

# NORVIC

Aero Engines LTD



Light Aircraft Engine Overhaul, Exchange,  
Shock Load Repair and Components Overhaul Facility



# About NORVIC

Our aviation customers know from experience that the cheapest engine is not the one that is overhauled or repaired for the least money, but the one that provides the lowest cost per flying hour. The engine that goes to TBO.

At Norvic we pride ourselves on delivering first-class work at prices and timescales that are realistic for you and us. With our comprehensive warranty and highly developed quality control systems, the real value for you is that our workmanship and completion dates are never in doubt.



## Management commitment

Norvic's owners remain committed to continuing to invest heavily in the business to ensure our customers are provided the best quality, service and warranty. We have a fresh approach – a commitment to customer service and, most importantly, delivery times. The company's determination to deliver excellence is a driving force of which Norvic's personnel are justifiably proud.



### Fully staffed

We have some 19 engineers and support staff, with most based in our Engine Shop in St Neots, Cambridgeshire.



### Building for the future

We are proud to offer training to Norvic's high standards through our Skilled Apprenticeship Programme. We continue to invest in our staff and in our future.



### A promise is a promise

Nobody wants false promises about turnaround times. We are committed to providing an honest turnaround time when asked. It is important, particularly for commercial operators, that they know how long a job is likely to take.

## Trust our experienced team

**Years of know-how:** One key reason we are so confident about quality and turnaround times is our continuity of high-calibre people. The total company service of our staff comes to nearly 150 years, with senior managers and engineers all having been in the business for over 25 years. This continuity means our personnel operate as a highly trained team, which translates into quality of work you can rely on.

## Technical strength

**With 50 years of experience between them, our management team set Norvic's high standards of technical capability and workmanship:**

- Talat Malik (Quality Manager/General Manager)
- Jon Howard (Engine Shop Manager)

## Lycoming and TCM Continental engine overhauls adhere to strict quality procedures

All engines are subject to our strict procedures ensuring a high quality overhaul or repair that will return years of dependable flight under the best warranty in the business. Lower your cost of ownership by maximising TBO with a Norvic overhaul. A Norvic overhaul is of the exact same standard as an OEM Rebuild engine.

Each incoming engine is first stripped and thoroughly cleaned in specialised ultrasonic cleaning baths and, where appropriate, bead blasting, again using specialist equipment. Each is then allocated to an individual cart to eliminate the risk of parts cross contamination and ensure a smooth transit through our rigorously monitored programme of works.

Our engineers conduct a full inventory and engine strip to identify parts needing repair, replacement or overhaul, then carry out exhaustive tests and upgrades to the highest professional standards. Replacement parts are then installed and the engine sent for testing on our own test-bed facility. The final step is a series of in-depth checks to ensure the engine is flawless and ready for delivery. See our quality control procedures in detail.

Engine Parameters Display



## Your parts are ready

If we know your engine is coming, we can pre-order parts for you. This way, they can be ready and waiting when your engine arrives for overhaul, which means a big saving in overall turnaround time.

We are dedicated to providing the fastest turnaround in our field in the UK, and this is one of the ways in which we work to minimise your aircraft's time on the ground.

## In-house capability

With our broad set of skills under one roof, we can cut the time it takes to rebuild and repair your engine for optimal performance and reliability. It also gives us the flexibility to meet your particular requirements.

As part of your engine overhaul or repair, we can overhaul injectors, carburettors, magnetos, CSUs, and cylinders (including non-destructive testing-NDT), each in its own facility within the engine shop. We also have the capability to repair and overhaul crankcases and crankshafts, and have CAA approval for TIG welding of aluminium-including crankcases and cylinder heads-all to Norvic's high standards.

## Harnessing technology

Complementing our core people skills, we regularly invest in the latest technology to minimise costs and hassle for our customers and further enhance the quality and reliability of our engines. Recent developments include our MPI (Magnetic Particle Inspection) crack test technology and new dynamometer test bed display system.

## In-house Froude GB4 water brake dynamometer test rig

After an engine has received a complete overhaul, we make our pass-off tests with the engine mounted on our advanced Froude GB4 water brake dynamometer, which enables the engine output to be determined in terms of brake power.

This is an important part of our process of checking and recording all parameters in accordance with the manufacturer's specifications.

# Lycoming & TCM Continental shock load inspection & repair

Trust Norvic to handle your shock load (aka lightning strike) or prop strike inspection and repair to the required specifications. Our highly-trained engineers have over 150 years' collective experience in engine overhaul and repair, and work to our clear procedures and quality control in our modern engine shop in the UK .

Cut your time on the ground: You know your engine must come out and have mandatory parts replaced, as specified by the engine manufacturer.

But Norvic has an innovative way to cut your downtime, because we stock sets of parts we call 'shock load kits' for various engines. In many cases, this can cut weeks off your turnaround time.



## Fast-track Shock Load Repair Scheme

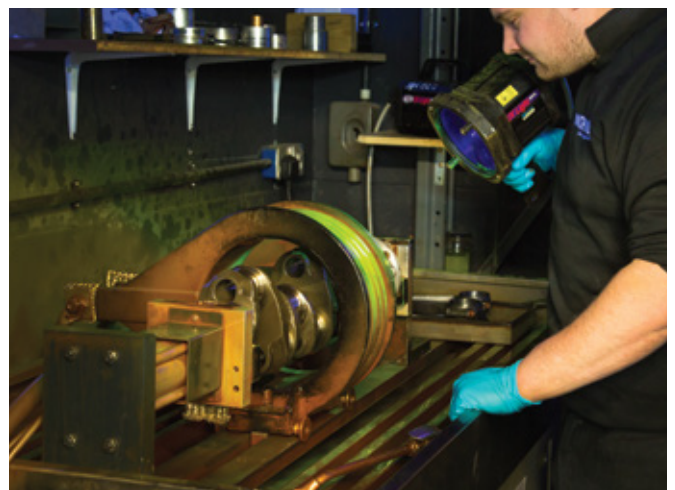
Approved by all the leading general aviation insurers, Norvic instigated its Fast Track Shock Load Repair scheme offering the following advantages:

- Fast turnaround – following significant capital investment in stocking (15 business days unless inspection reveals further problems)
- Dedicated assistance through Loss Adjusters, Engine and Propeller Shop, Insurance Broker and Insurance Company.
- Please contact us to find out more about this exciting development.

## Magnetic Particle Inspection (MPI) crack testing

Using a magnetic field, we are able to detect surface and sub-surface discontinuities in engine crankshafts and other critical parts that may have led to cracks developing at a later stage. By using the latest technology to detect problems during overhaul or shock load inspection, you can be sure of a much higher likelihood of reaching TBO.

The combination of such advanced technology and our highly skilled engineers is the primary enabler of our industry leading warranty.



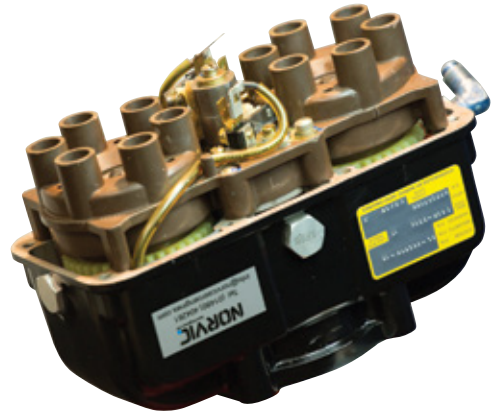
MPI testing machine.

# Overhaul and repair of Aircraft engine components

## Magnetos

We have a dedicated Magshop and engineers who each have over 15 years' experience to carry out the overhaul, repair and 500Hr inspections on Slick Magnetos, Dual Magnetos and TCM/Bendix.

We carry a full and comprehensive stock of parts allowing us to offer a quick turn-around time of 2 to 3 days (subject to the workload).



## Cylinders

We have a dedicated engineer who is qualified to work on Cylinder overhaul and repair (includes any weld repair if required). Our overhauled Cylinders contain replacement of all mandatory parts as required by the Cylinder manufacturer.

We carry a comprehensive stock of overhauled cylinders and parts allowing us to offer a quick turn-around time of 3 to 5 days.



## Propeller Governor (also known as CSU)

Our in-house capability enables us to repair or overhaul your aircraft propeller governor to include Hartzell and McCauley sent with engine or separately.

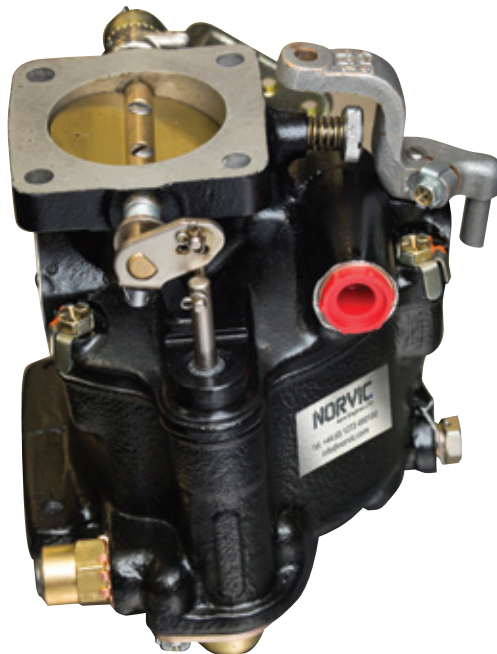
We carry a full and comprehensive stock of parts and ready to go Propeller Governors allowing us to offer a quick turn-around time of 3 to 5 days.



### Carburettors

We have a dedicated engineer who is qualified to work on Marvel Schebler Carburettors and its predecessors Carburettors MA/HA Series.

We carry a comprehensive stock of parts including overhauled Carburettors allowing us to offer a quick turn-around time of 3 to 5 days.



### Precision Fuel Servo

We can overhaul, repair, bench test and calibrate Precision and Bendix RSA 5 and 10 series fuel servos.

We carry a comprehensive stock of parts allowing us to offer a quick turn-around time of 3 to 5 days.



## Experimental Engines

We are also authorised to build and work on various experimental engine options and have an agreement with the well proven Superior (SAP) manufacturer that allows us to build experimental engine kits and sell for use in the home-build market. We also build and sell Norvic experimental engines to home-build aircraft owners. The experimental engines we build and supply are suitable for fixed or variable pitch propellers in either carburettor or injection models.

**Our commitment to our customers is to provide a high standard of quality workmanship at a competitive price.**

# Lycoming and TCM Continental Exchange Engines are Ready to Go and available

A Norvic Exchange Overhaul engine or a Norvic Overhaul engine is of the exact same standard as an OEM Rebuilt engine, not their Overhauled engine. Compare our prices with an OEM Rebuilt.

You will find we deliver unparalleled customer service – doing exactly what we promised and making every effort to meet your special requirements.

At our advanced engine shop, all of the technical work is carried out by EASA Part 145 Certified personnel in accordance with the company's EASA Part 145 Approval No. UK.145.01182, FAA Approval No. 33NY343C, Philippine CAAP Approval No. 412-F and Jordanian CARC Approval No. CARC.F.AMO.28.

Subject to availability and payment, shipment within 5 working days.

Second to none, our ready-to-go service will take your expired Core and provide an Overhauled Exchange engine in the shortest possible time. Minimise ground time with Norvic ready-to-go engines.

## Why wait for an overhaul?

### Our current stock of engines for Ready to Go includes:

- Lycoming O-235-L2A
- Lycoming O-235-L2C
- Lycoming O-235-L2C (Part Life)
- Lycoming O-320-D2A
- Lycoming O-320-D3G (Part Life)
- Lycoming O-320-D3G
- Lycoming O-320-E2A
- Lycoming O-320-E2D
- Lycoming O-320-E3D
- Lycoming O-320-D2J
- Lycoming O-320-H2AD
- Lycoming O-360-A4M
- Lycoming O-360-A1AD
- Lycoming O-360-A3A
- Lycoming IO-360-L2A
- Lycoming IO-360-C1C6
- Lycoming IO-360-B1E
- Lycoming IO-360-C1E6
- Lycoming LIO-360-C1E6
- Lycoming HIO-360-D1A
- Lycoming O-540-E4C5
- Lycoming O-540-J3C5D
- Lycoming IO-540-K1B5
- Lycoming IO-540-T4B5D
- Lycoming LIO-540-J2BD
- Lycoming TIO-540-J2BD
- Continental O-200-A
- Continental IO-240





## Will your engine last to TBO?

If work isn't carried out to the highest standard you can bet your bottom dollar your engine will fail before the end of its flying hours and just out of warranty. Trust Norvic to deliver the highest standard and value. Trust Norvic to deliver an overhauled engine of the exact same standard as an OEM Rebuilt engine.

You need to know exactly what will be done to your engine and what it will cost, so we provide a clear, itemised and detailed quotation. We provide documented evidence of work carried out and parts fitted.

Whether you need a quotation for an exchange engine (and we have the largest range of exchange engines outside of the OEM's), an overhaul of your own engine or a Shock Load Inspection, you will find our service ethos is based on fair pricing in Pounds, Euros or Dollars as you prefer, and the certainty of delivering projects on time.

## Our customers

We work for a very broad spread of global and UK customers ranging from commercial operators, flying schools, helicopter operators, maintenance organisations and private owners. Accredited to EASA Part 145, (United Kingdom CAA Approval Ref UK.145.01182, United States FAA Approval No. 33NY343C, Philippines CAAP Approval No. 412-F and Jordanian CARC Approval No. CARC.F.AMO.28), our skilled personnel and highly developed quality control systems result in a quality of workmanship and attention to detail unrivalled in our field, all backed with a comprehensive warranty for true peace of mind. A Norvic overhauled engine is of the exact same standard as an OEM Rebuilt engine.

## Norvic Workpack

All of our engines are delivered with the appropriate Release Certificates and please note we can, if asked, offer a Dual Release under the EASA/FAA Approvals we hold. All components are also delivered with the appropriate Release Certificates.

You won't find us hiding behind phrases like 'new parts fitted as required'. We do what we say, and we say what we do.

## Engines we work on

Lycoming and Continental. We can also work on Franklyn engines.

## Collection and delivery

At Norvic we have own transport for collection and delivery of your engine if required. See the quotation for terms.

## Norvic warranty

Norvic's warranty is the best in the business.

Warranty on overhauled or exchange engines is 24 months or 1,000 hours (whichever occurs first) on labour with parts as warranted by individual manufacturers. The warranty period runs from the date of completion of work at our facility.

Warranty on repaired engines is 6 months or 100 hours (whichever occurs first) on labour with parts used in the repair as warranted by individual manufacturers. The warranty period runs from the date of completion of work at our facility.



# Testimonials

Stapleford Flying Club is a privately owned company established over 50 years ago and currently has a fleet of 40 combined Piper and Cessna aircraft. I have had the pleasure of dealing with Norvic for over 20 years, in the past 9 years, overhauling our Cessna and Piper fleet of engines. I would like to take this opportunity to thank you and your dedicated team for your valued support over this time. The efficiency, expertise and high standard of workmanship is a credit to your staff. Our engines are always fitted in around our tight maintenance requirements and we are kept fully informed of the work in progress. Timely delivery completes a faultless service. An early upfront cost means you always know the full price, with no hidden extras. The competitive prices also keep us very happy. The aftercare support and warranty scheme is also excellent. Particular thanks to the support of Richard, Malik and Jon. I am very happy with Norvic looking after our aircraft. Please pass on our thanks to all the team.

**John Chicken, Director**  
Stapleford Flight Centre, Essex, England

We have used Norvic Aero Engines team for more than twenty years. The quality and service is beyond question, Norvic have performed so much work for us that it is nearly impossible to quantify, we have never had any issues. Norvic offer a great warranty, but we have never had to call on it and they will be in business long after your warranty has expired.

**Ian Chaplin**  
General Aero Services Ltd, England

Norvic's excellent service has allowed FTE to steadily increase the number of flying hours on Lycoming engines over the years - in 2017 alone we've surpassed the astonishing mark of 20,000 Flight Hours. This is only possible due to Norvic's fast turnaround time, their first-rate work on overhauls, and the availability to procure and prepare additional engines to add to our current engine pool. FTE always aims for excellence and is proud to count on Norvic' support to achieve that goal.

**Daniel Saraiva**  
FTE's CAMO/Part 145 Accountable Manager Flight Training Europe, Spain

Royal Jordanian Air Academy has a long-standing relationship with Norvic, they had been overhauling our engines since 2011 and never let us down. Their attention to detail, quality, and trained staff, has ensured that we would be satisfied with the result of receiving a high quality engine overhaul.

**Capt. Mohammad Khawaldeh, Director General**  
Royal Jordanian Air Academy, Amman, Jordan

Every year we send our customers' Lycoming and Continental piston engines to Norvic for repairs and overhaul and we do not intend to change this. The reasons are the high quality standard you continuously maintain, you always meet the quoted delivery time, great quality-price ratio. All the Norvic overhauled engines achieved TBO without problems.

**Valentin Mogos**  
Aviotrade Service, Bucharest, Romania



# NORVIC

## **Engine Shop / Deliveries**

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## **Sales & Accounts**

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