

performance engineering



performance / quality / knowledge / experience



As a child, I would avidly watch Formula One Grands Prix on the television, immensely proud that most of the cars on the grid relied on a gearbox designed and manufactured by my father's company. In the 1970s, most single seat racing cars the world over also used Hewland transmissions.

When, many years later, I took over the business my father had created, it was with a wish to continue what he had started, taking his ground breaking concepts and developing them for the proliferation of new motorsport series. At this point in our history, the business embraced the popular production-based `tin-top` racing series. In 1994 we marked our debut in touring car racing by helping Alfa Romeo and Gabriele Tarquini to victory in the British Touring Car Championship with a new sequential shift transmission. In the following decade, success would follow in the World Rally Championship, sports car racing and many other series across the world.

Today's motorsport landscape is changing. One-make series are common, even at the highest levels, but far from dumbing down our art, each requires us to offer a new bespoke fusion of technical, commercial and logistical expertise. As a company with more than 50 years' experience in motorsport transmissions, I believe we can provide the vital solution to such critical demands.

We are committed to investing in new technologies and equipment faster now than ever before. So, whatever the future holds for motor racing, Hewland will be at the core of the industry and at the heart of the cars, getting power to the wheels in the best way possible.

**William Hewland**

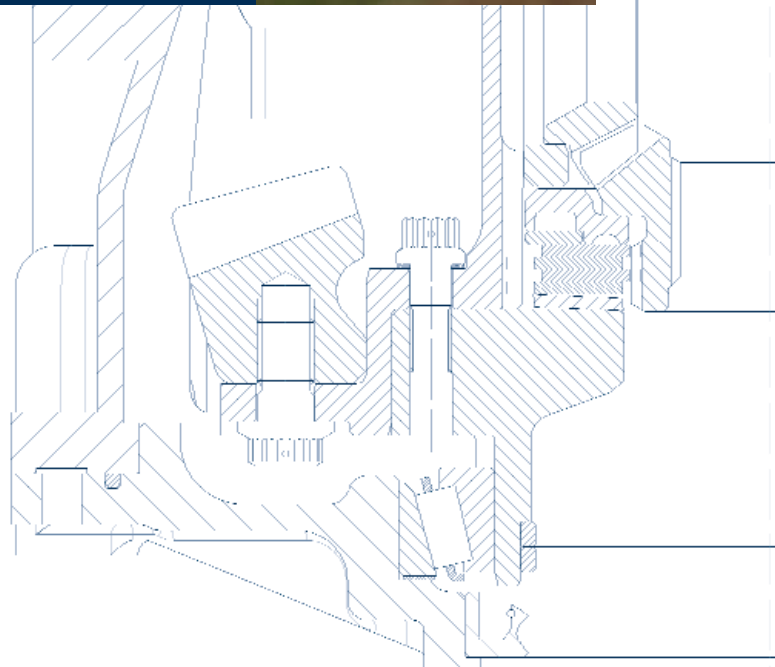
## MOTORSPORT TRANSMISSION SPECIALISTS

Hewland Engineering is the only company in the world which specialises solely in the design and manufacture of transmissions for competition cars. We don't work in any other arena than the motorsport industry, which means that our entire 50 years of experience is focused on nothing but making gearboxes which help our customers win events and championships across the world.

You will find Hewland transmissions and components in nearly every category of motorsport, from the stages of the World Rally Championship in Super 1600, Group N and World Rally Cars, to the race circuits of Europe, North America, the Middle East and Asia in touring cars, sports cars, Nascars, single seat racers and LMPs. This breadth of experience means we can rapidly develop a solution for any installation that is not only highly competitive in terms of its performance but also its cost. To date, we have designed more than 200 bespoke transmissions for our clients and are the only company to supply a complete semi-automatic gearbox. However, we also manufacture a range of 13 gearboxes designed to suit most modern motorsport applications for front and rear wheel drive, plus a range of classic gearboxes.

We have the utmost belief in the performance of our transmissions and take full responsibility for the way they perform, that is why our team of engineers are on hand to provide technical support, while our global network of 29 agents support our products across the world. At the end of the day, it is your success that drives our business.

2008 World Touring Car champions, Seat, chose Hewland to design a bespoke gearbox for its championship winning Leon TDI. Alfa Romeo, Chevrolet and Volvo also use our gearboxes in the championship.



Carlin Motorsport secured first, second and third place in the 2008 British F3 International Series.

Hewland has supplied transmissions in the Japanese, British and Euroseries Formula Three championships. Each year Hewland has continued to improve the performance without affecting the cost of the system.





# quality



2008 DTM Champion, Timo Scheider, used a Hewland gearbox in his championship winning Audi. Hewland has supplied both Audi and Mercedes with transmissions for their DTM cars for the last five years.

## A TEAM BASED APPROACH

At Hewland, we have a dedicated team of nearly 20 designers and production engineers. Each of our engineers is a specialist in the design of motorsport transmissions and they understand what our customers' chassis or powertrain engineers need from the gearbox. We also use Solid Designer, a CAD package that is flexible enough to accept design data from whatever programmes our clients choose to use.

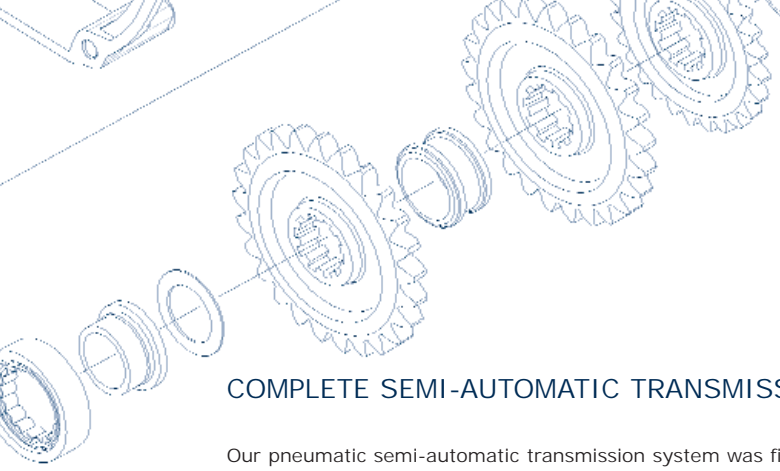
Our approach is to assign a lead engineer to each project, who acts as the interface between our design team and our customers. While they are an expert in their field and lead the project, the design of each element of the transmission, from the differential to the bearings and the gears, is always evaluated by another engineer in the team. In this way we ensure that at least two experienced engineers have analysed every part of the gearbox.

Each year we make significant investments in the latest machinery ensuring our customers benefit from the most advanced motorsport transmission production facilities in the world. Having our own state of the art manufacturing facilities, which include our own heat treatment plant, also means that we can turn first prototype units around quickly for evaluation and that we can control the cost and quality of the production units we supply. Typically we would expect to turn around the first prototype gearbox for evaluation in just 14 weeks, including all patterns, casting assembly and our own internal test procedures.

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Hewland is based in a purpose-built, state of the art manufacturing facility in the heart of the UK's motorsport industry. It is one of the most advanced motorsport transmission production facilities in the world, employing over 130 people all striving to provide performance engineering solutions through innovative design.



## COMPLETE SEMI-AUTOMATIC TRANSMISSIONS

Our pneumatic semi-automatic transmission system was first introduced on all 35 Panoz DP01 cars in the 2007 Champ Car Series. In 2008, we integrated this pneumatic system into the gearbox we designed for the new Superleague series and in 2009 it was chosen for the new Formula Two championship.

Our approach is unique in that we design and supply the entire system rather than adding a third party shift to our own gearboxes.

We supply the gearbox control unit; compressor; air receiver; valve block assembly; throttle actuator; shift actuator; steering wheel paddles; pneumatic hoses; electrical terminations and software.

The Superleague one make series was launched in 2008. Hewland was chosen to design, manufacture and supply all the cars with a bespoke semi-automatic transmission.



***Shift actuator:** we have separate single acting actuators for up and down shifting. Both actuators are integrated into the gearbox main case, but can be easily removed for servicing.*

***Throttle actuator:** this is a bespoke housing containing our proven internals in order to adapt it to the engine throttle mechanism.*

***Air receiver:** our receiver is a bespoke thin wall aluminium unit with a temperature sensor.*

***Compressor:** this is a Hewland-designed unit that is housed within the transmission.*

***Steering wheel paddles:** our switch units are designed to attach to the back of the steering wheel. They are fully machined aluminium components with carbon fibre finger panels and permanent magnets to give a positive and tactile feel.*

***Valve block assembly:** this consists of three high quality aluminium pneumatic valves which control the air flow to the actuators, along with the system pressure sensor.*

***Shift position sensor:** this is mounted on anti-vibration mounts on the rear of the gearbox to provide measurement of shift barrel position using non-contacting measurement technology. It provides feedback information for the gearbox control unit to optimise each gear shift in real time.*



# knowledge



David Brabham secured second place in the American Le Mans Series in his Acura ARX 01b.

Honda Performance Development and Hewland have been working together to supply Patron Highcroft Racing, De Ferran Motorsports, Andretti Green Racing and Lowes Fernandez Racing with transmissions to compete in the American Le Mans Series.

# experience



In 1994 Hewland supplied Alfa Romeo with a six speed sequential transmission for its assault on British Touring Car Championship. The Alfa 155 went on to dominate the championship, with Gabriele Tarquini taking the title for the Italian firm.

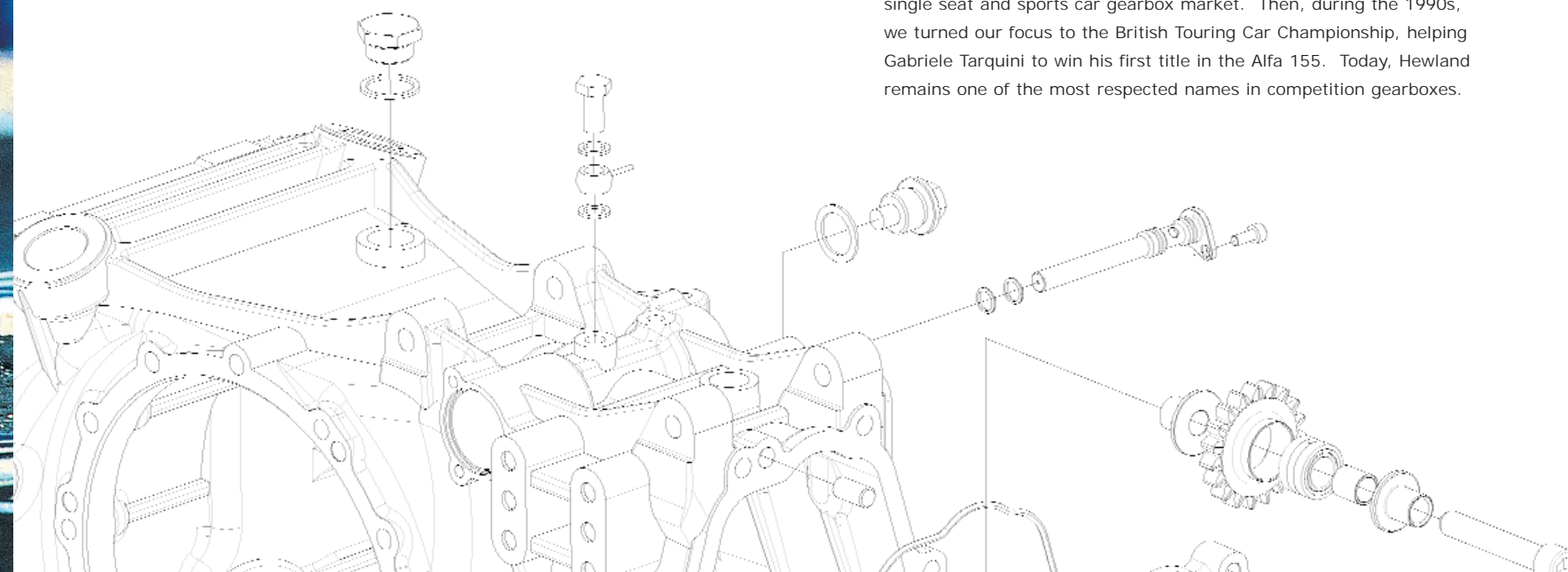


## 50 YEARS OF MOTORSPORT HERITAGE

Hewland Engineering was formed in 1957 by Michael Hewland, who became recognised as the inventor of the bespoke racing car gearbox. By the early 1960s our gearboxes were fitted to nearly every single seat racing car in the world and, in 1964, we achieved our first Grand Prix victory.

Hewland continued to dominate Formula One in combination with the Ford DFV engines, used in almost every car. In 1970, Michael Hewland was presented with the prestigious Ferodo Trophy, then Britain's top motor racing award, for equipping the winning cars in seven major international championships.

Throughout the 1970s and 1980s, Hewland continued to dominate the single seat and sports car gearbox market. Then, during the 1990s, we turned our focus to the British Touring Car Championship, helping Gabriele Tarquini to win his first title in the Alfa 155. Today, Hewland remains one of the most respected names in competition gearboxes.



In 2008, Nasser Al-Attiyah secured his fifth Middle East Rally Championship title in his Prodrive Impreza N14.

Prodrive has been a customer of Hewland since the early 1990s. This partnership has seen Subaru win the Production World Rally Championship for five consecutive years using Hewland gears.



## OUR CLIENTS

Our current list of clients covers almost every motorsport series in the world, as well as some of the greatest names in motorsport:

|                          |   |
|--------------------------|---|
| <b>Acura (Honda)</b>     | (LMP2)                                    |
| <b>AMG Mercedes</b>      | (DTM)                                     |
| <b>Audi</b>              | (DTM)                                     |
| <b>BMW Motorsport</b>    | (Formula BMW)                             |
| <b>Callaway Corvette</b> | (GT3)                                     |
| <b>Chevrolet</b>         | (WTCC)                                    |
| <b>Courage</b>           | (LMP1/LMP2)                               |
| <b>Dallara</b>           | (Formula 3/Formular ADAC)                 |
| <b>Dome</b>              | (Honda NSX – Japanese GT500)              |
| <b>F3</b>                | (British, Japanese & Euroseries)          |
| <b>Formula One</b>       |   |
| <b>Juno Racing</b>       | (V de V)                                  |
| <b>Lola Cars</b>         | (MG LMP/Toyota Formula Nippon)            |
| <b>Matech</b>            | (Ford GT40)                               |
| <b>Mazda</b>             | (Star Mazda/Japanese Super GT500)         |
| <b>Mecachrome</b>        |   |
| <b>Michelotto</b>        | (Ferrari F430 GT2)                        |
| <b>Mitsubishi</b>        | (Group N)                                 |
| <b>Mosler</b>            | (GT2/GT3/Mosler Series)                   |
| <b>Moto GP</b>           |   |
| <b>Motorsport Vision</b> | (Formula Two)                             |
| <b>Nascar</b>            |   |
| <b>Palmer Sport</b>      | (Formula Palmer Audi)                     |
| <b>Panoz</b>             | (Champ Car/Superleague/GT2 Esperante GT2) |
| <b>Prodrive</b>          | (Impreza Group N/Aston Martin Rally GT)   |
| <b>Peugeot</b>           | (Danish TCC)                              |
| <b>Seat</b>              | (WTCC/BTCC)                               |
| <b>Super Bikes</b>       |   |
| <b>Suzuki</b>            | (Super 1600 rally)                        |
| <b>Swift</b>             | (Formula Atlantic)                        |
| <b>Toyota</b>            | (Supra – Japanese GT500 and Hybrid 24hr)  |
| <b>Van Diemen</b>        | (Formula Ford)                            |
| <b>Volvo</b>             | (WTCC/Swedish TCC)                        |
| <b>World Super Bikes</b> |   |

If you would like to know more about how Hewland could help your business please contact us:

Hewland Engineering Limited  
Waltham Road  
White Waltham  
Maidenhead  
Berkshire  
SL6 3LR  
United Kingdom

T +44 (0) 1628 827 600  
F +44 (0) 1628 829 706  
E [enquiries@hewland.com](mailto:enquiries@hewland.com)

[www.hewland.com](http://www.hewland.com)