

Working under contract for RDS Automotive, 'R&B Design' first had cause to deal with vehicles specifically designed for military use in 1997 when RDS were asked by Land Rover to supply two Engineers to support their in-house team on the Winter Water Wolf program. This was to be the final phase from an 8000-vehicle order for the UK MOD.

The initial brief was to support 2 Land Rover Engineers and to liaise with suppliers during the design phase of the program. Our involvement grew over the next few weeks as it was proven that, whilst ATTURM (Amphibious Trials and Training Unit, Royal Marines) were experts in their field of waterproofing vehicles for the MOD, they had never had to operate within the confines of a production facility or to production build rates.

It was here that we showed how versatile we could be, stepping up the team to include 2 vehicle build technicians, 3 CAD engineers and Russell Cort from R&B Design as full-time Project Co-ordinator to liaise between Land Rover Engineers, their suppliers and ATTURM. Working with all parties the team's engineers took the knowledge that ATTURM had gained and, combined with their experience of automotive production constraints, produced production line quality, fully engineered solutions, to some of ATTURMS most challenging problems.

The process of design and development of the Wolf vehicle brought Russell into close contact with not only ATTURM from the MOD, whom he had regular reviews with, and provided engineering support to at the time of the sea trials. Reviews were held with both the DPA and with the end user (Royal Marines) to discuss proposed engineering issues and constraints that may have had an effect on the vehicles ability to carry out it's role. The final stage of the Design and Development program was the release into the Land Rover system of all the Detail Drawings and CAD models developed by RDS of all the new design components. This process was again supported by the Project Co-ordinator, Russell Cort from R&B Design.

Toward the last stages of the design phase it had become apparent that the vehicle was becoming too complex to fully build on Land Rover's production line at Solihull, so a small number of engineering changes were made to allow an amount of 'Off-Track' conversion work to be carried out by a third party converter, as yet unnamed. The decision was taken by Land Rover to put this process out to competitive tender to get the best package of work at the most cost effective rate.

Representing RDS, Russell Cort along with a number of other interested parties attended a bidders conference where information attaining to the conversion content was shared with all. With RDS' knowledge of the program, the base vehicle and their proven track record of vehicle off line build's the contract was awarded to RDS. RDS' previous experience in this area which helped win the bid included; 5000 Frontera's for Vauxhall at a unit converted specifically for the task & numerous SV builds for Land Rover at their own workshops in Southam, all again supported by Russell Cort from R&B Design.

The build content was split between the different variants shown below:

- 686 Winter Water Defenders - Split between 90"/ 110" GS and FFR
- 12 Winterised only Defenders - Split between 90"/ 110" GS and FFR
- 36 Winterised Defender Ambulance

All 734 vehicles passed through the Southam workshops where RDS' team of 12 trained technicians carried out an average of 16 hours of conversion work to each. The conversion project was managed by Russell Cort.

Three vehicles were chosen from the converted fleet to complete validation trials at ATTURM where after approval, the Winter Water fleet was accepted into service.

During the conversion program of the Winter Water Wolf, a requirement to 'Deep Ford' FFR vehicles with full radio kit fitted, was identified. RDS – using Russell Cort as Project Manager, were again asked to support this operation with the design of a new support frame to fit the existing waterproof radio bag into the new vehicle.

This was carried out as a separate program and the finished kit was fitted into a vehicle with the installation being approved by Land Rover Engineering and the sub-contract Radio Engineers, from Huntings Ltd. As an additional service Russell Cort also supervised the sub-contract manufacture of the parts, packaging them into kits and ensuring prompt delivery direct to MOD's distribution centre at Ashchurch.

After the success of the Winter Water Wolf vehicles the MOD decided that the Ambulances previously converted only to 'Winterised specification' should now also be waterproofed.

Russell Cort led the design and conversion team. The design process was relatively straight forward, with the addition of only 8 completely new designs. The bulk of the parts were carried over from the Wolf variant, but this did mean significant modification to the vehicles electrical interface with the ambulance systems and a complete strip of the vehicle to fit new harnesses, seal transmissions and fit new engine components such as turbo chargers, starter motors and alternators. Each of the vehicles received an average of 55 hours conversion labour.

In July 2000 RDS was again called in by Land Rover to convert the existing UK MoD Winter Water Wolf designs to suit left hand drive application for the Dutch Marines. This was completed with RDS also taking on the role of supplier for the majority of the bought out parts, including, a new design three-seat waterproof bench. Russell Cort project managed this process.

Whilst under contract to GH Automotive Ltd., R&B Design have applied our knowledge in this field to vehicles for:

JCB – Winterised 525 Compact Loadall, Winterised 524-50 Compact Loadall, Winterised 541-70 Telehandler and the Winter Water 4CXM Backhoe Loader

VOLVO – Winterised Heater to FM12 Tractor unit, Development of Winter Water variant of their 8x8 Timmoney Research CST

FODEN – Winterised and Waterproofed Medium Dump Truck

As a prototype design and development consultancy, R&B Design respects its clients confidentiality, and so we cannot disclose details of any work currently in progress. We can state that we have experience of a number of different types and sizes of vehicles including, Light Commercial, Articulated and Rigid HGV as well as Fuel and Ammunition handling vehicles.