



FRM AVIATION SERVICES

FLEET RELIABILITY MANAGEMENT



**FRM AVIATION SERVICES LTD
EASA, CAA & FAA PART 145
INDEPENDENT BORESCOPE INSPECTION
COMPANY INTRODUCTION**

APPROVAL NUMBERS - CAA: UK.145.01447 | EASA: EASA.UK.145.01447 | FAA: FRMY624D

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FRM AVIATION SERVICES LTD- COMPANY FORMATION:

FRM Aviation Services was incorporated as an entity in October 2019, and came to fruition as a direct result of the sad demise of Thomas Cook PLC. All three company directors unfortunately lost their livelihoods during the collapse in September 2019 and also close to 75 years combined service as aircraft engineers at Hangar 1 Manchester through Thomas Cook Engineering, My Travel, FLS Aerospace and FFV Aerotech.

Accountable manager and company founder Wayne Trowbridge was keen to utilise both of the co-director's vast aircraft engineering experience and in particular, their extensive engine and borescope inspection expertise. Part 145 approval was granted in July 2020 which initially consisted of a limited B1 & B3 borescope approval utilising the Engine & APU types operated by Thomas Cook Group.

Further additional type ratings were added to FRM schedule of approval given a good wide span of coverage to both classic engine options (CEO) and also new engine options (NEO). The approved scope for which FRM Aviation currently holds privilege can be found on Page 8 of this guide.

As a result of the UK withdrawal from the EU, and in order to provide continuity to our clients' requirements FRM Aviation successfully gained an EASA TCO approval in January 2021 whilst adding FAA dual certification to its CAA approval in May 2021 with the addition of FAA Op Specs.

So from initial company formation in October '19 and within the first 18 months of trading FRM Aviation has secured the right to issue EASA, CAA & FAA certification on a wide ranging amount of Engine and APU, and hopes to forge close working relationships with lessors, operators, asset owners & consultancies. Whilst also seeking to expand our capabilities and service offerings to customers as explained in more detail later.



FRM AVIATION SERVICES LTD- COMPANY PERSONNEL:

Wayne Trowbridge - Company Founder, Co-Director & Accountable Manager

FRM Aviation Services LTD was established and is now run by Accountable Manager Wayne Trowbridge. Wayne has 24 years aircraft maintenance experience in both military and civilian aviation roles having graduated from RAF Technical Training School in 1999. Wayne then progressed to gaining his B1.1 CAA AML in 2007 and was involved in several highly complex mechanical and structural tasks during his time as an engineer at Thomas Cook, including retrofit for structural provisions of an Airbus A321 additional centre fuel tank (ACT) provisions and also the replacement of an A321 complete horizontal stabiliser (THS). Alongside being an engineer lead on a fleet wide overhaul of both A330 & B767 landing gear for both TCX and 3rd party customer aircraft.

Unfortunately, in March 2017 Wayne suffered a near fatal motorbike accident which left him with a neck broken in two places at C1 & C2 vertebrae. Whilst making initial good recovery from total body paralysis subsequent health setbacks have meant Wayne is no longer able to carry out his primary role of hands-on certification of aircraft and as such carries out the day-to-day planning, organisation, and execution of FRM Aviation Part 145 activities, he also looks to establish new business relationships whilst maintain existing ones whilst building a steady work pipeline. Wayne also actively pursues remote working opportunities as a power plant technical consultant performing a wide array of engineering support functions such as shop visit management, lease transition / hand back records review & compilation, mandatory AD/SB review for compliance as well as Engine Health Monitoring (EHM) across both CFM56 & Trent engine types.



Wayne drive, tenacity & work ethic which is displayed in his on-going recovery from the near catastrophic injury he suffered is also indicative of both the drive and passion he puts into each day as FRM Aviation Accountable Manager, and he is keen to forge close and long-lasting working relationships within the industry. He thoroughly believes that both the business model and standard of service provided by FRM Aviation is second to none from initial customer enquiry through to job completion



Wayne shortly after his accident in May 2017



Four years on from the above picture, as FRM Aviation Accountable Manager in May 2021.

Lee Reading - Co-Director & Lead Borescope Inspector

FRM Aviation Services Co-Director Lee Reading has nearly 30 years aircraft maintenance experience spanning production, base and line working environments. A B1/C type rated and current engineer with a wide range of cover and vast borescope experience on both CEO and NEO engines covered in FRM Aviation scope of approval, recent OEM training also carried out on some of the new engine types recently added to our schedule means Lee is fully up to date with both the older engine technologies and also the more later engine types we are approved to inspect. Being a highly experienced Maintenance Engineer, Lee is also available for on-site assistance for complex maintenance & structural task on a consultancy type arrangement.

Dave Thompson - Co-Director & Lead Borescope Inspector

Our final Co-Director Dave Thompson has close on 40 years post aircraft maintenance apprenticeship experience, again spanning production, base and line working environments, from British Aerospace Woodford to FFV Aerotech, FLS, MyTravel & Thomas Cook Engineering. Also A B1/C type rated and current engineer with a wide range of cover and vast borescope experience including borescope training roles in previous guise as lead supervisor in TCX Power Plant facility, Manchester. Dave really is a trusted source of knowledge to our engineers in the field of both engine related inspections and more specifically borescope inspection, particularly across Trent, CFM56 & IAE V2500 engine platforms.

Andrew Smith - Quality & Safety Manager

Andy provides FRM Aviation Service impartial QMS and sits separate to the Part 145 activities ensuring compliance with both CAA and EASA Pt145 as well as additional requirements of FAA OpSpecs. Andy has held numerous QM roles throughout his career including Quality Manager for HeavyLift Cargo, and extended spells in senior quality positions in both First Choice Airlines & Etihad Airways. Having CAA & EASA Form 4 approval as well as ISO 9001 and other auditing qualifications. Since joining FRM Aviation, Andy was instrumental in gaining FAA OpSpecs approval for the business and is both a popular and well respected member of the team.



FRM AVIATION SERVICES LTD- BORESCOPE EQUIPMENT:

To accompany the vast amount of borescope inspection experience that exists within the business, FRM Aviation exclusively utilises the Waygate Technologies Mentor Visual IQ, widely regarded within the industry as the market leader of remote visual inspection (RVI) equipment.

Our test sets are the highest level 'Analyze' software level and feature the enhanced Probability of Detection (POD) suite given enhanced features to ensure maximum reliability of our inspections. The Mentor Visual IQ is also the only RVI equipment available with 3D Phase Measurement (3DPM) capability. Coupled with interchangeable probes, menu directed inspection (MDI) ensures our inspectors are able to give a consistent level of inspection performance across all approved Engine & APU types.

We also carry all the specialist OEM turning tools required to facilitate the borescope inspection on all our approved engine types and are therefore not reliant on these tools being provided by the client or their MRO. The full spec sheet can be viewed at <https://www.bakerhughesds.com/remote-visual-inspection/video-borescopes/mentor-visual-iq-3d-videoscope>

Another unique selling point of FRM Aviation to its customers is that all EMEA projects will be quoted using a 2-man team, where the borescope assistant or 'turner' is provided with a 12" HD screen to not only ensure consistent speed and quality of rotation but also are able to provide a second set of eyes on the inspection. It is also worth highlighting that all of our 'second person' members of the team are all time served aircraft technicians with valid HF, EWIS & FTS certification similar to the lead inspectors. With some also having previously held EASA/CAA Form 1 certification privileges. We believe with both the calibre of lead inspector, quality of assistant and also the market leading equipment we are using equals an overall inspection package for our customers which is second to none.



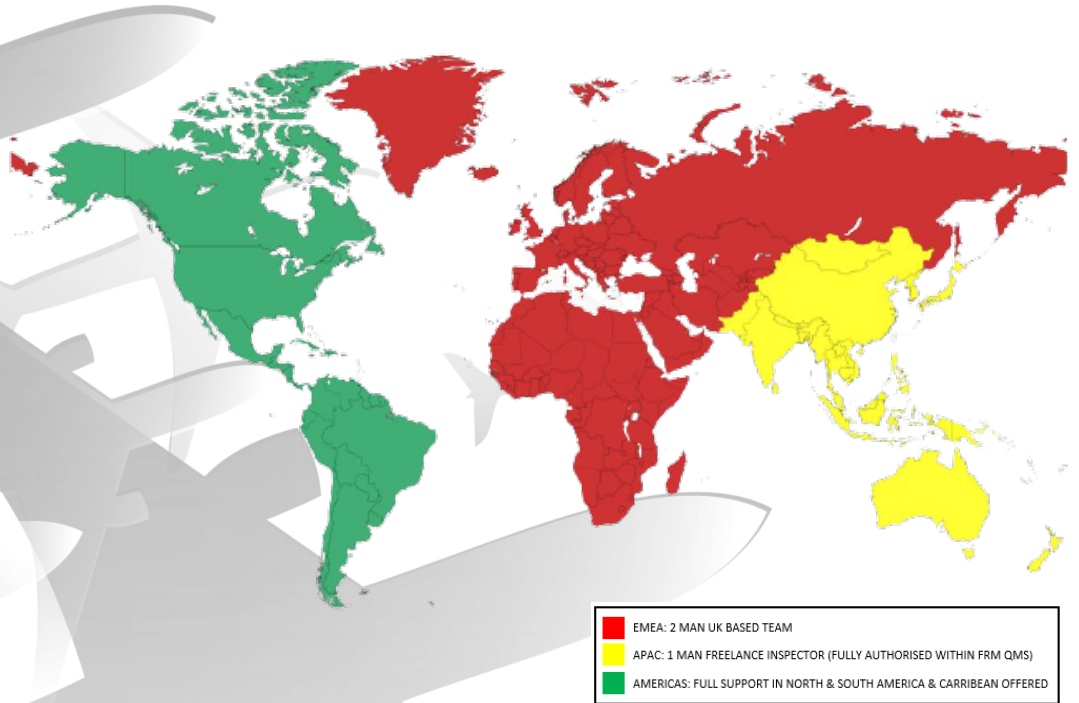
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FRM AVIATION SERVICES LTD- INSPECTOR COVERAGE:



FRM Aviation Services provide worldwide coverage to our customers, we are able to support at very short notice and our teams have a significant amount of flexibility.

EMEA Inspections – Facilitated by one of our three UK based lead inspectors and usually with a two man team as explained earlier. One of our UK engineers also holds EU residency allowing for tariff free travel within the EU post Brexit.

APAC Inspections – Carried out by our freelance BSI inspector located in Singapore but able to cover the whole APAC region, particularly once normality begins to resume and quarantine free travel returns.

Americas Inspection – We are ready & able to support lessors and customers in all areas of North & South America and Caribbean.

Please contact us for any support requirements.



FRM AVIATION SERVICES LTD- SCOPE OF APPROVAL:

At the time of printing FRM Aviation Services have the listed B1 & B3 approvals, limited to borescope inspection only of Engine & APU. However it is our philosophy to continuously expand both our scope of approval and also remove any limitations, to better serve our customers and as such the below list may well be out of date. An up to date approval can be found at <https://www.frmaviation.aero/frm-easa-approval> or by using the contact methods contained on the inside of the booklet back cover.

Rating	Engine Model	Rating	APU Model
B1	CFMI LEAP	B3	GTCP36
B1	CFM CFM56	B3	GTCP85
B1	IAE PW1100G	B3	GTCP131
B1	IAE V2500	B3	GTCP331
B1	GE CF6	B3	PW APS3200
B1	PW 4000	B3	HAMILTON SUNDSTRAND APS 2000
B1	RR TRENT XWB	B3	HAMILTON SUNDSTRAND APS 2300
B1	RR TRENT 7000	B3	HAMILTON SUNDSTRAND APS 2600
B1	RR TRENT 1000	B3	PW980
B1	RR TRENT 900	B3	PW901
B1	RR TRENT 800	B3	PW APS5000
B1	RR TRENT 700	B3	HONEYWELL HGT1700
B1	RR RB211		
B1	PW2000		

FRM AVIATION SERVICES LTD- STANDARD PRICING:

FRM Aviation does operate a standardised pricing structure for all Engine & APU inspections for which it is approved to inspect, with clear and unambiguous costings around all incidental expenses in addition to our standard inspection charges. This can be requested by means of the contact details on the inside of the booklet back cover or by formally requesting an request for quotation (RFQ) where discounts can be offered for multiple inspections, inspection location and other factors.



FRM AVIATION SERVICES LTD- FUTURE PLANS:

“As we begin to slowly creep out of what has been a turbulent two years for our industry, I am keen to utilise the expected upcoming industry resurgence to further advance FRM Aviation Service offerings to its customers. One thing that cannot be dampened is my passion & enthusiasm for this industry which has been my only career since leaving school and signing up for a military apprenticeship. Granted there are probably a lot less volatile industries with which to forge a career in, however it has given me an abundance of travel, professional and personal memories and qualifications, whilst making many lifelong friends.

Whilst the accident I suffered over 4 years ago has all but certainly ended my ability to certify aircraft hands on, the very fact that it happened has opened doors which wouldn't have presented themselves beforehand. I can say with 110% conviction that had I not suffered the accident then I would not have established FRM Aviation back in October 2019, when Thomas Cook collapsed in Sep'19 my initial reaction was “What am I going to do now .. Heavily disabled but with a headful of knowledge & experience” which led me to the belief I could establish my own company and began the process of obtaining our Part 145.

In the short term I am actively looking at both additional type ratings and also the removal of our borescope only limitations, to allow us to prepare & restore the engines for our clients. I am from there also keen to add further ratings to our approval which will allow me to utilise the vast maintenance experience I have onboard with me to offer customers a field service style engine and aircraft repairs and maintenance.

Medium to long term expansion plans involve the procurement of a facility with which to offer engine storage & preservation to customers, being located adjacent to Manchester International Airport and also good motorway links I see this as a natural progression, particularly with the abundance of skilled labour present in the north west following the closure of Thomas Cook & Monarch Airlines. I would like to grow this into a fully fledged engine shop over the coming years, utilising the industry contacts and also solid and well respected reputation we are forging from our borescope work.

We would therefore like to hear from any lessors, operators, asset owners & consultancies who would be keen to work with us and allow us approved vendor status with their business. The future is certainly looking bright for FRM Aviation and I'm thoroughly excited about our future prospects.”

Wayne Trowbridge – Accountable Manager, October 2021



FRM AVIATION SERVICES LTD-FREQUENTLY ASKED QUESTIONS:

Q. Are FRM Aviation able to carry out the removal & installation of borescope access ports?

A: Unfortunately, at this time our approval only extends to the performance of the borescope inspection, therefore all preparation, restoration & access must be performed and certified by the customer or there suitably approved MRO.

Q. What is FRM Aviation level of professional indemnity (P.I) insurance?

A: FRM Aviation offers a standard baseline P.I insurance cover of £2,500,000 on all assignments to safeguard both your asset & also FRM Aviation in the course of the inspection. If, however our baseline level of P.I is not sufficient for your requirements then an additional 'top up' can be applied on a contract by contract basis.

Q. Does FRM Aviation offer FAA 'Dual Release'

A: FRM Aviation offers EASA, CAA & FAA release certificates on all the approved Engines and APU within its scope.

Q. What is FRM Aviation inspector coverage?

A: We currently have 3 UK based inspection teams, with one UK team member also holding EU residency allowing for tariff free travel in EU. We have also recently added a freelance and highly experienced inspector covering the APAC region meaning we have comprehensive coverage of both EMEA & APAC region. We are ready and willing to travel to any part of the globe to support customer projects.

Q. What inspection equipment do FRM Aviation utilise?

A: FRM Aviation exclusively utilise Waygate Technologies Mentor Visual iQ inspection equipment which is widely regarded as the market leader. Our test equipment also has the 'probability of detection' upgrade and are of the 'Analyze' level. Meaning to back up our high level of inspection experience we are using the industry leading standard of equipment.

Q. What levels of borescope inspection experience is available in the company?

A: FRM Aviation 3 UK based inspectors have over 60 years borescope inspection experience across many of the types of our approved scope. The 3 inspectors are also B1/C certifiers across many of the aircraft types.

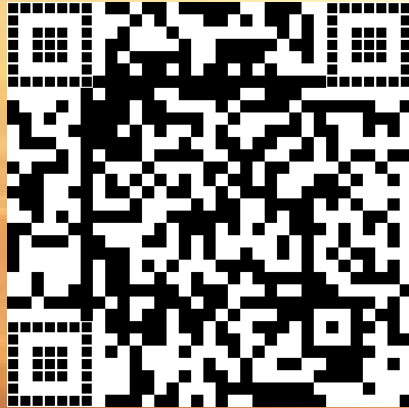
Q. Do FRM Aviation offer any other services other than borescope?

A: FRM Aviation offers a wide-ranging suite of engine management support. To compliment our borescope inspection capabilities our Accountable Manager is also highly experienced in offering engine management support including shop visit management, powerplant consultancy and engine health monitoring services. Also, our inspectors are highly experienced base maintenance engineers, so we are able to offer 'on-site' technical consultancy and support to operators and MRO's.

Q. Do FRM Aviation offer comprehensive reports & videos of the inspection?

A: FRM Aviation offer comprehensive reports of all borescope, GVI & Inventory checks carried out under our approval. We will issue release certification prior to leaving inspection site (if serviceable) and usually provide an MS SharePoint link to inspection report & videos with 48 hours of inspection completion and follow up with the issue of a hard USB copy on job completion completion. A selection of recent FRM Aviation reports can be viewed by visiting the following URL: <https://www.frmaviation.aero/sample-reports>





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