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# Rolls-Royce M250/RR300 Support Team

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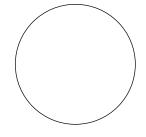
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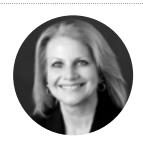
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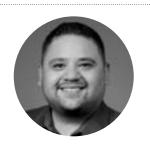




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Chicago	1-800-284-2551	1-630-513-6651	3950 Swenson Ave, St. Charles, IL 60174-3446	_	
Dallas	1-800-284-2551	1-972-586-1982	P.O. Box 619048, Dallas, TX 75261-9048 - 2751/Regent Boulevard, DFW Airport Dallas, TX 75261		
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Miami	1-800-284-2551	1-954-625-3931	3350 Davie Rd. , Suite 205 for CSC, Davie, FL 33314	-	
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Perth	1300 4 AVIAL	61-8-9332-8858	11 Eagle Dr, Jandakot WA 6164 Jandakot Airport, Western Australia 6164	
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# FIRST Network Map



## FIRST Network Map M250 & RR300 Global Maintenance & Repair Network





# **Rolls-Royce M250 FIRST Network – Index**

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Asia Pacific Aerospace Pty. Ltd	eensland, Australia	25
DallasAirmotive	as, Texas, U.S.A	26
H+S Aviation Ltd.	Pasmouth, Hampshire, UK	27
Industry Aviation Services	Jose' de Lapa, Brasil	28
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Authorized Maintenance Centers (AMC)		
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Air Asia Company, Limited	Tainan, Taiwan, Republic of China	37
Hanwha Aerospace Co. Ltd	Changwon-City, Korea	38
Mitsubishi Heavy Industries Aero Engines, LTD.	Komaki City, Japan	39
Authorized Repair Facilities (ARF)		
Cadorath Aerospace Inc.	Winnipeg, Manitoba, Canada	42
Cadorath Aerospace Lafayette	Broussard, Louisiana, USA	43
H-S Tool & Parts, Inc.	Richmond, British Columbia, Canada	44

## **Authorized Service Centers (ASC) M250**

The following independently-owned facilities have been approved by Rolls-Royce as M250 Authorized Support Centers (ASCs), providing Customers with the convenience of regional operation and maintenance support through direct association with an Authorized Maintenance Repair & Overhaul Center (AMROC) or Authorized Maintenance Center (AMC)

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# Authorized Maintenance, Repair & Overhaul Centers (AMROC)

## **Authorized Maintenance, Repair & Overhaul Centers (AMROC)**

The following independently-owned facilities have been approved by Rolls-Royce as Authorized Maintenance Repair & Overhaul Centers to provide a full-range of services to global operators of M250/RR300 powered helicopter and fixed-wing aircraft, including:

- Specialized major and critical component repair capabilities
- · Repair and maintenance services
- Complete overhaul capabilities
- TotalCare® programs
- Unit exchange of engines, components and accessories
- Warranty administration

These Authorized Maintenance Repair & Overhaul Centers operate test cells for diagnostic and acceptance testing and ensure that operators around the world are able to keep their M250 fleet active and flying with minimum down time.



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### AeroMaritime Mediterranean Ltd.

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Fax: +356-21651782 Email: aeromaritime@itpaero.com

Website www.itpaero.com



**Mario Mazzola** Managing Director

## **Capabilities**

Aeromaritime Mediterranean Ltd. established in Malta in 1979, is one of the leading repair and overhaul facilities strategically located in the Mediterranean between Europe, North Africa and the Middle East.

The company is a group member of Industria de Turbo Propulsores, S. A. (ITP Group)

Over the years Aeromaritime Mediterranean Ltd. has built its reputation through its exceptionally experienced workforce, providing quality service, on-time performance and competitive rates to numerous satisfied customers.

We offer the following services and support for all of your M250 Engine requirements:

- Complete Overhaul Repair and Test capabilities for all M250 Series Engines and accessories
- Correlated Test Cell facilities to ensure all customers requirements
- 24- Hour AOG Support
- Over the Counter Sale of Parts
- Professional Technical Support by our experienced engineers
- On Site Field Support by expert technicians
- Extensive rental and unit exchange of engines, modules, components and accessories
- Part 147 and Approved Rolls Royce M250 Engine Training Programs
- TotalCare® and Warranty Administration

## **Key Personnel**

#### Mario Mazzola

Managing Director
Email: mario.mazzola@itpaero.com

#### Michael Hudson

Business & Commercial Manager Email: michael.hudson@itpaero.com

#### Luke Cauchi

Technical Manager Email: luke.cauchi@itpaero.com

#### **Anneke Grixti**

Logistics Manager Email: anneke.grixti@itpaero.com

#### Josef Mizzi

Work Shop Manager Email: josef.mizzi@itpaero.com

#### Silvana Calleia

Operations Manager Email: silvana.calleja@itpaero.com

#### Ian Mamo Porteli

Quality Manager

Email: lan.mamo.portelli@itpaero.com

#### Marthese Montezin

Customer Support Manager Email: marthese.borg@itpaero.com

## Primary Rolls-Royce Regional Manager: Simon Kemp



## Airborne Engines Ltd.





## Airborne Engines Ltd.

7762 Progress Way Delta, BC V4G 1A4 Phone: +1 (604) 244-1668 Fax: +1 (604) 244-1787

Website: www.airborneengines.com



Darcy McAlpine Director, Business Development

## **Capabilities**

Founded in 1991, Airborne Engines Ltd., is a Transport Canada approved Engine, repair and overhaul facility located in Delta BC, Canada. As a Authorized Maintenance, Repair and Overhaul Center (AMROC), Airborne has the capability to provide a full range of maintenance services to the M250 Series of engines & modules.

Airborne Engines' In-House Quality Management System, built to exceed industry standards, combined with our superior OEM trained technical personnel, state-of-the-art equipment and excellent long-term operational history, are key indicators of our commitment to maintaining the highest standards for quality, service and workmanship. In recognition of this commitment, we have been accredited with AS9110 Rev C and ISO 9001:2015.

Airborne Engines' extensive in-house reworks capabilities, enhanced by our Design Approval Representative (DAR) provide a distinct advantage in keeping you Airborne at lower operating costs.

## Some of AEL's advantages include:

- EASA Approved
- AS9110C
- ISO 9001:2015
- Correlated Test Cell w/FADEC
- Extensive In-House Repair Capabilities
- · In-House Repair Development
- Precision CNC equipped machine shop
- GTAW & Spot Welding
- · Plasma / thermo-spray
- Fleet Management
- Field Support

### **Key Personnel**

#### Rob Ruck

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#### Steve Walford

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#### Darcy McAlpine

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#### **Grant Frostad**

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#### Jacqueline Fernandez

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#### **Branch Location**

#### **Southwest Fuel Systems**

2915 State Highway 99 North Shroud, Oklahoma 74079

#### Michael Horwath

Quality Manager Phone: (405) 276-9176 Mobile: (254) 338-5101

Email: mhorwath@swf-aero.com

Primary Rolls-Royce Regional Manager: Greg Houston



## **Arrow Aviation**





### **Arrow Aviation Co.**

1318 Smede Hwy Broussard, LA 70518 Phone: +1 (337) 364-4357 Fax: +1 (337) 364-4186

Website: www.arrowaviationco.com



David Guidry
General Manager
Phone: +1 (337) 364-4357
Office: +1 (337) 321-6401
Email: david@arrowaviationco.com

### **Capabilities**

Arrow Aviation is a full service rotorcraft maintenance facility located in Southern Louisiana with a certified heliport designator (16LA). Arrow is an FAA 145 repair station with EASA, MOLIT, and ANAC approval and is an approved Cayman Island AMO. In an effort to continually improve quality, we are also certified in the ISO9001:2008 AS9110B standard. In addition to a Rolls-Royce AMC; Arrow holds Service Center certificates from: Airbus, AgustaWestland, Bell, and Sikorsky. The Engine shop at Arrow has over 45 years of combined experience with FAA licensed airframe and power plant mechanics.

Arrow Aviation provides full service maintenance, repair and overhaul of the M250 series engines. To minimize down time, we provide engines and modules to be utilized while our customer's engine is being overhauled or repaired. We have the only fully correlated test cell available for contract in the Gulf South. Arrow also has non-destructive testing on-site and offers field service repair and support. TotalCare and warranty support are included in our MRO service.

## **Key Personnel**

#### **David Guidry**

General Manager

Phone: +1 (337) 364-4357 Office: +1 (337) 321-6401

Email: david@arrowaviationco.com

#### Tim Ivanoff

Director of Maintenance Phone: +1 (337) 364-4357 Office: +1 (337) 321-6403 Email: tim@arrowaviationco.com

#### Coby Johnson

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#### Fred Stokes

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#### Seungho Song

International Sales and Marketing

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#### **Christian Ivanoff**

**Quality Manager** 

Mobile: +1 (337)3 64-6409

Email: christian@arrowaviationco.com

## Primary Rolls-Royce Regional Manager:

Jerry Black

## Asia Pacific Aerospace Pty. Ltd (APA)





## **Asia Pacific Aerospace**

15 Chapman Place Eagle Farm Queensland 4009 Australia Phone: +61 (7) 3632 7600 Fax: +61 (7) 3632 7661 Email: info@apaero.com.au Website: www.apaero.com.au



**Tony Cotroneo** 

General Manager Phone: +61 7 3632 7638 Mobile: +61 417 785 155

Email: tony.cotroneo@apaero.com.au

## **Capabilities**

Asia Pacific Aerospace Pty Ltd (APA) is one of the world's leading Gas Turbine Maintenance, Repair and Overhaul (MRO) service providers in the Australasia region.

APA is a Rolls-Royce M250 and RR300 Authorized Maintenance, Repair, and Overhaul Center (AMROC) that offers reliable, customer focused services from our staff of specialised engineers. We offer world-class Gas Turbine MRO services from urgent AOG to scheduled maintenance programs for the Rolls-Royce M250 and RR300 series engines

- Our gas turbine engine MRO operations is a one-stop maintenance, overhaul and repair shop for small to medium gas turbine engines complete with;
- 24/7 customer support,
- field support for M250 and RR300 engines
- Correlated engine test cell, interchangeable between M250 and RR300 series
- fuel component and accessory repair, testing and overhaul.
- specialised welding and thermal spray part restoration,
- spares and logistics support, and
- engines, modules and accessories available for rentals, exchanges or outright purchase.

### **Customer Support Service**

The world of aviation moves at speed and time-critical responses impact on the commercial performance of our clients. Our approach is built on proactive customer support, management and above all, a high level of Safety, Skill and Service.

APA specialists offer support 365 days a year to serve their customers. APA makes sure customers are optimally supplied with the services, parts and support required to satisfy the customer requirements.

## **Key Personnel**

#### Glenn Fish

Quality Manager
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#### **Peter Faunt**

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#### Rory Manley

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#### **Andrew Price**

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#### Jimmy Wong

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#### **Chow Hoon Keong**

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Primary Rolls-Royce Regional Manager: Matt Cherviakov



## **Dallas Airmotive**





### **Dallas Airmotive**

2988 W Walnut Hill Lane DFW Airport, TX 75261 Phone: +1 (214) 956-3001 After Hours: +1 (800) 527-5003 Website: www.dallasairmotive.com

## **Capabilities**

Dallas Airmotive offers full service maintenance, repair and overhaul of M250® and RR300® engines. Services include engine and module repair, overhaul & exchange. We also conduct performance testing, spare parts sales and warranty administration. The company has full inhouse rework capability. We are FAA & EASA approved, ISO 9001:2008 registered and a certified member of U.S. Customs and Border Protection C-TPAT supply chain.

First approved for the M250 in 1967, Dallas Airmotive has serviced thousands of engines since that time. The company's long-term commitment to rotorcraft operators is reflected in a new state-of-the-art Rotorcraft Center of Excellence located at Dallas-Fort Worth International Airport opening in 2015 along with a new test cell facility.

Dallas Airmotive provides a global field service network to support operators who are AOG or need on-site assistance. Our field service is available 24-hours, every day of the year and can be contacted through our website or telephone number listed on this page.

## **Key Personnel**

#### **Brian Hughes**

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Mobile: +1 (204) 291-0502

Email: Brian.Hughes@StandardAero.com

#### Craig Cibulka

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#### Henry Lisboa

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#### Danny Miller

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Coast & Hawaii

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#### Leandro Silva

Regional Engine Manager Brazil

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#### Primary Rolls-Royce Regional Manager:

Randy LeClair



**David Cobb** 

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## H+S Aviation (A StandardAero Company)





## H+S Aviation (A StandardAero Company)

Airport Service Road Portsmouth Hampshire PO3 5PJ England Phone: +44(0)2392 304318 AOG: +44 (0)7885 260145 Fax: +44 (0) 2392 304240

Email: team.250@hsaviation.co.uk Website: www.hsaviation.co.uk



Paul Knight

M250/RR300 Commercial Manager Email: paul.knight@hsaviation.co.uk Phone: +44(0)23 9230 4321 Cell: +44(0) 7525 403693

### **Capabilities**

H+S Aviation is Europe's largest turboprop and turboshaft engine overhaul organisation, with the Rolls-Royce M250 engine having been an integral part of the business since 1971.

H+S Aviation's Team 250 is focused on producing a high quality product that will provide customers with the highest level of reliability and performance at a competitive price. Specialised build techniques and component repair processes have been developed in-house to help drive down direct operating costs.

Team 250 offers a comprehensive range of support services on all Rolls-Royce M250 variants, including all the associated accessories. Team 250 can also offer in-field support, an extensive pool of rental and exchange engines, modules and accessories, CAA-approved training programmes, 24/7 AOG support and a same-day service for minor repairs and HMI's through its FAST TRACK Unit.

## **Key Personnel**

#### **Bryan Hughes**

Vice President Sales & Marketing Commercial Director Email: brian.hughes@standardaero.com

#### Ray Grech

Engine Accessories Business Programme Director Email: ray.grech@hsaviation.co.uk Phone: +44 (0)23 9230 4346

#### Colin Barke

Regional Sales Manager Email: colin.barker@hsaviation.co.uk Phone: +44(0)7850599074

#### **Neil Chapman**

M250/RR300 Engineering Team Leader Phone: +44 (0) 23 9230 4300 Mobile :+44 (0)7834 025085 Email: Neil.chapman@hsaviation.co.uk

#### **Branch Location**

International Governor Service, LLC 7290 W 118th Pl Broomfield, CO 80020 Michael Lewis-Snr -Operations Manager 1 (303) 464-0043

Primary Rolls-Royce Regional Manager: Simon Kemp

## **Industry Aviation Services**





### IAS

Avenida Marcone Issa, 300 - Bairro Perobas São José da Lapa / MG - Brasil

CEP: 33350-000

Phone: + 55 031 3623-6304 Website: www.ias.ind.br

## **Capabilities**

IAS is a company driven by a dynamic relationship between the Customer needs and the ability to nationalize the electromechanical aircraft maintenance items (engine and fuel, electrical, hydraulic and pneumatic systems).

- Turbo-fan: Engines with thrust up to 33000 lbf.
- Turbo-shaft: Engines with power up to 5100 shp.
- Propeller: Power train assy with up to 4 meters (13 ft) propellers, mounted or not in QEC.
- Chemical Cleaning
- Abrasive Cleaning
- Painting
- Machining
- Mechanical Repairs
- · Flame Spray Coating
- Balancing
- Welding
- Heat treatment with controlled atmosphere

## **Key Personnel**

#### Rodolpho Pereira

Manager Quality & Airworthiness Technical Control Mobile: +55 24 992794264

Email: r.pereira@ias.ind.br

Regional Manager: Karim Shaaban



Elizeu Alcantara

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## **Keystone Turbine Services**





## **Keystone Turbine Services Corporate Office**

885 Fox Chase, Suite 111, Coatesville, Pennsylvania 19320, USA Phone: +1 (610) 268-6200 Fax: +1 (484) 786-8680 Website: www.kts-aero.com



John Fraser
General Manager
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Mobile: +1 (610) 883-2737
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Email: jfraser@kts-aero.com

### **Capabilities**

Keystone Turbine Services is a fully certified Authorized Maintenance Repair & Overhaul Center (AMROC) serving the entire Rolls-Royce M250 & RR300 series of gas turbine engines. Located in our new, state of the art 40,000 sq. ft. facility across from Chester County Airport in Coatesville. PA. We offer the following advantages:

- FAA/JAA/EASA Part 145 Repair Station BMHR895B
- Dedicated customer support
- On-site non-destructive testing (NDT)
- Two fully correlated Engine test cells (including B17C & F Series Turboprop engines)
- Specialized plasma and wire spray services
- Complex machining and welding operations
- Exchange engines, modules and accessories
- Spare parts support
- Honeywell Awars for Field Control Unit & Power Turbine Governor Extensive field service support
- · Component balancing
- · Rental engine, module and component support
- TotalCare and warranty support

As a gas turbine engine industry leader for over 46 years, Keystone Turbine Services understands what it's like to own and operate a helicopter.

You deserve the very best in 24/7 service and support for your M250 and RR300 engine. Let Keystone Turbine Services put its expertise to work for you.

### **Key Personnel**

### Sales & Support Team

#### Chuck Hurdleston

Vice President, Sales Phone: +1 (610) 268-6200 ext. 3201

Mobile: +1 (610) 909-6846 Fax: +1 (484) 786-8680

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#### **Rob Gordon**

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Mobile: +1 731-434-7920 Fax: +1 (484) 786-8680 Email: rgordon@kts-aero.com

#### **David Campbell**

Title: Central U.S. Sales & Support

Manager

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#### Dan Oppenheim

Customer Support Manager Phone: +1 (610) 268-6200 ext 3301

Mobile: +1 (484) 354-5882 Fax: +1 (484) 786-8680

Email: doppenheim@kts-aero.com

### **Production and Quality**

#### **Anthony Carter**

Director of Production

Phone: +1 (610)268-6200 ext. 3302

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#### Tim Kline

Accessories Manager Phone: +1 (610) 268-6200 ext. 3402

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#### Tom Raichle

**Production Manager** 

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Primary Rolls-Royce Regional

Manager: Greg Lewis

## **StandardAero**





### **StandardAero**

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Fax: +1 (204) 272-0093

Part Sales Canada: +1 (800) 701-8181 Part Sales USA: +1 (800) 866-2376 Email: Helicopters@StandardAero.com Website: www.StandardAero.com/heli



**Brian Hughes** Vice President Sales & Marketing Phone: +1 (204) 318-7544 Mobile: +1 (204) 291-0502 Email: brian.hughes@StandardAero.com

### **Capabilities**

StandardAero provides industry-leading customer service and optimal engineering solutions to meet your M250 repair and overhaul needs. Since 1967, we have been building better engines as the world's largest Authorized Maintenance, Repair and Overhaul Center (AMROC). With this history and experience comes understanding the requirements to owning, operating, maintaining a helicopter, and becoming the best. That is why StandardAero is the trusted service partner.

### A Commitment to **Customer Satisfaction**

As a multiple year recipient of the Rolls-Royce FIRST Network's Customer Satisfaction award, StandardAero offers the highest levels of workmanship, work progress communication, timeliness of delivery, invoicing accuracy, and issue resolution. Our global network of service centers and customer service professionals contribute to our first-class rating of 99% on a customer's likelihood to recommend our services.

## **Engine Optimization**

Our innovative engineering capabilities have allowed us to develop the Custom Build and Optimum Build Engine. These build procedures provide increased shaft horsepower margins. cooler operating temperatures, reduced heat distress, and less fuel consumption that are appropriate for your mission. Simply put, we provide an optimal engine for your best results.

## StandardAero. Lifetime Commitment

StandardAero's best-in-class engine services are also complemented by a full suite of helicopter support capabilities, including maintenance, repair and overhaul of dynamic components, airframe/structures repair, full service avionics and in house STC development by our world-class engineering department.

### **Key Personnel**

#### Peter Wheatley

Vice President & General Manager

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#### **Brian Hughes**

Vice President Sales, Marketing & Business

Development

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#### Corv Waldmo

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#### **Branch Locations:**

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General Manager

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#### Vancouver

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#### **Andy Wong**

Director, Operations Phone: +1 (604) 276-7687 Mobile: +1 (604) 340-2419

Email: Andy.Wong@StandardAero.com

### **Accessory Locations**

#### Fort Myers

**Accel Aviation Accessories** 11900 Lacy Lane, Fort Myers, FL 33966, USA

Phone: +1 (888) 686-4880

#### Scott Mix

Vice President & General Manager

Phone: +1 (239) 689-4539 Mobile: +1 (413) 636-1652

### Email: Scott.Mix@StandardAero.com

#### Hialeah

Safe Fuel Systems 860 West 84th Street Hialeah, FL 33014, USA Phone: +1 (954) 929-7233

#### Imran George

General Manager Phone: +1 (954) 929-7233 Mobile: +1 (305) 323-6666

Email: Imran.George@StandardAero.com

**Primary Rolls-Royce** Regional Manager: Dave Rollins





# Authorized Maintenance Centers (AMC)

## **Authorized Maintenance Centers (AMC)**

The following independently-owned facilities have been approved by Rolls-Royce as Authorized Maintenance Centers (AMC) to provide a full-range of services to global operators of M250/RR300 powered helicopter and fixedwing aircraft, including:

- Repair and maintenance services
- Complete overhaul capabilities
- TotalCare programs
- Unit exchange of engines, components and accessories
- Basic book and minor component repair capabilities
- Warranty administration

These Authorized Maintenance Centers operate engine test cells for diagnostic and acceptance testing, and ensure that operators around the world are able to keep their M250 & RR300 fleet active and flying with the minimum of down time.

## **National Airways Corporation Pty. Ltd.**





### **Capabilities**

From its main facility at Rand Airport, Gemiston, National Airways Corporation provides full maintenance services for Rolls-Royce M250 engines, including overhaul, repair, spare parts, accessory overhaul, field service, warranty administration, technical publications and 24-hour service.

National Airways also offers new engines and modules, rental and exchange engines, modules and accessories.

## **Key Personnel**

#### Martin Banner

Chief Executive Officer Email: martin.banner@nac.co.za

#### Redmond Fowle

**Executive Director** 

Email: redmond.fowle@nac.co.za

#### Marc Post

#### Technical Manager

Mobile: +27 083 454 7019 Email: marc.post@nac.co.za

#### Lindie O'Reilly

Administration Manager Mobile: +27 082 457 9806 Email: lindie.oreilly@nac.co.za

#### Mandla Mngoma

Email: mandla.mngoma@nac.co.za

#### Shipping address:

Hangar 39 Rand Airport Germiston 1419 Republic of South Africa

### Primary Rolls-Royce Regional Manager:

Simon Kemp

## National Airways Corporation Pty. Ltd.

P.O. Box 18016 Rand Airport Germiston 1419 Gauteng South Africa

Phone: +27 11 87 353-3446 Website: www.nac.co.za



Marc Post Technical Manager

## **StandardAero**





### StandardAero (Singapore)

100 Seletar Aerospace View Singapore 797507 Phone: +65 6715 2100

Email: helicopters@StandardAero.com Website: www.StandardAero.com/heli

### **Capabilities**

Our extensive capabilities for the M250 engine include complete overhaul of all M250 engine variants, a correlated test cell in compliance with Rolls-Royce to meet customer's requirements, professional technical support, 24/7 AOG support, a large pool of rental and exchange units, approved Rolls-Royce M250 engine training and on-site field support by our experienced technicians.

#### Overview

StandardAero has a state of the art facility at the Singapore Seletar Aerospace Park, and is a market leader with over 40 years performing maintenance, repair and overhaul for the M250 engine. As the region's largest Authorized Maintenance Center (AMC), we understand the requirements of owning, operating, maintaining a helicopter, and becoming the best. That is why StandardAero is the trusted service partner.

## A Commitment to Customer Satisfaction

As a multiple year recipient of the Rolls-Royce FIRST Network's Customer Satisfaction award, StandardAero offers the highest levels of workmanship, work progress communication, timeliness of delivery, invoicing accuracy, and issue resolution. Our global network of service centers and customer service professionals contribute to our first-class rating of 99% on a customer's likelihood to recommend our services.

#### StandardAero, Lifetime Commitment.

StandardAero's best-in-class engine services are also complemented by a full suite of helicopter support capabilities, including maintenance, repair and overhaul of dynamic components, airframe/structures repair, full service avionics and in house STC development by our world-class engineering department.

### **Key Personnel**

#### Bill Batchelor

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#### **Accessory Locations**

#### Fort Myers

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#### Scott Mix

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com

#### Hialeah

Safe Fuel Systems 860 West 84th Street Hialeah, FL 33014, USA Phone: +1 (954) 929-7233

#### Imran George

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Primary Rolls-Royce Regional

Manager: Jia Fei



# Authorized Military Overhaul Facilities (AMOF)

## **Authorized Military Overhaul Facilities (AMOF)**

The following independently-owned facilities have beenapproved by Rolls-Royce as Authorized Military Overhaul Facilities (AMOF) to provide a full-range of services to indigenous military and para-military operators of M250 powered helicopter and fixed-wing aircraft, including:

- Repair and maintenance services
- · Complete overhaul capabilities
- TotalCare® programs
- Unit exchange of engines, components and accessories
- Warranty administration

These Authorized Military Overhaul Facilities operate engine test cells for diagnostic and acceptance testing, and ensure that local operators are able to keep their M250 fleet active and flying with the minimum of down time.

## **Air Asia Company Limited**





### **Air Asia Company Limited**

No.1050, Jichang Rd. Rende Dist., Tainan City 71755, Taiwan, R.O.C. Phone: +866-6-268-1911

Website: www.airasia.com.tw

## **Capabilities**

Air Asia is capable of complete overhaul/repair and test of Rolls-Royce M250 series I, II, III and IV engines and modules.

We also offer overhaul/repair services for and bench testing of Rolls-Royce M250 accessories, including:

- Fuel control units
- Power turbine governors
- Fuel pump
- Bleed valve
- Fuel nozzle
- Anti-icing valve

Air Asia provides spare parts and customer support services, including customer training.

### **Key Personnel**

#### Philips T.L. Lu

CHAIRMAN, President (Concurrently) Email: philipslu@airasia.com.tw

#### S.L. Tsai

Vice President Helicopter Email: vsp.tsai@airasia.com.tw

#### S.T. Kuo

Director Accounting & Financial Planning Email: stkuo@airasia.com.tw

#### Louie C.Y. Huang

Director Quality Assurance Email: louieh@airasia.com.tw

#### **Elizabeth Wang**

Director Procurement Email: JYWANG@airasia.com.tw

#### J.Y. Fu

Director Helicopter Marketing Email: jyfu@airasia.com.tw

#### C.K. Chen

Director of Vertical Flight Center Email: ckchen@airasia.com.tw

#### Gary H.C. Chen

Manager Powerplant

Email: hsinchia@airasia.com.tw

### Primary Rolls-Royce Regional Manager:

Rege Hall



**S.L. Tsai** Vice President Helicopter Email: vsp.tsai@airasia.com.tw

## Hanwha Aerospace Co. Ltd





### Hanwha Aerospace Co. Ltd

1204 Changwon-daero, Seongsan-gu, Changwon-si, Gyeongsangnam-Do, 51542 South Korea

Phone: +82 552605966 Fax: +82 552602167

Website: www.hanwhatechwin.com

### **Capabilities**

Hanwha Techwin has provided M250/T63/T703 repair and overhaul services since 1979. Our capabilities include complete in-house engine/module overhaul, engine modification, component repair, accessory bench test and repair, application of CEBs, spare part provisioning and technical support/consultation.

Hanwha Techwin is an approved M250 Repair Station accredited by the FAA and Korea Civil Aviation Bureau, and is ISO9001 certified.

With its accumulated experience and proven capabilities, Hanwha has provided world-class maintenance service to various customers in the world.

M250 operators can depend on Hanwha to satisfy any repair service required and benefit from the wide range of outstanding services provided.

### **Key Personnel**

#### **Marketing Office:**

#### **Kyupyo Hong**

Senior Manager Engine Services

Phone: +82 2 3467 7572 Fax: +82 2 3467 7520

Email: kyupyo.hong@hanwha.com

#### Jinhyung Park

Senior Manager Phone: +82 070 7147 4092

Fnone: +82 070 7147 4092 Fax: +82 031 8018 3731 Email: jh36.park@hanwha.com

#### **Donghoon Kang**

Assistant Manager for Military Engine Business Phone +82 552605970 Mobile +82 1050486665 E-Mail: dh71.kang@hanwha.com

#### Chang-won Choi

Senior Manager for Military Engine Sale Team Office Phone +82 552605967 Cell Phone +82 1033398816 Email: ccw91@hanwha.com

#### Jungsik Eum

Manager for Military Engine Business Office Phone +82 27294633 Cell Phone +82 1088262305 Email: jungsik.eum@hanwha.com

#### **Jiwoong Shin**

Manager for Military Engines Office Phone: +82 552605970 Cell Phone: +82 1074744512 Email: jiwoong.shin@hanwha.com

### **Customer Support:**

#### Y. T. Kim

General Manager Customer Support Phone: +82 02 7147 4312 Fax: +82 55 260 2359

Email: yy2511.kim@hanwha.com

Primary Rolls-Royce Regional Manager: Rege Hall



## Mitsubishi Heavy Industries Aero Engines, Ltd





# Mitsubishi Heavy Industries Aero

1200, Higashi-Tanaka, Komaki City, Aichi pref, 485-0826, Japan Phone: +81-568-79-2418

Website: https://www.mhi-aeroeng.co.jp



**Engines, Ltd.** 

**Takashi Isoyama** Manager, Defense Business Group Defense Engine Department

### **Capabilities**

Mitsubishi Heavy Industries Aero Engines, Ltd. (MHIAEL) is one of the Mitsubishi Heavy Industries, Ltd., group companies. Located near Nagoya, Japan, MHIAEL provides full MRO services for military use of Rolls-Royce M250-B17, C20 engines, including overhaul, repair, parts support, and technical field service.

### **Key Personnel**

#### Takashi Isoyama

Manager

Defense Business Group Defense Engine Department Phone: +81 568-79-2418

Fax: +81 568-79-0644 Email: takashi.isoyama.ya@mhi.com

#### **Kunihiro Shimizu**

Defense Engine Deputy Director Email: koichiro.natsume.mh@mhi.com

#### Akihiro Suzuki

Defense Engine Design Section Engineering Manager Email: akihiro\_suzuki@aeroeng.mhi.co.jp

#### Atsushi Tsuchihashi

Defense Business Team Manager Email: atsushi.tsuchihashi.a2@mhi.com

### Primary Rolls-Royce Regional Manager:

Rege Hall



# Authorized Repair Facilities (ARF)

## **Authorized Repair Facilities (ARF)**

The following independently-owned facilities have been approved by Rolls-Royce as Authorized Repair Facilities (ARF) for the overhaul and repair of specific Rolls-Royce M250 & RR300 detailed piece parts.

## **Cadorath**





### **Cadorath Aerospace Inc.**

2070 Logan Avenue Winnipeg, MB, Canada R2R 0H9

Phone: +1 (800) 665-7449 +1 (204) 633-9420 Fax: +1 (204) 633-7101 Email: info@cadorath.com

Website: www.cadorath.com



**Gord T. Mitchell**Director of Operations

### **Capabilities**

Cadorath is a DOT 86-91, EASA 145, ISO 9001-2008, DAO# 15-C-01, Controlled Goods certified Rolls-Royce M250 Authorized Repair Facility with a 60,000+ Sq. ft. climate controlled workshop, located in Winnipeg, Canada.

Servicing the M250 family of operators and engine shops for over 30 years, Cadorath's staff is trained and trusted to help their customers reduce costs and increase productivity and are ready to respond to ever-changing customer and regulatory demands.

Cadorath's extensive offering of in-house processes:

- Design Approval Organization DAO# 15-C-01
- Repair development
- · NDT liquid penetrant and MPI
- GTAW welding
- Conventional and CNC machining
- Automated shot peening
- · Full painting capabilities
- · Plasma, thermal, HVOF and wire spray coatings
- In house plating processes including:
- Hard Chrome plating
- Sulphamate nickel
- Electroless nickel
- Silver
- Copper
- Cadmium and more
- Extensive exchange pool
- Quick turn center for AOG and rush items!
- For the highest level of integrity, solutions and satisfaction, contact Cadorath today.

### **Key Personnel**

#### David R. Haines

COO

Email: dhaines@cadorath.com

#### Gord T. Mitchell

**Director of Operations** 

Email: gord.mitchell@cadorath.com

#### **Chris Jones**

Director of Quality Assurance Email: chris.jones@cadorath.com

#### Leigh Hoffman

Director of Customer Care Email: leith.hoffman@cadorath.com

#### Joe Wilson

Business Development Email: joe.wilson@cadorath.com

#### **Rov Hartfiel**

Director of Business Development Email: roy.hartfiel@cadorath.com

#### **Rod Kucheran**

Business Development

Email: rod.kucheran@cadorath.com

#### Shane Zakaluk

Director of Engineering

Email: shane.zakaluk@cadorath.com

Primary Rolls-Royce Regional Manager: Dave Rollins



## **Cadorath Lafayette**





### **Cadorath Aerospace Lafayette**

210 Stanton Street Broussard, LA 70518 Phone: +1 (877) 680-0220 +1 (337) 837-5505 Fax: +1 (337) 837-5581 Website: www.cadorath.com



Larry Barkley **Director of Operations** 

### **Capabilities**

Strategically located in the Gulf of Mexico region, Cadorath Lafayette is an FAA-04YR3024, EASA 145 approved Rolls-Royce M250 Authorized Repair Facility. Cadorath's staff is trained and trusted to help their customers reduce costs and increase productivity and are ready to respond to ever-changing customer and regulatory demands.

- Cadorath's extensive offering of in-house processes:
- Conventional machining
- CNC machining
- GTAW welding
- Turbine nozzle flow and adjust
- Plasma and thermal coatings
- Vacuum furnace brazing
- NDT inspection
- Liquid Penetrant
- Ultrasonic
- · Extensive exchange pool

Quick turn center for AOG and rush items!

For the highest level of integrity, solutions and satisfaction, contact Cadorath today.

### **Key Personnel**

#### David R. Haines

COO

Email: dhaines@cadorath.com

#### Larry Barkley

**Director of Operations** 

Email: larry.barkley@cadorath.com

#### **Tracie Boyer**

**Customer Care** 

Email: tracie.boyer@cadorath.com

#### **Chris Jones**

Director of Quality Assurance Email: chris.jones@cadorath.com

#### Joe Wilson

**Business Development** Email: joe.wilson@cadorath.com

#### Shane Zakaluk

Director of Engineering

Email: shane.zakaluk@cadorath.com

#### Roy Hartfiel

**Director of Business Development** Email: roy.hartfiel@cadorath.com

## Primary Rolls-Royce Regional Manager:

Jerry Black

## H-S Tool & Parts, Inc.





#### H-S Tool & Parts, Inc. #140 - 2560 Simpson Road Richmond, B.C., Canada V6X 2P9 Phone: +1 (604) 273-4743 Fax: +1 (604) 273-0924 Email: service@hsrework.com Website: www.hsrework.com

### **Capabilities**

H-S Tool & Parts Inc. has been providing unsurpassed quality for the repair and overhaul services of Rolls-Royce M250 series engine components since 1974. As a Rolls-Royce Authorized Repair Facility (ARF), we provide a wide range of in-house capabilities and comprehensive services, including:

- Non-destructive testing (FPI, MPI)
- Specialized plasma, wire and thermal spray
- TIG welding including exotic alloys
- Sulphamate nickel, electroless nickel plating
- Cadmium plating, Silver plating
- Hard chromium plating
- Full machining and grinding
- Repair development

A worldwide exchange program offering an extensive range of rotable parts allows our customers reduced downtime in support of their operations.

### **Key Personnel**

#### Pamela Tranelis

Chief Operating Officer
Email: ptranelis@hsrework.com

#### Kyle Bower

Director of Operations Email: kbower@hsrework.com

#### **Cory Learmonth**

**Quality Manager** 

Email: clearmonth@hsrework.com

Primary Rolls-Royce Regional Manager:

**Greg Houston** 



## TotalCare® & Aftermarket Services

## M250 TotalCare®

## TotalCare® is the brand name of our flagship services offering

TotalCare® is the brand name of our flagship services offering.

Our premium service, providing trusted risk transfer for as long as you need it.

TotalCare is much more than just an engine maintenance (off-wing) plan. It's a service concept based upon predictability and reliability.

TotalCare covers predictive maintenance (off-wing) planning, workscope creation and management plus off-wing repair and overhaul activities.

TotalCare transfers both time-on-wing and shop visit cost risks back to Rolls-Royce.

Building on the leading knowledge (50 years), experience (250 million flight hours), and infrastructure provided by Rolls-Royce engines under TotalCare see operational benefits ranging from:

- Increased time on wing
- Access to OEM knowledge and problem s olving capabilities
- Reaching a higher efficiency in asset utilization
- These culminate to give a reduction in operational disruption, and thus provide a more reliable service.

#### **TotalCare®**

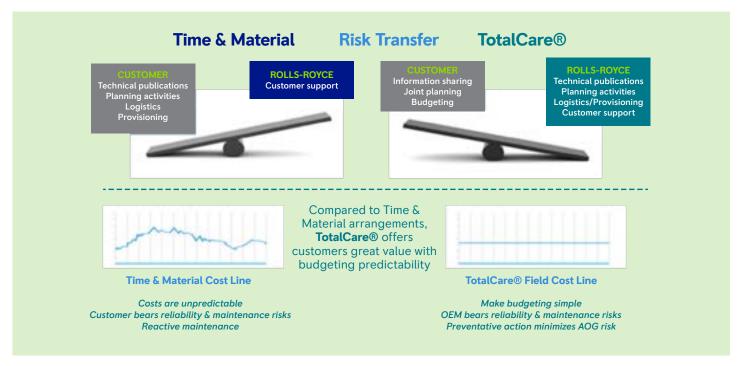
By choosing TotalCare, you will experience:

**Fixed cost engine maintenance** - Secured cost of operating and maintaining your Rolls-Royce engines via a \$/engine flying hour payment mechanism. Provides predictable costs over the life of the agreement and covers all aspects of engine maintenance and management.

Reduced management burden - Fully integrated service - you concentrate on running your business, while we take care of your engines.

Enhanced aircraft resale value - fully transferable with the aircraft, therefore increasing its residual value

**Transfer of financial risk** - Covers the cost of all Engine parts and labor when the time comes for the engine to be sent to an authorized Rolls-Royce Overhaul facility. The cost of parts and labor for mandatory bulletins, as well as unscheduled shop visit costs for qualified events is also covered. It also covers the replacement of Life Limited Parts. This comprehensive coverage permits accurate budgeting based on each operator's forecast utilization.



For more info, contact

Lawrence P. Mann - Helicopter Aftermarket Growth Manager,

Mobile: +1 (317) 340-2165

Email: Lawrence.P.Mann@Rolls-Royce.com



## **Rolls-Royce Aftermarket Services**

#### TotalCare® OneK+

Engine maintenance (off-wing) plan for an engine between zero (0) Engine Flying Hours and up to (1750/2000 Engine Flying Hours), but not including the first scheduled HMI/PMI

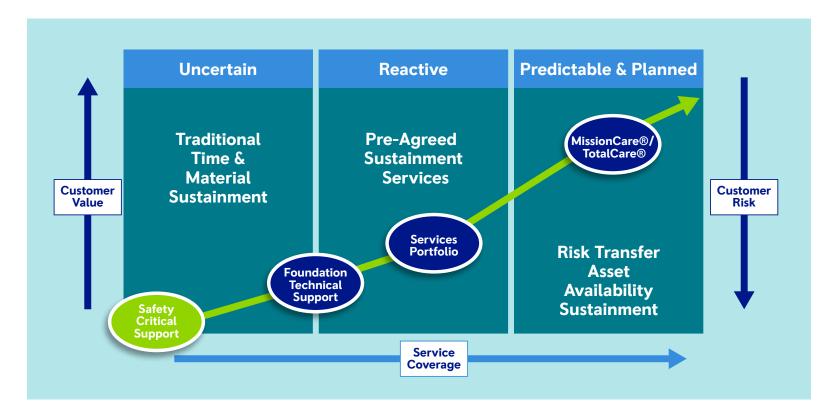
#### **TotalCare® OneK**

Engine maintenance (off-wing) plan for an engine between zero (0) and 1,000 Engine Flying Hour

#### **TotalCare® Services:**

- Unscheduled Events
- Line Replaceable Units
- Alert and Mandatory Service Bulletins
- Training
- Technical Publications
- Transportation/Shipping

- Consumables
- Foundation Technical Service
- F-FSR
- Workscope Creation
- Management of off-wing repair and overhaul activities



## **Rolls-Royce Aftermarket Services**



For more info, contact

Lawrence P. Mann - Helicopter Aftermarket Growth Manager,

Mobile: +1 (317) 340-2165

Email: Lawrence.P.Mann@Rolls-Royce.com

## **Rolls-Royce Aftermarket Services Portfolio**

### **Foundation Technical Services (FTS)**

- Technical Support from the OEM for organizational level (O-level) troubleshooting, access to Indianapolis 24/7 Operations Center Support, Technical Query Answering, Supplying Technical Variances, Supplying Technical Investigations, and Technical Publications (Optional Service)

## Flex Field Service Representative (F-FSR)

 Qualified technician from Rolls-Royce will deploy to the Customer's operating location on a pre-arranged recurring quarterly interval to provide flight line engine support.

### Field Service Representative (FSR)

- Qualified technician from Rolls-Royce who will deploy to the Customer's operating location as a full-time OEM representative embedded with the customer to provide flight line engine support.

## **Operational Data Analysis (ODA)**

-Engine health trending service that provides a quarterly snapshot of engine operating health and performance trends from customer-supplied data.

## **Rolls-Royce Aftermarket Services**

	F-FSR	FTS	Transferable	Unscheduled Event(s)	LRUs	Technical Publications	Training	Service Bulletin Incorporation	Consumables	Transportation/ Shipping	Workscope Creation	Mgmt. of Engines/LRUs through the Mx. Facility	Scheduled Event(s)	Life Limited Parts	FSR	ODA
TotalCare	-	-		-		-		-		•	•	-	-		0	_
TotalCare OneK+	•	-	-	•	-	-		-	-	•	•	-			0	0
TotalCare OneK	•	•	-	•	-	-	-	-	-	-	•	-			0	0
Warranty	Limited	Limited		-												
Extended Warranty	Limited	Limited	•	•												
FSR		_				-										
F-FSR		Pre Req				-										0
FTS	-					-	_									0
ODA	-	Pre Req				-	_									
No Service Contract	ICA	ICA														
	- Incl	uded Serv	vice =(	Optional A	Addition	al Servic	e Pre	Req: Pre	Requisit	e ICA	: Instruc	tions for Contin	ued Airw	orthines	5	

For more info, contact

Lawrence P. Mann - Helicopter Aftermarket Growth Manager,

Mobile: +1 (317) 340-2165

Email: Lawrence.P.Mann@Rolls-Royce.com





# Rolls-Royce Customer Training

## **Rolls-Royce Customer Training**



### **Rolls-Royce Regional Customer Training Center - Indianapolis**

7715 North Perimeter Road Indianapolis, Indiana 46241-3600

Central Phone: +1 (317) 230-7282

Fax: +1 (317) 230-4444

Class Scheduling: +1 (317) 230-2586 Website: www.rolls-royce.com

### **Capabilities**

Rolls-Royce Customer Training provides operators, regulatory agencies, authorized service centers and original equipment manufacturers (OEMs) with M250 maintenance training by integrating advanced computerized training courseware for the M250 series engines into all of our programs. This training media, in conjunction with traditional lecture presentations and hands-on activities, will provide you with extensive knowledge and background on the M250 product. Courses are offered at our Indianapolis Customer Training Center or, by special arrangement, at the customer's facility.

The standard course formats are two-day Engine Familiarization, five-day Engine Maintenance and ten-day Engine Heavy Maintenance. The Familiarization Course will introduce the student to all M250 engine variants with emphasis on engine construction, operation and applications. The five-day Maintenance Course provides detailed description and operation information applicable to field maintenance activities as outlined in the appropriate Operation and Maintenance Manual. Students with a desire to develop an in-depth knowledge of the design features unique to the M250 engine may consider attending a Heavy Maintenance Course. The heavy maintenance program covers all topics discussed in the fiveday course and accommodates extensive student-instructor interaction to develop a level of understanding that will significantly enhance troubleshooting skills. Additionally, significant insight will be provided into the engine configuration through teardown and assembly of the modules into major sub-components using specific Overhaul Manual excerpts. Both the maintenance and heavy maintenance courses provide exposure to relevant inspection techniques, special tooling, enginespecific procedures and maintenance publications in classroom and laboratory environments.

Properly trained personnel are required to maintain the performance and service reliability of the M250 engine. It has been demonstrated that these training courses provide knowledge and skills that normally require years of experience to acquire. Trained technicians maintaining the M250 product contribute significantly to decreased downtime and can make a positive impact on direct operating costs for the operator.

Rolls-Royce encourages operators to take advantage of the services provided by the customer Training Center and looks forward to the enrollment of your personnel.

## M250 2022 Class Schedule

Course/Code	Days	Objectives	Topics of discussion	2022 available dates
All Series M250 Engine Familiarization GL1000	2	Upon completion of this course each student will be able to identify variants of the M250 engine, and the sub-components thereof. Additionally, students will become familiar with the engines operating principles, servicing requirements and limitations.	Principles of turbine engine operation Variant identification Component identification and materials Engine module design principles Engine systems and operation Introduction to maintenance publications	June 2 - 3, 2022 Ocotber 24 - 25, 2022
M250 Series II/IV Heavy Maintenance GL1001, GL1003 and GL1005	12	Upon completion of this course each student will be familiar with line maintenance activities covered in the M250 Maintenance Course. Additionally, students will participate in disassembly of the modules beyond field maintenance levels to accommodate in-depth understanding of design features unique to the M250 engine. Abbreviated overhaul disassembly/reassembly procedures will be utilized to develop student confidence and abilities. Extensive student-instructor interaction is encouraged to develop a level of understanding that will significantly enhance troubleshooting skills. Students attending the Heavy Maintenance Course will be provided an opportunity to tour the manufacturing and production assembly areas unless plant operations at the time of the course preclude this activity.	See 'M250 Maintenance' items Remove and replace:     All engine modules     Subcomponents required for field maintenance procedures     Disassemble major module subcomponents	Series II May 9 - 20, 2022 August 22 - September 2, 2022 Series IV March 17 - 18, 2022 June 13 - 15, 2022 December 5 - 16, 2022
M250-C40, C47, C30R/3 Engine Maintenance GL1002 M250-C47E/4 Engine Maintenance GL21646	5	Upon completion of this course each student will be familiar with line maintenance activities outlined in the appropriate Operation and Maintenance Manual for the engine variant designated by the student. Exposure to relevant inspection techniques, special tooling, engine-specific procedures and maintenance publications will be provided in classroom and laboratory environments.	Principles of turbine engine operation Engine module design principles Component identification and materials Engine systems and operation M250 maintenance publications Relevant M250 service bulletins and service letters Remove and replace: All engine modules and accessories Subcomponents required for field maintenance procedures	Jan 10 -1 4, 2022 July 11 - 15, 2022 October 31 - November 4, 2022
All M250 Series IV/T703 Engine Maintenance GL1004	5	Upon completion of this course each student will be familiar with line maintenance activities outlined in the appropriate Operation and Maintenance Manual for the engine variant designated by the student. Exposure to relevant inspection techniques, special tooling, engine-specific procedures and maintenance publications will be provided in classroom and laboratory environments.	Principles of turbine engine operation Engine module design principles Component identification and materials Engine systems and operation M250 maintenance publications Relevant M250 service bulletins and service letters Remove and replace: All engine modules and accessories Subcomponents required for field maintenance procedures	January 24-28, 2022 September 26 - 30, 2022
All M250 Series II/T63 Engine Maintenance GL1006	5	Upon completion of this course each student will be familiar with line maintenance activities outlined in the appropriate Operation and Maintenance Manual for the engine variant designated by the student. Exposure to relevant inspection techniques, special tooling, engine-specific procedures and maintenance publications will be provided in classroom and laboratory environments.	Principles of turbine engine operation Engine module design principles Component identification and materials Engine systems and operation M250 maintenance publications Relevant M250 service bulletins and service letters	February 21 - 25, 2022 September 12 - 16, 2022

NOTE: These courses are acceptable to the FAA Administrator for FAA Inspection Authorization renewal.



## RR300 2022 Class Schedule

Course/Code	Days	Objectives	Topics of discussion	2022 available dates
All Series RR300 Engine Maintenance GL4705	4	This course is delivered in a blended format with classroom lecture, computer-aided instruction, and task-driven laboratory sessions to provide students with 'hands-on' experience on the engine. In short order the students will develop the foundation of knowledge and skills necessary to inspect, maintain and determine serviceability of the engine at the line maintenance level. Topics include safety, warnings, and precautions, engine and engine system servicing, routine maintenance & inspection, principle component replacement and introductory-level trouble-shooting.	Upon completion of the course, the student will be able to Recall the safety precautions observed working on or near the engine and identify locations of principle components Describe the normal function of the engine sections and of each major system Recall procedures for carrying out significant tasks associated with routine servicing of the engine and its systems Recall and perform procedures for replacement of principle components using approved technical data.	February 7 - 11, 2022 April 18-22, 2022 July 25-29, 2022 November 14-18, 2022
RR300 Engine Maintenance for Service Centers GL4889	-	This course is primarily task-driven to provide student's 'hands-on' experiences necessary to establish Service Center capability for engine repair. Topics include safety, warnings, and precautions, component inspections and principle component replacement. Service Center training includes additional days subsequent to attending the Engine Maintenance course. The stated cost is inclusive of the additional days of attendance. NOTE: We cannot accept students into this program whose employers have not entered into an agreement with the Rolls-Royce Aftermarket Support organization as a Service Center for the RR300.	Upon completion of the course, the student will be able to  Recall the safety precautions observed working on or near the engine and identify locations of principle components  Describe the level of disassembly appropriate to Service Center level maintenance  Recall procedures for carrying out significant tasks associated with Service Center repair capabilities  Recall and perform procedures for replacement of principle component using approved technical data	Contact Registrar +1 (317) 230-2586 Jill Jupin jill.jupin@rolls-royce. com
M250/RR300 Vibration Analysis 12888	-	This interactive e-learning course is designed to provide background information, demonstrations and basic troubleshooting procedures which will enable students to perform vibration analysis on M250 and RR300 engines. The knowledge provided in this course is designed to supplement the information available to the technician in the applicable maintenance manuals.	Upon completion of the course, the student will be able to:  Understand the importance of the vibration testing procedures  Prepare for the vibration test  Execute the vibration test  Interpret data gathered during the vibration test  Indicate vibration limitations  Implement basic vibration test troubleshooting procedures  Extrapolate vibration test data.	Free On-line training
RR300 Fuel System Training 13413	-	This interactive e-learning course is designed to provide background information, demonstrations and system details of the RR300 fuel control system. The knowledge provided in this course is designed to supplement the information available to the technician in the applicable maintenance manuals.	Upon completion of the course, the student will be able to  Describe the importance of the fuel control system in RR300 engine operation  Describe the system components and their function  Relate which components operate based on N1 or N2 reference  Describe the flow sequence through the system  Relate critical system adjustments for engine start characteristics  Locate primary components within the system schematic	Free On-line training
RR300 Lubrication System Training 13720	-	This interactive e-learning course is designed to provide background information, demonstrations and system details of the RR300 engine lubrication system. The knowledge provided in this course is designed to supplement the information available to the technician in the applicable maintenance manuals.	Upon completion of the course, the student will be able to  Describe the importance of the lubrication system in RR300 engine operation  Describe the system components and their function  Relate which components are engine versus airframe-related  Describe the flow sequence through the system  Locate components within the system schematic	Free On-line training
RR300 Gas Path Cleaning 13650	-	This interactive e-learning course is designed to provide background information and task demonstrations which will aid RR300 engine maintainers who are performing the Gas Path Cleaning task. The knowledge provided in this course is designed to supplement the information available to the technician in the applicable maintenance manuals.	Upon completion of the course, the student will be able to  Describe why this task is required  Describe when this task is required  Properly perform Gas Path Cleaning tasks.	Free On-line training





# M250 Approved Suppliers

## **M250 Approved Suppliers**

Rolls-Royce has entered into formal aftermarket customer support agreements with two key suppliers. The approved suppliers and their support network details are enclosed for your attention.



## Honeywell

### Key personnel

Contact	Phone	Email
Jason Rivera Oquendo - Customer Support Program Manager	+1 (602) 436-0349	Jason.Rivera@Honeywell.com

### **Repair locations**

Authorized Warranty & Repair Stations (AWARS)	AWARS Main POC	Address	Location of Facility
AEROMARITIME MEDITERRANEAN, LTD	Mario Mazzola (Director) +35 621651778 mario.mazzola@itpaero.com	7 Industrial Estate, Hal Far BBG 3000, Malta	Malta
H+S AVIATION LIMITED	Kevin Read (Commercial Co-ordinator) 44 (0) 23 9230 4083 kevin.read@hsaviation.co.uk	Airport Service Road, Portsmouth, Hampshire, PO3 5PJ, England	Portsmouth, England
INDUSTRIA DE AVIACAO E SERVICOS IAS	Elizeu Alcantara + 55 3136236304 e.alcantara@ias.ind.br	Av Marconi Issa, N°300, Bairro Perobas – São José Da Lapa – Mg CEP 33350-000	Brazil, S. America
INTERNATIONAL GOVERNOR SERVICES INC	Chad Queen - Chief Inspector +1 303-464-0043 chad.queen@internationalgovernor.com	7290 West 118th Place, Broomfield, CO 80020, USA	Broomfield, CO USA
KEYSTONE TURBINE SERVICES, LLC	Tim Kline (Accessories Manager) 610-883-4594 / 484-886-7370 tkline@kts-aero.com	885 Fox Chase, Coatesville, PA 19320, USA	Coatesville, PA USA
STANDARD (WINNIPEG)	Peter Wheatley (VP & General Manager) +1 (204) 318-7201 Peter.Wheatley@StandardAero.com	570 Flight Road., Winnipeg, Manitoba, Canada R3H 0T7	Winnipeg, Canada

## **Triumph Engine Control Systems, LLC**





### **Triumph Engine Control Systems, LLC**

Charter Oak Boulevard Box 330651 West Hartford, CT 06133-0651 Phone: +1 (860) 236-0651 Fax: +1 (860) 523-2237 After hours AOG pager:(877) 232-6264

Website: www.triumphgroup.com

### **Capabilities**

Operators worldwide have relied on TECS products and services for over eighty years. With our total approach to customer service, you can continue to count on TECS, its products and its people.

World-class design, engineering, qualification, manufacturing and after market support is provided from our West Hartford, CT ISO 9001/AS9100 approved plant facility. We offer maintenance and overhaul support services, aftermarket sales support and AOG support services to minimize downtime. As an operating division of Triumph Group, TECS provides small company customer support and responsiveness backed by the larger resources. We look forward to supporting your FADEC system needs.

TECS dedicated Aircraft on Ground customer support line is manned by specialists who have the experience and knowledge to support the entire fuel system, including main fuel pump, hydromechanical assembly and FADEC unit. Call our AOG phone number @ +1 877-232-6264.

TECS engineering customer support organization provides a number of important customer product services including technical publications, field technical support, warranty support, field service, customized training, software, upgrades and auditing services.

### **Key Personnel**

#### Ryan Putaski

Business Development Manger Phone: +1 (860)231-2709 Cell: +1 (860) 466-9228 Email: rcputaski@triumphgroup.com

#### **Evan Fox**

Customer Service, MRO Phone: 1(860)236-0651 Cell: 1(860)503-9290 Email: eafox@triumphgroup.com

#### Ela Buczek

Spares Administration - Supervisor Phone: +1 (860) 523-2296 Email: ebuczek@triumphgroup.com

#### **Brian Beal**

Field Service - Manager Phone: +1 (860) 231-2760 Mobile: +1 (860) 794-9833 Email: bcbeal@triumphgroup.com

#### **Shipping address**

110 Talcott Road, Gate 18 Attention: Receiving Department West Hartford, CT 06110 USA





This document provides a reference guide of all active M250 engine types, along with the intended application of each engine. A quick reference chart is included. This chart as well as all information in this document is only for general reference and is not intended to be used as an official guide.

For greater specific detail differences, refer to Commercial Engine Bulletins which define some of the conversions from one model to another, or research the appropriate Illustrated Parts Catalog to determine the distinct individual engine parts make-up.

Engine	Description	Applications
	Series I turboshaft engines	
T63-A-5A	Military engine, exhaust upward turboshaft.	Bell OH-58A Kiowa,
T63-A-700	Honeywell (Bendix) fuel system, Takeoff - 317 shp at 1380°F.	MDHI (Hughes) OH-6 Cayuse
250-C18	M250-C18. Takeoff - 317 shp at 1380° F.	Bell 206A JetRanger, Bell TH-57 SeaRanger, Fairchild-Hiller / FH1100, MDH1 (Hughes) MD 500 / 500C
250-C18A	$M250-C18\ with\ modification\ for\ drainage\ as\ required\ for\ installation\ in\ the\ MD\ 500\ commercial\ helicopter.\ Honeywell\ (Bendix)\ fuel\ system.\ Takeoff\ -317\ shp\ at\ 1380°F$	MDHI (Hughes) MD 500 / 500C
250-C18B	M250-C18 with water-alcohol augmentation. Honeywell (Bendix) fuel system. Takeoff - 317 shp at 1380°F.	Bell 206A JetRanger
250-C18C	M250-C18B with modification for drainage as required for inclined mounting as used in the MD 500. Honeywell (Bendix) fuel system. Takeoff - 317 shp at 1380°F.	MDHI (Hughes) MD 500 / 500C
	Series II turboshaft engines	
250-C20	M250-C20 is essentially an uprated 250-C18 incorporating higher air flow, larger power turbine, larger compressor, increased temperatures, and Triumph (CECO) fuel system Honeywell (Bendix) fuel system may be retrofitted). Offers significant increase in power output over the 250-C18 engines. Takeoff - 400 shp at 1460°F.	AgustaWestland A109 / A109A, Bell 206B JetRanger, MDHI (Hughes) MD 500C, Eurocopter BO 105C
250-C20B	M250-C20B is similar to the 250-C20. Incorporates improved compressor and turbine airflow with increased temperatures and Honeywell (Bendix) fuel control system. Also includes an increased life compressor and turbine. Takeoff - 420 shp at 1490° F	Agusta Westland A109A / A109A MkII, Bell 206B-3 JetRanger III, Bell 206L LongRanger I, Bell TH- 57B SeaRanger, Bell (Soloy) 47/47G, Eurocopter BO 105CBS, Hiller(Soloy) UH-12, MDHI MD500D / 500E, PZL Kania, RFB Fantrainer 400, Rogerson - Hiller RH1100
T63-A-720	Military engine that is similar to the 250-C20B Honeywell (Bendix) fuel system. Takeoff - 420 shp at 1490°F	Bell OH-58C Kiowa
250-C20F	M250 that is the same as the 250-C20B except gearbox housing modified to accommodate front mounting of the engine in the Eurocopter AS355. Honeywell (Bendix) fuel system. Takeoff - 420 shp at 1490°F.	Eurocopter AS355E / 355F TwinStar / Twin Squirrel
250-C20J	M250 that is the same as the 250-C20B except for the incorporation of 6000 HZ PTO and torquemeter gears to lessen the acoustical resonance response in the Bell 206. Bendix fuel system. Takeoff - 420 shp at 1490°F.	Bell 206B-3 JetRanger III, Bell 206L TH-57B/C SeaRanger, TH-67 Creek
250-C20R	M250 with new compressor and modification to make engine compatible with new compressor. Incorporates gearbox mount as used on 250-C20F and electronic N2 over-speed system. Multiengine configuration. Honeywell (Bendix) fuel system. Takeoff - 450 shp at 1423°F.	Eurocopter AS355E / 355F TwinStar / Twin Squirrel, Bell 206LT TwinRanger, Bell (Tridair) 206L Gemini ST
250-C20R/1	M250 same as 250-C20R except that it incorporates 250-C20B type accessory gearbox housing and other miscellaneous changes. Multi-engine configuration. Honeywell (Bendix) fuel system. Takeoff - 450 shp at 1423°F.	AgustaWestland A109A, MkII+ / A109C / A109C Max.
	NOTE: Italian military A109 aircraft equipped with 250-C20R/1 engines incorporate a larger diameter scroll.	
250-C20R/2	M250 same as 250-C20R/1except deletes N2 overspeed electronic system and wiring harness. Single multiengine configuration. Honeywell (Bendix) fuel system. Takeoff - 450 shp at 1423°F.	Bell 206B-3 JetRanger III, Bell 206L LongRanger I, Kamov Ka-226, MDHI MD500D / 500E, MDHI MD520N, PZL SW-4
	NOTE: All MD520N and some MD 500E helicopters are equipped with a Jet Inducer suction fuel pump.	
250-C20R/4	M250 same as 250-C20R/2 except for 6000 hz power train gears as used in 250-C20J engines. Single engine configuration. Honeywell (Bendix) fuel system. Takeoff - 450 shp at 1423°F.	Bell 206B-3 JetRanger III, Bell 206L LongRanger I



Engine	Description	Applications
	Series III turboshaft engines	
250-C28B	Series III turboshaft utilizes a single stage centrifugal compressor with a water and snow air inlet separator as part of configuration. Single engine configuration. Honeywell (Bendix) fuel system. Takeoff - 500 shp at 1370°F.	Bell 206L-1 LongRanger II
250-C28C	Similar to 250-C28B except air inlet separator is deleted. Electronic N2 overspeed system. Multi-engine configuration. Honeywell (Bendix) fuel system. Takeoff - 500 shp at 1350°F.	Eurocopter BO 105LS
	Series IV turboshaft engines	
250-C30	Series IV turboshaft engines are a growth version of the 250-C28 with larger diameter compressor and turbine. Honeywell (Bendix) fuel system and jet inducted suction fuel pump. Multi-engine configurations incorporate an electronic N2 overspeed system, dual ignition, and oil cooler blower drive off front of gearbox. Takeoff - 650 shp at 1368°F.	Cessna (Soloy) 337 Skymaster, MDHI MD530F, Sikorsky S-76A, RFB FanTrainer 600
250-C30G	M250 derivative of the 250-C30 with a power output speed of 9518 RPM. Jet inducted suction fuel pump, electronic N2 overspeed system, and Honeywell (Bendix) fuel system. It provides the same power and fuel consumption ratings as the 250-C30S. Takeoff - 650 shp at 1368°F	Bell 222 STC
250-C30G/2	M250 variant of the 250-C30S in response to features requested by Bell Helicopter. First 250 engine to incorporate output shaft flange with the engine. Output shaft speed is increased to 9545 rpm. Take off - 650 shp at 1414°F.	Bell 230
250-C30M	M250 same as the 250-C30 except mounting envelope for Eurocopter AS350. Jet inducted suction fuel pump, single ignition, and Honeywell (\ Bendix) fuel system. Takeoff - 650 shp at 1337°F.	Eurocopter AS350D AllStar STC
250-C30P	M250 variant of the 250-C30 in response to features requested by Bell helicopter. Standard fuel pump, single ignition and Honeywell (Bendix) fuel system. Takeoff - 650 shp at 1337°F.	Bell 206L-3 LongRanger III, Bell 206L- 4 LongRanger IV Calstar BO-105LS STC
T703-AD-700	Military variant of the 250-C30 installed with a digital supervisory electronic control, jet inducted suction fuel pump and single ignition. Intermediate - 650 shp at 1337°F.	Bell OH-58D Kiowa Warrior
250-C30R/3	M250 growth version of the 250-C30R with a larger compressor. A FADEC system is installed consisting of a hydromechanical fuel control and electronic control unit. Intermediate - 650 shp at 1475°F.	Bell OH-58D Kiowa Warrior
250-C30R/3M	M250 variant of the 250-C30R/3. Includes compressor bleed valve and accumulator. Intermediate - 650 shp at 1475°F	MDHI AH/MH-6 Mission Enhanced Little Bird (MELB)
250-C30S	Same as the 250-C30 with an approximate +5% performance margin ratings for use in the Sikorsky S-76A. It has a single engine 2.5 minute OEI rating. Takeoff - 650 shp at 1368°F.	Sikorsky S-76A MK II
250-C30U	M250 variant of the 250-C30R(T703-AD-700) intended for use in the Bell 406 Combat Scout. Has 5 minute takeoff rating and a reduced turbine TBO and life limits. Takeoff - 650 shp at 1337°F.	Bell 406CS Combat Scout
250-C40B	M250 growth version of the 250-C30G/2 with a larger compressor FADEC system installed. Designed for multi-engine configurations. The output shaft speed is 9598 rpm. It has a single engine 2 minute and 30 second OEI rating. Take Off - 715 shp at 1435°F.	Bell 430

Engine	Description	Applications
	Series IV turboshaft engines	
250-C47B	M250 growth version of the 250-C30P with a larger compressor. A FADEC system is installed consisting of a hydromechanical fuel control and electronic control unit. A combined engine filter assembly is also installed. Take off - 650 shp at 1435°F.	Bell 407 & Bell 407 GX
250-C47 B/8	Model 250 growth version of the 250-C47B with enhanced performance VIP components installed. Take-off-650 shp at 1245*F.	Bell GXP
250-C47M	M250 variant of the 250-C47B in response to features requested by MDHI. FADEC system installed. Take off - 650 shp at 1435°F.	MDHI MD600N
250-C47E/4	Similar to C47B/8 but includes Dual Channel FADEC and is for commercial use.	Bell GXI
	Series I turboprop engines	
250-B15A	M250 turboprop variant of the 250-C18. Incorporates propeller reduction gearbox and Honeywell (Bendix) turboprop fuel system. Take-off - 317 shp at 1380°F	Agusta (Siai Marchetti) SM1019
250-B15G	M250 turboprop engine which is the same as the 250-B15A but incorporates Woodward prop governor, Beta prop control, and Honeywell (Bendix) turboprop fuel system. Takeoff - 317 shp at 1380°F.	Agusta (Siai Marchetti) SM1019
	Series II turboprop engines	
250-B17	M250 turboprop variant of the 250-C20 engine equipped with a propeller reduction gearbox and fully coordinated turboprop controls. Incorporates Woodward prop governor, Beta prop control and Honeywell (Bendix) turboprop fuel system. Offers a significant increase in power output over the 250-B15A and 250-B15G engines. Takeoff - 400 shp at 1460°F.	Cessna (American Jet Industries) 402 / 414, Boeing (ASTA/GAF) Nomad N22
250-B17B	M250 turboprop variant of the250-C20B. Incorporates Woodward prop governor, Beta prop control, and Honeywell (Bendix) turboprop fuel control. Takeoff - 400 shp (flat rated) at 1422°F.	Cessna (American Jet Industries) 402 / 414, Boeing (ASTA/GAF) Nomad N22, Agusta (Siai Marchetti) SM1019, GIPPS Air
250-B17C	M250 turboprop which is the same as the 250-B17 except for higher rated takeoff and max. Continuous power. Takeoff -420 shp at 1464°F (non-beta prop control used on the BN-2T application).	Cessna (American Jet Industries) 402 / 414, Boeing (ASTA/GAF) N22 / N24 Nomad, Beech(Tradewind Turbines) A36, Vulcanair (Partenavia) Spartacus, Vulcanair (Partenavia) P68TP, B-N Group BN-2T, Maule M-7-420, FFA AS- 202 / 32TP Bravo, Enaer T-35 Pillan, GIPPS Air
250-B17D	M250 turboprop which is the same as the B17C except for the incorporation of a strengthened prop shaft flange and bearing system to withstand greater propeller movement during aerobatics. Prop shaft is life limited. Takeoff - 420 shp at 1464°F.	Fuji KM-2D / T-5, HAL HTT-34, Pacific Aerospace Corp. CT-4C, Thai Air Force RTAF-5, Aermacchi(Siai Marchetti) SF260TP, Aermacchi (Valmet) L90TP
250-B17E	M250 turboprop which has improved hot day performance over previous versions. Takeoff - 420 shp at 1448°F.	Boeing (ASTA/GAF) N22 / N24 Nomad, GIPPS Air
250-B17F	M250 turboprop version of the 250-C20R/2 and uses the same propeller reduction gearbox as 250-B17D. Beta prop control and Honeywell (Bendix) turboprop fuel system. Takeoff - 450 shp (flat rated) at 1490°F.	Aermacchi (Valmet) L90TP, Beech (Allison) AT-34, Extra Aircraft EA-500, Grob G120TP
250-B17F/1	M250 engine which is the turboprop version of the 250-C20R/1. It is based on the 250-B17C engine, using the same propeller reduction gearbox, and is intended for multi- engine, non-aerobatic applications. Electronic N2 overspeed control, Woodward prop governor, Beta prop control and Honeywell (Bendix) turboprop fuel system. Takeoff - 450 shp (flat rated) at 1490°F.	B-N Group BN-2T, B-N Group Defender 4000
250-B17F/2	M250 turboprop version of the 250-C20R/2 that is based on the 250-B17C, using the same propeller reduction gearbox. Intended for single-engine non-aerobatic applications. Woodward prop governor, Beta prop control, Honeywell (Bendix) turboprop fuel system. Takeoff - 450 shp (flat rated) at 1490°F.	Cessna (O & N Aircraft) P210 Silver Eagle, Beech (Tradewind Turbines) A36, Composite Turbine Tech Glasair III, Schweizer RU-38B, Soloy Conversions Cessna 206MKII
250-C20S	M250 similar to 250-B17C except without prop reduction gearbox. Exhaust is directed down. Can be combined with customer furnished propeller reduction gearbox and propeller-power turbine governors to form a turboprop package. Honeywell (Bendix) fuel system. Takeoff - 420 shp at 1490°F.	Cessna (Soloy) 185 / 206 / 207



## **M250 Turboprop**

Model Designation	B15A	B15G	B17	B17B	B17C	B17C	B17C
•							
Power Output Shaft RPM @ 100% Speed	2,025	2,025	2,030	2,030	2,030	2,030	2,030
Gas Producer Rotor RPM @ 100% Speed	51,120	51,120	50,970	50,970	50,970	50,970	50,970
Power Turbine Rotor RPM @ 100% Speed	35,000	35,000	33,290	33,290	33,290	33,290	33,290
Oils	MIL-L-7808 MIL-L-23699	MIL-L-7808 MIL-L-23699	MIL-L-7808 MIL-L-23699	MIL-L-7808 MIL-L-23699	MIL-L-7808J MIL-L-23699L	MIL-L-7808J MIL-L-23699L	MIL-L-7808 MIL-L-23699
Type Certificate Number	E10CR	E10CE	E10CR	E10CR	E10CE	E10CE	E10CE
Engine Envelope Dimensions L/W/H Inches	44.642 19.506 22.530	44.642 19.006 22.530	44.924 18.784 22.596	44.924 18.784 22.596	44.924 18.784 22.596	44.924 18.784 22.596	44.924 18.784 22.596
N2 Overspeed Electronic Control	No	No	No	No	No	No	No
Bleed Valve Vented to Exhaust Collector	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Directional Rotation (N1/N2) & (PTO) Looking Forward	Clockwise & Clockwise	Clockwise & Clockwise	Clockwise & Clockwise				
Engines per Aircraft	One	One	One/Two	One/Two	Two	Two	Two
Gearbox Assy Up or Down	Up	Up	Up	Up	Up	Up	Up
External Sump Tank	No	No	No	No	No	Yes	No
Beta Control Valve	No	Yes	Yes	Yes	Yes	Yes	Yes
ОММ	6W2	6W2	11W2	11W2	11W2	11W2	11W2
IPC	6W4	6W4	11W4	11W4	11W4	11W4	11W4
Engine Installation Drawing	6855300	6853210	6853330	6853330	6899290	23038192	6899290
Electrical Conn Dwg.	6875570	6875578	6874558	6874558	6899352	6899352	6899352

## **M250 Turboprop**

Models B17C, B17D, B17	E, B17F/1 and B17	F/2					
Model designation	B17C	B17D	B17D	B17E	B17F	B17F/1	B17F/2
Engine Part Number	23038150	23005700	23051125	23031861	23033380	23050800	23050805
Model Specification	C888	C915	C915	C940	C943	C958	C959
Shaft Horsepower (T.O.)	420	420	420	420	450	450	450
Certification Date	11 May 1979	11 Nov1983	11 Nov1983	17 Nov 1 985	6 May 1 988	30Sep1988	30Sep1988
Application	BN-2T	L90TRCT-4E, HTT-34	SF260TP KM-2D / T-5	N24	L90TP	BN-2T,SF600	P210 A36 Bonanza RU-38B
Weight (lbs)	198	198	202	202	212	215	212
T.O. / Cruise sfc/MGT / sfc/MGT F	0.657 / 0.656 1490 / 1360	0.657 / 0.656 1490 / 1360	0.657 / 0.656 1490 / 1360	0.656 / 0.657 1490 / 1360	0.613 / 0.635 1490 / 1385	0.613 / 0.635 1490 / 1385	0.613 / 0.635 1490 / 1385
Exhaust Configuration	Down						
Compressor Bleed Valve	Yes						
Ignition Type	Single						
Spare Accessory Drives	2H PN1 Driven	2HP N1 Driven	2 HP N1 Driven	2HP N1 Driven	2 HP N1 Driven	2 HP N1 Driven	2 HP N1 Driven
N1 / N2 Speed Sense	Mechanical						
Prop. Governor	Woodward						
Pg Accumulator	None						
Fuel Pump Type	Single Gear						
Fuel Pressure Filter	Low						
Chip Detector Type	Std. Lisle						
Oil Filter Bypass Indicator (Pressure)	Yes						
Fuel Control	Honeywell (Bendix)						

## **M250 Turboprop**

Model designation	B17C	B17D	B17D	B17E	B17F	B17F/1	B17F/2
-							
Power Output Shaft RPM @ 100% Speed	2,030	2,030	2,030	2,030	2,030	2,030	2,030
Gas Producer Rotor RPM @ 100% Speed	50,970	50,970	50,970	50,970	50,970	50,970	50,970
Power Turbine Rotor RPM @ 1 00% Speed	33,290	33,290	33,290	33,290	33,290	33,290	33,290
Oils	MIL-L-7808J MIL-L-23699L	MIL-L-7808J MIL-L-23699L	MIL-L-7808J MIL-L-23699L	MIL-L-7808J MIL-L-23699L	MIL-L-7808 MIL-L-23699	MIL-L-7808J MIL-L-23699L	MIL-L-7808J MIL-L-23699L
Type Certificate Number	E10CE	E10CE	E10CE	E10CE	E10CE	E10CE	E10CE
Engine Envelope Dimensions L/W/H Inches	44.924 18.784 22.596	44.924 18.784 22.596	44.924 18.784 22.596	44.924 18.784 22.596	44.924 18.784 22.596	44.924 18.784 22.596	44.924 18.784 22.596
N2 Overspeed Electronic Control	No	No	No	No	No	Yes	No
Bleed Valve Vented to Exhaust Collector	Yes	Yes	Yes	Yes	No	No	No
Directional Rotation, (N1/N2) & (PTO) Looking Forward	Clockwise & Clockwise	Clockwise & Clockwise	Clockwise & Clockwise	Clockwise & Clockwise	Clockwise & Clockwise	Clockwise & Clockwise	Clockwise & Clockwise
Engines per Aircraft	Two	One	One	One	One	Two	One
Gearbox Assy Up or Down	Up	Up	Up	Up	Up	Up	Up
External Sump Tank	No	No	Yes	Yes	Yes	Yes	Yes
Beta Control Valve	No	Yes	Yes	Yes	Yes	Yes	Yes
ОММ	11W2	11W2	11W2	11W2	GTP-5243-2	GTP-5243-2	GTP-5243-2
I PC	11W4	11W4	11W4	11W4	GTP-5243-4	GTP-5243-4	GTP-5243-4
Engine Installation Drawing	23038103	23005730	23050845	23031860	23033377	23050804	23050806
Electrical Conn Dwg.	6899352	23005734	23005734	23031882	23033386	23036838	23033378

## M250 Series I and II

Model designation	C18A	CIS	C18B	CISC	C20	C20B	C20B	C20B
Engine Part Number	6855321	6854101	6856991	6857301	23033373	23004550	6887190	6893660
Model Specification	C731-G	C731-G	C731-G	C731-G	800-E	847	847	847
Shaft Horsepower (T.O.)	317	317	317	317	400	420	420	420
Certification Date	19 Dec 1962	19 Dec 1962	9 Sep 1965	9 Sept 1965	15 Nov 1968	28 Feb 1974	28 Feb 1974	28 Feb 1974
Application	MD500 / 500C	B206A, TH-57A, FH1100, MD500 / 500C	Bell 206A	MD500 / 500C	A 109, A 109 A, B206B, MD500C, BO105C	Kania,TH-57	B206B, B206L, B47 / 47G, FH1100, MD500D / 500E, UH-12E / E4	BO105C
Weight (lbs)	141	141	141.2	141.2	158	161	161	161
T.O. Cruise sfc / MGT / sfc / MGT °F	0.697 / 0.725 1380 / 1226	0.697 / 0.725 1380 / 1226	0.697 / 0.725 1380 / 1226	0.697 / 0.725 1380 / 1226	0.630 / 0.645 1460 / 1358	0.650 / 0.650 1490 / 1360	0.650 / 0.650 1490 / 1360	0.650 / 0.650 1490 / 1360
Exhaust Configuration	Up	Up	Up	Up	Up	Up	Up	Up
Compressor Bleed Valve	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Ignition Type	Single	Single	Single	Single	Single	Single	Single	Single
Spare Accessory Drives	2.0 HP (optional)	2.0 HP (optional)	2.0 HP (optional)	2.0 HP (optional)	2.0 HP (optional)	2.06 HP (optional)	2.06 HP (optional)	2.06 HP (optional)
N1 / N2 Speed Sense	Mechanical	Mechanical	Mechanical	Mechanical	Mechanical	Mechanical	Mechanical	Mechanical
Power Turbine Governor	Honeywell (Bendix)	Honeywell (Bendix)	Honeywell (Bendix)	Honeywell (Bendix)	Honeywell (Bendix) / Triumph (CECO)	Honeywell (Bendix)	Honeywell (Bendix)	Honeywell (Bendix)
Pg Accumulator	1 6 ln <sup>3</sup>	1 6 In <sup>3</sup>	1 6 In <sup>3</sup>	1 6 In <sup>3</sup>	1 6 In <sup>3</sup>	1 6 In <sup>3</sup>	1 6 In <sup>3</sup>	1 6 In <sup>3</sup>
Fuel Pump Type	Single Gear	Single Gear	Single Gear	Single Gear	Single Gear	Single Gear	Single Gear	Single Gear
Fuel Pressure Filter	Low	Low	Low	Low	Low	Low	Low	Low
Chip Detector Type	Std. Lisle	Std. Lisle	Std. Lisle	Std. Lisle	Std. Lisle	Std. Lisle	Std. Lisle	Std. Lisle
Oil Filter Bypass Indicator (Pressure)	N / A	N/A	N/A	N / A	Yes	Yes	Yes	Yes
Fuel Control	Honeywell (Bendix)	Honeywell (Bendix)	Honeywell (Bendix)	Honeywell (Bendix)	Honeywell (Bendix) / Triumph (CECO)	Honeywell (Bendix)	Honeywell (Bendix)	Honeywell (Bendix)

## M250 Series I and II

Model designation	C18A	CIS	C18B	CISC	C20	C20B	C20B	C20B
Power Output Shaft RPM @ 1 00% Speed	6,000	6,000	6,000	6,000	6,016	6,016	6,016	6,016
Gas Producer Rotor RPM @ 1 00% Speed	51,600	51,600	51,600	51,600	50,970	50,970	50,970	50,970
Power Turbine Rotor RPM @ 1 00% Speed	35,000	35,000	35,000	35,000	33,290	33,290	33,290	33,290
Oils	MIL-L-7808 MIL-L-23699	MIL-L-7808 MIL-L-23699	MIL-L-7808 MIL-L-23699	MIL-L-7808 MIL-L-23699	MIL-L-7808 MIL-L-23699	MIL-L-7808 MIL-L-23699	MIL-L-7808 MIL-L-23699	MIL-L-7808 MIL-L-23699
Type Certificate Number	E4CE	E4CE	E4CE	E4CE	E4CE	E4CE	E4CE	E4CE
Engine Envelope Dimensions L/W/H Inches	40.400 19.000 22.500	40.400 19.000 22.500	40.400 19.000 22.500	44.400 19.000 22.500	40.100 1 9.000 23.200	38.8 19.0 23.2	38.8 19.0 23.2	38.8 19.0 23.2
N2 Overspeed Electronic Control	No	No	No	No	No	No	No	No
Bleed Valve Vented to Exhaust Collector	No	No	No	Yes	No	No	No	No
Directional Rotation (N1/N2) & (PTO) Looking Forward	Clockwise & Clockwise	Clockwise & Clockwise	Clockwise & Clockwise	Clockwise & Clockwise				
Engines per Aircraft	One	One	One	One	Two	Two	One	Two
Gearbox Assy Up or Down	Down	Down	Down	Down	Down	Down	Down	Down
Output Drive Mount Configuration	"Non-Kidney" Pad	"Non-Kidney" Pad	"Non-Kidney" Pad	"Non-Kidney" Pad	"Non-Kidney" Pad	"Non-Kidney" Pad	"Non-Kidney" Pad	"Non-Kidney" Pad
ОММ	5W2	5W2	5W2	5W2	10W2	10W2	10W2	10W2
IPC	5W4	5W4	5W4	5W4	10W4	10W4	10W4	10W4
Engine Installation Drawing	6855320	6855320	6855320	6857300	6853340	23004550	6886440	6893660
Electrical Conn Dwg.	6853841	6851952	6851952	6859458	6875980	6889081	6875980	6889081

## **M250 Series II**

Models C20F, C20J, C20R, C20S, C20W and T63-A-720											
Model designation	C20F	C20J	C20S	T63-A-720	C20W	C20R					
Engine Part Number	6899271	6899400	23008092	6887191	23052351	23033373					
Model Specification	C889	C898	C921	803	C965	C938					
Shaft Horsepower (T.O.)	420	420	420	420	420	450					
Certification Date	2 Mar 1979	15 Sep1981	30 Dec 1983	9 June 1976	20 Apr 1990	20 Sep1989					
Application	AS355E / F	B206B	C185, C206, C207, C337	OH-58C	Schweizer 330 / 333, Enstrom 480	AS355E / F					
Weight (Ibs)	161	161	162	158	162	173					
T.O. Cruise sfc / MGT / sfc / MGT °F	0.650 / 0.650 1490 / 1360	0.650 / 0.650 1490 / 1360	0.650 / 0.650 1490 / 1360	0.697 / 0.706 1380 / 1260	0.650 / 0.650 1490 / 1360	0.608 / 0.631 1490 / 1385					
Exhaust Configuration	Up	Up	Down	Up	Down	Up					
Compressor Bleed Valve	Yes	Yes	Yes	Yes	Yes	Yes					
Ignition Type	Single	Single	Single	Single	Single	Single					
Spare Accessory Drives	2.06 HP (optional)	None									
N1 / N2 Speed Sense	Mechanical	Mechanical	Mechanical	Mechanical	Mechanical	Mechanical					
Power Turbine Governor	Honeywell (Bendix)	Honeywell (Bendix)									
Pg Accumulator	1 6 ln³	1 6 ln³	1 6 ln <sup>3</sup>	1 6 ln <sup>3</sup>	1 6 ln³	1 6 ln³					
Fuel Pump Type	Single Gear	Single Gear									
Fuel Pressure Filter	Low	Low	Low	Low	Low	Low					
Chip Detector Type	Std. Lisle	Std. Lisle									
Oil Filter Bypass Indicator (Pressure)	Yes	Yes	Yes	Yes	Yes	Yes					
Fuel Control	Honeywell (Bendix)	Honeywell (Bendix)									

Model designation	C20F	C20J	C20S	T63-A-720	C20W	C20R
Power Output Shaft RPM @ 100% Speed	6,016	6,016	6,016	6,016	6,016	6.016
Gas Producer Rotor RPM @ 100% Speed	50,970	50,970	50,970	50,970	50,970	50,970
Power Turbine Rotor RPM @ 1 00% Speed	33,290	33,290	33,290	33,290	33,290	33,290
Oils	MIL-L-7808 MIL-L-23699		MIL-L-7808 MIL-L-23699	MIL-L-7808 MIL-L-23699	MIL-L-7808 MIL-L-23699	MIL-L-7808 MIL-L-23699
Type Certificate Number	E4CE	E4CE	E4CE	E4CE	E4CE	E4CE
Engine Envelope Dimensions L/W/H Inches	38.8 19.0 23.2	38.8 19.0 23.2	40.8 19.0 22.6	40.8 19.0 22.2	40.8 19.0 22.6	38.8 20.8 23.2
N2 Overspeed Electronic Control	No	No	No	No	No	Yes
Bleed Valve Vented to Exhaust Collector	No	No	No	No	No	No
Directional Rotation (N1/N2) & (PTO) Looking Forward	Clockwise & Clockwise	Clockwise & Clockwise	Clockwise & Clockwise	Clockwise & Clockwise	Clockwise & Clockwise	Clockwise & Clockwise
Engines per Aircraft	Two	One	One	One	One	Two
Gearbox Assy Up or Down	Down	Down	Up	Down	Up	Down
Output Drive Mount Config	"Kidney" Pad	"Non-Kidney" Pad	"Kidney" Pad	"Non-Kidney" Pad	"Kidney" Pad	"Kidney" Pad
ОММ	10W2	10W2	10W2S	TM 55-1 530-23510	10W2	GTP5232-2
IPC	10W4	10W4	10W4S	TM 552840241 23P	10W4	GTP5232-4
Engine Installation Drawing	6899270	23004510	23008091	N/A	23052350	23032251
Electrical Connection Drawing	6899276	23004520	23008098	N/A	23053253	23051868

Model designation	C20R / 1	C20R / 2	C20R / 2	C20R / 4	
Engine Part Number	23038200	23035212	23053265	23053301	
Model Specification	C945	C948	C968	C968	
Shaft Horsepower (T.O.)	450	450	450	450	
Certification Date	12Sep1986	5 Mar 1987	5 Mar 1987	5 Dec 1989	
Application	A109Mkll+, A109C	B206B, B206L, MD500D / 500E, Ka-226, SW-4	MD520N	B206B	
Weight (lbs)	173	169	169	169	
T.O./Cruise sfc/MGT/sfc/MGT °F	0.608 / 0.631 1490 / 1385	0.608 / 0.631 1490 / 1385	0.608 / 0.631 1490 / 1385	0.608 / 0.631 1490 / 1385	
Exhaust Configuration	Up	Up	Up	Up	
Compressor Bleed Valve	Yes	Yes	Yes	Yes	
Ignition Type	Single	Single	Single	Single	
Spare Accessory Drives	None	None	None	None	
N1/N2 Speed Sense	Electronic	Mechanical	Mechanical	Mechanical	
Power Turbine Governor	Honeywell (Bendix)	Honeywell (Bendix)	Honeywell (Bendix)	Honeywell (Bendix)	
Pg Accumulator	1 6 In <sup>3</sup>	1 6 In <sup>3</sup>	1 3 ln <sup>3</sup> & 16 ln <sup>3</sup>	1 6 ln <sup>3</sup>	
Fuel Pump Type	Single Gear	Single Gear	Inducer&Gear	Single Gear	
Fuel Pressure Filter	Low	Low	High	Low	
Chip Detector Type	Std. Lisle	Std. Lisle	Std. Lisle	Std. Lisle	
Oil Filter Bypass Indicator (Pressure)	Yes	Yes	Yes	Yes	
Fuel Control	Honeywell (Bendix)	Honeywell (Bendix)	Honeywell (Bendix)	Honeywell (Bendix)	

#### M250 Series III & IV

Models C28B, C28C,	C30 and C30G					
Model designation	C28B	C28C	C28C	C30	C30	C30G
Engine Part Number	6895000	6896000	23001830	6890000	23062052	23039781
Model Specification	C880	C881	C881-B	C868	C868	C960
Shaft Horsepower (T.O.)	500	500	500	650	650	650
Certification Date	May 1976	May 1976	May 1976	28 Mar 1978	28 Mar 1978	2 Mar 1989
Application	B206L	B0105L	N / A	S-76A	MD530F, Fan Trainer 600	B222 ST
Weight (Ibs)	235	230	232	249	249	253
T.O./Cruise sfc/MGT/sfc/MGT °F	0.606 / 0.604 1455 / 1365	0.602 / 0.603 1455 / 1365	0.602 / 0.603 1455 / 1365	0.592 / 0.607 1414 / 1282	0.592 / 0.607 1414 / 1282	0.592 / 0.607 1414 / 1282
Exhaust Configuration	Up	Up	Up	Up	Up	Up
Compressor Bleed Valve	Yes	Yes	Yes	Yes	Yes	Yes
Ignition Type	Single	Single	Dual	Dual	Dual	Dual
Spare Accessory Drives	15HP N <sup>2</sup>	15HP N <sup>2</sup>	15HP N <sup>2</sup>	6 HP N¹ Driven	6 HP N¹ Driven	6 HP N¹ Driven
N1/N2 Speed Sense	Mechanical	Mechanical	Mechanical	Electronic	Electronic	Electronic
Power Turbine Governor	Honeywell (Bendix)					
Pg Accumulator	12 ln <sup>3</sup>	6 In <sup>3</sup>	6 In <sup>3</sup>	1 3 ln <sup>3</sup>	1 3 ln <sup>3</sup>	2 6 ln <sup>3</sup> & 1 3ln <sup>3</sup>
Fuel Pump Type	Single Gear	Single Gear	Single Gear	Inducer&Gear	Inducer&Gear	Inducer&Gear
Fuel Pressure Filter	Low	Low	Low	High	High	High
Chip Detector Type	Std. Lisle					
Oil Filter Bypass Indicator (Pressure)	No	Yes	Yes	Yes	Yes	Yes
Oil Filter Bypass Indicator (Scavenge)	N / A	N / A	N / A	N / A	N / A	N / A
Fuel Control	Honeywell (Bendix)					

#### M250 Series III & IV

Models C28B, C28C, C30 and C30G						
Model designation	C28B	C28C	C28C	C30	C30	C30G
Power Output Shaft RPM @ 100% Speed	6,016	6,016	6,016	6,016	6,016	9,518
Gas Producer Rotor RPM @ 100% Speed	50,940	50,940	50,940	51,000	51,000	51,000
Power Turbine Rotor RPM @ 1 00% Speed	33,420	33,420	33,420	30,650	30,650	30,650
Oils	MIL-L-7808 MIL-L-23699	MIL-L-7808 MIL-L-23699	MIL-L-7808 MIL-L-23699	MIL-L-7808 MIL-L-23699	MIL-L-7808 MIL-L-23699	MIL-L-7808 MIL-L-23699
Type Certificate Number	E1GL	E1GL	E1GL	E1GL	E1GL	E1GL
Engine Envelope Dimensions L/W/H Inches	48.782 25.746 25.480	43.351 25.480 21.996	43.351 25.480 21.996	43.198 21.996 25.130	43.198 21.996 25.130	43.198 21.996 25.480
N2 Overspeed Electronic Control	Disconnected	Disconnected	Disconnected	Yes	Disconnected	Yes
Bleed Valve Vented to Exhaust Collector	Yes	Yes	Yes	Yes	Yes	Yes
Directional Rotation (N1/N2) & (PTO) Looking Forward	Clockwise & Clockwise					
Engines per Aircraft	One	Two	Two	Two	One	Two
ОММ	16W2	16W2	16W2	14W2	14W2	14W2G
IPC	16W4	16W4	16W4	14W4	14W4	14W4G
Engine Installation Drawing	6896029	6896400	6896400	6891630	6891630	23039799
Electrical Connection Drawing	6898543	23033933	6899013	6896817	6896817	6896817

Model designation	C30G2	C30M	C30P	T703-AD-700	C30S	C30U
Engine Part Number	23053999	23005219	23004545	23055439	23005290	23051054
Model Specification	C974	C902	C904	C907	C914	C957
Shaft Horsepower (T.O.)	650	650	650	650	650	650
Certification Date	4 MAR 1992	7 Jan 1983	15Sep1981	15Jul1981	15 June 1982	28Aug1989
Application	B230	AS350G All Star	B206L-3, B206L-4	OH-58D	S-76 MkII	B406 CS
Weight (lbs)	260	250	245	252	249	252
T.O./Cruise sfc/MGT/sfc/MGT F	0.589 / 0.594 1414 / 1320	0.592 / 0.599 1414 / 1320	0.592 / 0.599 1414 / 1320	0.592 / 0.599 1445 / 1320	0.592 / 0.607 1414 / 1282	0.592 / 0.599 1445 / 1320
Exhaust Configuration	Up	Up	Up	Up	Up	Up
Compressor Bleed Valve	Yes	Yes	Yes	No	Yes	No
Ignition Type	Dual	Single	Single	Single	Dual	Single
Spare Accessory Drives	6 HP N1 Driven	6 HP N1 Driven	6 HP N1 Driven 15 HP N1 Driven	6 HP N1 Driven 15 HP N1 Driven	6HP N1 Driven	6HP N1 Driven 15 HP N1 Driven
N1/N2 Speed Sense	Electronic	Electronic	Mechanical	Electronic	Electronic	Electronic
Power Turbine Governor	Honeywell (Bendix)	Honeywell (Bendix) (w/lever)	Honeywell (Bendix)	None	Honeywell (Bendix)	None
Pg Accumulator	26 ln <sup>3</sup> & 1 3 ln <sup>3</sup>	1 3 ln <sup>3</sup>	1 6 ln <sup>3</sup>	None	1 3 In <sup>3</sup>	None
Fuel Pump Type	Inducer & Gear	Inducer & Gear	Single Gear	Inducer & Gear	Inducer & Gear	Inducer & Gear
Fuel Pressure Filter	High	High	Low	High	High	High
Chip Detector Type	Std. Lisle	Std. Lisle	Std. Lisle	Std. Lisle	Std. Lisle	Std. Lisle
Oil Filter Bypass Indicator (Pressure)	Yes	Yes	No	Yes	Yes	Yes
Oil Filter Bypass Indicator (Scavenge)	N/A	N/A	Optional Scavenge Oil Filter A/F Provided	Optional Scavenge Oil Filter A/F Provided	Optional Scavenge Oil Filter A/F Provided	Optional Scavenge Oil Filter A/F Provided
Fuel Control	Honeywell (Bendix)	Honeywell (Bendix)	Honeywell (Bendix)	Digital Electronic Supervisory -Honeywell (Bendix)	Honeywell (Bendix)	Digital Electronic Supervisory -Honeywell (Bendix

Models C30G2, C30M, C30P, C30S, C30U and T703-AD-700									
Model designation	C30G2	С30М	C30P	T703-AD-700	C30S	C30U			
Power Output Shaft RPM@ 100% Speed	9,545	6,016	6,016	6,016	6,016	6,016			
Gas Producer Rotor RPM@ 100% Speed	51,000	51,000	51,000	51,000	51,000	51,000			
Power Turbine Rotor RPM @ 1 00% Speed	30,650	30,650 30,650		30,650	30,650	30,650			
Oils	MIL-L-7808 MIL-L-23699		MIL-L-7808 MIL-L-23699	MIL-L-7808 MIL-L-23699	MIL-L-7808 MIL-L-23699	MIL-L-7808 MIL-L-23699			
Type Certificate Number	E1GL	E1GL	E1GL	E1GL	E1GL	E1GL			
Engine Envelope Dimensions L/W/H Inches	ensions 43.198 21.996 25.480		43.198 21.996 25.130	43.198 21.996 25.130	43.198 21.996 25.130	43.198 21.996 25.130			
N2 Overspeed Electronic Control	Yes	Disconnected	Disconnected	In Digital Control	Yes	In Digital Control			
Bleed Valve Vented to Exhaust Collector	Yes	Yes	Yes	Yes	Yes	Yes			
Directional Rotation (N1/N2) & (PTO) Looking Forward	Clockwise & Clockwise	Clockwise & Clockwise	Clockwise & Clockwise	Clockwise & Clockwise	Clockwise & Clockwise	Clockwise & Clockwise			
Engines per Aircraft	Two	One	One	One	Two	One			
OMM	14W2	14W2PM	14W2PM	14W2U	14W2	24W2U			
IPC	14W4	14W4	14W4	14W4U	14W4	14W4U			
Engine Installation Drawing	23053998	23001900	23004500	23004599	6891630	23004599			
Electrical Connection Drawing	23055451	23001901	23004546	23005202	6896817	23005202			

Models C30R/1, C30R/3	5, C30R/3M, C40B, C47	B, C47M, and C47E/4					
Model designation	C30R/1	C30R/3	C30R/3M	C40B	C47B	C47M	C47E/4
Engine Part Number	23056117	23065550	23069722	23063378	23063392	23064560	M250-10761
Model Specification	C979	C1027	C1058	C986	C1023	C1033	C1093
Shaft HP	650	650	650	715	650	650	650
Certification Date	31 Mar 1994	10 Jun 1997	24 Sep 2001	2 2Feb 1996	19 Jan 1996	14 May 1997	31-Oct-16
Application	OH-58D	OH-58D	AH/MH-6	B430	B407	MD600N	Bell 407GXP
Weight (lbs)	257.75	274	278	280	274	274	290
T.O./Cruise Sfc/MGT/sfcMGT	1475 / 1320 0.584 / 0.594	1475 / 1320 0.584 / 0.594	1475 / 1320 0.584 / 0.594	1435 / 1340 0.574 / 0.591	1435 / 1340 0.581 / 0.591	1435/1340 0.584 / 0.594	1245 / 1208 0.573 / 0.583
Exhaust Configuration	Up	Up	Up	Up	Up	Up	Up
Compressor Bleed Valve	No	No	No	Yes	Yes	Yes	Yes
Ignition Type	Single	Single	Single	Single	Single	Single	Solid state, high energy exciter unit.
Spare Accessory Drives	6HPN1 15HPN2	6HPN1 Driven 15 HP N2 Driven	6HPN1 Driven 15 HP N2 Driven	6HPN1 Driven	6 HP N1 Driven	6 HP N1 Driven	6 HP N1 Driven
N1/N2 Speed Sense	Electronic	Electronic	Electronic	Electronic	Electronic	Electronic	Electronic
Power Turbine Governor	Honeywell (Bendix)	FADEC	FADEC	FADEC	FADEC	FADEC	FADEC dual ch.
Pg Accumulator	None	None	None	None	None	None	None
Fuel Pump Type	Single element fuel pump with jet inducer	Liquid Ring & Gear	Liquid Ring & Gear	Liquid Ring & Gear	Liquid Ring & Gear	Liquid Ring & Gear	Gear pump with an ejector boost stage integral to FPPU
Fuel Pressure Filter	Interstage	Interstage	Interstage	Interstage	Interstage	Interstage	Interstage
Chip Detector Type	Std. Lisle	Self-Sealing Fuzz Burning	Self-Sealing Fuzz Burning	Self-Sealing Fuzz Burning	Self-Sealing Fuzz Burning	Self-Sealing Fuzz Burning	Self-Sealing Fuzz Burning
Oil Filter Bypass Indicator	Yes	Yes	Yes	Yes	No	Yes	Yes
Fuel Control	Honeywell (Bendix) Supervisory	Triumph PECS FADEC	Triumph PECS FADEC	Triumph PECS FADEC	Triumph PECS FADEC	Triumph PECS FADEC	FADEC dual ch.

odels C30R/1, C30R/3, C30R/3M, C	40B, C47B, C47M, an	d C47E/4					
Model designation	C30R/1	C30R/3	C30R/3M	C40B	C47B	C47M	C47E/4
Power Output Shaft Speed	6,016	6,016	6,016	9,598	6,317	6,016	6317
Gas Producer Rotor RPM @ 100% Speed	49,378	51,000	51,000	51,000	51,000	51,000	49014
Power Turbine Rotor Speed @ 100% Speed	30,650	30,650	30,650	30,908	32,183	30,650	32183
Oils	Mil-L-7808 MIL-PRF-23699	MIL-L-7808 MIL-L-23699	MIL-L-7808 MIL-L-23699	MIL-L-7808 MIL-L-23699	MIL-L-7808 MIL-L-23699	MIL-L-7808 MIL-L-23699	MIL-PRF-23699 / AS5708
Type Certificate Number	E1GL	E1GL/Rev14	E1GL/Rev20	E1GL/Rev12	E1GL/Rev12	E1GL/Rev13	E1GL, R30
Engine Envelope Dimensions L/W/H Inches	43.2 22.0 25.7	43.198 21.996 25.715	43.198 21.996 25.715	43.198 21.996 25.130	43.198 21.996 25.715	43.198 21.996 25.715	43.198 21.996 25.715
N2 Overspeed Electronic Control	Yes	IN FADEC					
Bleed Valve Vented to Exhaust Collector	No	No	Yes	Yes	Yes	Yes	Yes
Directional Rotation (N1/N/2) & (PTO) Looking Forward	Clockwise & Clockwise	Clockwise & Clockwise	Clockwise & Clockwise	Clockwise & Clockwise	Clockwise & Clockwise	Clockwise & Clockwise	Clockwise & Clockwise
Engines per Aircraft	One	One	One	Two	One	One	One
ОММ	14W2RU	CSP21003	CSP22001	CSP21000	CSP21001	CSP21004	CSP21017
IPC	14W4RU	CSP23003	CSP23003	CSP23001	CSP23001	CSP23001	CSP23011
Engine Installation Drawing	23056119	23066691	230669723	23062083	23061950	23065802	M250-10762
Electrical Connection Drawing	23005202	23065577	23071785	23061 846	23062550	23064232	M250-10800

# **Significant Facts About the M250**

Current module TBOs* (hours)					
Module	C20/C20R Series	B17/B17F Series	C28B/C30	C40/C47	C47E/4
Compressor	3500	3500	On condition	On condition	On condition
Gearbox	On condition	On condition	On condition	On condition	On condition
Turbine	3500*	3500*	1500/2000	1750/2000	2000/4000
Prop gearbox		On condition <sup>†</sup>			NA
* 1750 hr hot section maintenance					NA
<sup>†</sup> "D" and "F" prop box, 2000 hours					NA
Component parts life limits* (hours/cyc	les)				
Part	C20 Series - B17 Series	C20R Series B17F Series	C28 Series	C30 Series C30R/3	C40B C47B, C47E
Compressor wheel life	see OMM for applica- tion P/N	7500/15,000			NA
Impeller	3550/9150	7500/15,000	10,000/20,000	12,500/25,000	7500/15,000 7500/15,000 7500/15,000
1st stage turbine wheel	1775/3000	1775/3000	1550/3000	2025/3000 1775/2000	1775/3000 2025/3000 2025/3000
2nd stage turbine wheel	1775/3000	1775/3000	1550/3000	2025/3000	1775/3000 2025/3000 2025/3000
3rd stage turbine wheel	4550/6000	4550/6000	4550/6000	4550/6000 4550/4500	4550/6000 4550/6000 4550/6000
4th stage turbine wheel	4550/6000	4550/6000	4550/6000	4550/6000	4550/6000 4550/6000 4550/6000

# **Significant Facts About the M250**

	Production and accrued t	flight hours as of 31-Dec-20	)20	
	Designation	Туре	Total Production	Total Fleet Accum Hours
Series I	B15/B15G	turboprop	95	389897
	T63-A-5/A	turboshaft	2515	9462907
	C18/T63-A-700	turboshaft	3895	26682560
Series II	B17/B17F (all)	turboprop	1592	11903940
	C20/T63-A-720 (all)	turboshaft	15817	154777353
	C20R (all)	turboshaft	1107	7878772
Series III	C28 (all)	turboshaft	879	9171034
Series IV	C30 (all)	turboshaft	3793	32620952
	C40B	turboshaft	305	2284548
	C47 (all)	turboshaft	2109	15219200
			32107	270,391,163

Production and accrued flight hours as of 12/31/201							
Designation Type New Total New Total							
Initial	250-300A1	turboshaft	1260	1447234			

# **Commonly Referenced CSL Listings**

Title	C18	C20	C20R	C28	C30	C40	C47	B15	B17	B17F
M250 General Information	CSL 1	CSL 1001	CSL 4001	CSL 2001	CSL 3001	CSL 5049	CSL 6049	TP CSL 1	TP CSL 1001	TP CSL 1002
M250 Reporting	CSL 76	CSL 1036	CSL 4039	CSL 2020	CSL 3016	CSL 5003	CSL 6003	TP CSL 14	TP CSL 1018	TP CSL 2053
Lubrication System Troubleshooting	CSL 99	CSL 1082	CSL 4048	CSL 2013	CSL 3011	CSL 5001	CSL 6021	TP CSL 39	TP CSL 1050	TP CSL 2032
CEB Classification	CSL 132	CSL 1123	CSL 4010	CSL 2072	CSL 3074	CSL 5014	CSL 6002	TP CSL 67	TP CSL 1086	TP CSL 2045
Contamination Removal (water rinse) Instructions	CSL 141	CSL 1135	CSL 4018	CSL 2082	CSL 3085	CSL 5017	CSL 6004	TP CSL 76	TP CSL 1095	TP CSL 2004
M250 Designations	CSL 173	CSL 1170	CSL 4042	CSL 2117	CSL 3120	CSL 5034	CSL 6034	TP CSL 103	TP CSL 1123	TP CSL 2021
Use of High Thermal Stability	CSL 203	CSL 1208	CSL 4083	CSL 2150	CSL 3159	CSL 5058	CSL 6059	TP CSL 133	TP CSL 1162	TP CSL 2075
Hot Corrosion - Sulfidation	CSL 205	CSL 1210	CSL 4084	CSL 2152	CSL 3161	CSL 5060	CSL 6061	TP CSL 134	TP CSL 1163	TP CSL 2076
Troubleshooting Guide- Honeywell Controls	CSL 190	CSL 1192	CSL 4086	CSL 2136	CSL 3142					



# RR300 Owner/Operator Quick Reference Guide

# **RR300 Owner/Operator Quick Reference Guide**

SUBJECT	Description	How
FAST Website Is an all-in-one IT Tool that encompasses the Service and Support of the RR300	User Account Request	URL: https://FAST.aeromanager-online .com  Click I agree > Go to Login > To Register for FAST, click here to request an account Fill out Form  Note: Use Export Control License: NLR 9E8991
	Technical Manuals	Technical Publications are located in FAST>iWarranty>Service Hub>Document Management>Document Administration>RR300 Operator Technical Publications  Operation & Maintenance Manual (OMM) Line Illustrated Parts Catalog (UPC) Engine Maintenance Manual (EMM) Owner/Operator
	Technical Manuals in CD format	Manuals in CD Format and Revision Service may be purchased through Boeing (important: revision service must be purchased prior to CD expiration to avoid additional expense).
	Bulletins	Public Epubs - log into FAST>Public Epubs>RR300 Engine Series  · Service Bulletins (SB)  · Notice to Operator(NTO)  · Parts Information Letter (PIL)
	How To Manuals	How to Manuals are located in FAST>iWarranty>Service Hub>Document Management> Document Administration>RR300 Operator Information.  • EMU Uploads - Field Service Reports (Event Reporting) - Operating Reports - Warranty Requests  • Warranty Claims
	Warranty Claims Processing For an event that is within the Warranty period	<ol> <li>Complete a Warranty Request - this will ensure that the event is applicable and covered.         (if returning the part back to Boeing for credit, attach a copy of the approved Warranty Request).</li> <li>For reimbursement of work completed at your facility, please refer to Warranty Claims how to manual.</li> </ol>
Polices & Procedures	In the event that additional information is required	Review your Service Center Contract and Policy Manual Policy Manual located: log into FAST > iWarranty > Document Management > Document Administration > Policy Manual > RR300 > SC Policy Manual

# **RR300 Owner/Operator Quick Reference Guide**

SUBJECT	Description	How
<b>EMU</b> (Engine Monitoring Unit)	Technical Support - For clarification of Technical Manual material, and assistance with troubleshooting	DDU software is included with the new aircraft; the software should be installed per installation instructions. The software is only compatible with Microsoft Windows. Apple computers - please install software that emulates the Windows Environment. *A standard USB cable (square-end to rectangle end) is required to connect via the aircraft connector.
<b>EMU</b> (Engine Monitoring Unit)	Uploading an EMU File	Summary Report (current snapshot) and Flight History (complete History) - Log into FAST>Upload Center>Select files *When submitting a flight history data file for an engine exceedance, notify Rolls-Royce Customer Support at helicoptercustsupp@rolls-royce. com for review.
Engine Training	As needed by the Service Center to perform approved maintenance tasks. Customer & Product Training on the Web	<ol> <li>Rolls-Royce Customer Training - Contact Customer Support</li> <li>FAST - in Public Epubs &gt; General &gt; RR300 Training Courses</li> <li>FAST- in Public Epubs &gt; RR300 &gt; NTO &gt; NTO RR300-021</li> <li>http://www.rolls-royce.com/customers/civil-aerospace/customer-training.aspx</li> </ol>
Parts Ordering	To restock inventory, purchase for an operator, or procure for a repair/warranty event	To restock inventory, purchase for an operator, or procure for a repair/ warranty event
Technical Support - For clarification of Technical Manual materia I, and assistance with troubleshooting	Rolls-Royce Regional Manager Rolls-Royce Customer Support	Rolls-Royce Regional Manager Rolls-Royce Customer Support



# Warranties

### **Universal M250 & RR300 New Engine Limited Warranty**

Rolls-Royce Corporation issues the following express Limited Warranty for all new Aircraft OEM installed engines and new spare engines, subject to the following terms, conditions and limitations:

- 1. What is Covered: This Limited Warranty covers the costs of material and in-shop labor to repair (or replace at Rolls- Royce's sole option) any M250 or RR300 engine which has failed or malfunctioned during the warranty period as a result of a defect in material or workmanship under normal use and service, or as a result of a nonconformity of the engine at the time of delivery to the Purchaser with the engine specifications in effect at the time of manufacture by Rolls-Royce. THIS IS A LIMITED WARRANTY, AS DEFINED IN SECTION 7.
- 2. Who is Covered: Anyone who purchases a new aircraft from an aircraft manufacturer (or the aircraft manufacturer's dealer) which is equipped with a new Rolls-Royce M250 or RR300 engine, or anyone who purchases a new M250 or RR300 spare engine from Rolls-Royce or Rolls-Royce's authorized distributor is entitled to coverage under this Limited Warranty. This warranty is transferable, subject to the terms herein and at the discretion of Rolls-Royce.
- **3. Warranty Period:** The term of this Limited Warranty expires upon the first occurrence of any of the following events:
- One thousand (1,000) hours of operation (as defined in the engine Operations and Maintenance Manual)
- Three thousand (3,000) cycles (as defined in the engine Operations and Maintenance Manual)
- Twenty-Four (24) calendar months from the date of delivery to the Purchaser
- Forty-Eight (48) calendar months from the date of delivery of the engine to the Aircraft Manufacturer or Rolls-Royce authorized distributor

NOTE: As a Customer Option, a twelve (12) month warranty extension can be purchased from the Rolls-Royce Warranty Administrator. If interested, contact information is given in Section 4(a).

Following any repair which is covered by the terms of this Limited Warranty, the engine shall have only the portion of the warranty period remaining from the date/time in which Limited Warranty was first issued. The warranty period is not extended following any such covered repair.

#### 4. Obtaining Warranty Authorization for Repairs:

a) To obtain warranty authorization for repairs the Purchaser, or a Rolls-Royce authorized FIRST Network facility or Rolls-Royce field support personnel (on behalf of Purchaser), must send written notification to Rolls-Royce of any warranty claim within thirty (30) days after the alleged defect or nonconformity is discovered, or in the exercise of ordinary diligence should have been discovered. Notification must be to the Rolls-Royce Warranty Administrator via the Internet, Email, Telephone, or Mail contacts below. The Warranty Administrator will verify that the engine is within its warranty period and is eligible for warranty, and then issue a warranty authorization number (to track the repair) to the Purchaser and FIRST Network facility.

Internet: https://fast.aeromanager-online.com

Email: FAST@Rolls-Royce.com

(email for warranty authorization)
Helicoptercustsupp@rolls-royce.com
(email for technical questions)

Telephone: (USA) 317-230-2720

Mail: Rolls-Royce Corporation

450 South Meridian Street Speed Code MC-NB-04-08 Indianapolis, IN 46225-1103 USA

The Purchaser may choose any Rolls-Royce authorized FIRST Network facility for the warranty repair.

- b) The Purchaser should not disassemble an engine into modules, or remove parts from the engine without Rolls- Royce's prior authorization. Modules and parts may only be removed from engines by individuals who are authorized by Rolls-Royce to perform this work. Engines/modules/parts must be shipped in accordance with published Rolls-Royce procedures.
- c) The Rolls-Royce authorized FIRST Network repair facility selected by Purchaser must receive the engine/module/part within ninety (90) days after the written notification of defect is sent. The Purchaser is responsible for transportation charges to and from the FIRST Network repair facility.
- d) The Purchaser may not obtain warranty coverage for used parts or LRUs via Rolls-Royce's authorized parts distributor (Boeing Distibution Inc. - BDI). Only new, zero-time parts purchased directly from BDI may be returned to BDI for warranty credit. Used parts and LRUs must be processed for warranty via a Rolls-Royce authorized FIRST Network facility.
- e) Rolls-Royce shall be the sole decision maker about whether there is a defect in material or workmanship under normal use and service or a nonconformity of the engine at the time of delivery to the Purchaser with the specifications in effect at the time of manufacture by Rolls-Royce.
- f) In the event the warranty claim is denied, the Purchaser may be given the option to pay the Rolls-Royce authorized repair facility to make the necessary repairs. If the Purchaser chooses not to proceed with the repairs, the Purchaser is responsible for coordinating the return of the engine/module/part at its sole expense.

- **5. Other Warranties:** TSelect accessory manufacturers (summarized below) provide warranty for their product that fall within the Rolls-Royce New Engine Limited Warranty. The Rolls-Royce FIRST Network is authorized to work directly with these manufacturers to process warranty claims. Rolls-Royce will work with the FIRST Network shops in enforcing these manufacturer warranties. In the event the accessory manufacturer's warranty coverage is less than the Rolls-Royce New Engine Limited Warranty, the Rolls-Royce New Engine Limited Warranty will cover the expense of qualified repairs.
- Honeywell: Fuel Control Units, Power Turbine Governors, Double Check Valves (Series II, RR300)
- Woodward: Prop Governors and Overspeed Governors (Series II turboprop)
- Triumph Engine Controls: Engine Control Units, Hydro-Mechnical Units (Series IV)
- Triumph Engine Controls: Fuel Pumps (all models)
- Collins (Delavan): Fuel Nozzles (all models)
- Collins: Electronic Engine Controls, Fuel Metering Units, Fuel Pump Power Units (C47E Series)
- Skurka Aerospace: Starter-Generators, Generator Contols Units (RR300)
- **6. What is NOT Covered:** This Limited Warranty covers only the items expressly provided herein. Items not covered include:
- a) Any malfunction, defect, or nonconformity discovered or reported after the expiration of the warranty period.
- b) Future performance (SHP, TOT margin) of the engine following repair is not warranted/guaranteed.
- c) Consumables, including the following:
- External seals (e.g. gearbox lip seals)
- Oil, fuel, and air filters
- Gaskets, washers, o-rings, etc.
- Small external parts, such as nuts, bolts, clamps, etc.
- · Oils, lubricants, sealants, etc.
- d) Labor associated with removal and installation of the engine, engine module, engine accessory, or engine LRUs.
- e) Labor associated with all troubleshooting of engine, accessories, and LRUs.
- f) Labor associated with all line maintenance and inspections (both scheduled and unscheduled) for the engine, accessories, and LRUs.
- g) Transportation charges and any other surcharges, import taxes, duties, handling fees, or other fees that may be levied in transporting an engine, accessory, or LRU to or from a Rolls-Royce designated repair facility.



### Universal M250 & RR300 New Engine Limited Warranty continued

- h) FAA mandated life limits (FH and cycles) listed in Chapter 5 of each engine model's Operation & Maintenance Manual are not guarantees, and therefore are not covered by this limited warranty.
- i) Foreign object damage (FOD) in operation, transit, or in storage.
- j) Failures, malfunctions, or non-conformities of the engine attributable in whole or in part due to:
  - The failure to store, preserve, install, operate, maintain, repair or replace the engine or modules/parts in accordance with applicable recommendations by Rolls-Royce.
  - Acts of God, combat damage, misuse, corrosion, erosion, neglect or accident.
  - The alteration of an engine/module/part which is not in accordance with published Rolls-Royce procedures.
  - The use of parts or components not manufactured by Rolls-Royce or installed by a Rolls-Royce authorized repair facility.
     modules or parts which have been repaired by someone other than a Rolls-Royce authorized repair facility.
- k) Parts which are replaced as a result of the purchaser's elected maintenance or as a result of the purchaser's decision to transfer modules, accessories or parts. These decisions by the purchaser can cause premature exposure in these or other parts which must be replaced based upon applicable Rolls-Royce published inspection criteria and are not covered by this Limited Warranty. Any change to the engine configuraton (modules, accessories, or parts) without pre-approval by the Rolls-Royce Warranty Adminstrator will void this engine limited warranty
- 7. Legal Terms and Conditions:
- a) LIMITATION OF WARRANTIES: THIS WARRANTY IS GIVEN EXPRESSLY AND IN PLACE OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR PARTICULAR PURPOSE. THERE ARE NO UNDERSTANDINGS, AGREEMENTS, REPRESENTATIONS, OR WARRANTIES NOT SPECIFIED HEREIN.
- b) The obligations of Rolls-Royce under this Limited Warranty are limited to the repair of the engine as provided herein. In no event, whether as a result of breach of contract or warranty, alleged negligence, or otherwise, shall Rolls-Royce be subject to liability for incidental, consequential, indirect, special or punitive damages of any kind, including without limitation to damage to the engine, airframe or other property, commercial losses, lost profits, loss of use, grounding of engines or aircrafts, inconvenience, loss of time, cost of capital, cost of substitute equipment, downtime, claims of customers, or changes in retirement lives and overhaul periods.

- c) This Limited Warranty, the obligations of Rolls-Royce and the rights and remedies of the Purchaser set forth in this Limited Warranty are exclusive and are expressly in lieu of and the Purchaser hereby waives and releases all other obligations, representations or liabilities, express or implied, arising by law in contract, tort (including negligence or strict liability) or otherwise, including but not limited to any claims arising out of, connected with or resulting from the performance of this Limited Warranty or from the design, manufacture, sale, repair, lease or use of the product, any component thereof and services delivered or rendered hereunder or otherwise. Any additional or different liabilities assumed by Rolls-Royce must be contained in a written document signed by the President or Chief Operating Officer of Rolls-Royce.
- d) In no event shall the liability of Rolls-Royce arising under this Limited Warranty exceed the price of the product or service which gives rise to the claim.
- e) To the extent that applicable law does not permit certain limitations set forth in this Limited Warranty, such limitations shall not be applied or invoked. Nothing in this Limited Warranty will be interpreted to disclaim liability of Rolls-Royce for gross negligence or willful misconduct.
- f) Rolls-Royce's failure to enforce any of the terms or conditions stated herein shall not be construed as a waiver of such provision or of any other terms and conditions of this Limited Warranty.
- g) If any one or more of the provisions contained in this Limited Warranty shall be invalid, illegal or unenforceable in any respect, the validity, legality or enforceability of the remaining provisions contained therein shall not in any way be affected or impaired thereby.
- h) This Limited Warranty shall be construed and interpreted in accordance with the laws of the State of Indiana, without reference to its choice of law rules. Accordingly, parties expressly agree that the United Nations Convention on Contracts for the International Sale of Goods does not apply to this Limited Warranty.
- i) Any controversy or claim arising out of or relating to this Limited Warranty or breach thereof shall be litigated only in the Circuit or Superior Courts of Marion County, Indiana or the United States District Court for the Southern District of Indiana, Indianapolis Division. In connection with the foregoing, the Purchaser consents to the jurisdiction and venue of such courts and expressly waives any claims or defenses of lack of jurisdiction or proper venue by such courts.

The preceding paragraphs of this document set forth the sole and exclusive remedies for all claims based on failure of, or defects in, the goods provided under this contract. Whether the failure or defect arises before or during the warranty period and whether a claim, however instituted, is based on contract, indemnity, warranty (including the warranty against redhibitory defects), tort (including negligence), strict liability or otherwise. The foregoing warranties are exclusive and are in lieu of all other warranties and guarantees, whether written, oral, implied or statutory (including the warranty against redhibitory defects). No implied statutory warranty of merchantability or fitness for a particular purpose shall apply.

#### Universal M250 & RR300 Spare Part/Module Limited Warranty

Rolls-Royce Corporation issues the following express Limited Warranty for all new spare parts and modules, subject to the following terms, conditions and limitations:

- 1. What is Covered: This Limited Warranty covers the costs of material and in-shop labor to repair (or replace at Rolls- Royce's sole option) any M250 or RR300 spare part or module which has failed or malfunctioned during the warranty period as a result of a defect in material or workmanship under normal use and service, or as a result of a nonconformity of the spare part or module at the time of delivery to the Purchaser with the specifications in effect at the time of manufacture by Rolls-Royce. THIS IS A LIMITED WARRANTY, AS DEFINED IN SECTION 7.
- **2. Who is Covered:** Anyone who purchases a new Rolls-Royce M250 or RR300 spare part or module from Rolls- Royce's authorized distributor or a FIRST Network facility is entitled to coverage under this Limited Warranty. This warranty is transferable, subject to the terms herein and at the discretion of Rolls-Royce
- **3. Warranty Period:** The term of this Limited Warranty expires upon the first occurrence of any of the following events:
- One thousand (1,000) hours of operation (as defined in the engine Operations and Maintenance Manual)
- Twenty-Four (24) calendar months from the date of delivery to the Purchaser from a Rolls-Royce authorized distributor or FIRST Network facility.

Following any repair which is covered by the terms of this Limited Warranty, the part or module shall have only the portion of the warranty period remaining from the date/time in which Limited Warranty was first issued. The warranty period is not extended following any such covered repair.

LIMITATION OF WARRANTIES: THIS WARRANTY IS GIVEN EXPRESSLY AND IN PLACE OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR PARTICULAR PURPOSE. THERE ARE NO UNDERSTANDINGS, AGREEMENTS, REPRESENTATIONS, OR WARRANTIES NOT SPECIFIED HEREIN.

#### 4. Obtaining Warranty Authorization for Repairs/Replacements:

a) To obtain warranty authorization for repairs/replacements the Purchaser, or a Rolls-Royce authorized FIRST Network facility or Rolls-Royce field support personnel (on behalf of Purchaser), must send written notification to Rolls-Royce of any warranty claim within thirty (30) days after the alleged defect or nonconformity is discovered, or in the exercise of ordinary diligence should have been discovered. Notification must be to the Rolls-Royce Warranty Administrator via the Internet, Email, Telephone, or

Mail contacts below. The Warranty Administrator will verify that the part or module is within its warranty period and is eligible for warranty, and then issue a warranty authorization number (to track the repair/replacement) to the Purchaser and FIRST Network facility If a part was purchased new from a Rolls-Royce authorized distributor or FIRST Network facility, proof of purchase (receipt) showing the date of purchase will be required.

Internet: https://fast.aeromanager-online.com

Email: FAST@Rolls-Royce.com

(email for warranty authorization)
Helicoptercustsupp@rolls-royce.com
(email for technical questions)

Telephone: (USA) 317-230-2720

Mail: Rolls-Royce Corporation

450 South Meridian Street Speed Code MC-NB-04-08 Indianapolis, IN 46225-1103 USA

The Purchaser may choose any Rolls-Royce authorized FIRST Network facility for the warranty repair or part replacement.

- b) The Purchaser should not disassemble modules without Rolls-Royce's prior authorization. Modules and parts may only be removed from engines by individuals who are authorized by Rolls-Royce to perform this work. Modules and parts must be shipped in accordance with published Rolls-Royce procedures.
- c) The Rolls-Royce authorized FIRST Network facility selected by Purchaser must receive the module or part within ninety (90) days after the written notification of defect is sent. The Purchaser is responsible for transportation charges to and from the FIRST Network repair facility.
- d) The Purchaser may not obtain warranty coverage for used parts or modules via Rolls-Royce's authorized parts distributor (Boeing Distibution Inc. BDI). Only new, zero-time parts purchased directly from BDI may be returned to BDI for warranty credit. Used parts and modules must be processed for warranty via a Rolls-Royce authorized FIRST Network facility.
- e) Rolls-Royce shall be the sole decision maker about whether there is a defect in material or workmanship under normal use and service or a nonconformity of the part or module at the time of delivery to the Purchaser with the specifications in effect at the time of manufacture by Rolls-Royce.
- f) In the event the warranty claim is denied, the Purchaser may be given the option to pay the Rolls-Royce FIRST Network facility to make the necessary repairs or part replacement. If the Purchaser chooses not to proceed with the repair or replacement, the Purchaser is responsible for coordinating the

return of the module or part at its sole expense.

- **5. Other Warranties:** Select accessory manufacturers (summarized below) provide warranty for their product that fall within the Rolls-Royce Spare Part/Module Limited Warranty. The Rolls-Royce FIRST Network is authorized to work directly with these manufacturers to process warranty claims. Rolls-Royce will work with the FIRST Network shops in enforcing these manufacturer warranties. In the event the accessory manufacturer's warranty coverage is less than the Rolls-Royce Limited Warranty Period (Section 3), the Rolls-Royce Spare Part/Module Limited Warranty will cover the expense of qualified repairs.
- Honeywell: Fuel Control Units, Power Turbine Governors, Double Check Valves (Series II, RR300)
- Woodward: Prop Governors and Overspeed Governors (Series II turboprop)
- Triumph Engine Controls: Engine Control Units, Hydro-Mechnical Units (Series IV)
- · Triumph Engine Controls: Fuel Pumps (all models)
- Collins (Delavan): Fuel Nozzles (all models)
- Collins: Electronic Engine Controls, Fuel Metering Units, Fuel Pump Power Units (C47E Series)
- Skurka Aerospace: Starter-Generators, Generator Contols Units (RR300)
- **6. What is NOT Covered:** This Limited Warranty covers only the items expressly provided herein. Items not covered include:
- a) Any malfunction, defect, or nonconformity discovered or reported after the expiration of the warranty period.
- b) Future performance (SHP, TOT margin) of the engine following part replacement or part/module repair is not warranted/ quaranteed.
- c) Consumables, including the following:
- External seals (e.g. gearbox lip seals)
- Oil, fuel, and air filters
- Gaskets, washers, o-rings, etc.
- Small external parts, such as nuts, bolts, clamps, etc.
- · Oils, lubricants, sealants, etc.
- d) Labor associated with removal and installation of the engine, engine module, engine accessory, or engine LRUs.
- e) Labor associated with all troubleshooting of engine, accessories, and LRUs.
- f) Labor associated with all line maintenance and inspections (both scheduled and unscheduled) for the engine, accessories, and LRUs.



#### Universal M250 & RR300 Spare Part/Module Limited Warranty continued

- g) Transportation charges and any other surcharges, import taxes, duties, handling fees, or other fees that may be levied in transporting an engine, accessory, or LRU to or from a Rolls-Royce designated repair facility.
- h) FAA mandated life limits (FH and cycles) listed in Chapter 5 of each engine model's Operation & Maintenance Manual are not guarantees, and therefore are not covered by this limited warranty.
- i) Foreign object damage (FOD) in operation, transit, or in storage.
- j) Failures, malfunctions, or non-conformities of an engine, module, and associated parts attributable in whole or in part due to:
- The failure to store, preserve, install, operate, maintain, repair or replace the engine or modules/parts in accordance with applicable recommendations by Rolls-Royce.
- Acts of God, combat damage, misuse, corrosion, erosion, neglect or accident.
- The alteration of an engine/module/part which is not in accordance with published Rolls-Royce procedures.
- The use of parts or components not manufactured by Rolls-Royce or installed by a Rolls-Royce authorized repair facility.
- •The use of modules or parts which have been repaired by someone other than a Rolls-Royce authorized repair facility.
- k) Parts which are replaced as a result of the purchaser's elected maintenance or as a result of the purchaser's decision to transfer modules, accessories or parts. These decisions by the purchaser can cause premature exposure in these or other parts which must be replaced based upon applicable Rolls-Royce published inspection criteria and are not covered by this Limited Warranty. Any change to the engine configuraton (modules, accessories, or parts) without pre-approval by the Rolls-Royce Warranty Adminstrator will void this engine limited warranty.

#### 7. Legal Terms and Conditions:

- a) LIMITATION OF WARRANTIES: THIS WARRANTY IS GIVEN EXPRESSLY AND IN PLACE OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INLUDING ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR PARTICULAR PURPOSE. THERE ARE NO UNDERSTANDINGS, AGREEMENTS, REPRESENATIONS, OR WARRANTIES NOT SPECIFIED HEREIN.
- b) The obligations of Rolls-Royce under this Limited Warranty are limited to the repair of the engine as provided herein. In no event, whether as a result of breach of contract or warranty, alleged negligence, or otherwise, shall Rolls-Royce be subject to liability for incidental, consequential, indirect, special or

- punitive damages of any kind, including without limitation to damage to the engine, airframe or other property, commercial losses, lost profits, loss of use, grounding of engines or aircrafts, inconvenience, loss of time, cost of capital, cost of substitute equipment, downtime, claims of customers, or changes in retirement lives and overhaul periods.
- c) This Limited Warranty, the obligations of Rolls-Royce and the rights and remedies of the Purchaser set forth in this Limited Warranty are exclusive and are expressly in lieu of and the Purchaser hereby waives and releases all other obligations, representations or liabilities, express or implied, arising by law in contract, tort (including negligence or strict liability) or otherwise, including but not limited to any claims arising out of, connected with or resulting from the performance of this Limited Warranty or from the design, manufacture, sale, repair, lease or use of the product, any component thereof and services delivered or rendered hereunder or otherwise. Any additional or different liabilities assumed by Rolls-Royce must be contained in a written document signed by the President or Chief Operating Officer of Rolls-Royce.
- d) In no event shall the liability of Rolls-Royce arising under this Limited Warranty exceed the price of the product or service which gives rise to the claim.
- e) To the extent that applicable law does not permit certain limitations set forth in this Limited Warranty, such limitations shall not be applied or invoked. Nothing in this Limited Warranty will be interpreted to disclaim liability of Rolls-Royce for gross negligence or willful misconduct.
- f) Rolls-Royce's failure to enforce any of the terms or conditions stated herein shall not be construed as a waiver of such provision or of any other terms and conditions of this Limited Warranty.
- g) If any one or more of the provisions contained in this Limited Warranty shall be invalid, illegal or unenforceable in any respect, the validity, legality or enforceability of the remaining provisions contained therein shall not in any way be affected or impaired thereby.
- h) This Limited Warranty shall be construed and interpreted in accordance with the laws of the State of Indiana, without reference to its choice of law rules. Accordingly, parties expressly agree that the United Nations Convention on Contracts for the International Sale of Goods does not apply to this Limited Warranty.
- i) Any controversy or claim arising out of or relating to this Limited Warranty or breach thereof shall be litigated only in the Circuit or Superior Courts of Marion County, Indiana or

the United States District Court for the Southern District of Indiana, Indianapolis Division. In connection with the foregoing, the Purchaser consents to the jurisdiction and venue of such courts and expressly waives any claims or defenses of lack of jurisdiction or proper venue by such courts.

The preceding paragraphs of this document set forth the sole and exclusive remedies for all claims based on failure of, or defects in, the goods provided under this contract. Whether the failure or defect arises before or during the warranty period and whether a claim, however instituted, is based on contract, indemnity, warranty (including the warranty against redhibitory defects), tort (including negligence), strict liability or otherwise. The foregoing warranties are exclusive and are in lieu of all other warranties and guarantees, whether written, oral, implied or statutory (including the warranty against redhibitory defects). No implied statutory warranty of merchantability or fitness for a particular purpose shall apply.





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Model 250 is a trademark of Rolls-Royce Corporation.

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