

Better Late

In June 1940 the race was on to produce a four-wheel drive vehicle for the US Army, John Carroll looks at the contenders

When it comes to the runners and riders in the race to produce the first 'jeep', and long before that name was coined, it is generally accepted that Ford came late to the starting gate. It all began in June 1940, following a meeting of the Ordnance Technical Committee in Washington, when the US Quartermaster Corps (QMC) issued a comprehensive specification for a lightweight, cross-country vehicle capable of carrying equipment and personnel across rough terrain.

The vehicle was required to have a 600lbs load capacity, a wheelbase of less than 75in, a height of less than 36in, a smooth-running engine that would pull from 3-50 mph, a two-speed transfer case that offered four-wheel drive, a rectangular-shaped body incorporating a fold-down windscreen, three bucket seats, blackout and driving lights and, crucially, its gross vehicle weight (GVW) had to be below 1,300lbs. The QMC invited 135 manufacturers to build prototypes and submit them for testing after which a contract for 70 pre-production models would be awarded to some contenders.

Such a requirement had been identified in response to the trend of increasing mechanisation of armies during the late thirties and the war now ongoing in Europe. World War Two had started in Europe during the first days of September 1939 and German Panzer tanks raised the curtain on a new form of warfare, the so-called 'Blitzkrieg', or lightning war. This was unleashed as the German Army invaded Poland. Holland would fall in May 1940 and France in June 1940.

In response to the initial developments, US President Franklin D Roosevelt, had made an emergency proclamation on September 8, 1939. It authorised an increase in size of both the regular army and the National Guard. The War Department was also authorised to spend an additional \$12 million on motor transport. In May 1940, the president recommended further money for the army to the US Congress on two occasions. The total approved was in excess of two billion dollars despite the fact that the US was not directly involved in the war at this time.

When it came to the new cross-country vehicle, only two companies chose to bid for the contract. These were American Bantam from Butler, Pennsylvania, and Willys-Overland from Toledo, Ohio. These were both companies that perhaps saw the potential US government contracts as a way of bolstering their precarious financial situations. Bearing in mind that four-wheel-drive technology was in its infancy, other manufacturers, it is believed, thought



that the strict specifications for the vehicle, including the maximum overall weight of only 1,300lbs, and the short timetable for the delivery of the prototypes, gave little incentive to the project. Competitors were to submit final bids and detailed drawings by July 22, and have a prototype built for testing in 49 days.

Ford Pygmy

The Ford Motor Company entered the race after this deadline and only after being directly approached in October 1940. Ford built two prototypes, of what was officially described as the

Truck 1/4-ton 4x4 Ford but generally known as the 'Pygmy'. It was powered by Ford's only four-cylinder engine in production at the time, a tuned version of the engine from the Fordson Model N tractor coupled to the obsolete Model A Ford gearbox. Surprisingly, the giant automaker's prototype was arguably outclassed mechanically by those from the smaller, struggling companies.

One of the Ford prototypes was fitted with a body from noted manufacturer Budd and the other with a Ford-designed body. Dale Roeder was the Ford employee who headed the team behind the Pygmy and

Than Never

'The Jeep revolutionised modern warfare by providing the answer to the problems of supply and maximum mobility'



Only 50 of these four-wheel steering Ford GPs were made in 1941

it was his team that tuned the tractor engine from 30bhp to the specified 40bhp by using a different camshaft and a bigger carburettor.

The change of application for the engine required new engine mounts, front cover and sump. The Pygmy's Spicer axles and Model 18 transfer case were the same as those in the Bantam prototype although the latter was mated to the redesigned Model A gearbox. With hindsight, it is considered by many that the Ford interpretation of the QMC specification was the best vehicle in terms of layout and body construction and that had Ford's engine been

better, the company would have won the contract.

The army's formal bid request had given American Bantam cause for optimism because Bantam cars were powered by four-cylinder engines as required in the QMC specification. Conveniently the specified wheelbase and weight of the projected military machine were identical to that of a Bantam Riviera roadster.

Robert Brown, one of the civilian engineers from Camp Holabird, Maryland who had attended the Bantam demonstration, later told project manager Harold Crist that he had instructions to disregard the

Bantam presentation but changed his mind after seeing it.

Brown stayed on at the Butler plant while he and Crist worked out the specifications for the proposed vehicle. When he returned to Camp Holabird, Crist reviewed their ideas and realised that the new vehicle would have to be entirely new rather than simply a modified version of an extant Bantam vehicle.

He and others at Bantam set about sourcing the transmission, transfer case, driveshafts and axles. With the somewhat vague army requirements and a single basic sketch to go on, the Bantam

team went to work.

Crist was an experienced automobile engineer, he'd spent 18 years with Stutz and a spell with Marmon which had helped give him experience of sound engineering practice before he went to work for American Bantam in 1937 where he would remain until 1942.

His title at Bantam ranged from plant manager to chief engineer but, due to the company's precarious financial situation, he found each role comprised many duties.

Crist focused on the contract bid with Ralph Turner and Chester Hemphling, both imaginative, resourceful and skilled hands-on mechanics from the local Butler area. Under Crist's watchful eye, the duo fabricated some parts in the Butler factory and bought others, including axles from Spicer, a radiator from Harrison, a Continental in-line, four-cylinder engine and a Stromberg carburettor.

Turner bought steel from the neighbouring Armco steel plant and cut and welded the chassis for the



ABOVE: Steve Bowens tows the Bantam MBT and Convento, Dump, 2 Wheel, 1/2 Ton trailers
BELOW MIDDLE: The GP body with Ford script, civilian-type instrument panel and early military lights



Ford GPs on the production line at Ford Rouge River plant in Dearborn, Michigan

SPECIFICATIONS

- Make **Ford**
- Model **GP 4WS**
- Nationality **USA**
- Year **1941**
- Production Run **1941-1942**
- Engine **Fordson Model N tractor**
- Type **Four-cylinder, side valve**
- Fuel **Petrol**
- Displacement **119.5cid (1,958cc)**
- Power **46bhp @ 3,600rpm**
- Torque **84lbs-ft @ 1,500 rpm**
- Transmission **Model A Ford**
- Transfer case **Spicer**
- Gears **Three-speed**
- Transfer Box **Two-speed**
- Axles **Spicer Dana**
- Suspension **Leaf Springs**
- Brakes **Drum**
- Wheels **Steel Disc**
- Tyres **6.00x16**
- Crew/seats **Four**

Dimensions(overall)

- Length **129ins**
- Width **62ins**
- Wheelbase **80in**
- Weight **2,160lbs**



The Ford GP being tested at Camp Holabird in Maryland

vehicle. From a local scrapyard he bought two Chevrolet transmissions that he modified and mated to a transfer case to make the four-wheel drive system.

To meet the deadline, Frank Fenn, another member of the team, contacted Karl Probst, an American freelance engineer and automotive pioneer who was born on October 20, 1883 in Point Pleasant, West Virginia.

With input from senior members of the national Defence Advisory Committee, Fenn persuaded Probst to work on the design of the new machine. When Probst arrived in Butler, Crist had advanced the project

to the point that he was able to brief Probst on the proposed specification for the new vehicle.

Probst took files of notes, drawings, and photographs from Crist's team and converted them into the official bid drawings. Working largely with Crist and Brown, Probst completed the meticulous drawings in just three days.

In those pre-CAD days of slide rules, drawing boards and T-squares, it was a gargantuan task but finally realised on paper what would become one of the landmarks in automotive history.

For the government bid, Crist calculated the cost of chassis, mechanical and body parts and labour. The official paperwork for the contract was submitted to the military at Camp Holabird immediately afterwards and within the deadline. The, previously established, engineering section at Camp Holabird was the department of the army devoted to the advancement of motor vehicle design, and construction for army service. Here technical staff were tasked with keeping military transportation up to date and it would be here that the prototype 4x4s would subsequently be tested.

The testing of motor vehicles was regularly in progress; road testing routinely exceeded 250,000 miles per year while engine dynamometer and chassis dynamometer testing was routine, necessary for the testing of engines, engine ancillaries, transmissions, prop shafts, universal joints and complete axles.

Both Bantam and Willys-Overland submitted bids but also at the meeting, at Camp Holabird, were representatives from Crosley and Ford. Bantam's bid included design drawings and specifications, while Willys-Overland only offered times and costs.

Bantam won the contract on price and because it was confident it could provide a running prototype in the specified 49 days whereas the Willys-Overland representative suggested 75 days. The team from Bantam, including Probst and Fenn, went away to build the pilot model to Probst's design.

To meet the 49 day deadline the team had to work around the clock as did a team at Spicer, designing axles for the 4x4 transmission system. The Ameri-



can Austin Car Company had been founded in 1929 in Butler, Pennsylvania in order to assemble and sell a version of the English Austin 7 car, known as the American Austin in the United States.

After some initial success, the Great Depression set in and sales fell off to the point that production was suspended after approximately 20,000 cars had been produced. In 1934 the company filed for bankruptcy but in 1935 Roy Evans, a former salesman for Austin, bought the bankrupt company, which was then reorganised under the name American Bantam.

The formal connection with UK Austin was severed though a relationship was maintained. A series of changes was made to the American Austin car design, including the use of a modified engine and a body designed by Alexis de Sakhnoffsky.

Production resumed in 1937 and the cars had achieved a short-lived run of popularity. However the novelty of the diminutive roadsters had worn off in the minds of the car-buying American public. Despite a wide range of Bantam body styles, ranging from light trucks to station wagon woodies, only about 6,000 Bantams of all types were produced.

American Bantam's 1938 model is famously the inspiration for Donald Duck's car. Production had to be halted for financial reasons so the company only remained in business by selling spare parts for the cars previously sold.

Hoping it would translate into some much-needed business for his company, American Bantam's Washington lobbyist Harry Payne pushed the US Army to translate its vague dream of a reconnaissance car into reality and a potential US Government contract was seen as welcome news by company president Fenn.

In June 1940, a US Army delegation comprising infantry, cavalry and quartermaster officers from Camp Holabird visited American Bantam's Butler, Philadelphia plant. They examined the plant's facilities, inspected a static but loaded Bantam chassis and watched a driving demonstration.

For the latter, a stripped chassis with minimal seating capacity and standard apart from a lower

than standard differential ratio, had been readied. This vehicle was driven by Crist over difficult terrain in front of the visitors.

Once the result of the feverish labour in the summer of 1940 was completed it fell to Crist to do something special when he became the first man to drive the first Jeep.

Against the odds, immediately afterwards, Bantam's, running but largely untested, prototype was driven 230 miles over the mountainous, two-lane roads to the army testing site by Crist and Probst. The pair delivered the 'Blitz Buggy' to the army at Camp Holabird, Maryland, at 4.30 pm on September 23, 1940.

It was just in time as the pair were only half-an-hour within the deadline. This prototype was powered by a 45bhp, Continental engine from a fork-lift truck in conjunction with a three-speed manual transmission comprising a Warner Gear gearbox, two-speed Spicer transfer case and Spicer axles.

These components were assembled around a redesigned version of Bantam's U-section, steel car chassis while the body was an amalgam of the Bantam car cowl, modified bonnet and wings and an especially designed rear body and radiator grille. Except for a slightly rounded bonnet and radiator cowl, it was almost the vehicle that would become recognisable worldwide.

Through the subsequent 30-day, 3,700 mile (5,800km) test in a variety of conditions on and off-road, the army found some weaknesses that showed Crist's work with the Bantam BRC-40 was far from complete.

As the army tests continued, Crist worked full-time on the project at the Butler factory, at suppliers' factories and with the prototype 4x4 at Camp Holabird. On such a new and untried vehicle there were inevitably problems but with Crist's guidance and with one of the original team of three living at Holabird, these problems were solved to the satisfaction of the exacting army test team.

At the conclusion of the tests the army testers of the QMC, were satisfied enough to give Bantam an order for another 69 vehicles. These were ordered but to be assembled with a more square design of front wings.

At the same time the QMC also delivered a blow to the company when it gave copies of Probst's designs to the representatives from Ford and Willys. This move took away Bantam's advantage in the race, much to that company's chagrin. It undoubtedly speeded up the construction of prototypes by Willys and Ford and, with hindsight, can be interpreted as an attempt to hurry up the development of what would become the Jeep due to the perceived urgency of the situation.

The two Willys prototypes, named the 'Quad' were delivered to Camp Holabird in mid-November and the Ford 'Pygmy' on November 23.

Unsurprisingly, as their designers had seen the drawings, the latecomers closely resembled the Bantam although Ford's machine had a flat radiator grille.

The 'jeep' concept had been proven by the Bantam and after considerable discussion about prices and weights, because the QMC's specification of a maximum weight of 2,160lbs was difficult to achieve, production could start. The next step was intended to be the awarding of a contract for 1,500 vehicles to one manufacturer.

While Bantam waited for a contract for 1,500 BRCs, the QMC considered its options. Possibly foreseeing greater demand for the new machine



Aftermarket but period turn signals



The Ford script logo pressed into the Ford GP tub



The GP's four-cylinder, sidevalve engine is derived from the Fordson Model N tractor unit



The Ford GP used the instrument panel from the 1941 civilian Ford pick-up



Steering wheel is original, aftermarket indicator stalk is more recent



ABOVE: Parts listing for the four-wheel steering components
RIGHT: A rarity, the parts list for the four-wheel steer Ford GP



'On such a new and untried vehicle there were inevitably problems'



The front steering box has an extra linkage to connect to the secondary one



The second steering box is mounted to the chassis in front of the rear axle



The front and rear steering boxes are connected by this drag link that runs fore and aft

as a result of the developments in the Sino-Japanese war and the ongoing war in Europe, it wanted the mass production facility of a large manufacturer rather than that potentially achievable in Bantam's small factory: Willys had such a facility, as did Ford.

Willys also offered the modern, in-line, four-cylinder, flathead, or side-valve engine that had potential as the new machine's powerplant whereas Ford's flathead four was almost obsolete. Eventually 1,500 revised vehicles were ordered from each of the manufacturers, namely the Bantam BRC, Willys MA and Ford GP.

That, in the summer of 1941, America was preparing to, at the very least, defend itself was newsworthy as were the means of defence. Schuyler Van Duyn writing in Popular Science magazine in August 1941 in an article entitled, 'From Cook Stoves to Tanks they roll from the automobile factories,' commented on the increasing mechanisation. "In addition to 5,900 passenger cars and 27,000 motorcycles, the vehicles ordered are 4,500 quarter-ton scout cars from Ford, Bantam and Willys; 69,000 half-ton pick-up and reconnaissance trucks from White." Clearly aware of the fact that each of the three manufacturers had been awarded a contract for 1,500 quarter-ton 4x4 vehicles, he wrote. "Low-silhouette cars can carry crews of three and machine guns. As reconnaissance cars, they are hard to see and hit. They're fast and powerful. Bantam, Willys and Ford are building them."

The confusion about the origins of the name Jeep are reflected in the uncertainty of the writers of numerous magazine articles of the time no doubt confused by the varying names, both official and unofficial, used by three different and rival manufacturers.

In 'Motorization and Mechanization', an article in Popular Science magazine, David M Stearns wrote about an Armoured Division: "While the tanks are the heavyweights of the armored force, they are numerically a small part of the vehicles it uses. An armored division has only 290 light and 125 medium tanks while there are 792 2.5 ton trucks, 534 motorcycles and 290 bantams plus scout cars and other vehicles in the same division."

About the quarter-tonners, he continued: "The 'bantams' also known to the soldiers as 'beetle-bugs', 'jeeps', and by several other names, are stocky little vehicles only recently adopted for army use."

The Bantam referred to was, of course, the 40BRC while another nickname current at the time was 'Peep'.

The president of the Automobile Manufacturers Association, Alvan McCauley appeared to be referring to Ford's prototypes in 'Defense on the Assembly Line', an article in Popular Mechanics magazine of August 1941: "In June [1941] the US land forces expected to have 190,000 motor vehicles. The new cars form an assorted list - pygmy trucks 80in long, seven ton jobs... Midget trucks are coming from three companies."

Ford GP

Ford was given its contract for 1,500 GP models in November 1940 and these vehicles were manufactured at Ford's Rouge River plant in Michigan. There were two versions of the GP which differed in minor details.

These are generally referred to as first and second series models made between February to June 1941 and June to January 1942 respectively. The production version of the GP was powered by a 45bhp version of the 119cid, L-head, in-line, four-cylinder, tractor engine mated to what Ford called the GP-7000 transmission, a modified Model A car three-speed unit with a 9in diameter clutch, designed to bolt to the two-speed Spicer Model 18 transfer case which was coupled to Spicer axles.

The GP was fitted with Kelsey-Hayes steel wheels. In accordance with the contract, 50 of the 1,500 were equipped with four-wheel steering. The testing revealed that this was not a great success as there was minimal gain, compared to the extra expense and effort required to produce the complicated four-wheel steering system and there were concerns about the vehicle's propensity to tip over while cornering. As a result the requirement was cancelled by the US Army QMC.

The first 400 of the GPs were scheduled for delivery in March 1941 and production continued for another ten months. By July 1941 the Ford and Bantam companies had manufactured their contract-allotted order for 1,500 vehicles each while Willys Overland was still building its 1,500. Subsequently Ford and Bantam were given supplementary orders for vehicles that would be used to fulfil growing lend-lease orders from overseas.

The initial 4,500 Ford GPs, Bantams and Willys MA models were deployed to bases around the US and incorporated into the changing tactics of a rapidly mechanising US Army.

Initially they were used in conjunction with Dodge 4x4s, White Scout Cars and motorcycles especially by reconnaissance units of the newly formed triangular divisions. Although referred to in these magazine articles in use in conjunction with motorcycles made by Harley-Davidson and Indian, the Jeep soon also largely superseded the motorcycle for military use.

The major exception was for military police use. According to A Wade Wells, 'the Jeep revolutionised modern warfare by providing the answer to the problems of supply and maximum mobility' (Hail to the Jeep, 1946). Later some of the US Army GPs were reputed to be the first Jeeps disposed of as army surplus to civilians when they were sold by Berg's of Chicago during 1943.

It is generally accepted that as many as 4,500 GPs were made and sent to a variety of countries overseas. This included 1,150 sent to China where at least one was photographed in use by American Volunteer Group, 'Flying Tigers' pilots. Others were sent to South American countries, 300 were despatched to the Dutch East Indies and one with a civilian registration number, was photographed in



of the Ford vehicle were referred to as the 'Blitz Buggy', perhaps because Britain's population had experienced the aerial blitz.

Unsurprisingly the one photographed for these pages is not a lend-lease survivor. This rarity, one of just 50 made 77 years ago, has ended up in Cambridgeshire via a circuitous route.

It is a fully functional and original Ford GP with four-wheel steering and was restored by Luc Coesens. About 20 years ago he bought as a complete project in the US along with 13 standard GPs so that it could be reassembled from original parts as far as possible.

The body for example has been restored with donor parts from three original bodies of which two were four-wheel steer models. It has all original matching data plates. Most of the GP's fittings are original except for the windscreen glass, top bow and canvas hood. All the lights are NOS while the steering wheel, the horn and air cleaner are original and in mint condition. It is fitted with a second series GP engine with a NOS carburettor as unfortunately the original engine was scrapped by the previous owner due to its severe frost damage.

The drive train and suspension were completely rebuilt from end to end. The gearbox was taken apart and found to be as new and the axles and steering boxes were rebuilt. The shock absorbers were rebuilt with modern neoprene seals and filled with modern oil. The spring bushes are high quality reproductions made exactly as the originals but with high quality modern materials. Some of the new parts came from Australian Richard Sanders, a noted maker of parts for these early models.

Of the vehicle's handling characteristics Luc said: "Actually it drives very well. There is no problem at high speeds at all but the danger is when someone is driving at a relatively slow speed and then turns the steering wheel suddenly to one side. Then the people in the rear seat get some G forces and the vehicle becomes unstable."

The attention to detail that has gone into this restoration over two decades is truly phenomenal and when it was advertised for sale on Milweb, the father and son duo of Dave and Steve Bowens snapped it up. They have added it to their growing collection of US World War Two military vehicles. ◀

London in use by the US Embassy.

In July 1941, the US Army QMC sought to buy 16,000 of the new 4x4s built to a standardised design. It also sought to buy them from a single manufacturer in what it termed 'single source procurement' which involved a negotiated price rather than a contract opened up to bids from rival companies.

To this end the QMC wanted to deal with Ford because it was confident of Ford's ability to manufacture such a large number of vehicles in a timely fashion. This was despite the fact that the Willys MA was the best vehicle and its cost per vehicle bid, at \$748.74, was lower than Ford's at \$782.59 and Bantam's at \$788.32.

Fortunately Lt General William 'Bill' Knudsen stepped in and, believing that Willys was a 'competent source of supply' refused to rubber stamp the Ford deal. Knudsen's automotive experience was such that his direction could not be disregarded.

He was working for a steel-stamping company in Buffalo, New York in 1911 when the Ford Motor Company bought it. Knudsen worked for Ford from then until 1921 through the decade that saw the development of the modern assembly line and mass production techniques. He became a skilled manager of these techniques within the automotive

industry. Later, he worked for General Motors and, in 1924, became president of its Chevrolet division where he stayed until 1937 when he became president of General Motors itself. In 1940, President Roosevelt asked Knudsen to come to Washington to help with war production. As a result, in January 1942, Knudsen was commissioned a lieutenant general in the US Army, the only civilian ever to join the army at such a high initial rank. He worked as a consultant and troubleshooter for the war department and remained in the army until June 1945, dying in April 1948. As a direct result of Knudsen's intervention, Camp Holabird was notified of the decision and Willys was given the contract for 16,000 revised MA models.

Deliveries of the vehicle, known in official parlance as the 'Truck, quarter-ton, 4x4', were to commence in November 1941. Once the Willys model was ordered in quantity the Bantam BRC and Ford GP quickly faded into the background.

Despite the official designation, the name 'jeep' was already catching on with soldiers and the public. American Bantam's staff had called its version the 'Blitz Buggy' but this alliterative nickname didn't stick and it soon became identified by the military slang word, 'jeep'. In Great Britain, the lend-lease examples

THE BOWENS



Father and son, Dave and Steve Bowens are enthusiastic collectors of US Army vehicles and, in addition to this GP, have collected other Jeeps, the Ford GTBs featured last month here in CMV, and a couple of different models of 4x4 Dodge. Some are restored and some are ongoing projects

