

# TURBULENT G-APNZ PRESERVATION SOCIETY

England & Wales · Charity number 1153285

## Details

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|            |                                                         |
|------------|---------------------------------------------------------|
| Status     | Registered                                              |
| Legal form | CIO                                                     |
| Registered | 2013-08-07                                              |
| Register   | <a href="#">View on the Charity Commission register</a> |

## Contact

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|         |                                                                              |
|---------|------------------------------------------------------------------------------|
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| Website | <a href="http://www.theturbulent.co.uk/">http://www.theturbulent.co.uk/</a>  |

## Activities

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**Objects:** THE ADVANCEMENT OF PUBLIC EDUCATION IN HERITAGE AIRCRAFT OF THE UNITED KINGDOM BY THE RESTORATION PRESERVATION AND EXHIBITION OF HISTORIC HERITAGE AIRCRAFT.

**Activities:** The restoration of this heritage aircraft the Turbulent G-APNZ this is of historical interest not just because this single seater aircraft is the only aircraft that a member of the Royal Family has ever flown, the Duke of Edinburgh, also that this particular aircraft falls within the middle of the aeronautical history with that of the Wright Brothers and today?s modern crafts.

## Classification

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- **How:** Provides Human Resources, Provides Buildings/facilities/open Space, Provides Services, Provides Advocacy/advice/information, Sponsors Or Undertakes Research
- **What:** General Charitable Purposes, Education/training, Arts/culture/heritage/science, Environment/conservation/heritage, Recreation
- **Who:** Children/young People, The General Public/mankind

## Geography

- Derbyshire

## Finances

| Period end | Income | Expenditure | Assets | Employees |
|------------|--------|-------------|--------|-----------|
| 2025-07-31 |        | £0          | £0     | -         |
| 2024-07-31 |        | £0          | £0     | -         |
| 2023-07-31 |        | £0          | £0     | -         |
| 2022-07-31 |        | £0          | £0     | -         |
| 2021-07-31 |        | £0          | £0     | -         |

## Trustees

| Name                             | Role  | Appointed  |
|----------------------------------|-------|------------|
| <b>THOMAS MARTIN JONES C.Eng</b> | Chair | 2013-07-09 |
| CHRISTOPHER EDWARD MORROW C.Eng  |       | 2013-07-09 |
| Colin David Cheese               |       | 2014-08-23 |
| ELIZABETH SUSAN MORROW           |       | 2013-07-09 |
| Paul Ford                        |       | 2014-08-23 |
| Philip Thomas Marriott           |       | 2014-09-01 |

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## **TURBULENT G-APNZ PRESERVATION SOCIETY**

### **CHAIRMAN'S ANNUAL REPORT 2025**

The last year has been full of challenges for the volunteers working in this restoration project but there is some good news albeit some problems remain.

- 1) As previously reported the team carried out a “top overhaul” of the engine owing to poor compression. This entailed the removal of the cylinder heads with associated connections. Valves and valve seats were reground. Satisfactory compression was restored.
- 2) Subsequent engine testing revealed a very poor throttle response and difficulty in achieving full power. Carburation was suspected with the possibility of fuel contamination. The fuel system was drained, flushed and filled with fresh fuel. The carburettor was removed and stripped. Replacement small parts and gaskets are in very short supply. Alternative carburettors were considered albeit associated with fitting matching and cowling rework. After repeated further investigation a very fine fuel passage within the original carburettor a contaminant was found and removed. Subsequent reassembly, refitting and commissioning reinstated the necessary engine performance.
- 3) Lack of response from the Light Aircraft Association concerning two submitted modifications (first submitted in 2022) continued. However after considerable, repeated and increasingly pressurised communication sanction was received during the summer of this year to proceed to the next, more detailed application process. A visit from an engineering consultant from the LAA revealed that some minor improvements could be made to the battery retention, protection to some internal wiring and duplication of earth wires to the ignition units. These improvements have been made. Full modification submissions in accordance with LAA Mod Form 3 have been prepared by members of the team. No further delay is expected. We look forward to the LAA approving the modifications and the issue of the requisite Permit Flight Release Certificate.
- 4) The plan is to carry out the necessary check flight to re validate the Certificate of Validity to be done here at Derby Airfield. Subsequently the aircraft is planned to go to the Imperial War Museum at Duxford for prominent exhibition to a much wider public that is possible at Derby. This will entail the production of information leaflets and display boards together with agreements with volunteers at Duxford to care for the aircraft. Hopefully volunteers can emanate from local Duke of Edinburgh Award candidates fulfilling their ambitions.
- 5) One problem remaining is that of insurance for flying. Whilst the aircraft has been in the long term care of Airspeed Aviation Ltd as operator of Derby Airfield, insurance has been included within Airspeed's overall cover. This will not extend to cover flying. Arrangements will have to be made to raise funds for the insurance premium. The Trustees will need to consider ways and means for this

to happen. This may well involve a public appeal through one of the internet based funding agencies. In the overall scheme of time, effort, infrastructure and expense bourn by the volunteers and Airspeed thus far, the insurance premium hurdle should not be allowed to be insurmountable.

The Trustees, volunteers, and DoE Awardees look forward to seeing this iconic and famous aircraft back in the air and prominent to the public as an inspiration for future young persons.

As ever I wish to express my appreciation to all of the people who have supported the restoration of this aircraft.

T. Martin Jones

Chairman of the Turbulent G-APNZ Restoration Project  
Derby Airfield.

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## TURBULENT G-APNZ PRESERVATION SOCIETY

### CHAIRMAN'S REPORT 2024

The year just ended has been a challenging one for the team! The Light Aircraft Association (LAA) is the organisation acting on behalf of the UK regulator. It is the LAA that our Preservation Society must seek approval for all aspects affecting safety culminating with a Permit to Fly. I have previously reported on the difficulties and delays associated with an electronic ignition system which is now working well during taxiing trials.

The LAA required that two modifications we deemed appropriate needed their formal approval. Firstly was the installation of a back up electric fuel pump despite this embodying an aviation approved pump and associated plumbing, electrical circuit protection and a properly labelled switch. Satisfactory fuel flow measurements had also been recorded. Secondly the LAA required that both ignition circuits be fitted with visible status lights. This involved two LEDs and associated minor wiring changes.

The LAA modification procedure is a two stage process starting with an outline request and if acceptable in principle, a unique reference number is provided for use to accompany a more detailed, second application. Once finally approved the modifications are formally recorded in the aircraft's documentation. Initial applications for both the Turbulent's modifications were made in August 2022 but sadly still await clearance to the second stage. As a consequence the necessary Permit Flight Release Certificate (PFRC) cannot be provided. Despite continuing pressure from us the LAA has yet to advance these modifications despite their simplicity (and adoption on other aircraft). As a consequence and after successful taxiing trials the aircraft was not started for a long period of time. Sadly that resulted in an engine corrosion problem causing a lack of compression. Rectification involved removal of the cylinder heads, relapping of the valves and seats and reassembly of the engine. This was carried out successfully and re-established the compressions.

However a fault was revealed as a "flat spot" between idle and full power sometimes resulting in stoppage. It was thought that the carburettor was the culprit. This was removed, stripped, internally cleaned, reassembled, with new seals and gaskets and refitted. The problem remained and the carburettor was removed for further examination more than once. The particular carburettor is of automotive origin and no longer in production. This presented delay with the supply of critical spares and no option of complete replacement. The engine would run satisfactorily with a different carburettor on test but this was no solution without considerable redesign of the engine installation and cowlings. In desperation a final strip down revealed a blockage in a tiny internal drilling that had stubbornly remained despite previous attention. Finally the original carburettor was refitted and all was well.

Taxiing trials showed up the need to adjust the brakes necessitating a new spacer in the operating linkage.

As of now the aircraft is ready but still awaiting the necessary LAA clearance.

Flight insurance will have to be in place. Funding for this is a problem and Trustees will be asked to contribute.

Clearly the test flying program needs to be completed here at Derby Airfield. This will involve a number of local flights to comply with the regulations. Once completed and the Permit to Fly has been validated the aircraft will be flown to Duxford. There it will be on display to a much wider public audience than can be provided here at Derby Airfield. We are reaching out to a Duke of Edinburgh group in the area local to Duxford to ensure that the Turbulent is maintained clean and presentable.

As ever the Trust is indebted to the continuing actions of the vital volunteers here at Derby. Thanks are therefore due to three Johns, two Peters, Mark, Martin, Ken, George, Ben, Paul and two Davids. Without their unstinting support the restoration would not have reached this advanced stage.

Martin Jones  
Chairman of the Turbulent G-APNZ Preservation Society.  
[www.theturbulent.co.uk](http://www.theturbulent.co.uk)

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# **TURBULENT G-APNZ PRESERVATION SOCIETY**

## **CHAIRMAN'S REPORT 2024**

Previous annual reports have catalogued the final technical problems associated with the procedures necessary to allow it to fly. Physically the aeroplane is complete. Sadly however there is an enduring wait for clearance of two simple modifications both made in the interests of safety. The modifications involve the installation of an electric fuel pump and two annunciator warning lamps in the electric ignition system. Applications for both were lodged with the Light Aircraft Association (LAA) in August 2022. The LAA is organisation approved by the UK regulator (the Civil Aviation Authority) to oversee and approve this aircraft's engineering necessary to permit flight.

The delay has had a deleterious effect on on the state of the engine. As a consequence of lack of use there is internal corrosion and this requires removal of the cylinders and valves for reconditioning. This is relatively straightforward but without a date for the processing of the modifications it is considered not worth doing at this time. Volunteers are on site and standing by to carry out the necessary reconditioning.

Another problem relates to the provision of insurance. Hitherto Airspeed Aviation Ltd (the aerodrome host at Derby) has generously extended its own insurance to cover the ground risks of the Turbulent. Insurance premiums across the board have increased substantially and Airspeed's generosity has become strained. An individual quotation (currently in excess of £1100) for the Turbulent to cover ground and flight risks will require that the Trustees will need to introduce new funds. Obviously at a minimum insurance to cover third party risks is mandatory. The ongoing delay also means that hangarage charges may need to be made. Up until now Airspeed have waived charges for the Turbulent but the company is faced with turning away requests for hangarage from other parties.

On a more positive note there remains the plan to base the aircraft at Duxford where it can be made visible to a very wide sector of the public at the UK's premier museum and display venue. This will include the ability to display the aircraft in flight as part of the regular flying display programme.

As ever the Trustees are indebted to the ongoing support of the volunteers without whom the Society could not proceed.

Martin Jones

Chairman of the Turbulent G-APNZ Preservation Society.

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## TURBULENT G-APNZ PRESERVATION SOCIETY

### CHAIRMAN'S REPORT 2023

Previous reports have described in some detail the problems encountered during the final stages of the restoration of this aircraft. Also described were the disappointments about missed opportunities to fly into the prestigious LAA Rally, the inability to inform HRH The Duke of Edinburgh about the restoration prior to his death and similarly to fly at HM The Queen's Platinum Jubilee. Chief among the problems was the ignition system which resulted in it's complete replacement with a new system of a later variant. This also involved a new repositioned sensor arrangement, new coils and a new ignition harness. However the problems associated with overheating have been completely resolved as revealed in extensive taxiing trials.

Improved engine instrumentation has also been provisioned and installed and a new mechanical altimeter has been added.

Unfortunately the LAA required that two modifications needed their formal approval in accordance with their new obligations to the CAA. Firstly was the installation of a back up electric fuel pump despite this embodying an aviation approved pump and associated plumbing, electrical circuit protection and a properly labelled switch. Satisfactory fuel flow measurements had also been recorded. Secondly the LAA required that both ignition circuits be fitted with visible status lights. This involved two LEDs and associated minor wiring changes. The LAA modification procedure is a two stage process starting with an outline request and if acceptable in principle, a unique reference number is provided for use to accompany a more detailed, second application. Once finally approved the modifications are formerly recorded in the aircraft's documentation. Initial applications for both the Turbulent's modifications were made in August 2022 but sadly still await clearance to the second stage. As a consequence the necessary Permit Flight Release Certificate (PFRC) cannot be provided.

Visitors to Derby Airfield are pleased to be shown the aircraft in association with a briefing about it's illustrious history. Whilst this is fortunate, clearly a more prominent exhibition venue is desirable for a much wider public appreciation. Fortunately the Trust has received an invitation from the management at Duxford, an Aerodrome that has world class exhibitions of all manner of classic aircraft – WW1 and WW2, civil airliners and even American military types. Duxford is a major museum site and many of the exhibits are displayed at frequent flying displays. It is anticipated that the Turbulent may be flown at these air days and will be on permanent display as part of the collection. Arrangements are being made to ensure that visual display material is made available to accompany the aircraft at all times. Additionally it is hoped to involve a local group of young persons pursuing their Duke of Edinburgh Awards to ensure that the Turbulent is properly hosted at events and maintained always to be in a clean and presentable state.

Clearly the test flying program needs to be completed here at Derby Airfield and this awaits the clearance of the modifications and issue of the PFRC from the LAA.

As ever the Trust is indebted to the continuing actions of the vital volunteers here at Derby. Thanks are therefore due to three Johns, Sean, two Peters, Mark, Martin, Ken, William, George, Ben, Paul, two Davids, Lucy and Aurora. Without their unstinting support the restoration would not have reached this advanced stage.

Martin Jones

Chairman of the Turbulent G-APNZ Preservation Society.



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# **TURBULENT G-APNZ PRESERVATION SOCIETY**

## **Chairman's Annual Report**

### **2022**

2021 has been a year of great expectations, disappointment, great frustration and finally some progress. The greatest expectation was to have flown G-APNZ to the LAA Rally in September. This was the 75<sup>th</sup> anniversary of the formation of the LAA and it was hoped that there would be a line up of representative aircraft types covering that history. Clearly Turbulent G-APNZ was one but despite the best efforts of our team, it was not to be: the aircraft was not ready.

The disappointment was of course the death of HRH The Duke of Edinburgh. Naturally we had hoped that he could have seen the aircraft fly. Sadly it was the covid pandemic that imposed an interruption into the restoration program.

Nevertheless we did have some positive TV and radio exposure occasioned by our engine runs and taxi trials as a result of public interest into the life and times of the Duke. As is often the case, the press want to be present at the first flight but we always decline. Test flying is only possible when all of the aspects are covered and one in particular is the weather, notably unpredictable in the UK. Having weighed the complete aircraft (a vital requirement) we found that none of the Derby based potential test pilots were light enough to fly it with an acceptable amount of fuel. Fortunately David Beale of Percival Mew Gull fame agreed to carry out the test flying but he is a busy man and does not live locally and this adds to the practical constraints. David had previously kindly overhauled the engine. As yet the aircraft has not flown.

The frustrations were manifest. Engine testing revealed very high temperatures that had a detrimental effect in the electronic ignition units mounted upon the back of the engine. This caused the intermittent failure of one of the two units. Extra cooling holes were made in the cowling (temperatures were higher when the cowlings were fitted). These helped but the problem remained. The manufacturers of the ignition units no longer support the engine mounted units having had similar experiences on other aircraft unbeknown to us. Their solution was to mount the units remotely actually within the fuselage. Reluctantly a complete new ignition system of this later type was purchased. The installation required crank shaft position sensors to be mounted behind the propeller with the electronic units mounted on the left hand side of the forward fuselage with precious little space to spare. Wiring from the sensors, power feeds and rpm outputs all had to be redone. This was particularly troublesome because of very poor access. HT coils were suspected also. Two new ones were fitted and this caused HT lead problems. It transpired that the HT lead connections to the coils were not fully compatible with each other which gave doubts about their security and conductivity. Surprisingly the correct terminations were not readily available but eventually a local auto

electrical specialist was able to oblige albeit at extra expenditure and these have been fitted.

Other problems were inadequate carburettor heating, reliable rpm indications, oil temperature and altitude instrumentation to mention a few. An electrical fuel pump was installed as a safety back up in case the engine mounted mechanical pump fails. This was all on top of the necessary "permit flight release certificate" from the LAA after their review of all of the supporting technical documentation which had been prepared routinely throughout the restoration program. We also had problems with the brakes, the seat security and a centre fuselage control column connection necessitating a hole which would cause unwelcome draught in a rather private place for the pilot! This is now solved by a very posh stick gaiter.

The extra expenditure for new ignition units, sensors, fuel pump, HT coils, leads with correct terminations, oil temperature sender and a new engine RPM tachometer (incorporates oil temperature readout) come to a total of about £1600. This was not originally expected but does highlight the problem that an aircraft must not fly until all of the components are airworthy.

So on to the progress. We believe that the aircraft is ready to fly needing only a final inspection and the PFRC from the LAA. Some aircraft fight the engineers and some don't, but the Turbulent is definitely one of the former. The fact that we are where we are is down to the continuing efforts of the wonderful volunteers who have made it possible. Three Johns, Sean, Mark, Martin, Ken, William, Peter, George, Ben and Lucy have pulled out all the stops. There may well be others!

I do fervently hope that soon the aircraft will fly especially to be associated with the Platinum Jubilee of Her Majesty the Queen.

Arrangements are in hand to have the Turbulent put on to display for a period of time at the Duxford Air Museum. It should participate there in some of the flying displays. At that venue there will be full exposure to a wide public presence and hence elevate the awareness of the Duke of Edinburgh Awards scheme for young persons in a new locality.

Martin Jones  
Chairman of the Turbulent G-APNZ Preservation Society.