lola (IM 28.794s), Tom Reddy's Montgomery Tui (IM 28.980s), and Bert Everett's Opert Tui (IM 28.999s).

Eight cars broke into the 29s bracket led by Dick Cooney's Pacific Formula Tui at IM 29.012s. At the back of this group came a surprise in the form of Elliot Forbes-Robinson; the Far West Lola got down to IM 29.518s in three laps before the ring and pinion broke. Bertil Roos suffered similar misfortunes, his Tui breaking an engine early on and leaving him 21st on the grid.

RACE

Everyone was present for Sunday morning's half-hour warmup and, sure enough, Forbes-Robinson was turning pole-winning times. Lazier and Reddy also got into the 27s. The bookies gave Lazier the best odds, on the assumption that he would break away from the pack before Forbes-Robinson could get within reach; there were few souls ready to predict anything else.

Lazier led the opening laps but could attain about a second's advantage on the long chain of cars behind him. Phillips, Ingle, and Reddy took turns in second place while Forbes-Robinson worked his way toward the front, the Far West Lola taking fourth at the expense of Phillips on the fifth lap. A lap later, E.F.R. displaced Ingle for second, Reddy having ended his race with a wild spin at turn 7A. At this stage, Roos' flying Tui was up to tenth and gaining two positions on each lap.

Retirements were coming thick and fast. Richard Melville lost his Royale's nose in a first-lap incident. John Benton's Tui was sidelined with a broken shock mount. Carter Penley's Hawke broke an oil line and spun on its own lubricant. Dave McMillan's Tui broke its distributor

cap while engine problems eliminated Bruno Bielcke's Fuchs and Jerry Demele's Lola.

Forbes-Robinson led for the first time on the tenth round but lost it to Lazier on the following lap; the Bill Scott Royale appeared to have a horsepower advantage and led past the pits most of the time. Ingle, Phillips, and Turner enjoyed a good battle for third before Turner did a nonsense at turn 7 and dropped out of the top ten; thereafter, Ingle held the advantage, Albeit a slight one, over Phillips.

Not everyone was running trouble-free. Frank Maka's Lola never ran properly and a couple of pit stops dropped him to the back of the field along with Howdy Holmes whose Lola was hampered by a slipping clutch. The yellow came out on lap 14 when Ed Wachs' Lola broke its suspension and plowed into the turn 6 well. On the same lap, Dick Cooney's Pacific Formula Tui, running tenth, lost its oil pressure and coasted into the pits to retire.

The battle for the lead never ceased for a moment, Forbes-Robinson constantly worrying at Lazier's flanks. On the two penultimate laps, the Lola led by a nose, but Lazier had it timed perfectly and took the checker with Forbes-Robinson about a foot behind the Royale's gearbox. The California driver had some consolation with a new lap record of IM 27.174s (104.983 mps).

By the 15th lap, Roos' terrific drive had carried him to fifth ahead of a great carve-up between the Lolas of Benny Scott and Bob Williams and the Opert TuIs of Bert Everett and Fred Van Bueren. Having started 24th, Wink Bancroft had advanced to tenth and was busy fighting off the TuIs on John Morrison and Steve Griswold and a recovering Alan Turner.

Bob Williams' Maka Lola finally took command of the sixth place dice and pulled out a couple of seconds on Fred Van Bueren. Bert Everett outdragged Benny Scott in the race for ninth spot while Morrison ousted Bancroft

The battle for third place honors went to Roos, the Swede overhauling Ingle and Phillips with three laps remaining. Roos also took the championship title by a slender 10 point margin from the Heppenstall driver. Fred Phillips finished some distance back in fifth after suffering backmarker trouble in the closing stages.

RESULTS--RIVERSIDE GOLD CUP FOR SUPER VEES Oct. 28, 1973 --- 25 laps (63.50 miles)

1. Bob Lazier / Vail, Colorado, Bill Scott Royale RP14
36m 52.522s (103.60 mph)
2. Elliott Forbes-Robinson / La Crescenta, Calif.,
Far West Lola T252
3. Bertil Roos / Gotenburg, Sweden, Fred Opert Supernova
Tui BH3
4. Harry Ingle / Charlotte, N. C. , Heppenstall Royale RP14

Bolts, Nuts, & Washers

(The author is a graduate of UCLA School of Engineering and is presently a mechanical design engineer with Western Gear Corporation.)

To intelligently select bolts, a simple discussion of stress in bolts would be useful. Stress is defined as the force exerted per unit area. The most common unit of stress is pounds per square inch (psi). The modes of stress generally encountered in structural bolts are tensile (see Figure 1 A), single shear (see Figure 1 B), and double shear (see Figure 1 C). Tensile and shear stress can also occur simultaneously. Ultimate tensile stress (UTS), the stress required to break a material in tension, is the quantity which indicates the strength of a material, hence for our case, bolt strength. Shear strength of most metals

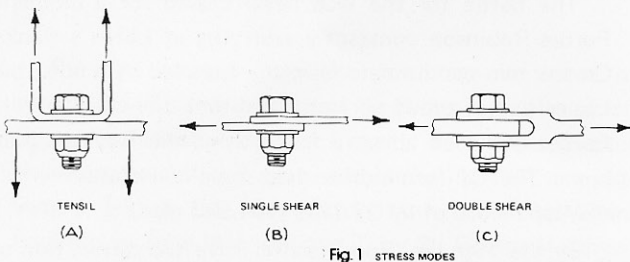


Fig. 1 STRESS MODES

is 55% of the UTS. All this reduces to this. A 3/8 inch diameter bolt, which has a cross-sectional area of .1105 sq. in., made of a material with 100,000 psi UTS, can withstand a tensile load of 11,050 lbs. (.1105 sq. in. x 100,000 psi), a single shear load of 6077 lbs. (.1105 sq. in. x 100,000 psi x .55), and a double shear load of 12,154 lbs. (6077 x 2). By referring to Figure 2, the UTS of various fasteners of race car quality can be obtained.

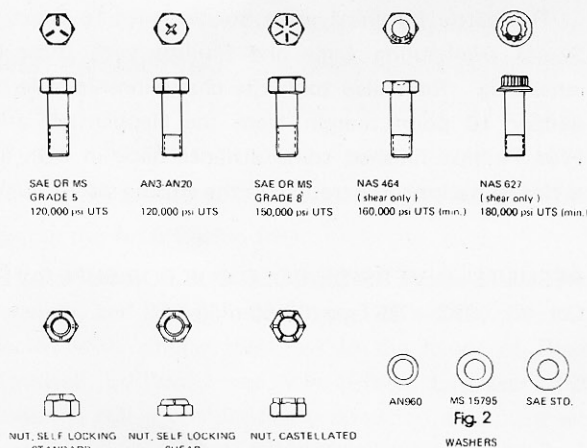


Fig. 2

The least expensive method of obtaining high quality fasteners is through the local aircraft hardware surplus store. Since most of these places have little or no organization, one must learn to recognize the items


required. Although it is simpler to purchase hardware through retail channels, such as aircraft supply, the larger hardware stores, etc., retail prices can be as much as ten times surplus prices! So if you decide to rummage through the surplus stores, study Figure 2 carefully. By including the socket head capscrew (allen head) to Figure 2, it is unlikely that you will require many additional removable fasteners. Nuts and washers are not generally identified as clearly as bolts, i.e. no markings. Nonetheless, they can be easily recognized if one knows what to look for.

Almost all the nylon insert type self-locking steel nuts are of adequate strength for our requirements, if one does not mis-use shear nuts. Similarly, washer quality is easily determined visually and AN960 washers, the most desirable type to use because of weight, can be recognized by the apparent small outside diameter. For instance, a 3/8 in. I. D. AN 960 washer has an O. D. of 1/2 in., whereas an SEA washer of 3/8 in. I. D. has an O. D. of 3/4 in. (See Figure 2).

Rules of thumb for bolt, nut and washer selection follow. Use only bolts which can be identified. The exception is the socket head capscrew, which can be interchanged with Grade 5 or AN3-AN20 bolts. Use fine thread bolts (UNF series) and nuts in bolt and nut assemblies. These give more consistent torque characteristics and are less prone to vibration loosening. When tapping holes, try to use coarse thread bolts. Tapping coarse threads is easier, and the thread forms are more consistent and stronger than poorly tapped fine thread holes. Only use shear bolts and nuts in pure shear applications. When using self-locking nuts, only use the type with nylon inserts. Other types destroy threads. Use high strength bolts only where necessary. One reason is cost. Another is that high strength bolts will break without bending very much. So in some instances, where you might prefer the bolt to bend prior to or instead of breaking, such as in suspension pick-ups, use Grade 5 or AN3-AN20 bolts. If in these instances additional strength is required, increase bolt diameter. 95% of all bolt requirements can be satisfied by Grade 5, AN3-AN20, or socket head capscrews. Use a torque wrench to tighten wheel lug bolts, with the following values as a guide: 3/8 dia. lugs-40 to 45 ft.-lb., 7/16 dia. lugs-55 to 60 ft.-lb., 1/2 dia. lugs 70 to 80 ft.-lb. Besides minimizing the chance of loosening lugs, equal torquing of lugs will help prevent cracking of the wheel hub, especially for mags. Use Lock-Tite for bolts in tapped holes and lockwire if practical. The exception is for high temperature applications such as exhaust systems. Use at least a lockwasher and try to use lockwire. Finally, don't trust self-locking nuts on critical places, such as suspension points. Check and tighten prior to each outing. An alternative is to use lockwire or cotter pins.

Shadow Story (continued from page 12)

on the '73 car. The new car will feature an all new monocoque with a longer wheelbase, the driver in a more forward position, a narrower more sleek profile and numerous mechanical improvements and innovations.

With a year's experience behind the team, the addition of Revson and a new car developed from the lessons learned last year, we are optimistic and looking forward to a great season for America's only Formula One team. 

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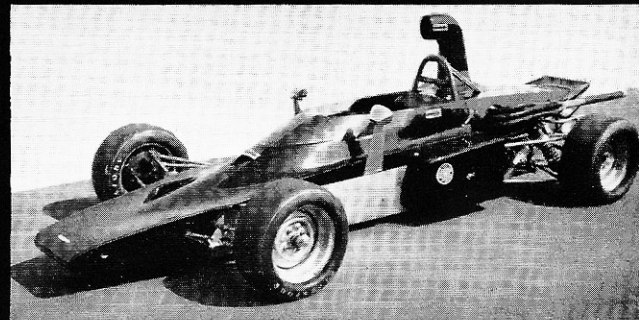
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Late News

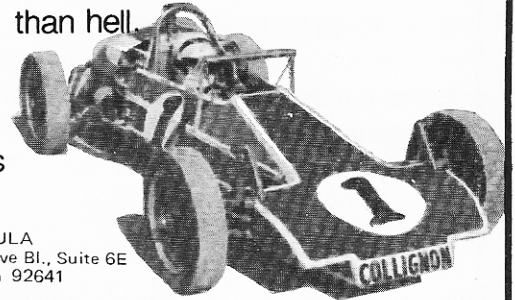
1. SCCAs Bob Tomilin and Tracy Bird have offered up their resignations.
2. Mark Donahue announced his retirement from active competition following the last Can-Am round at Riverside. He will continue on with the very successful Roger Penske organization as racing director.
3. Peter Revson has been signed by the Shadow F-1 team for 1974.
4. Sheckter and Depailler signed for the Tyrrell-Elf team for F-1 recently
5. J.P. Beltoise has signed for the third straight year at BRM for their F-1 effort.
6. Rikki von Opel will continue with the Ensign F-1 for at least two more years.
7. Graham Hill has written off the new Lola F-1 car in recent testing. Hill escaped uninjured and a new car will be ready for Argentina.
8. A rumor from BRM that Henri Pescarola will make his F-1 return.
9. The Hesketh Racing Organization will develop a new F-1 chassis and engine.
10. The British G.P. may be moved to the Aintree Circuit.
11. John Watson to campaign a F-1 works assisted Brabham sponsored by Hexagon.
12. Mike the bike Hailwood has left the Surtees team on friendly terms. Carlos Pace and Jochen Mass will drive in 1974.
13. Look for the new Trojan T102 from the drawing boards of Ron Tauranac in F-5000.
14. Graham McRae's GM-2 F-5000 wins New Zealand Pukekohe round of the local Gold Star Series.
15. Elf plans a 4 car F-2 attack for 1974. Drivers are J. P. Jabouille, Michel Leclere, Alain Serpaggi and Patrick Tambay.
16. Mike Wilds lands Dempster Developments March F-5000 for European rounds.
17. Bob Evans announced as the BP Superman of the year for his outstanding success in F5000 this year.
18. STP and BOC F/F series are both on for 1974
19. The new Hawke DL-11 is winning everywhere it goes in English F/F competition.
20. Derek Lawrence, winner Englands biggest F/F series and F/F year end festival was ruled a cheater and banned for 6 months for running a bent Titan motor with pickled block.



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The Elfin Story

Most American motorsport fans are familiar with ELFIN especially if they have kept up with reports on the Tasman in 1972 & 1973.

A small group of people in California became even more intimately aware of ELFIN Formula Ford driven by an Australian, Michael Hall, won on its first outing in the United States at a regional meeting on October 21st. 1973. Since then the car has been creating a lot of interest and so we decided to look a little closer at the ELFIN lineage.

The ELFIN marque has been competing in motor racing 'down-under' in Australia since 1958. The first ELFIN was a small sports racer featuring a multitubular space frame with stressed alloy undertray.

At this time most racing cars had to have been constructed by the well known European manufacturers, Ferrari, Cooper, Lotus etc' and it was a tremendous battle for owner Garrie Cooper to get acceptance for a racing car designed and constructed in Australia.

However by 1961 Garrie was able to produce his first fully fledged racing car - the FORMULA JUNIOR. The JUNIOR had a space frame chassis with a rear mounted Ford 105E engine driving through a four speed close ratio V W gearbox. Production versions were extremely successful and the highlight of this model came in 1962 when Frank Matich won the Australian Formula Junior championship in his ELFIN against Gavin Youl in the latest Brabham. It was the first national title won by an Australian produced racing car.

In 1964 work began on a replacement for the Formula Junior. It was to be a monocoque with many novel and unconventional features to compete in the 1500cc racing class introduced into Australia. This car was the subject of a comprehensive article in the American Road and Track magazine in 1964. The monocoque series was developed and refined through to 1967 and during this period won the coveted Lucas - Davison Series for the Formula 2 cars twice and was equal first with Max Stewart in the Australian Formula 2 Championship in 1967.

Between 1966 and 1968 the ELFIN Formula Vee was designed and produced. They were very successful in the hands of several drivers, and are now made under a licensing agreement and marketed as Malmark Elfins.

In 1968, with the valuable knowledge gained from testing and developing the mono Garrie Cooper designed a completely new car, the ELFIN 600 for practical reasons he decided on a space frame, the design of which was finalised after considerable testing for torsional rigidity with a full size chassis mock up. The suspension was

a big improvement over the mono through applying results of experiments carried out on the works mono and the Type 300 Sports car.

A new wedge-shaped body of clean lines helped driver comfort, which in turn helped considerably to boost the car's performance. And so the 600 was conceived. It proved to be extremely successful competitively and and commercially. It handled and braked extremely well and was much more forgiving than the mono.

In 1968 Garrie Cooper won the Singapore Grand Prix in a 600 and became the first resident Australian driver to win an international Grand Prix outside Australia and New Zealand. In 1968 and 1969 the 600B in Formula 2 form had tremendous success. It won the Australian Formula 2 Championship in 1968 and was the first Australian car home in the seventh round of the Tasman at Sandown Park. In 1969 the 600C was produced to accept the 830 series Repco 2.5 litre V8. In 1970 a new car with the Repco engine as a semi stressed member was built. It was still based the 600 concept but incorporating detail improvements and called the 600D.

In 1970 the 600B was improved in detail including a new shaped nose and also adapted for Formula Ford. ELFIN Formula Fords were used to win the Australian Formula Ford Championships in both 1970 and 1971 by Richard Knight and Larry Perkins. Both of these drivers are now in Europe running F 5000 and F 3.

The 600 Formula Ford was also exported to New Zealand in 1970 where one was raced most successfully by David Oxtan who won eight out of the nine races he entered.

In 1971 an ELFIN 600 E won the Australian Formula 2 Championship with driver Hank Woelders and at the end of that year the first F 5000 ELFIN was produced - the MR5. On its first outing in 1971 the MR5 finished a very creditable 3rd. in the hands of John Mc Cormack. By the end of 1971 the MR 5 had accumulated enough points to come second in the Australian F 5000 series and had also won the Victorian Road Racing Championship held at Phillip Island.

1972 saw the impact of the Ansett Elfin Team on F 5000 motor racing in Australia. The two works F 5000s driven by constructor, Garrie Cooper and John McCormack were sponsored by the Ansett Airline Company of Australia. This very successful combination of team and sponsor has continued its association to the present time as an all too rare example of how profitable a sponsor and team should be to each other.

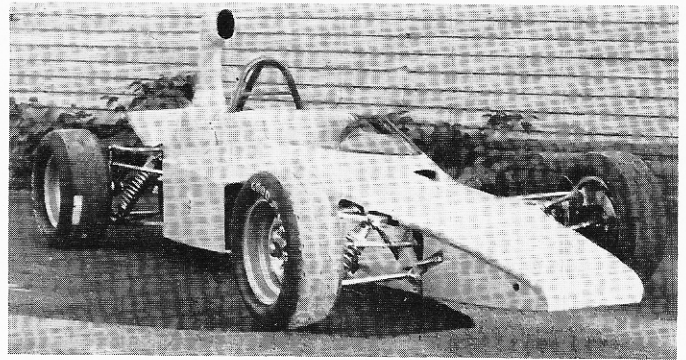
ELFINS were third in Australian F 5000 series and also third in the rich Repco Series held at Calder Motor Raceway.

January 1973 - an ELFIN won the first round of the Tasman at Pukekohe in New Zealand driven by John McCormack, in the process beating such notables as Graham McCrae who was then reigning L & M champion and Sam Posey. John McCormack went on to win the last round of the Tasman at Adelaide and so clinch 2nd place overall in the series.

Currently the ELFIN is leading the Australian F 5000 series and with one race left to go the odds are that an ELFIN will take the Australian title. In the construction stage at the moment are two new F 5000 cars which will be the prototypes for the 1974 model.

The 620 Formula Ford currently being driven by Michael Hall in California is the latest series of cars from ELFIN. It varies from the 600 series in the use of side mounted radiators, a deeper and more rigid chassis and other detail suspension changes. The design and construction of the 620 illustrates Garrie Cooper's concern for a functionally simple and durable car with ease of maintenance away from close technical or factory support.

Michael has come from Australia to co-ordinate the importing of ELFIN cars to the United States and is working in Southern California under the auspices of team owner Chuck Jones and fellow Australian Bob Muir. We at 'Formula' would like to wish them the best of luck and will bring you more of the 'Chuck Jones Racing' story next issue.



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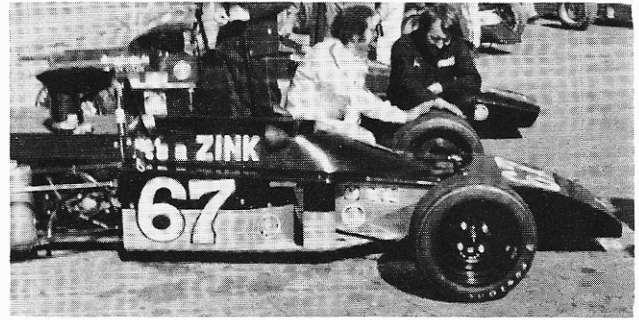
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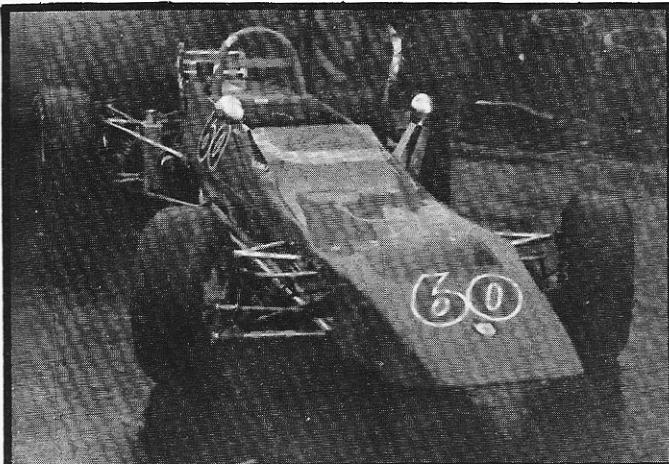


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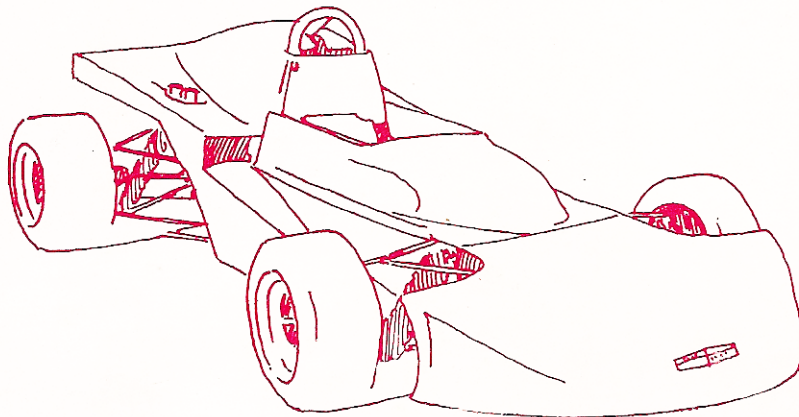
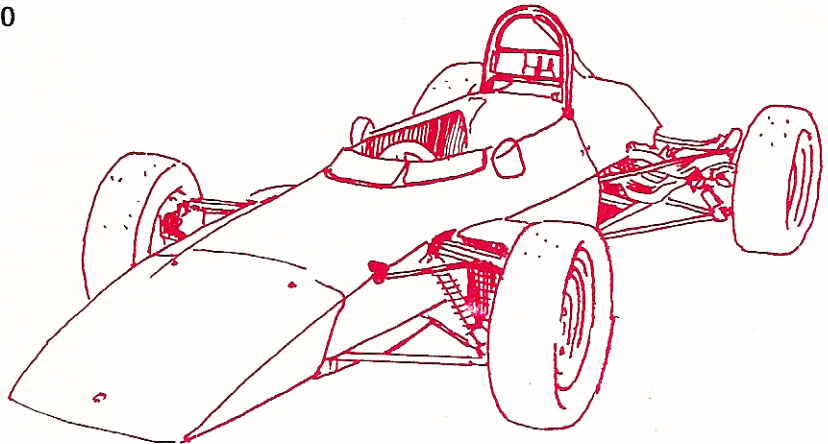
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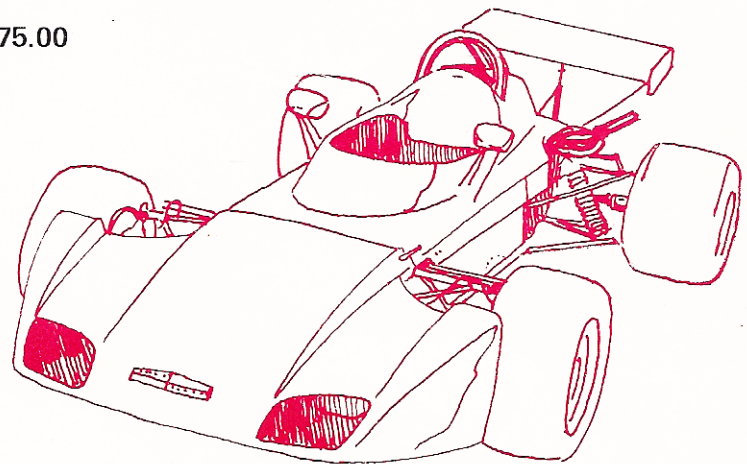
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