

GENESIS OF THE JAYS



Two early design sketches:
January 1986, top, and
April 1986, both by Mike Sampson



As the Discovery's 35th anniversary year draws to a close, we reveal the exclusive results of new research by LRM's Classics Editor, Gary Pusey...

THERE'S an old saying that the sea eventually gives up its secrets. I'm beginning to think this might also be true in terms of some of the enduring and unanswered questions in Land Rover history, including the still largely unknown story of the prototype Project Jay vehicles. I'm not talking here about the pioneering development programme that resulted in the launch of a

world-beating new vehicle - the Discovery - in record time, because much has been written about that over the years.

In summary, the creation of the Discovery was managed very differently to the company's traditional approach, with six separate development workstreams being conducted in parallel that involved not only the in-house teams but also



Two Body & Assembly pre-pro Jays, both wearing their body camouflage kits and black painted front ends, meet in the Peak District while on the Northern test circuit





third-party suppliers and contractors, both in order to meet the aggressive development timescales that had been set, but also to ensure that suppliers' particular knowledge and expertise was shared, together with project risk. This resulted in the new vehicle being ready to launch years before it would have been if the traditional linear approach to planning had been adopted, and at greatly reduced cost. It was pioneering stuff and, at its peak, between 70 and 80 people were assigned to the team.

The part of the story that is missing is the chapter regarding the individual pre-production vehicles themselves – the Validation vehicles including the various test rigs, the Methods Build vehicles that bridged the gap between vehicles hand-built by the engineering team and those that would eventually be built on the production line, and the pilot-production vehicles – and how many of them there were, and what roles they played in enabling the media and dealer launch of the Discovery in Plymouth in October 1989.

1986: Probably the first model with each side a different design

I've always thought it interesting that we know almost everything about the pre-production Range Rovers – the 100in Interim Station Wagon engineering prototypes, the YVB pre-production vehicles, and the NXC press fleet that launched the Range Rover to the world's media in June 1970 – while knowing almost nothing about their equally important Project Jay equivalents built around 20 years later.

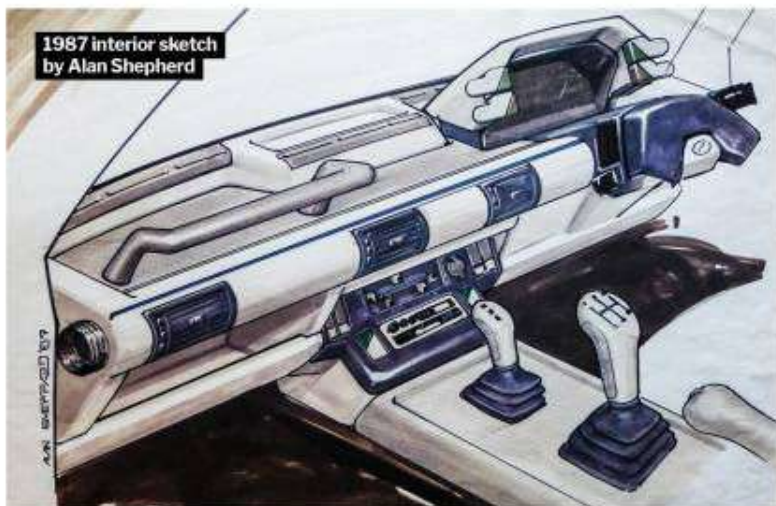
In its 1987-1989 marketing plan, which was issued to company executives in November 1986, Land Rover stated that its business philosophy would evolve from being 'the world's premier off-road vehicle manufacturer' in 1986, to 'the only manufacturer dedicated to 4WD vehicles, encompassing luxury dual-purpose, premium personal transport, and versatile utility vehicles' by 1989.

In these words, we see the roots of the company's thinking about Project Jay – the Discovery – and the impact that Land Rover hoped it would have. We can also see that in 1986 the company was already envisioning what it today calls the House of Brands: Range Rover, Discovery, and the utility Land Rover (the Defender name was not adopted until 1990). But unlike JLR's current version of brand positioning, in 1986 the three models were anchored to a proud foundation of heritage and pioneering achievement.

The Marketing Plan was blunt in its assessment of the company's position in terms of current sales and future prospects, concluding that, 'Land Rover is under substantial pressure in all market sectors'.

In the utility markets, Land Rover was losing market share following 'the introduction of lighter-duty 4x4s at a lower price, offering acceptable functional performance, enhanced operator comfort and image', while the heavy-duty sector, including military and paramilitary markets, was 'increasingly subject to foreign currency restrictions and competition from specialist manufacturers'.

The personal transport markets were seen to be "dominated by the Japanese manufacturers, offering



1987 interior sketch by Alan Shepherd



Jay bucks during design comparisons with the competition: top, five-door Jay with Isuzu Trooper, and three-door with Daihatsu Fourtrak

“Personal transport markets were seen to be dominated by the Japanese manufacturers”



on-road performance with off-road capability, car-like feature levels, and youth/female appeal”.

And finally, the marketing analysis stated that the luxury 4x4 sector was ‘under pressure due to the increasing availability of luxury 4x4 passenger cars, with potential purchasers evaluating the range of vehicle packages on offer rather than individual products’.

It was an honest assessment at the time: limited growth opportunities in the utility 4x4 market (the Ninety and One Ten), the opportunity for consistent growth in the luxury dual-purpose market (Range Rover) as long as the vehicle was taken further up-market, and a ‘strong growth forecast’ in the leisure/recreational/personal transport markets. This latter market segment was firmly in the sights of the Project Jay team.

Land Rover’s managing director in the 1980s was the late Tony Gilroy, a remarkable and often unsung hero of the British motor industry who had transferred across from Freight Rover, where he had turned the company around and almost certainly saved it from closure. Under his overall leadership, Land Rover pulled off something that even by the standards of today remains remarkable: the company developed a third Land Rover vehicle – the Discovery – in the remarkably short time of 34 months from concept approval in December 1986 to launch in October 1989. And not only that, it also created a vehicle that was an immediate hit and was seen by the automotive media to be considerably better than the much-vaunted Japanese competitors.

In its 15 November 1989 issue, *Autocar & Motor* magazine introduced its extensive road test with the headline ‘Land Rover’s bargain 4wd leaves its rivals stranded’. Concluding its report comparing the new vehicle with the Mitsubishi Shogun and the Isuzu Trooper, the magazine wrote, ‘with the Discovery, Land Rover shows just how good a recreational off-roader can be. With the right build quality, this new champion of Britain’s motor industry is good enough to send the Japanese back to the drawing board’.



Full-size buck styling comparison with Mitsubishi Pajero, late 1987 or early 1988.



Above: Tony Gilroy was Land Rover’s visionary CEO in the 1980s. Right: *Autocar & Motor* made its opinions very clear in its November 1989 review





Jay 5 during Cold Environment Testing in Canada in 1988, with the team installing the body camouflage



The Jay Project team, 1989



Jay team members in Block 38: Richard Singleton was responsible for test planning, and Ken Sharp and Paul Wood were two of the engineers



Mike Donovan, team leader



Dick Elsy, Validation Manager

The team responsible for the vehicle that saved Land Rover was led by Mike Donovan, and as well as areas such as Project Finance, Purchasing, and managers seconded from Marketing, Service, and Product Planning, Mike also had reporting directly to him two sizeable teams, one responsible for Product Engineering under John Bragg, and the other responsible for Product Manufacturing under John Rutherford.

John Rutherford's team was tasked with working with the Jay Product Engineering team and the company's mainstream manufacturing team to ensure the new vehicle was optimised for volume build on the production line, while John Bragg's team had to build and test the very first validation vehicles.

Dick Elsy was the Project Jay Validation Manager reporting to John Bragg, and we have featured Dick in these pages before (*Land Rover Legends, LRM* January 2022) in relation to the development of the Freelander, for which he was Programme Director.

During my first meeting with Dick in connection with that feature, I asked him if he had kept any records from his time with the Jay team. It is a question I have asked every Land Rover person I've ever met who worked on the project. Dick's answer at the time was a familiar one: no, unfortunately he did not have any records.

Earlier this year I was attempting to research the history of the two Jay vehicles, numbers 5 and 17, that are preserved in the Dunsfold Collection, and I contacted Dick again to see if he had any recollections. He did, confirming to me that Jay 5 had undertaken hot weather trials (HET) in the USA and cold weather trials (CET) in Canada. During our conversations he also suggested that he could ask one of his old Jay team members, Brian Hipkins, if he had any recollections or paperwork harking back to those years.

“Here was the Holy Grail – lists of some of the Project Jay development vehicles”

Jay 18 with body camouflage undertaking Hot Environment Testing in Australia



Brian joined Land Rover as an apprentice in 1973. The company sponsored him through his four-year mechanical engineering degree at Aston University and he graduated in 1979. He worked on the Ninety and One Ten, and the introduction of the Range Rover into North America, before joining the Jay team, where he was Principal Engineer with responsibility for the build of the validation vehicles.

Several days after my conversation with Dick, my inbox pinged with a succession of emails containing photos of some of the documents that Brian had retained in his old business attaché case. For a Land Rover anorak, researcher and historian like me, this was akin to discovering gold, and a meeting was swiftly arranged.

Here for the first time were project plans with key milestone dates, internal correspondence and – the Holy Grail – lists of some of the Project Jay development vehicles. The material isn't exhaustive, and a degree of caution is required because a lot of it describes work that was planned, which isn't necessarily the same as work that was actually completed, but it is the most detailed insight yet on the vehicles the company built in the 18 months prior to the launch of the three-door Discovery in October 1989.

Let's start with an early Project Jay team document dating from late 1987, entitled 'Programme Key Events: 3-door estate'. From this we learn there were three distinct build phases before volume production of the Discovery began. The first were the Engineering Validation vehicles, scheduled to be built by Dick Elsy's Validation team commencing in January 1988. These would be followed by the Methods Build vehicles, construction of which was intended to start in September 1988.

As Brian explains, “John Rutherford was the



Barely recognisable as a Discovery, V8-powered Jay 16 was a mileage test vehicle



Brian Hipkins, Principal Engineer Validation Build

Manufacturing lead within the Jay team and had overall responsibility for developing the manufacturing processes for production. That included the Methods Builds. His guys looked over the shoulders of the Engineering team building the validation prototypes and then developed the manufacturing assembly processes accordingly. This included cycle times for each operation, design of special tools and jigs, and so on. John's team was the link between Engineering and Production. These days that sphere of responsibility is known as Manufacturing Engineering.”



ENGINEERING VALIDATION VEHICLES

JAY	BUILD	ENGINE	LH/RH	PURPOSE	VIN	REG
1	01/88	-	-	TEST RIG: torsion, bonnet, door tailgate slam, load restraint tests		
2	01/88	V8	R	Stress analysis, barrier test		
3	02/88	V8	L	Four-poster High Input Durability Endurance (HIDE), electrical buck		
4	02/88	VM	R	FIRST COMPLETE VEHICLE: HIDE, strip and inspect		
5	02/88	V8	L	1988: Hot Weather Testing (HET) USA, Cold Weather Testing (CET) Canada and Extended mileage 12/89 Petrol Injection (PI) Programme: converted to Efi, CET Canada (with Jay 36) until 02/90 EXTANT: Dunsfold Collection	329069	B62 COH 968-FPP (Canada)
6	02/88	G	R	Road mileage 150,000 miles to 10/89		
7	03/88	V8	R	Master spec build and legals compliance		
8	03/88	G	R	Structural evaluation, water, dust and fume ingress, demist/defrost compliance 06/89 PI Programme: updated to Efi, exterior noise development, engine tune spec validation, DTp emissions and fuel consumption tests, Gulf States development	329901	B219 AAX
9	03/88	-	R	TEST RIG: in-house belt pull, DTp belt pull test		
10	04/88	-	R	TEST RIG: in-house belt pull, DTp belt pull test		
11	04/88	-	R	TEST RIG: in-house seat strength, front and rear seat DTp test, rebuild to five-door, DTp test		
12	04/88	V8	R	Structural evaluation, Noise Vibration Harshness (NVH), heating and ventilation validation 06/89 PI Programme: updated to Efi, electrical validation, DTp suppression test, emissions validation, in-house fuel consumption test, DTp fuel consumption test		B847 DPU
14	04/88	V8	L	Ride and handling, water, dust and fume ingress, electrical and suppression compliance 06/89 PI Programme: updated to Efi, exterior noise development, DTp noise test, Bond Vehicle for reference		A417 UWO
15	05/88	G	R	Fascia and trim development, noise tests (VM/Gemini), trim endurance		
16	05/88	V8	R	Road mileage 150,000 miles to 12/89	336045	A711 VHB
17	05/88	G	L	CET Canada extended mileage. 07/89 Leisure Spec Feasibility, transfer to LR Parts for Camel Trophy vehicle prep, HIDE test EXTANT: Dunsfold Collection	337614	C60 JKG
18	05/88	G	L	HET Australia extended mileage Three-door Continued Engineering, 08/89 Italian homologation, emissions coastdown data collection 09/89 German homologation, exhaust validation, in-house and DTp noise, fuel consumption, emissions		B968 UK PHN-069 (Australia)
19	08/88	V8	L	Cooling, emissions, fuel consumption Spain 06/89 PI Programme: updated to Efi, HET USA (with Jay 36) with extended mileage and high speed tests to 12/89, barrier crash	343558	D916 YTF
20	06/88	G	L	Emissions, cooling, VM/Gemini emissions certification, Bond Vehicle This diesel vehicle was registered 10/88 and is known to have been scrapped. Its Jay fleet number is unknown but was possibly Jay 20	344371	D961 LTX
32	04/88	-	-	TEST RIG: bonnet, door, tailgate slam test		
33	03/88	G	L	HIDE, strip and inspect		
34	04/88	G	R	Structural evaluation, NVH, water, dust and fume ingress, heater/defrost/demist compliance		

METHODS BUILD VEHICLES

JAY	BUILD	ENGINE	LH/RH	PURPOSE	VIN	REG
35	08/88	G	L	Cooling, emissions, fuel consumption Spain Jay 35 listed in PI Programme 10/87 as RHD Efi with registration number D610 NHB (DVLA states this registration was allocated to a Lada 03/87)		
36	09/88	V8	R	Quality 06/89 PI Programme: updated to Efi, HET USA (with Jay 19) to 09/89 12/89 to 02/90 CET Canada (with Jay 5)		C629 KKY
37	09/88	VM	R	Manufacturing Fit and Finish Listed 07/89 for use in PI Programme		C534 JOK
38	09/88	V8	L	Management assessment		
39	10/88	VM	R	Management assessment		D299 NDW
40	02/89	V8	L	06/89 five-door validation: convert to five-door, probably converted to Gemini, used in five-door validation programme, styling clinic Methods 7, USA Validation (Sanction No 72088) 06/89 three-door Continued Engineering: side window demist development, five-door electrical installations, wipers, rear wash/wipe, radio aperture		
41						
42	03/89	G	R	Methods 8, NVH, (Sanction No 76388) 06/89 three-door Continued Engineering: side window demist, DTp demist/defrost test		
?		V8	L	Land Rover Company Vehicle Records state registered as G242 WAC on 13/10/89 and allocated to A J Perry, Jay Team	374942	G242 WAC

BODY & ASSEMBLY PRE-PRODUCTION VEHICLES

JAY	BUILD	ENGINE	LH/RH	PURPOSE	VIN	REG
?				First B&A pre-production vehicle (not Methods Build or first Volume Production vehicle, as previously assumed) EXTANT: British Motor Museum, Gaydon. Registered by them as G794 BKV which was found to be incorrect. Re-registered 03/12 with the age-related plate F981 ENV	377733	F981 ENV
53	04/89	G	R	EXTANT: Charles Whitaker. Mileage test vehicle. Appeared in the Discovery launch video towing a weighted trailer. Bought from the company by Bill Morris for use as a trialler and later owned by his son Peter	380301	C742 HUH
59	04/89	?	?	In use for Mileage Testing 15/01/90 when it had covered 141,819 miles		D631 NKG
?	04/89	G	R	Period photograph		C527 HBW
?	04/89	G	R	Participated in Exercise Roadmaster at Bordon, 1989		C862 CEU
?	04/89	G	R	Period photograph		D176 OTX
?	04/89	G	?	Period photograph		D589 OVP
?	04/89	G	L	Participated in Exercise Roadmaster at Bordon, 1989		D750 LWO
?	04/89	G	L	Participated in Exercise Roadmaster at Bordon, 1989		D973 LBO

PRODUCTION LINE BUILD VEHICLES

JAY	BUILD	ENGINE	LH/RH	PURPOSE	VIN	REG
60	09/89	V8	R	Production line build PI Programme, Lucas engine tune finalisation and sign-off		

Jay bodyshell in Methods Build undergoing dimensional checks on a Coordinate Measuring Machine. The white tabs signify critical dimension points that needed measuring in 3D space



“For a Land Rover anorak, this was akin to discovering gold”

Jay seat belt anchorage test. Hydraulic rams connected to the lap and diagonal seat belts to ensure that the design maximum load on the anchorage can be comfortably withstood



Jay seat strength test, a one-off pull test to failure with hydraulic rams



The Methods Builds were followed by the Body and Assembly Pre-production vehicles, which were planned to start in April 1989. Body and Assembly Volume Production was planned to commence in June 1989. These two B&A build phases were the responsibility of the mainstream Manufacturing team, rather than the Jay development team.

Comparing these planned dates with the dates actually achieved over the following 18 months reveals almost no slippage whatsoever, which strikes me as a remarkable achievement. Brian agrees and is pleased that I have spotted this.

“We had significant project dependencies on third parties,” he tells me, “And this was particularly true of Motor Panels Limited, who were responsible for the monocoque bodysHELLS and all the body panels, and any slippage there would have a knock-on effect and impact the entire programme.

“It turned out that there actually was a delay of three and a half weeks in the delivery of the monocoque, but such was the strength of the collaboration and commitment that we were able to take contingency measures to ensure that subsequent critical sign-off dates were achieved.

“Perhaps the best example of this supply chain collaboration was with Marley Foam, which had been chosen as the supplier of the complete fascia assembly. This was so complicated that it was almost a development programme in its own right! Marley was responsible for the final manufacturing but also had some responsibility for design, with close liaison and guidance from our internal design team. The date for the delivery of the first fascia assembly had been established very early in the programme and was firmly set for 4 July 1988, so much so that the date became known as Fascia Day rather than US Independence Day. Sure enough, the first fascia did arrive on 4 July, albeit by helicopter...”

• Genesis of the Jays will continue in next month's LRM...

