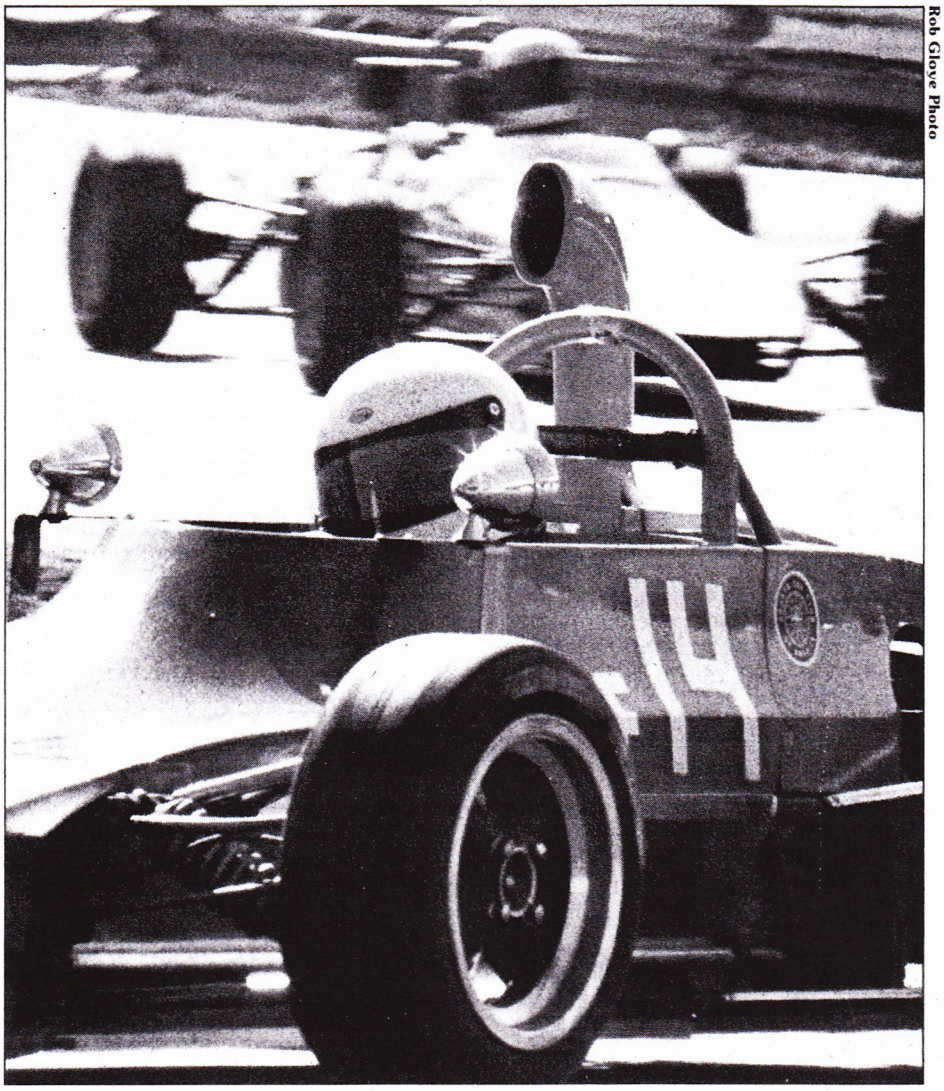
FORMULA FORD FIESTA

RACECAR Special Section



Rob Glove Photo

by Steve Nickless, Pete Lyons and the RACECAR Staff

It's been ten years since the first Formula Ford National in the United States was flagged off on March 23, 1969, at Willow Springs, CA. Legend and the record keeping department at the SCCA are about the only references to that historic event. At the time, the popular Cortina-powered single-seaters had raced in their native England for two seasons. They were already familiar in Austria and Belgium and were soon to debut in Australia, Canada, Denmark, Holland, Italy, Mexico, New Zealand and Sweden.

Growth of the ultra-popular class in the past decade has been explosive (today 20% of the road racing cars in North America are Formula Fords). To celebrate the tenth anniversary and show you how far FF racing has come, RACECAR brings you "Comparison Chart Mk. 2," an update of the nine-page section we ran in June, 1977. Our purpose is to provide some historical perspectives on the innovative designs, incestuous relationships and marketing successes (and failures) of the FF story as it has touched our shores.

Who Built What?

The Manufacturers

ADF
There was no officially designated ADF Mk1; that would have been the one-off prototype built at home by McDonnell-Douglas engineer David Bruns. It was merely need of an engine for it that brought Bruns to Paul White/Jules Williams' Taurus Racing in 1972, but their meeting resulted in the marketing of the most sophisticated and expensive FF ever. Automotive Development ceased production at 12 cars in early '78, then sold the project to Steve Anderson, who plans to continue the line from his La Mirada, CA, base.

ALEXIS
The first Alexis was a Formula Junior chassis built by Alec Francis and Bill Harris in 1964. Approached with the idea of an FF by Jim Russell in early '67, then-production manager Allan Taylor developed a prototype marketed as the "Russell-Alexis," of which 54 were sold that first year. The Birmingham, England, company exported the production models 14, 15 and 18 and continued to build cars into the 1976 season before closing its doors.

AVANTE
Avante, Inc. in North Hollywood, CA, announced plans to build an FF in September, 1972, but nothing more was heard.

BEACH
Gene Beach's Competition Components Inc. in Clearwater, FL, was a successful Formula Vee constructor which branched out to FF in 1969. Difficulties in competing with the price of the English cars halted the plan less than a year later despite success at the Runoffs.

BOBSY
Jerry Mong's Vanguard Automotive, founded in 1962, was another FV specialist at the time his 1969 FF was designed. Only four cars were built in his Medina, OH, workshops before he too found price competition impossible.

BRABHAM
Jack Brabham's Motor Racing Development never marketed a "proper" FF, but many of his Ron Tauranac-designed spaceframe F3 cars were converted by their owners for the purpose.

CALDWELL
The first successful American FF constructor was Ray Caldwell's Autodynamics Inc., founded in 1964 in Marblehead, MA. The 1969 D9 was an ordinary car based on the Merlyn Mk11A, but its immediate competitiveness led to 103 sales in three years. Caldwell abandoned it to focus on other projects, but the name returned briefly in 1972 as an announced-but-never-built D15, then again in 1975-6 when ex-AD sales manager Bob Fletcher produced a handful of D9 update kits at Fast Company.

CAROM
The Carom project of late 1977 - early 1978 was financed in part by actor Gene Hackman and a prototype was tested and raced by Formula Vee driver Bob Campbell. It proved to be too complex and expensive for the times (reported development cost: $75,000). Since it made no marketing inroads and was crashed in its first race (while Hackman watched), the project was abandoned.

COOPER-CHINOOK
Fejers Racing Cars in Ontario, Canada, licensed the Cooper name from the fading British F1 constructor in 1969 and sold a few cars in North America.

CORSA
An interesting, but ill-fated, project was spearheaded by the Paronelli brothers in Los Angeles. A prototype designed in 1974 made its debut at the Riverside opener in February '75, but did not start and the project was given up.

CROSSLE
John Crossle home-built a few 1172-formula cars in 1957-60 before setting up in Belfast, Northern Ireland, as a racing car constructor. The 1969 16F was Crossle's first Ford; the sturdy cars have made increasingly large inroads in the US market, especially through their greatly successful '78 year with the 32F.

DULON
Designer Andrew Duncan and electrical engineer Bill Longley (thus Du-Lon) set up as Formula 750 and 1172 car constructors in England in the mid-60s. Their Maxperenco (for *Maximum Performance Engineering Company*) Products firm, in Didcot, Oxfordshire, built two prototype FFs in 1967 before production began in '68. As with Lola, the current bulk of their FF1600 sales marketing is aimed at the US.

EAGLE
The perversities of the American marketplace are nowhere more evident than with the Eagle FF's lack of sales fire. All American Racers, Dan Gurney's Santa Ana, CA, company which he founded in 1964 with Carroll Shelby, envisioned a large involvement in the small formula car scene and the John Ward-designed FF was the first project. On paper the car had everything going for it: the "Eagle" name, speed, parts availability and reliability. David Loring used it to become 1978 SCCA National FF Champion. But, incredibly, it never sold big. Entering 1979, AAR continues to supply parts to owners of the '77 and '78 cars, but plans for another production run have for the moment stalled.

ELDEN
Peter Hampsheir designed his first car, a sports-racing chassis, in 1958 at the age of 16. Never built, it did spur him and his older brother Brian into the production business with a series of Formula Four Cars built in London. Those mid-60's designs were called "Brihams," as the "Elden" name was the invention of accessory marketer John Thompson on the introduction of the Hampsheir's PH6 Formula Ford in 1969. The company prospered, exporting much of its production and moving to a new factory in Wrotham, Kent, in mid-'72, but the energy crisis of 1973-4 hit Elden very hard. The company was sold to FF2000 driver Frank Bradley, bought back by Brian in '76 and officially resold two years later to Howard Drake, who's made sweeping changes and plans to resume export.

ELFIN
Founded by Garrie Cooper and his father in 1959, the Adelaide, South Australia, Elfin firm dabbled in the Formula Ford market during the early 70s, exporting a dozen-or-so cars while developing its F5000 (later CanAm) chassis.

FORSGRINI
Following a Runoffs victory in 1968 with a spaceframe FC, Forsgren Engineering in Seattle built a few production FF Mk12s.

HAWKE
David Lazenby, an F1 and Indy Lotus mechanic, set up his own shop in Hertfordshire, England, in 1968 with promoter Tony Roberts to build and export small formula cars. Control of the company was sold to British Air Ferries magnate Mike Keegan in 1974. Hawkes had their best year ever with the DL15 in 1976, but corporate dissatisfaction led to Lazenby's departure in May, '78, and the company, in smaller premises, is regrouping for 1979.

KONIG HEATH/NOMAD
London parts constructors Ian Heath and Mark Konig bought the Palliser FF project from airline pilot Hugh Dibley in mid-1972. Within a year they had resumed production of the car with a new Len Wimhurst-designed body. The first few KHF/1s were called "Winklemann KHF/5s." Later they were called WDF5s, while just to increase the confusion the builders themselves started calling the cars "Nomads." The project was eventually halted and sold off in 1976.

LE GRAND
North Hollywood, CA, was where Alden "Red" LeGrand setup shop in the early 60s building a number of successful FBs and FCs. His first FF was the Mk10, designed in 1968. Unique in the market today is the availability of plans from which a LeGrand customer can build his own car from scratch. Present base is Willow Springs, CA.

LOLA
It's hard to imagine the Formula Ford world without Lola these days, but this Huntingdon, Cambridgeshire, company was late on the

scene in 1969. Carl Haas' well-established dealer network and the "scaled down GP car" T340 in 1973 pushed the company, which traces its birth back to Eric Broadley's 1956 1172 Special, to the polished image of sales leader. Today Lola is the largest manufacturer of racing cars still in the FF fray.

LOTUS
The deal arranged between John Webb (Brands Hatch Racing Circuit), Geoff Clarke (Motor Racing Stables driving school) and Colin Chapman resulted in Lotus Components' Mike Warner installing a 1500cc Cortina and 4-speed Renault gearbox in the back of a tired old Lotus 22/31 F3 spaceframe. Thus the "51" was born and hundreds of FFs were sold through Lotus' production arm until they ceased commercial race car manufacture in 1971. Caterham Cars bought the project and cars filtered into the US until mid-'72.

MACON
Tony Macon's first FF was the 1967 MR6, a tidy little car built around a Brabham BT21-like frame. Most of his two-dozen production run through 1971 was exported to the States.

MARCH
March's big splash on the motor racing scene in 1970 included a little-noticed, but competitive, FF built up from the company's F3/F2 spaceframe. In 1971 a purpose-built frame was designed for the 718 (719 in the US), but March was not particularly interested in Ford and plans were made to sell the project to Wayne Mitchell, an American friend of Robin Herd's. Four kits were shipped in early 1972, but the project never got off the ground and the 739 announced later that year never materialized.

McNAMARA
A US Army officer in Lengries, West Germany, Francis McNamara debuted an FF model late in 1969. Designed by Austrian ex-Lola employee Jo Karasek around a Dan Hawkes F3 car, the Ford never burst through the publicity surrounding McNamara's popular Formula Vee and his STP USAC car for Mario Andretti.

MERLYN
The prototype Mk9 FF from Colchester Racing Developments in late 1967 launched the successful production Mk11 in 1968. The company, founded in 1960 by Selwyn Hayward and Clive Maskery is the only original (1967) manufacturer still active today.

MIRAGE
JW Automotive, founded in 1966 by John Wyer and John Willment, was preparing the Gulf Porsche 917s for the World Manufacturer's Championship when Pat Rocheford was commissioned to design an FF in 1970. "It was never meant to be more than a sideline, winter project for their staff" says the American importer Dick Scott, adding that no more than a handful were ever built.

MRE
Jim Gleave's Bourne End, England, shop produced its first FF in 1973. Designed by the talented Canadian Max Boxstrom, the cars had three good seasons before the project was sold to Tim Schenken and Howden Ganley in late 1975, who went into business as "Tiga."

NIKE
Ken Nicholls Engineering started production of a Formula Junior chassis in 1961. The Nicholls/Mark Erwood FF Mk4 was one of the first on the scene in 1967; that and later Mk6s and Mk10s from the Bideford, Devon, workshops were renamed "Bakers" by their US importer Jim Baker in the early 70s.

PHANTOM
An incredible "California Formula Ford," the Phantom was built by RV people, the Power Performance Products Co., in 1974. The car made a few appearances that year driven by Dick Ferguson, but suffered from its complexity and lack of finance.

PRINGETT-MISTRALE
Pringett Racing in Eastbourne, Sussex, was launched by owner Gerry Corbett with a Pat Rocheford-designed FF in late 1968. Fifteen cars were built, some for the US, before the company closed in 1970.

PRS
Vic Hollman was the sales manager at Hawke until mid-1977, when he left to start Pro-Racing Services. Joined by former Hawke production manager Ray Hughes and driver Derek Daly, the prototype was ready for testing in March, '78, and the company had a very successful first year. Export started and the first US example arrived in January, '79.

RAY
Bert Ray was a preparation specialist in London when he designed and built his first Ford in 1973. Now the British Crossle distributor, Ray continues to build cars on a "to order" basis, a few of which have been exported to the US in the mid-70s.

REYNARD
Designer Adrian Reynard home-built his first FF in 1974, the same year he founded Sabre Automotive with former March production and sales manager Bill Stone. As a free-lance designer working on Hawke's F3 and F1 car in 1976, Reynard built six FFs in the Hawke factory for export to the US. In 1977, one more car was added to that total, but Reynard prefers to concentrate on his successful European FF2000 car and the demands of his component-manufacture business.

ROYALE
Early Royales were built by Bob King in London's Park Royal section (thus the name, or perhaps a pun on their builder's surname?) and were well-established in the FF market when the pressures of the business forced King's retirement in 1973. The company was taken over by his employee Alan Cornock, who moved the factory to an airfield site in Bedfordshire and hired South African Rory Byrne to design a new FF in 1974. Byrne left in early '78, replaced by former Hawke designer Pat Symonds. The company remains one of the largest FF specialists.

SARACEN
This company, owned by the Hampsheir brothers and managed by sales director Alan Weller, rose from the ashes of Elden in 1976 and produced its first Peter H.-designed FF in the latter part of that year. These Kent, England, cars (built near Brands Hatch) have been exported since late '77.

SPARTON
Sparton Engineering, set up by Norman Pierce in Warlingham, Surrey, England, early in 1978, splashed on the scene with a rapid FF2000 design driven by veteran Barrie Maskell. Pierce has laid plans for a sturdy FF1600, recently tested in the U.K., and appointed a North American agent for 1979.

SUPERNOVA
This small Sussex, England, company, which specialized in Super Vee, built its first FF in 1975. One example of the Ian Williams Stan Collier (ex-BRM mechanic) car arrived in the US, but was written off at a late-season National. Plans for a production run in 1976 were thwarted when the company folded.

TECNO
Former kart builders Luciani and Gianfranco Pederzani built their first race car in 1964. In 1970, with Gianfranco in sole control of the company, Tecno was embroiled in the European F2 series. The unofficial FF was a single machine built around an F3 car in Italy by Skip Barber's mechanic, Terry Secker. Skip won the Runoffs in 1970 and at least two American owners of Tecno FC cars converted them to FF spec.

TIGA
Retired Grand Prix drivers Tim Schenken and Howden Ganley bought the floundering MRE concern near the end of 1975. Howden and ex-March draftsman Martin Read designed a new car to fit under MRE bodywork for its first race in '76. Although Tiga is now producing parts for many F1 manufacturers in the Reading, England, shop, its FF continues to take up a large portion of the company's diverse production.

TITAN
Charles Lucas Engineering (Lucas and American Roy Pike) opened in 1965 and its first FF was the Roy Thomas-designed Mk4 in 1968. Thomas' Mk6 was the biggest selling Ford in US history until the arrival of Lola's T340 in '73. Titan weathered receivership in 1976 and has not built a car since then, but Thomas continues to mass-produce respected FF1600 and 2000 engines in Titan's Huntingdon factory.

VAN DIEMEN
Ralph Firman worked for the Jim Russel School (Russell is now his brother-in-law) and Lotus' F3 team before setting out on his own with a Formula Ford design in 1973. Tremendously successful that year and again in 1977 with a new Dave Baldwin-drawn RF77, the company launched a big export push in 1978. Firman still refuses to explain the significance (or clever thought behind) the "Van Diemen" name. . .

WINKLEMANN/PALLISER
Racer Bob Winklemann began importing the 1969 FF built by Hugh P. (for Palliser) K. Dibley in London, renaming them "Winklemanns" because the name was better known in America. Dibley and Winklemann both quit in 1972, but just as Mark Konig and Ian Heath resurrected the Len Wimhurst design, so did Ron Hunter keep the Winklemann title for the few Konig Heath/Nomads he imported in 1973-4.

ZINK
The Ed Zink-designed Z10 Formula Ford first appeared at the Runoffs in 1973 and has been continually refined by Citation Engineering (Steve Lathrop in Indiana) and Zink Manufacturing (Steve Freeman in North Carolina) since then. Lately the Zink story has been confused by: a) Lathrop producing a C5 kit to turn some "Brand X" cars into Zinks; b) the announcement of a Citation-built Z16 prototype for 1979; c) the revised Z10B still available from Citation in '79; and d) the sale of Zink Mfg. to a pair of Floridians, who intend to market a Z10C again in '79.

A Trio On Test

The environs of Willow Springs, in the high Mojave desert, are not precisely renowned as one of the world's garden spots and late winter weather can do this to you up there. We did realize that anybody actually going out to race with one of our test cars would have to cope with whatever climatic quirks he/she encountered. But *hail*. . . this was ridiculous.

Still, once we had hurriedly drawn plastic sheets over the cockpits and sprinted for the warmth of a local hostelry to compare notes, we found that we did have enough data assembled from several hours' worth of passable-weather running to make some valid comments. What we'd set out to do, simply was to stack up a number of today's Formula Fords to see how they compared as practical race machines.

The idea had been germinating for over two years, but we had run into one sort or another of postponement or cancellation every time we had tried to implement it. The problems we repeatedly encountered in getting a handful of small race cars to one track on one date made us appreciate with new insight the monumental task it must be to stage a full Grand Prix!

Even now, our original intended cast of six participating machines dwindled to merely three on the appointed day. They were, however, three of the most representative, competitive, successful and interesting makes available on the American market today:

—a Crossle 35F, chassis number 21, brought to Willow by Ken Dieter's Crossle Cars Pacific from 15706 Condon Ave., Lawndale, CA 90260—(213) 679-9268;

—a Van Diemen model VD-79, chassis 300, supplied by Steve Anderson Racing at 14747 Artesia Blvd., Suite 5-L, La Mirada, CA 90638—(714) 739-0177;

—and Tiga's brand new FFA-78 (a '79 model, despite the designation), carrying number 73, which Steve Farnsworth of Proformula Racing had trucked from 2552-C Albatross Way, Sacramento, CA 95815—(916) 920-0348.

The ground rules were not complex. We wanted to give each participant full opportunity to adjust his car to its best potential for the conditions, just as a private entrant would. However, to keep a single baseline, Goodyear was most generous in supplying us with a single kind and size of tire.

For objective driving evaluations, we secured the services of our own Technical Editor, J. Peter Halsmer, and Can-Am campaigner Elliott Forbes-Robinson. The one brought to the project a wide personal experience in several kinds of small formula cars, as well as his analytical expertise. The other, an established pro with years of winning to his credit, has a reputation for insightful setup ability.

Here are the drivers' findings, ranked by car in alphabetical order.

Crossle 35F

"Handling is good. The one thing it does do, when you first pull for the corner the back end comes out and takes a set. It feels like it's going to go, but it never does and it feels good after that. You don't have to lift off or anything.

"The front end sticks like glue at high speed. The car seems to be forgiving in a whole lot of ways. The comments that come to mind first are, in the form they have it set up right now, in the low-speed corners there's an understeer entering which can be overcome, but it does have it. By pitching the car a little earlier, by getting on the throttle a little earlier, it can be overcome, but if you just drive into the corner it will push.

"In high-speed corners, I'm tending to overdrive it. The wind is moving the car a little. The front is sticking so well it's just seeming to move with every slight movement of the wheel. The car isn't as steady in the corners as I'd like it, but I think that's me. The car seems not to want to be adjusted in the corners, it seems to just want to be set and left. Get everything done before the corner, it seems to like that better. Brake, get back on the throttle, go for it.

"Brakes are excellent, if not better than that.

"The seating position wasn't bad. The clutch pedal could be moved to the left a little, it's too close to the steering column and my foot was sliding on it. Visibility was fine, comfort was fine." —*EFR*

"The engine response seems to be as good or better than any of the cars out here. It seems to pull good revs. I'm seeing 6400 in the back straight.

"I don't know if it's the wind or the car, but it seems to be a little nervous just entering Two. You can do it flat out, but it seems like you have to kind of correct instead of just going in smoothly. On the other hand, it's comfortable in Nine, so I suspect it's a little bump and the shocks aren't set up just right, or it's the wind.

"But I think the car is nice and solid. Straight-line stability is great. It's got a nice quickness to it. If anything, in the high-speed stuff it's just a taste oversteery. On the slow stuff, it may be just a tad understeery.

"The seating position, I feel, is good. The instruments are fine and so are the controls except for the shifter; it seemed to me that it was stiff." —*JPH*

Tiga FFA-78

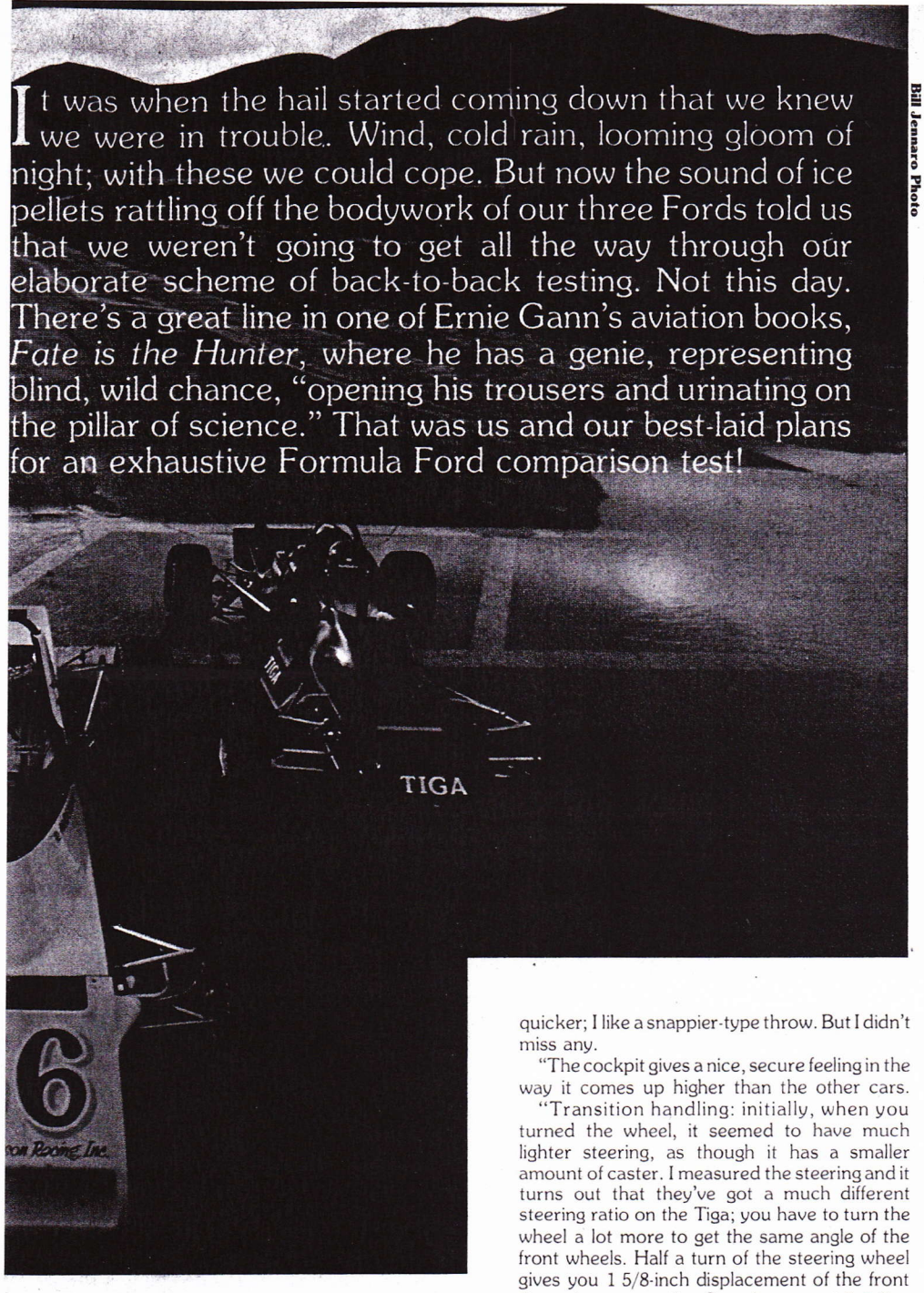
"My first impression is that I like the cockpit. The cowling seems to come up pretty high around you and there might be a little bit of difficulty climbing in and out, but once you're in there it feels very secure. The visibility is better than I had maybe expected. The forward bracing on the roll-bar gives you a sense of security without getting in the way at all.

"This car doesn't seem to do things quite as quickly. It's not nervous or uncontrollable or anything like that, it's just not giving me the feeling of eagerness to turn, or whatever you want to call it. Just the way it sits, I think it's probably a little easier car to drive than the Crossle was. It goes through Two easier than the Crossle, it doesn't have that nervousness.

"The engine is down, it's pulling about 500 revs less than the Crossle was on the back straight, about 5800. The gears aren't far enough apart to make a difference like that.

"I'd say the lap times we're seeing here are

It was when the hail started coming down that we knew we were in trouble. Wind, cold rain, looming gloom of night; with these we could cope. But now the sound of ice pellets rattling off the bodywork of our three Fords told us that we weren't going to get all the way through our elaborate scheme of back-to-back testing. Not this day. There's a great line in one of Ernie Gann's aviation books, *Fate is the Hunter*, where he has a genie, representing blind, wild chance, "opening his trousers and urinating on the pillar of science." That was us and our best-laid plans for an exhaustive Formula Ford comparison test!



Bill Jennaro Photo

probably due to the motor. It strikes me as a good car, a comfortable and forgiving car, very easy to drive. Although it seemed like a slower-acting car, it acted with plenty of quickness in the Five-Six transition, where you're braking and turning right into Five and then turning left as you go through it. That was no problem, the car was plenty quick for that." —*EFR*

"The car feels a lot like the Van Diemen, in that it feels like it could go quick initially. But the seating position wasn't quite right for me to start with. They adjusted the seat, but the car doesn't have an adjustable steering wheel, which is a little unusual, though I can drive it.

"Instrument positions are good. The water temperature is on a small gauge and the oil temperature is on a large gauge, which really should be reversed. The water temperature is usually what you have to pay the most attention to. Controls, pedal positions and everything, I liked. The shifting could be a little shorter, quicker; I like a snappier-type throw. But I didn't miss any.

"The cockpit gives a nice, secure feeling in the way it comes up higher than the other cars.

"Transition handling: initially, when you turned the wheel, it seemed to have much lighter steering, as though it has a smaller amount of caster. I measured the steering and it turns out that they've got a much different steering ratio on the Tiga; you have to turn the wheel a lot more to get the same angle of the front wheels. Half a turn of the steering wheel gives you 1 5/8-inch displacement of the front rim, whereas on the Crossle you get 1 7/8—that's a 15% difference.

"The spring rate is softer on the Tiga, too, the way they have it set up at the moment. Standing on the front bulkhead, the chassis goes down 1 3/8 inch, whereas on the Crossle it only changes an inch. So these cars are all set up quite differently and that's some of the handling and time differences we're seeing.

"It isn't that the Tiga won't do what you want it to. It's just that when you started to turn, the nose didn't snap quite as quickly. It came around, it wasn't an understeer, but it just wasn't as quick on the initial phase. That can be an advantage and a disadvantage, you know, you can get it too quick and have the back end come out.

"It's just a softer-acting car, the way they have it. It may be an advantage for somebody just getting into these cars for the first time. It's a very easy car to drive.

"There's a little bump on the inside of Two and this car really takes it well, better than the others. They've got the right amount of shock damping for the spring rates.

"Fords are kind of go-karts, in the way you want 'em to point. You need to be able to put it right where you want it. I'd feel more confident in this car if the steering were quicker, if I could catch it quicker. On the other hand, in the high-speed stuff, maybe a setup that's slower and softer like this would allow you to be more accurate." —*JPH*

Van Diemen VD-79

"The car has a little oversteer. I got sideways a couple of times. There was never a transition from understeer to oversteer like the other two cars. If you entered too fast, it would not push, the back would come out.

"The feeling overall in this car, though, is one of very good stability. I felt quite comfortable as far as doing what I wanted to do. It didn't have that twitchyness at high speed the Crossle seemed to have. If I moved the steering wheel in a corner the car didn't seem to twitch all over the place. It seemed to hold its attitude and just move around a little.

"One thing, it was lifting its inside rear wheel going up the hill through Three.

"The pedals in this car are in a good position. The throttle seems to have a long throw, which I don't care much for. I have to push my toe out to full extension to get it. I do not like the shifter. It's very hard to catch third gear, because they've got the forward brace of the roll bar running right down near it and you've got to turn your forearm sideways to get around it to get third gear.

"The mirrors seemed to shake a lot. It was very hard for me to see. Maybe it's the way they're mounted.

"I felt quite comfortable as far as position of seating and position of steering." —*EFR*

"The instruments were good. It's got the small Smiths tach, which some people like and some don't. I thought it was good. The control positions I liked; it was comfortable. The dead pedal, I noticed, has an edge to it on the right side and I caught it with my foot one time as I came off the clutch. The visibility seemed good, except that the mirrors, being so close to the bodywork, made it a little lacking in visibility directly behind us. The roll bar brace kind of rattled on my helmet sometimes, too, that annoyed me a little.

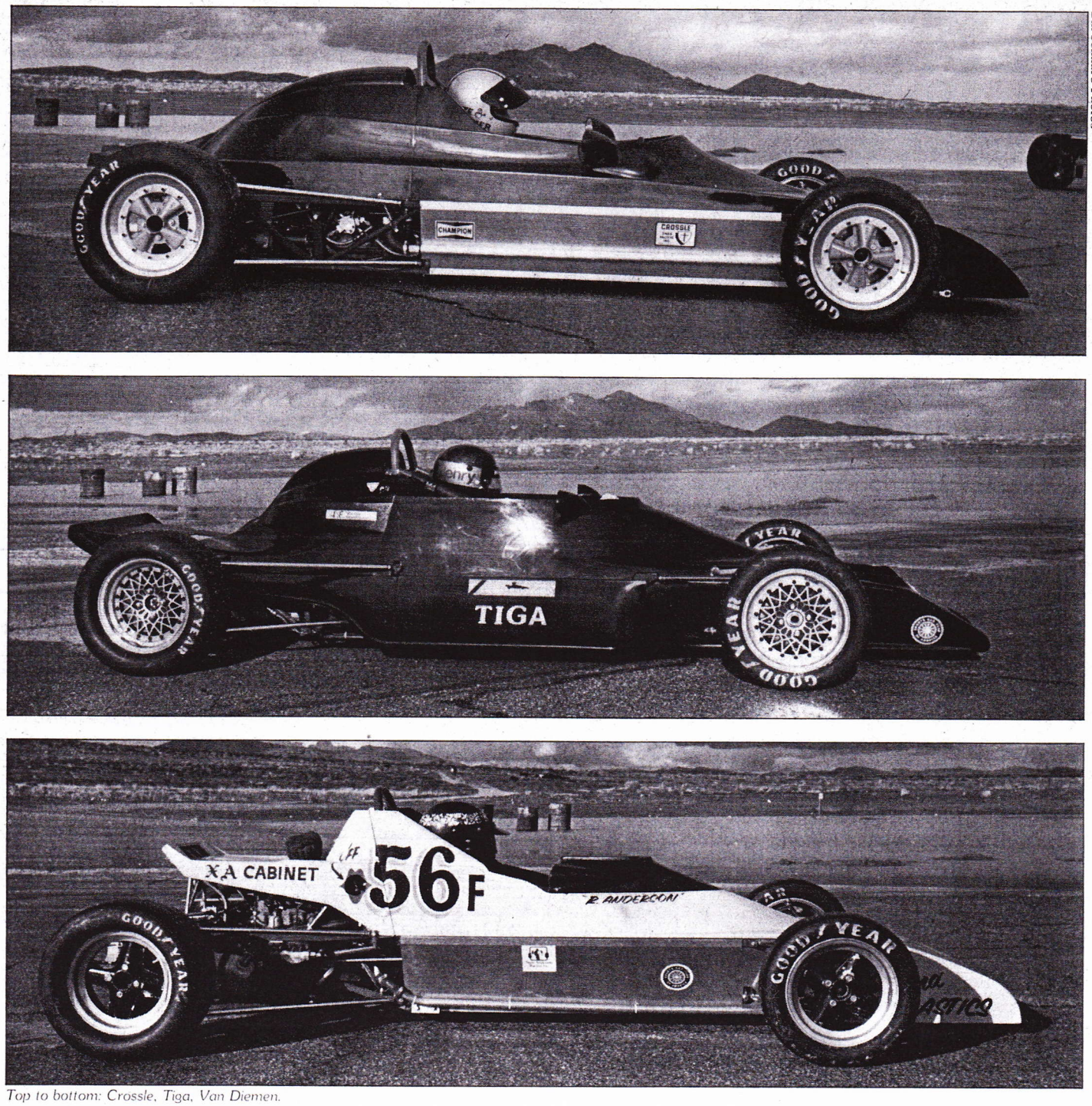
"The engine response is good. I was seeing the same rpms coming off the corners as the Crossle, but not quite as many, maybe a couple of hundred down, at the end of the straight.

"The handling was very stable. It felt like it had heavier steering than most; probably it has a little more caster than the others. Straight line stability was good. Braking felt good, almost exactly the same as the Crossle, I felt, in effort and stability.

"The general impression is that you get in the car and you feel really comfortable and you go pretty quick right away. The ride is cushy and you have a solid feel. The car handles really nicely and predictably, even right at the end when I stopped because the track was getting wet again. I was getting some wheelspin then going up the hill, but the car was still nice and controllable. I was surprised my times were only five seconds down on my earlier dry times.

"The shocking, I thought, left a little to be desired. It might have been a little too soft on bump, but that's an adjustment thing. The wheels were doing a little jumping in the bumps in Two and transmitting it to the chassis.

"But the car feels solid and predictable. It's well set up." —*JPH*



Bill Jennaro Photos

Top to bottom: Crossle, Tiga, Van Diemen.

Our staff took a lot of times that day, both whole lap times and individual segment times at various areas around the track. Upon consideration, however, we've decided it would be misleading to print them here, because too often the weather conditions had changed between runs with the various cars. One make or another would come out looking worse than the truth warrented.

What we're left with, then, is only driver impressions of the three little racers. Summing the impressions up, both Forbes-Robinson and Halsmer had almost exactly the same things to say; what follows is a digest of their comments.

"We should have had about twice as much time and a day with consistent conditions. Maybe we should also have tried each car on the wider Goodyear front tires—what we had was the narrow one, but certain cars, like the Crossle, seem to like the wider one better. Some of our remarks about handling might have been altered with a tire change.

"The Crossle was, in terms of setup, the winner, because it had a stronger motor and had been more precisely tuned for the test. Both of us agree that if you were an experienced Formula Ford racer and were ready to jump into a car that could win races for you, the Crossle would do the job. A beginner, though, might find himself getting into trouble with it. We think that a softer, steadier chassis setup would be better for the driver looking for experience.

"The Tiga was in an unfortunate position, because it was so new. A few more hours spent changing springs and things like that, plus a stronger motor, might have brought its segment times and its lap times right up there. We both liked the car basically and found it was easy to drive. It'd be a good choice just the way it was for somebody just getting into Fords. Neither of us see any reason that you couldn't tune it up to be, possibly, the best of the bunch. It's a well designed car and impresses us as possibly the safest.

"The Van Diemen was extremely easy to get into and start going quick in right away. You were comfortable with it. It was about halfway between the other two in terms of state-of-development. We both had little things to say about the cockpit, but we thought it was basically a very good car. You could jump into it and be competitive right away. It might be the best first Ford.

"Let's come back sometime in the summer when we can spend a whole day and do this under fairer conditions. It's fun!"

Amen.

12 Years of Imports & Domestics

Charting The Fords

ABBREVIATIONS: **WB:** Wheelbase **TF:** Track, front **TR:** Track, rear **O:** Outboard **I:** Inboard

CHASSIS	TYPE	YEAR	DESIGNER(S)	WB	TF	TR	BRAKES F	BRAKES R	RADS.	SIGNIFICANT FEATURES
ADF	MkII	1973-9	David Bruns Al Thomas	91"	55½"	55½"	I	I	2-side	Chrome-moly steel frame; engine as stressed member; 1st production FF with inboard front brakes.
Alexis	14	1968	Allan Taylor				O	O	front	
	15	1969	" "				O	O	front	15-stiffer chassis & uprights.
	18	1970	" "				O	O	front	
	18B	1971	" "				O	O	front	
	22	1972	" "				O	O	front	
	23	1973-4	" "				O	I	2-side	
	24	1975-6	" "				O	I	2-side	
Beach	MkII	1969-70	Gene Beach				O	O	front	
Bobsy		1969	Jerry Mong				O	O	front	
Caldwell	D9	1969	Bill Woodhead Del Trott	90½"	52"	53½	O	O	front	
	D9B	1970-1	Del Trott	90½"	52"	53½"	O	O	front	D9B—chassis braces; susp. updates.
Crossle	16F	1968-70	John Crossle Leslie Drysdale	90"	51¼"	53½"	O	O	front	
	20F	1971-2	Crossle/Drysdale	90"	53¼"	55½"	O	O	front	20F—wider track; 2 piece nose.
	25F	1973-4	" "	92½"	55¼"	55⅞	O	I	front	25F-new bodywork; longer frame; revised suspension.
	30F	1975-6	" "	94½	55¼"	55⅞"	O	I	front	30F—new bodywork; longer frame.
	32F	1977-8	" "	94½"	55¼"	55⅞"	O	I	front	32F—new bodywork; stronger roll hoops; larger radiators.
	35F	1979	" "	94½"	55¼"	55⅞"	O	I	front	35F—minor frame changes.
Dulon	LD4	1967	Andrew Duncan	90½			O	O	front	
	LD4B	1968	" "	90½"			O	O	front	
	LD4C	1969	" "	90½"			O	O	front	
	LD9	1970-2	" "	90½"			O	O	front	
	Mp15	1973	" "	90½"			O	O	front	15—new bodywork
	Mp15B	1974	" "	90½"	54½"	57½"	O	O	front	
	Mp17	1975-6	" "	90½"	54½"	57½"	O	I	front	17—revised nose
	Mp19	1976-7	" "	90½"	50½"	52½"	O	I	front	19—track narrowed
	Mp21	1978-9	" "				O	I	1-side	21—frame changes; new bodywork.
Eagle	FF	1977-8	John Ward	95"	53"	51"	O	I	front	
Elden	PH6	1969	Peter Hampsheir	82"	53"	55"	O	O	front	6—1st FF w/inbd, front susp.
	PH8	1970-2	" "	84"			O	O	front	8—simplified PH6; new bodywork; front susp. now outboard.
	PH10	1972-3	Peter Hampsheir Bob Curl				O	I	front	10—stiffer chassis; called "boattail".
	PH10A	1973	" "				O	I	2-ft.	10A—PH10 w/Falconer body
	PH10B	1974	" "				O	I	2-side	10B—radiators directly behind ft. susp
	PH10C	1975	" "				O	I	2-side	10C—radiators alongside roll bar.
	PH17	1976	" "				O	I	front	
	PH21	1977	" "				O	I	front	21—never built
	79	1979	Howard Drake	93½"	54"	55"	O	I	1-side	79—all new car.
Elfin	600	1969-72	Garrie Cooper				O	O	front	
	620	1973-5	" "				O	I	2-side	
Forsgrini	Mk12	1968-9					O	O	front	
Hawke	DL2	1969	David Lazenby				O	O	front	
	DL2A	1970	" "				O	O	front	2A—narrower track
	DL2B	1971	" "				O	O	front	2B—fabricated, replacing Herald front uprights.
	DL9	1972	" "	88½"	54"	54"	O	O	2-side	9—all new design
	DL9A	1972	" "	88½"	54"	54"	O	O	2-side	9A—mid-season change to Lockheed brakes.
	DL10	1973	" "	88½"			O	I	2-side	10—John Bicht bodywork, wider track
	DL11	1974	" "	88½"	54"	54"	O	I	front	
	DL12	1975	" "	92"	57½"	58½"	O	I	2-side	

Hawke (cont.)	DL15	1976	David Lazenby Adrian Reynard	92"	54½"	55½"	O	I	1-side	15—inboard rocker arm ft. susp.
	DL17	1977	David Lazenby		54½"	55½"	O	I	2-side	17—driver forward 5"/grbx. spcr.
	DL19	1977	" "	92"	54½"	55½"	O	I	2-side	19—mid-season replacement for DL17; DL15 frame with 17 body.
	DL20	1978	" "	96"			O	I	1-side	20—long wheelbase car for FF2000 and FSV.
	Mk21	1979	Pat Symonds Frank O'Connor	95"	55"	56"	O	I	2-side	21—new frame; bodywork and some suspension carryover from 20.
Konig Heath Nomad	KHF1	1973	Len Wimhurst	91"	52"	54"	O	I	front	
	KHF2	1974	" "	91"	52"	54"	O	I	front	
	KHF3	1975	" "	91"	52"	54"	O	I	front	
LeGrand	Mk10	1969-72	Alden LeGrand	92"	53"	53"	O	O	front	
	Mk13	1973-4	" "	92"	53"	53"	O	O	front	13—new rack; geometry change.
	Mk21	1975-8	" "	92"	53"	53"	O	I	2-side	21—new bodywork; LeGrand castings for inboard rear brakes.
Lola	T200	1969-70	Eric Broadley	88"	54"	54"	O	O	front	
	T202	1971	" "	88"	54"	54"	O	O	front	202—oil cooler, tank moved to back.
	T204	1972	" "	88"	54"	54"	O	O	front	
	T340	1973-4	" " Bob Marston	93"	54"	54"	O	I	2-side	340—advanced light metal frame; futuristic body.
	T342	1975-6	Eric Broadley Bob Marston	93"	54"	54"	O	I	2-side	342—geometry change: rads. moved back.
	T440	1976-8	Eric Broadley Bob Marston	91¾"	55¼"	55½"	O	I	2-side	440—driver moved forward; engine/gearbox spacer; rocker (inboard) front suspension.
	T540	1977-9	Eric Broadley Tony Gillard	94"	49"	49"	O	O	front	540—available '79 (USA) all new car. (540E (Europe) wider track).
Lotus	51(A)	1967	Development of Mike Costin design	90"	52"	51½"	O	O	front	
	51B	1968	"	90"	52"	51½"	O	O	front	51B—revised rear geometry.
	51C	1969	"	90"	52"	51½"	O	O	front	51C—Hewland gearbox.
	61(E)	1969	"	90"	51½"	51½"	O	O	front	61—51C w/ wedge body.
	61M	1970-2	"	09"	51½"	51½"	O	O	front	61M—4" lower top body.
	61MX	1972	"	90"	51½"	51½"	O	O	front	61MX—Lotus Racing East (US) project; revised body
	69	1971-2	Design team of Dave Baldwin & Martin Waide	92½"	56"	56"	O	O	front	69—used frame from Type 59 F2 car.
Macon	MR7B	1969					O	O	front	
	MR8	1969-70					O	O	front	
	MR8B	1971					O	O	front	
March	709	1970	Robin Herd	90"	52"	50"	O	O	front	709—called 708 in UK
	719	1971	" "	90"	52"	50"	O	O	front	719—purpose built frame.
	729	1972	" "	90"	52"	50"	O	O	front	729—same body as F2 712.
	739	1972-3	" "	93½"	54"	55"	O	I		
McNamara	FFA	1970	Jo Karasek Dan Hawkes	92"	56"	53¼"	O	O	front	
Merlyn	Mk11	1968	Selwyn Hayward Chris Maskery	90"	48"	50½"	O	O	front	
	Mk11A	1969	Hayward/Maskery	90"	48"	50½"	O	O	front	
	Mk17	1970		90"	48"	50½"	O	O	front	17—radiators ducted upwards; 2-piece nose.
	Mk17A	1971	" "	90"	48"	50½"	O	O	front	
	Mk20	1971	Clive Hayward	90"	48"	50½"	O	O	front	
	Mk20A	1972	" "	90"	48"	50½"	O	I	front	20A—revised susp./body.
	Mk24	1973	" "	90"	48"	50½"	O	I	front	24—new bodywork.
	Mk25	1974	" "	90"	48"	50½"	O	I	front	
	Mk025	1974	" "	90"	48"	50½"	O	I	front	025—change of rear geometry; side radiators optional.
	Mk29	1975	" "	90"	48"	50½"	O	I	2-side	
	Mk029	1975	" "	90"	48"	50½"	O	I	2-side	
	Mk29A	1976	" "	90"	48"	50½"	O	I	2-side	
	Mk30	1976-7	Design team headed by Clive Hayward	93"	52"	54½"	O	I	2-side	30—all new square-tubed frame; wider track; new bodywork.
	Mk31	1978-9	"	93"	52"	54½"	O	I	2-side	31—new bodywork.
Mirage	Mk5	1970	Pat Rocheford				O	O	front	
MRE	73F	1973	Max Bostrom	93"	56"	53"	O	I	front	
	74F	1974	" "	93"	56"	53"	O	I	front	74F—revised bodywork.
	75F	1975	" "	93"	56"	53"	O	I	front	
Nike	Mk4	1968-9	Mark Erwood Ken Nicholls				O	O	front	
	Mk6	1970	Erwood/Nicholls				O	O	front	
	Mk10	1971-4	" "				O	O	front	10—later models inboard rear brakes side radiators.
	Mk10B	1975-6	" "				O	I	2-side	
	Mk10C	1977	" "				O	I	2-side	

Phantom	TF3	1974					I	I	2-side	
Pringett-Mistrale		1969-70	Pat Rocheford				O	O	front	
PRS	RH01	1978-9	Ray Hughes	94½"	55¼"	55¾"	O	I	1-side	
Ray	73F	1972-3	Bert Ray	90"	51½"	52½"	O	I	2-side	
	74F	1974	" "	90"	53½"	52½"	O	I	2-side	
	75F	1975	" "	90"	53½"	52½"	O	I	2-side	
	FF76	1976	" "	90"	53½"	52½"	O	I	2-side	
	FF77	1977	" "	90"	53½"	52½"	O	I	2-side	
	78F	1978	" "	90"	53½"	52½"	O	I	2-side	
Reynard	74F	1974	Adrian Reynard	89½"	52¾"	54"	O	I	front	
	75F	1975	" "	89½"	52¾"	54"	O	I	1-side	75F—revised bodywork
	76F	1976	" "	89½"	52½"	54"	O	I	front	
	77F	1977	" "	91½"	52½"	54"	O	I	1-side	77F—side pods
	78F	1978	" "	91½"	52½"	54"	O	I	2-side	
	79F	1979	" "	91½"	52½"	54"	O	I	2-side	
Royale	RP2	1969	Bob Marston	93"	55"	55"	O	O	front	
	RP3	1970	" "	93"	55"	55"	O	O	front	RP3—revised styling; geometry change.
	RP3A	1971-2	" "	93"	55"	55"	O	O	front	
	RP16	1973	Bob King	94½"	55"	55"	O	O	2-side	RP16—first FF w/side rads.
	RP16A	1974	" "	94½"	55"	55"	O	I	2-side	RP16A—larger rads; new sway bar and springs.
	RP21	1974-5	Rory Byrne	91"	53¾"	54¾"	O	I	2-side	RP21—new chassis
	RP21A	1976	" "	91"	53¾"	54¾"	O	I	2-side	RP21A—new uprights; new tail.
	RP24	1977-8	" "	91"	55"	55¼"	O	I	2-side	RP24—stressed gearbox; offset rocker-arm front suspension.
	RP26	1978-9	Pat Symonds	95"	55"	55"	O	I	front	RP26—new car
Saracen	77F	1977	Peter Hampsheir				O	I	2-side	
	78F	1978	" "				O	I	2-side	
	79F	1979	" "				O	I	2-side	
Supernova	SSF76	1975-6	Ian Williams Stan Collier				O	I	2-side	
Tecno	FF	1970	Luciani & Gian-franco Pederzani	82¼"			O	O	front	
Tiga	76F	1976	Howden Ganley Martin Reed	92"	52"	53"	O	I	front	76F—used MRE bodywork
	77F	1977	Ganley/Reed	92"	52"	53"	O	I	front	
	78F	1978	Howden Ganley				O	I	front	78F—revised bodywork
	79F	1979	" " Colin Smith				O	I	front	79F—new engine cover; new rollover hoops.
Titan	Mk4	1969	Roy Thomas				O	O	front	
	Mk5	1969	" "				O	O	front	
	Mk6	1970	" "	92½"	54"	53¼"	O	O	front	
	Mk6A	1971-2	" "	92½"	54"	53¼"	O	O	front	
	Mk6B	1972	" "	92½"	54"	53¼"	O	O	front	
	Mk6C	1973	" "	92½"	54"	53¼"	O	O	front	6C—revised bodywork
	Mk8	1974	" "	90"	56"	55"	O	I	2-side	8—engine stressed member.
	Mk9	1974-5	" "	90"	56"	55"	O	I	2-side	9—new frame.
	Mk9A/B	1975	" "	90"	56"	55"	O	I	2-side	9A—2-piece nose. 9B—revised front wishbones.
Van Diemen	RF73	1973	Ralph Firman	92½"	56"	55½"	O	I	2-side	
	RF74	1974	" "	92½"	56"	55½"	O	I	2-side	
	RF75	1975	" "	92½"	54"	54½"	O	I	2-side	
	RF76	1976	" "	92½"	54"	54½"	O	I	2-side	
	RF77	1977	Dave Baldwin	94"	56"	56"	O	I	2-side	
	RF78	1978	" "	94"	56"	56"	O	I	2-side	
	RF79	1979	" "	94"	56"	56"	O	I	front	79—new bodywork; new rollover hoops.
Winklemann (Palliser)	WDF1	1969	Len Wimhurst	91"	52"	54"	O	O	front	
	WDF2	1970	" "	91"	52"	54"	O	O	front	F2—used '71 FB bodywork.
	WDF3	1971	" "	91"	52"	54"	O	O	front	F3—geometry changes.
	WDF4	1972-3	" "	91"	52"	54"	O	O	front	
	WDF5	1974	See Konig Heath							
	WDF6	1975	Len Wimhurst Ron Hunter Rodney Greene	91¼"	51"	53"	O	I	front	F6—American-made bodywork.
Zink	Z10	1973-8	Ed Zink	90"	56"	56"	O	I	2-side	Z10—changes include front geom; spring/swaybars; lightening; three tail styles; new nose shape C5—a special Z10 kit for converting 'Brand X' chassis
	Z10B	1979	Ed Zink Steve Lathrop	90"	56"	56"	O	I	2-side	10B—Citation Engineerings 1979 Z10 with revised rear suspension.
	Z10C	1979		90"	56"	56"	O	I	2-side	10C—Zink Manufacturings' 1979 Z10
	Z16	1979	Ed Zink	90"	60"	60"	O	I	2-side	10—prototype FF/FSV chassis to be tested during 1979.

Addendum

ENGINES
Although many manufacturers had or have arrangements with nearby builders to supply original equipment engines, generally a prospective customer could buy any available engine with any car—thus listing "standard equipment" would be pointless.

GEARBOXES
In general, every Formula Ford in the US was delivered with a Hewland Mk6, Mk8 or Mk9 gearbox with interchangeable ratios. The exceptions were the early Lotus 51s, which used a Renault 4-speed, and a few American-built cars, which came with the US-made Webster.

BRAKES
All cars use either Lockheed or Girling (generally "small" and "big") calipers, while most choose discs (or "rotors") from the same source; Tiga, though, and one or two others, make their own discs.

SHOCK ABSORBERS
Like engines and wheels, the standard shock absorber (or "damper") supplied with each chassis is a meaningless point because of easily-available alternatives from Armstrong, Bilstein, Koni, and Spax.

All specifications were obtained when possible from the manufacturer or designer. Any inaccuracies, however, are the writer's responsibility.

The Non-Imports

You want to know about Formula fords *not* sold in the USA? You're serious? Well, the following are some of the more noteworthy chassis which have never, to anyone's knowledge, been officially exported to the States, yet were not one-offs:

CHASSIS	NAT.	DESIGNER(S)	BUILDER
Alta	GB		
Arian	GB	Michael Chambers	Arian Auto Deveolpments
Arrow	GB		
Beattie	GB	C. Beattie/B. Smith	
Bowin	AUS	John Joyce	
BRG	GB		
Dastle	GB	Geoff Rumble	Dastle Manufacturing Co.
DRW	GB	David Warwick	
Ferret	CDN	A. Purdy/F. Wilken	Ferret Industries
Ginetta	GB	Walklett brothers	Ginetta, later Ennerdale Racing
Hamlen	GB	P. Coleman/D. Martin	
Huron	GB	Marquart/Chambers	Huron Car Co. Ltd.
Image	GB	Alan Langridge	FSL Cars/Image Race Cars
Jamun	GB	Tony Mundy	Jamun Racing
Javelin	GB		
Jomic	GB		
Jomo	GB	Keith Vickery	Jomo Racing
Lenham	GB	Julian Booty	Lenham-Hurst Racing Org.
Mallock	GB	Arthur Mallock	Mallock Racing
Nemo	GB	Max Boxstrom	Race Cars International
Oscar	GB	Frank Boyles	Oscar Car Co.
Piper	GB	Brian Sherwood	Campbell's Garage
Rostron	GB	Carl Rostron	Rostron Racing Cars Ltd.
Sark	GB	P. Head/D. MacLoed	Sark Racing Cars
Star	GB	Ian Skinner	Radio Victory
Vaney	B	Jean-Francois Vaney	
Wimhurst	GB	Len Wimhurst	
Wren	AUS	Bill Reynolds	