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Issue 59 • May 2022

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Front Cover

For a 25-year period from 1957, Elfin produced 250 sports and racing cars over 27 different models and became Australia's most prolific and successful racing car manufacturer. Image courtesy of Bill Hemming

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President's Letter



Welcome to this 59th edition of the Connection magazine featuring Australia's industrial heritage in fibreglass bodied cars.

As a business owner I understand the challenging journey of bringing a new product to market. This collection of articles demonstrates a body of work by talented, passionate self-taught enthusiasts who achieved their personal vision of futuristic aesthetics and functionality through the enabling properties of fibreglass.

This portfolio of vehicles represents an historic cache of design, materials and industrial practices, from a time of craftsmanship and shaping. Each original fibreglass mould was unique and made by hand by master fabricators. It was a time before modern adhesives and sophisticated resins and additives, and long before Computer-Aided Design (CAD) technology. My father and founder of our business, Len Reif, was a motor body builder in the 60s and 70s, using fibreglass in the production of Australian ambulances and fire engines, designing and hand drawing custom solutions to resolve design issues. He sadly passed away recently, and his contribution to the Australian bus industry was acknowledged at his funeral in Brisbane last month. Many stories were shared by work colleagues who attended. While working for bus builder Denning in the mid 80s, Len developed the concept of stretching fibreglass side panels on to buses and coaches, replacing sheet metal to address issues of rust in the harsh Australian coastal climate. Len remained interested in composites well after his retirement in 2008, visiting us at the Composites Australia pavilion at JEC Asia in 2020.



Vale: Leonard Reif (1941 – 2022) Founder Fibreglass Design Panels/
FDP Composites Pty Ltd

I congratulate Kerryn for her research into this fascinating period of Australian manufacturing, and for reminding us of what went before the industry we know today.

Looking ahead, the annual Composites Australia conference is fast approaching. I look forward to welcoming you in Toowoomba on 1st and 2nd June for two powerful days of knowledge exchange, networking and business development opportunities. As part of your post-pandemic journey, I urge you to register for the event which always provides a unique and strategic insight into a wide range of aspects associated with operating and growing a composites business and collaborating with composite companies. Information on the event is included in this issue and is also updated regularly on the conference website www.compositesconference.com.au

Leona Reif
President

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Fibreglass classics

Our Australian industrial heritage

Written by Kerryln Caulfield, Executive Director, Composites Australia Inc.

There was a time when fibreglass was the new material of choice for progressive automotive manufacturers. The iconic Chevrolet Corvette C1, said to be the first 'mass-produced' GRP automobile was manufactured in the US with a fibreglass body from 1953 until 1962. Daimler, Citroën, Ferrari, Ford, Studebaker and a raft of other leading automotive companies followed with their own light bodied releases.

In Australia, a policy shift in import restrictions and local content rules in 1960 provided a window for automotive enthusiasts to have a crack at making their own cars using imported elements. While steel stamping tooling came with costly set-up costs, fibreglass was inexpensive and allowed for more design freedom and shells to fit nearly every imported sports chassis. It allowed competition petrol-heads to shed weight and build performance in a suburban garage; and auto-entrepreneurs to develop nifty fuel-savers to pursue the market forged by British Motor Company with the iconic Mini.

Fibreglass was a material to chase dreams with and gave birth to a number of auto start-ups which

manufactured a range of performance muscle cars through to jolly cheap run-abouts from the early '60s to late '70s. They included the Bolwell Nagari, the Perentti, Goggomobil, Lightburn Zeta, J&S Hunter, Purvis Eureka, the Tontala, TD2000, the Elfin and the Buchanan Cobra.

A combination of ill-conceived dreams and Australian manufacturing policy saw to it that few of these companies, whether they produced whole vehicles or just bodies, lasted. The cars that survived are increasingly cherished by the collectors who own them.

The rollicking story (below) about "the Red Reek" was emailed to me from Paul Patton, President of the Purvis Eureka Car Club of Australia. It demonstrates the many conversations I had during the course of researching these articles and the passion that collectors have for Australian fibreglass classics.

THE TALE OF THE PURVIS EUREKA

The red "Reek" in this photo was actually Shane Purvis' car. His mate had bought one off his dad that he never finished I believe. Shane bought it, finished it and painted it red because the original black gelcoat had faded too badly. Shane sold it in 1996 when his life dictated that he needed a station wagon. The chap he sold it to, parked it outside his garage and went inside to get the garage keys but got distracted and forgot it was still outside until after dinner. It got stolen in the meantime and the police found it shortly after at the bottom of the street where the thieves had left it with the roof half up, hinges bent from being forced, broken side windows and some wiring butchered in a vain attempt to hotwire it! He put it in his shed and never touched it for years. Having retired in 2011, he contacted me to offload it. He hadn't been in the shed for years and asked me to bring an angle grinder because the garage lock was a bit rusty. The tyres were still pumped up, the roof was still half open and the whole car and everything else was covered in a thick coat of dust perfectly preserved! It sold very quickly and is now in NSW somewhere still in mint condition.



The Zeta

(1963–65)

Written by Kerryn Caulfield, Executive Director, Composites Australia Inc.

Zeta is a marque of automobile that was produced in Australia from 1963 to 1965 by South Australian manufacturing company Lightburn & Company Limited.

It was a large industrial company employing over 500 people, that manufactured a raft of products from the “Lightning” brand concrete mixers, washing machines and spin driers, wheelbarrows and boats.

The first Zeta model was introduced in 1963 at a price of £595. The company’s founder, Harold Lightburn, had ambitious plans to sell the Zeta sedan runabout and its sister models, the Zeta Sports, Sedan Deluxe and Utility throughout Australia. He also had his eyes on South-East Asia, a market which he believed would benefit from the non-corrosive properties of fibreglass.

Billed as “Australia’s own second car”, the fibreglass bodied Zeta Sedan was a front wheel drive with independent rear trailing arms and powered by a four speed 324cc Villiers engine. The chassis was steel, with a fibreglass body enclosing a large and spacious interior. Windows were perspex except for the front

windscreen which was laminated glass. Many would claim that the form of the Zeta sedan resembled the washing machines with which it shared a factory. Its unsophisticated features included a gravity feed fuel system from a tank behind the dashboard. The fuel gauge reading depended on whether the car was traveling up or down a hill.

In 1964, Lightburn entered a Zeta in that year’s Ampol Trial, a two-week 7,000-mile rally that tested the integrity of the 151 entries. Of those 118 that finished, all but 12 suffered structural damage. One Zeta finished in good shape while the other two Zeta entries didn’t fare well.

Sadly, the Zeta’s commercial success was limited and production ceased in 1965 with Lightburn’s ambitious dreams amounting to total sales of fewer than 400 vehicles. Despite its shortcomings, the Lightburn Zeta is considered one of the most unique Australian vehicles ever made and recognised by Australia’s National Museum as an important example of our national industrial heritage.

The Lightburn Zeta was made in Adelaide by Lightburn & Company Limited between 1963 and 1965. Image courtesy of William Robinson/Alamy Stock Photo



By the 1960s, suburbs were expanding along with car ownership, roads and urban infrastructure. Lightburn's progressive vision was to make goods for the postwar demand for inexpensive and reliable Australian-made goods.

This 1963 small grey painted fibreglass-bodied two-door 'Station Sedan' motor car was an economical and reliable vehicle to readily adapt to every family's needs. The rear seats could be removed to provide space for children, parcels or prams. The front seats could be reattached to the roof to provide grandstand views at sporting events.



The Zeta sedan is with the National Motor Museum, on loan from the National Museum of Australia



Spraying the Zeta Runabout in the Lightburn factory, 1963. Courtesy of Alamy Stock Photos



Production line of Zeta Runabouts in the Lightburn factory, 1963. Courtesy of Alamy Stock Photos

The Goggomobil Dart

Written by Kerryn Caulfield, Executive Director, Composites Australia Inc.

Considered by many as the most successful attempt to design, manufacture and market a minicar in Australia, the Goggomobil Dart was an Australian-designed fibreglass two-seater open sports car that went on sale in 1959.

Only 3.0m long and 1.3m wide, it weighed 345kg. It was powered by a rear-mounted twin-cylinder two-stroke motor available in both 300cc and 400cc variants. It featured no doors and a small luggage compartment built into the nose.

Packed with character, the Dart was a local version of the Goggomobil microcar which was a product of Hans Glas GmbH of Dingolfing, in Bavaria, Germany. Recognising the market potential for cost effective mini cars, Sydney sports car specialist Bill Buckle of Buckle Motors Pty Ltd, became the Australian distributor of the unique compact car. Import taxes imposed by Australia could be reduced by importing just the chassis, engine and running gear, so Buckle commissioned a local engineer and race car designer to design a body with an elegant twist on the Bavarian model that could be fabricated in fibreglass. The windscreen was a rear window from the Renault Dauphine.

A marketing promise was that fibreglass could be affordably repaired with ease with an inexpensive do-it-yourself kit.

The Australian "Modern Motor" magazine in its December 1958 road test concluded "A combination of several factors gives the Goggo its amazing manoeuvrability in local traffic - its tiny size, tight turning circle afforded by small wheels and more direct steering ratio, snappy gearbox and nippy acceleration".

Sadly, the popularity of the Goggomobil declined with the launch of the Morris Mini Minor in 1959 that quickly dominated market share of the small car market.

Around 700 Goggomobil Darts were produced in Australia up to the time that production ceased in September 1961.

Fame came a second time for the Goggomobil in the 1990s by the Yellow Pages television commercial featuring a car enthusiast looking for parts for his

The Goggomobil is considered to be the most representative "minicar" on sale in Australia in the second half of the 1950s. Image courtesy of Powerhouse Collection





Buckle Motors Pty Ltd is an Australian car dealership chain and former manufacturer that produced the famous Goggomobil Dart. The company was recently sold by owners, Eagers Automotive to the Australian Motor Group.

Goggomobil. "I've got a problem with my Goggomobil," he laments down the phone in a thick Scottish accent." G, O, G, G, O... No! No! Not the dart!"...a line that is still recited today.

Surviving Goggomobils are highly collectable and in the care of collectors and museums. There is even one in Australia's own Powerhouse Museum's rarely seen collection.



Only 3.0m long and 1.3m wide, the Goggomobil Dart weighed 345kg.

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Elfin

Sports and motor racing cars

Written by Kerryn Caulfield, Executive Director, Composites Australia Inc. with a little help from Bill Hemming.

At its peak, South Australian based Elfin Sports Cars was the world's second largest producer of racing cars.

Elfin Sports Cars was founded in 1957 by South Australian racing car enthusiast, designer, builder and driver Garrie Cooper. For a 25 year period until Cooper's death in 1982, Elfin produced 250 sports and racing cars, over 27 different models and became Australia's most prolific and successful racing car manufacturer.

Elfin race cars won 29 championships and major titles, including two Australian Driver Championships, five Australian Sports Car Championships and four Australian Tourist Trophies, took out the Singapore Grand Prix and twice won the Malaysian Grand Prix. Internationally recognised champion drivers who triumphed with Elfin race cars included World Formula One Champion James Hunt, Didier Pironi, Vern Schuppan, Larry Perkins, John Bowe, Frank Matich, Bob Jane, John Harvey, Allan Grice and Peter Manton.

Fibreglass was used for the bodies on Elfins single-seater, open wheel 'Formula Junior' class race cars as early as 1960 to shed weight and build performance.

Subsequent and later models were also fibreglass centric with carbon fibre elements where it mattered.

Twenty years ago, Elfin formed a collaboration with GM Holden revealing a fibreglass bodied concept MS8 Streamliner and MS8 Clubman at the Melbourne International Motor Show in 2004. Limited production of the two versions of the MS8 began in March 2006. These were retro-inspired low-slung racers aimed at the weekend club racer and historic vehicle enthusiast market and were hand built by Elfin. Performance was guaranteed by Holden's Gen III V8 engine, six-speed gearbox, limited slip diff, ABS and traction control systems to a lightweight space frame with custom suspension and other specialised racing componentry. Both cars are capable of zero to one hundred in around three and a half seconds.

Elfin Sports Cars is currently owned by the estate of former British racing driver Tom Walkinshaw, through his company Walkinshaw Performance which was famous through its ultra-successful subsidy, Holden Special Vehicles.



Elfin Streamliner. Image courtesy Bill Hemming – The Elfin Heritage Centre



Elfin MS8 design and development. Image courtesy Bill Hemming – The Elfin Heritage Centre



Bill Hemming who coupled his love for cars, a career with BMC/British Leyland in Australia and Europe and his own automotive marketing company established the Elfin Heritage Centre as permanent museum for close to 20 Elfin racing and sports cars and related memorabilia in 2007. Stored within the centre, stacked ready for use in restoration projects are the 70 year old fibreglass moulds from the original Adelaide Elfin factory.

The evolution of composites during the 1950's, especially the relatively inexpensive fibreglass medium, gave Elfin stylists the ability to create beautiful body

shapes with sensual compound curves like the 1963 Mallala sports car. One of the favourites sitting in the Elfin Heritage Centre.

Elfin race cars are still competing in historic challenges throughout Australia, New Zealand, Europe, USA and the UK heartily supported by members of the Elfin Owners and Drivers Club and general lovers of historic cars.

For more information, refer to elfinspiritofspeed.com.au

Elfin MS8 design and development - Image courtesy Bill Hemming – The Elfin Heritage Centre



Holden designed and V8 powered Elfin Clubman MS8 single seat racer for track only - Image courtesy Bill Hemming – The Elfin Heritage Centre





From 1958 to 1963 Formula Junior replaced the motorcycle engine 500 cc F3 cars as the stepping-stone to Formula 1. In its short 6 years, the design span covered the major progression of racing car evolution from ladder frame front-engined cars, through space frame cars with proprietary suspension, rear engine spaceframe's, to

the full monocoque of the Lotus 27. Formula Junior is still a popular historic racing category in Australia, with Formula Junior again having a national series and regularly assembles grid of over 20 cars.

Image Courtesy Bill Hemming – The Elfin Heritage Centre.



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The Perentti (1978 – 1988)

Written by Kerry Caulfield, Executive Director of Composites Australia Inc.

Marketed as 'A little American influence with a lot of Australian ingenuity', the 'Perentti' sportscar was designed and built by Revolution Fibreglass in the outer Melbourne suburb of Bayswater.

Founded and co-owned by Bill Kain and Gordon Peters in 1978, Revolution was an industrious fibreglassing company specialising in making a large range of fibreglass products including hot rod bodies and aftermarket components, and was best known for making Hallett Ski Boats.

Recognising the opportunity to capitalise on the 'kit car' concept using the company's fibreglassing and boatbuilding workforce skills, Revolution set about to produce a downunder high-performance sports car using readymade mechanicals from a V8 Holden panel van and ute. Named the 'Perentti', the body was inspired by the third generation Chevrolet Corvette, which at the time was the pinnacle of both muscle car and sports tourer.

According to Gordon Peters, fibreglass kit car bodies of the time were single skinned, the Perentti's body was double skinned, with a wall thickness of between 3mm and 6mm. "Mechanically, the Perentti was based on a Holden HJ ute or panel van chassis. It was powered by a 350ci 307 V8 5 litre Chev Engine with a Turbo 350 Automatic Transmission. The motor was moved back and down by an inch which gave it better weight distribution."



A safety feature was 25mm steel intrusion bars in the doors and body panels, in order to comply with Australian Design Rules standards. It was offered in kit and eventually "turn-key" form.

The Perentti was price pointed against the Brock HDT Group A SS Commodore classic touring car that was retailing in the early eighties for around \$23,000. Revolution offered the Perentti to the market in various stages of finish, from a \$7,000 kit to a fully finished, road registerable and warrantied iteration for around \$30,000.

The first of 25 Mk 1 Perentti's built. Courtesy Ricky and Sheryl Rowe, Perentti Owners Group.



The stringency and compliance costs of the national standards for vehicle safety in the form of the Australian Design Rules foiled the company's plan to have the car ADR tested for limited production compliance, so as to sell 100 per year of the factory-assembled completed cars with a factory warranty. The result was that only around two dozen were made until 1988.

A Perenti car was reimagined and modified for the 2015 post-apocalyptic action film, Mad Max, Fury Road to do battle for the cameras along with other iconic Aussie cars including Ford Falcons and Chrysler Chargers.



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The Purvis Eureka

(1974 – 1991)

Written by Kerry Caulfield, Executive Director, Composites Australia Inc.

The Purvis Eureka is a sports car that was produced by Purvis Cars at Dandenong in Victoria from 1974 until 1991 after Allan Purvis had negotiated the rights to license building the Volkswagen Beetle-based sports kit car from its UK designer.




The car's distinctive low slung, head-turning sleek design was an instant success with punters who were in the market for an affordable, reliable sports car. Three models of the Eureka were produced including the Sports (74-75), the PL30 (75-76) and the F4 from 1976 until the company closed in 1991.

The one-piece canopy that substituted for doors gave the car a European flavour. So, too, the body hugging seats with full harness seatbelts, optional mag wheels with radial tyres, a sports exhaust system, and pop-up headlights in later models. Headroom was increased in the F4 as well as the option of an electro-hydraulic operating mechanism for the canopy that was known on occasion to trap occupants. Subsequently, many owners adapted their canopies to Targa tops, thanks to the relative ease of working with FRP construction.

The Eureka was offered both as a kit car and as a fully assembled vehicle in a range of gelcoat colours. As a kit car, it could be fitted with a variety of engines, though most were powered by Volkswagen's reliable 1.6 and 2.0-litre flat fours along with a handful of Mazda rotaries.

For a sports car, the Eureka was notably affordable. It was fuel efficient, in the lowest insurance category and sales tax could be avoided by constructing the car at home.

According to Paul Patton, President, Purvis Eureka Car Club of Australia Inc., all the panels on the Eureka were fibreglass including the dashboard and seats. "The main body tub was one piece from nose to tail which bolts onto the steel VW floorpan



then there's the front, rear and side undersills and the roof, bonnet, boot lid (engine cover), headlight boxes, dash, seats and a few odds and sods get attached to the body and that's pretty much it. The main body tub is made from woven roving all around the passenger compartment and over the back windscreen forming a nice, strong roll bar of sorts and the rest is layers of ordinary glass matt and chopped strand with gelcoat on top of course.

Apart from the passenger compartment, the rest of the body compartments are considered sacrificial in an accident and this has been proven plenty of times over the years too."

Production expanded to New Zealand during 1977, before closing up in 1990. An impressive total of 683 units were produced in Australia until commercial operations ceased in 1991.

Along with other Australian fibre-classics, the Eureka has a special place in Australian motoring history and is recognised as such by the National Gallery of Victoria.

In 2018, the original Eureka moulds were refurbished and returned to the Purvis family to provide Eureka enthusiasts access to replacement parts and accessories for rebuilds and restorations.

The Bolwell Nagari (1962 – Present)

Written by Kerryyn Caulfield, Executive Director, Composites Australia Inc.

Campbell Bolwell's pioneering work moulding fibreglass components was first forged on making replacement panels for a 1937 Ford V8 sedan he'd bought for £50, after his brother had taken it for a serious burn one afternoon.



The Bolwell Mk 4 was Bolwell's first commercially produced car, designed for low height and good aerodynamics, minimal weight, and balanced front-rear weight distribution. It included a space-frame chassis; Ford 4-cylinder engine (other options) and sold in kit-form. (1962 – 1965). Courtesy Vaughn Bolwell

Realising the enabling properties of fibreglass Campbell, along with his brothers and friends, subsequently founded a company that would turn out 11 models over 50 years including Australia's first homegrown performance muscle car.

Bolwell's initial offerings in the early '60s were the Mk II which was based on an MG chassis and powered by a tiny but tuneable 1200cc Ford Ten four-cylinder; and the Mk IIIs that ran a Jaguar engine on an Austin-Healey chassis, with fibreglass body. The Mk IV was their first commercially produced car that was made from a space-frame chassis with a Ford 4-cylinder engine

(other engines were also used). Fifty kits were sold, mainly roadster bodies, with the gull-winged coupe version accounting for 12 examples.

Sales for the Mk V11, which was built and sold in kit-form between 1967 and 1972, increased to 450 transitioning the company from a backyard business to a serious specialist vehicle manufacturer making Bolwell Australia's fifth largest vehicle manufacturer of the time.

The Bolwell Mk 8 was the first model to receive its own name – the "Nagari", believed to be an Aboriginal word meaning 'flowing'. Conceived and mostly produced between 1969 and 1974 as a fully built production car, the Nagari was designed to incorporate



The Nagari 300 (Mk 10 - 2010) features a carbon/Kevlar tub, and a mid-mounted Toyota 3.5ltr V6 engine – infused panels - Courtesy Vaughn Bolwell



The Bolwell Mk 8 was a fully built production car, designed to incorporate Ford components and included a V8 engine, and was available with either a Coupe or Sports body.(1969-1974). Courtesy of Vaughn Bolwell



Images are of the Mk 8 Nagari: Steel backbone chassis; Ford V-8 (Windsor / Cleveland) engines & components; sold as a fully built, turn-key production car as well as comprehensive kit stages. Courtesy Vaughn Bolwell. (1969 – 1974)

Ford components and was available with either a coupe or sports body. It was the first of its kind to run a red-blooded V8 and is regarded by many as Australia's finest homegrown sports car. The Nagari 300, which was released in 2010, featured a carbon/Kevlar tub, and a mid-mounted Toyota 3.5ltr V6 engine.

Bolwell Cars went on to create five commercial models, 800 cars in total; and in so doing earned a place in Australia's automotive history.

Campbell Bolwell is to this day, still designing and building cars. The Nagari 500 was released in 2019. Also with a carbon/Kevlar Tub, mid mounted Chev LS3 V8 engine and an Audi 6 speed transaxle, compliance of the new Bolwell Nagari 500 was completed in late 2021.

Bolwell is still a family company with co-founders Campbell Bolwell and his high school friend, Linley Hughes, who are company Directors. Today, under the management of Vaughan Bolwell, the company's advanced manufacturing technologies and world-class designs have been instrumental in creating opportunities both at home and abroad.

Earlier this year, Campbell Bolwell was awarded the Medal of the Order of Australia for services to Mechanical Engineering.

Founded in 1968, the Bolwell Car Club of Australia (BCCA) is one of Australia's oldest one-marque sports car clubs. Founding members united as competitors in motorsport events such as the then annual 6-hour races at Winton and at Hillclimbs including Lakeland and Morwell. Annual National Bolwell car club meetings remain an enthusiastic forum for members to exhibit treasured and restored Bolwell models, from Mark 4 to the Ikara. The Club rents the original fibreglass moulds from Bolwell Corporation for an annual stipend.



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