

# AvioService Division



AvioService activities in the aeroengine sector are:

- MRO of the PW100 engine family
- CRO of Avio designed modules and components

## PW100 MRO



AvioService, formerly the Avio MRO Division, began its maintenance activities on the PW100 engine family in 1988 as Designated Overhaul Facility (DOF). The experience accumulated over almost 20 years has enabled Avio to reach the highest standards in terms of quality and reliability for all MRO services provided.

Its capability extends to the following PW100 engine models:

- PWC - PW120, 121, 124B, 127, 127E, 127F for the ATR42 and ATR72 aircraft
- PWC - PW120A, 123, 123B, 123C, 123D for the Bombardier Dash 8-100/200/300
- PWC - PW125B, 127B for the Fokker 50
- PWC - PW123AF for the Bombardier CL215T and CL415
- PWC - PW127G for the CASA 295

More than 30 Regional Airlines operating ATRs are Avio Customers and, since 1994, over 2,000 shop visits have been carried out in Avio and numerous "on-site" repairs have been conducted worldwide.

MRO after-sales service is guaranteed by a specialised support for total customer care. A team of technicians provides the operator with prompt AOG 7/24 support in different geographical areas, including but not limited to:

- engine leasing support
- engineering support: sick engine evaluation, failure analysis, Engine Condition Trend Monitoring (ECTM), and definition of "work-scope planning guide"
- "on-the-job" and "on-field" training
- LRUs (engine accessories)



# CRO capabilities: the answer to new customer requests

Sound product know-how guarantees best reliability. Avio, as a long-term partner of all the major OEMs, has designed and developed a vast number of modules and components for the major aeroengines; AvioService provides in-service support for a relevant number of these. PW100 module CRO further extends the Division's product portfolio.

AvioService is also specialised in turbine airfoil repair technologies.

The capability list includes:

- V2500: oil pumps and gearboxes (AGB)
- GE90: AGB and Low Pressure Turbine (LPT) vanes
- Trent 900: AGB
- PW100: complete PW100 engine family, combustion chambers, rotating parts shafts, casings and AGB



In addition, coming soon:

- GE90 LPT Nozzle Guide Vanes (NGV) Stgs. 2,6

Next:

- GENx LPT NGV and Shrouds Stgs. 1-7
- GENx AGB
- TP400 Power Gearbox (PGB)

The current AvioService repair capability is based on "in-house" availability of the following technologies/equipment:

A) Traditional technologies, including:

- lathes (vertical, horizontal, automatic and manual)
- 5-axis milling machines (automatic)
- grinding machines
- other

B) special processes, including:

- electro-chemical plating
- coatings
- thermal spraying (HVOF, high-speed plasma, plasma and flame etc.)
- high temperature/high vacuum brazing
- high temperature/high vacuum heat treatment
- fluoride ion cleaning
- aluminide coating
- induction coil brazing
- electron beam welding machines
- gas tungsten arc welding (incl. 5-axis automatic machine)

- micro plasma welding
- shot and bead peening machines (3-axis automatic machine)
- shot peening (dedicated machines for bore and inner cavities peening)
- other

C) cleaning and stripping processes, including:

- sand blasting (dry, wet, automatic and manual)
- chemical cleaning
- chemical stripping
- ultrasonic cleaning/stripping
- other

The AvioService repair shop has vast experience on the following component repairs:

## Accessory gearboxes

- aluminium-magnesium alloy welding (worn/cracked surfaces)
- drive pad restoration (worn/cracked surfaces)
- bearing housing restoration (worn surfaces)
- gears repair (restoration of journal bearing)

## Compressor and turbine casings (incl. titanium structures)

- flange/sections replacement (automatic TIG welding and/or EBW, and 5-axis milling)
- restoration of mating worn/cracked surfaces (welding, HVOF and thermal spray)

## Main rotating parts (incl. disks and shafts)

- journal bearing restoration (electro-chemical cr-plating, HVOF and grinding)
- mating surfaces and snap diameters restoration (electro-chemical ni-plating, HVOF and thermal spray)
- surface treatments (shot/bead peening, incl. oil passage holes)

## Combustion chamber

- complete sections replacement (TIG/EB welding)
- thermal barrier coating replacement (stripping and thermal spray)
- forming

## Compressor stators

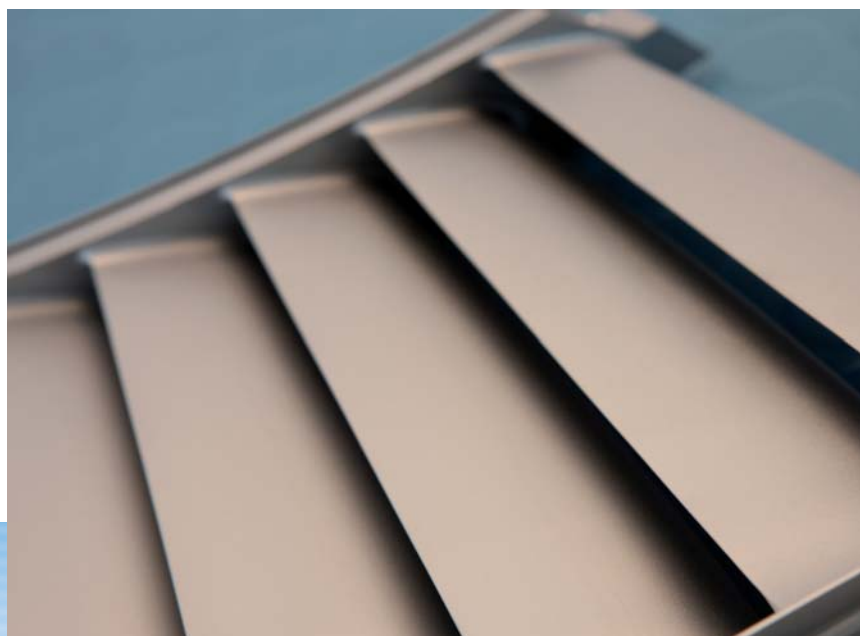
- mating surfaces and snap diameters restoration (electro-chemical ni-plating, HVOF and thermal spray)
- complete sections replacement (automatic TIG/EB welding and 5-axis milling)
- airfoil replacement (HV-brazing and induction coil brazing)
- honeycomb seal replacement (HV-brazing and grinding)

## Turbine stators

- mating surfaces restoration (brazing, HVOF, thermal spray and milling)
- worn/cracked surfaces restoration (diffusion brazing)
- honeycomb seal replacement (HV-brazing and grinding)
- aluminide coating
- laser cladding and TIG welding

In addition, AvioService has a dedicated shop for engine accessories overhaul with a dedicated test bench for a large range of components including:

- fuel nozzles
- fuel/oil/hydraulic pumps
- oil pumps
- hydro-mechanical units
- electrical generators/starters
- electrical harnesses
- thermocouple harnesses
- other





*Propulsion in the sky, space and sea*



## Location

**AvioService** is located in Pomigliano d'Arco, 15 km east of Naples.

## Plant

The Plant stands on 85,400 m<sup>2</sup> and includes:

- 3 shops: Standard Operation, CRO (Component Repair and Overhaul) and Accessory workshops
- 3 test cells up to 100,000 lb thrust
- 2 main buildings
- Airfoil "high-tec" repairs

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