



Engineering Solutions in all Materials

PPB Engineering Technology is the trading style of Production Pattern (Bristol) Limited, a Bristol based company which continues the tradition of engineering excellence serving the aerospace, automotive and general engineering industries, built up over the last 40 years. With a highly skilled and dedicated workforce combined with exceptional quality, reliability and pricing, we are able to offer a high level of personal service, responding quickly and efficiently to customers needs, thus ensuring complete client satisfaction.

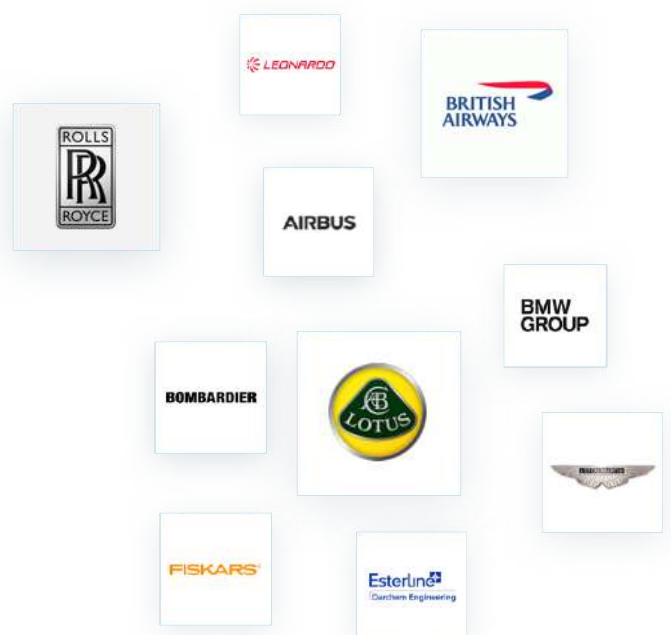


Just a few of the disciplines supported :

- › Tool Making Fluid Cell Development
- › Model Making Prototypes
- › CNC Machining Design Concepts
- › Small Batch Production Mock Ups
- › Prototype Tooling Jigs and Fixtures
- › Fluid Cell Development
- › Prototypes
- › Design Concepts
- › Mock Ups
- › Jigs and Fixtures

Recent clients have included :

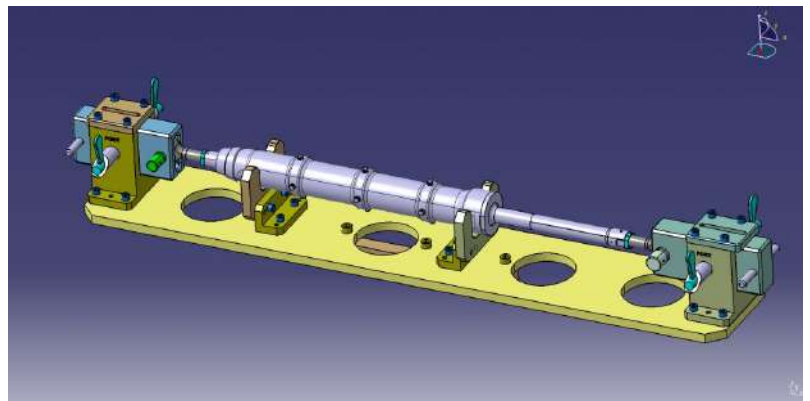
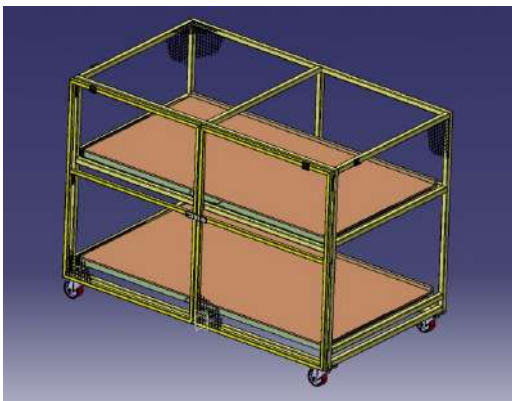
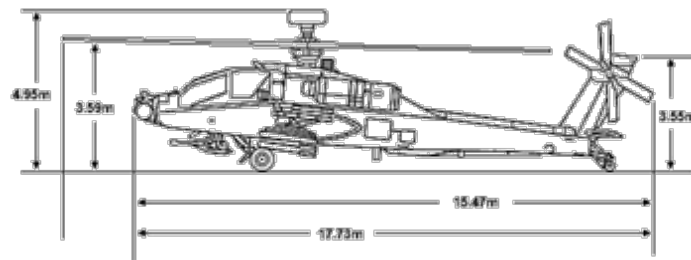
- › Bae Systems
- › Dunlop Aerospace
- › Aston Martin Lagonda
- › Agusta
- › Westland Helicopters
- › Racal RadarDefenceSystems
- › Thorn-EMI
- › Beagle Aircraft
- › Short Brothers
- › Rolls-Royce
- › Airbus UK
- › Hewlett Packard
- › Pilkington Aerospace
- › British Airways
- › Fiskar UK
- › Thales Defence



Design & Manufacturing

Working closely with clients own design departments or external designers, PPB can draw on it's extensive experience when faced with total engineering requirements. Utilising the CAD/CAM and solid modelling technology, many projects can be viewed prior to manufacture. The benefits in prototyping are obvious. PPB takes great pride in being on the leading edge of CAD/CAM, office management, and computer technologies.

PPB supports all major CAD/CAM file formats, including DXF, IGES, STL, STEP, DWG, ACIS, and Parasolids file formats (ie. Solidworks, Solidedge, Unigraphics Solutions). We can also utilize native Pro/E and Catia file. Our ability to work with many different types of programs allows the customer to e-mail us their CAD models which in turn greatly reduces turn around times.



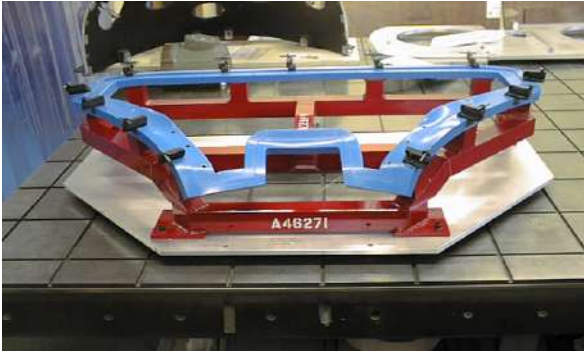
Development

Over the years, PPB has established a reputation for working within strict design parameters, and is always keen to work in partnership with its customers, developing new products or ideas to meet specific needs.

Total Solution

In many instances customers require a total project management solution and PPB can offer an on-site installation calibration and testing service for all of its products, indicative of its commitment to total support. Quality, investment and a policy of constant improvement are the key ingredients to PPB's continued success.

Information Sheet : Jigs & Fixtures



Jigs and Fixtures in all materials for :

- › Assembly
- › Machining
- › Work Holding
- › Checking
- › Welding

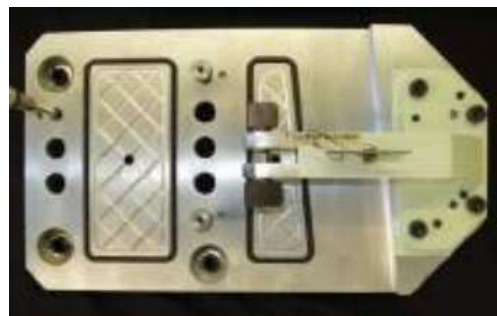
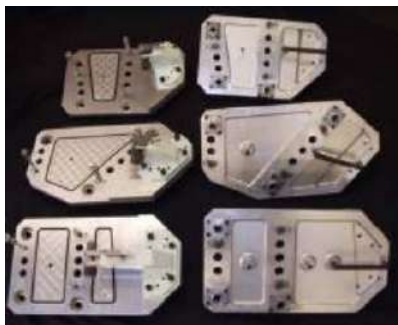
Manufactured to customer's specific requirements from CAD information, Master Models or Components with particular reference to :

- › Accuracy
- › Reliability
- › Ease of Use



Information Sheet : Checking Fixtures

Laser Setting Jigs produced in aluminium as part of the Airbus A380 Wing Build programme. This requirement was placed by GKN Aerospace Services, Isle of Wight under our status as strategic supplier.



Information Sheet : Mock ups

Commissioned by Short Brothers of Belfast, this full sized mock up of a Passenger Door was conceived and built for Bombardier of Canada's Global Express. The project was completed ahead of schedule and in time for production approval.



Engine Nacelle Mock Up

This Engine Nacelle Mock Up for the Alenia C37 was designed and manufactured in house and installed at customer's premises, working to exacting standards and time scales.



Information Sheet : Small Batch Production

For Research and Development or for Pre-Production styling purposes, we are willing to undertake small batch productions runs at competitive pricing rates, and quick turnaround timescales, to ensure production deadlines are met. Small or medium scale production runs using CNC or manual machines can also be offered.

A Complete Solution

We can include prototype production and manufacture, small batch production or even prototype production, utilising CAD-CAM links to CNC machines.

Information Sheet : CNC

Over recent years, major advances have been experienced in engineering, none more so than the evolution in the field of CNC Machining. Utilising the latest CAD/CAM Software, PPB are able to keep abreast of technology and adapt to client's needs.



Update and Broaden our Technology

PPB has made a commitment to provide comprehensive services to our customers. Our CNC Machining capabilities allow us to provide complex, close tolerance, items at economical prices. We are committed to continually update and broaden our Machine Tool technology.

On Site Inspection and Calibration

We are now able to provide a unique service to our customers with the recent purchase of the highly acclaimed Platinum FaroArm, the world's most accurate and advanced portable measurement arm in manufacturing history, together with Faro's own CAM2 Measure software.

Our highly trained personnel can now visit customers' premises with the FaroArm measurement system and can quickly gather large amounts of 3D surface coordinate data with a precision in the order of +/- 0.006 mm. The FaroArm system includes software for measurement system operation and data analysis and presentation. The supported analyses include typical geometric best-fit shape (circle, cylinder, plane, etc.) computations, coordinate system management (translating, scaling, etc.) and other basic calculations (distance, angle, etc.). Additionally, deviations of measured data from the design CAD file can be obtained.

From hole patterns to complex curved surfaces, CAM2 Measure answers the shop floor measurement and fit questions that cost manufacturers money. CAM2 Measure specializes in feature measurement/inspection and CAD-to-part comparison, where every measured part can be compared to engineering design files.

As a powerful inspection and measurement tool, CAM2 Measure can identify and verify feature locations such as holes, spheres and arcs for first article inspection or alignment. Because CAM2 Measure draws features as they are measured, process control becomes instantaneous. The software can be used with many measurement devices including portable or fixed-base coordinate measurement machines (CMMs), laser trackers and photogrammetry systems.

Information Sheet : Inspection

- LK Wenzel Co-Ordinate Measuring Machine x 2000 y 800 z 1000 QCT2000 Inspect2CAD 3D Surface Software
- 3600 x 2500 Portage Surface Table Inspection (Calibrated)
- 3-axis CMM Inspection Machine with Sony SL130 scales, Renishaw MH8 probe and 3D Surface Software
- Capacity - x 3600 y 2500 z 120



Capacity - Model/Pattern Shop

- › Wadkin 30" Double Disc Sander
- › Zimmerman 12" Disc Sander Universal
- › Phillipson CBS1 Profile Sander
- › Wadkin 30" Band Saw
- › Wadkin 12" Circular Saw Bench
- › Wadkin 4 Station Blade Grinder
- › 8' x 4' Cast Iron Grade "B" Surface Table
- › 10' x 6' Cast Iron Grade "B" Surface Table (Calibrated)
- › Oliver 30" Disc Sander and Bobbin

GRP Shop

- › 20' x 20' Resin Shop
- › Fully enclosed with Extraction
- › Fume Cabinet
- › Down Draught Extraction Cabinet
- › All above conform to latest Health and Safety and COSHH regulations

Capacity - Sundries

Design/Planning Office

- › 20' x 20' Resin Shop
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3D Printing

- › 20' x 20' Resin Shop

Inspection

- › LK Wenzel Co-Ordinate Measuring Machine x 2000 y 800 z 1000 QCT2000 Inspect2CAD 3D Surface Software
- › Platinum Faro Arm with CAM2 Measure Software X2
- › Leica DNA03 Digital Level

Capacity - Tool Room/Machine Shop

- › Anayak VH2200 CNC Bed Mill - **2500 x 1000 x 1200 TNC 426PB Control**
- › Haas VF-4 Vertical Machining Centre - **1270 x 508 x 635 Fanuc Compatible 32 bit Control**
- › Haas VF-5/40XT Vertical Machining Centre - **1524 x 660 x 635 Triple High Speed 32 bit Control**
- › Haas VF-2 Vertical Machining Centre - **762 x 406 x 508**
- › Haas MM Vertical Machining Centre - **406 x 305 x 254**
- › DPM 4000 CNC Bed Type Milling Machine - **1016 x 508 x 584 ProtoTRAK Control**
- › SMX 4000 CNC Bed Type Milling Machine - **1016 x 596 x 584 ProTrak SMX3 Control**
- › 2 EMX 2000 CNC Turret Milling Machines - **ProTrak Edge 2 Control**
- › 4 Bridgeport BR2J Turret Milling Machines with DRO
- › BoKo Hydromill WF2 Vertical Milling Machine - **1200 x 800**
- › Huron M6 Universal Mill - **1800 x 400**
- › Proturn SLX 1630 CNC Lathe - **760 bed x 400 swing ProTRAK Control**
- › Hardinge Toolroom Lathe
- › Jones and Shipman 540L Surface Grinder
- › Jones and Shipman 1300 Universal Cylindrical Grinder
- › XYZ 2612 26" Throat Vertical Band Saw
- › Delapena Horizontal Honing Machine
- › Various Sheet Metal Equipment
- › Mig and Tig Welding Plant
- › 10' x 5' Grade "A" Granite Surface Plate
- › 4' x 2' Grade "A" Inspection Granite Table
- › Fully equipped Inspection Area



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