



# AEROSOLUTIONS (PRIVATE) LIMITED



**SIMULATORS -  
MRO -  
TRAINING -  
LOGISTICS -**



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Aerosolutions (Pvt) Ltd - A Subsidiary of Musanna Log & Tech Services (Pvt) Ltd





**Aerosolutions is backed by a trusted and comprehensive mechanism in place since 1969. With over five decades of experience, the company offers a wide range of solutions for the aviation industry, catering for both helicopters and fixed-wing aircrafts. The strength of Aerosolutions lies in its versatility of handling American, European, and Russian technologies under one roof. Designing and manufacturing state-of-the-art simulators is our pride.**

**Certified by ANO-145 (EASA Part-145), ISO 9001:2015, the Interstate Aviation Committee, and the Airbus, Aerosolutions has overhauled more than 223 helicopters and worked on over 400 different types of assemblies and components. Our MI-17 and Ecureuil overhaul capability holds PCAA certification, and the future plans include establishing an Arriel 2B1/C/D engine overhaul facility, supported by OEM partnerships.**

**In addition to its core services, Aerosolutions excels in Non-Destructive Testing and comprehensive aviation training, offering modular exams for B1/B2 and certified type rating courses for MI-17, Bell-412 and Ecureuil helicopters.**

**Aerosolutions (Private) Limited**

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**AEROSOLUTIONS (PRIVATE) LIMITED**



**SIMULATORS**

**MRO**



**TRAINING**

**LOGISTICS**

**COMPREHENSIVE AVIATION SOLUTIONS UNDER ONE ROOF**



# CAPABILITIES

## SIMULATORS

- ❑ **Complete Production Facility:** From machining to finishing for high-quality simulators
- ❑ **Custom-Designed Simulators:** Realistic, affordable, with advanced features like motion cueing systems
- ❑ **Flight Training Devices:** Tailored to various budgets and aircraft types
- ❑ **Immersive Training:** Fixed and rotary wing experiences using virtual and augmented reality
- ❑ **Full Flight Simulators:** Recently commissioned to meet diverse training requirements



## MRO SERVICES

- ❑ **Helicopters/ Aircrafts Overhaul/ Repairs:** MI-17, PUMA L & SM, Bell-412, AW-139, Ecureuil & Fennec, Cessna (Citation V, 206 & 208)
- ❑ **Overhaul, Inspections & Repairs of Turbine and Piston Engines:** Turmo IV C, Arriel 2B1/C/D, Artouste III, Lycoming, Continental, Rotax
- ❑ **Additional Services:**
  - Propeller overhaul, blade repair, paint, surface treatment, NDT
  - Avionics Center of Excellence
  - Structure repair, revamp, manufacturing of parts, special tools
  - HVAC system maintenance



# CAPABILITIES

## TRAINING

- ❑ **Courses Offered:**
  - Quality Inspector & Human Factors (8 weeks)
  - Type Rating Course (8-12 weeks)
  - Crew Chief Course (4-6 weeks)
  - Flight Engineers Course (12 weeks)
- ❑ **Facilities:**
  - 27 cutaway models: turbine & piston engines, gearboxes and rotor components
  - Computer lab, language lab (30 stations), advanced classrooms
  - Technical library and auditorium for conferences



## LOGISTICS

- ❑ **Comprehensive Sourcing Solutions:** Access to a wide network of global vendors
- ❑ **Strong OEM Alliances:** Over 30 partnerships with top aviation manufacturers
- ❑ **Around-the-Clock Operations:** 24/7 worldwide logistics support
- ❑ **Advanced Storage Facilities:** Equipped to store and manage a wide range of spares
- ❑ **Expert Handling & Equipment:** Skilled personnel and modern MHEs
- ❑ **Dedicated Team for smooth Import/ Export**





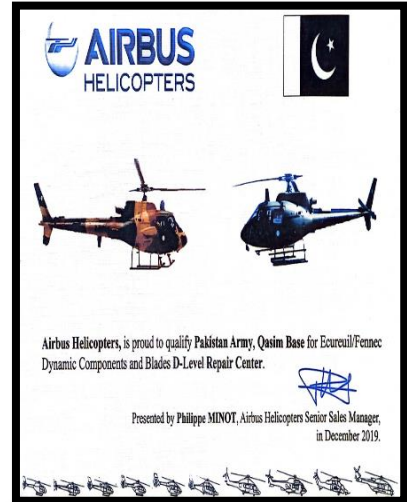
# CERTIFICATIONS & EXPERIENCE



**Certified by Civil Aviation Authority**



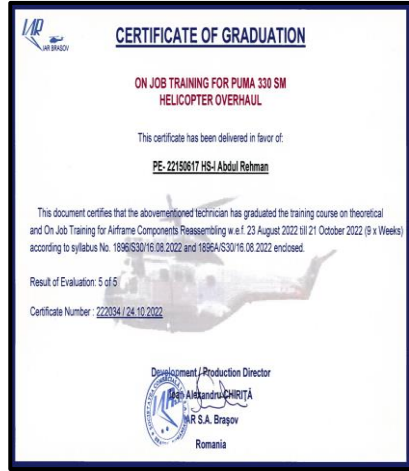
**Inter State Aviation Certificate (Russia) Mi-17 OH**



**AIRBUS Dynamic Component OH (Ecureuil / Fennec)**



**Technical manpower & procedures Lycoming USA Piston Eng OH (Swz / MFI17)**



**Technical manpower & procedures IAR Romania PUMA SM OH**



**Technical manpower & procedures SAFRAN Arriel Engine OH (Ecureuil / Fennec)**

**Our company has overhauled 223+ helicopters and serviced 400+ different type of helicopter/ aircraft assemblies and components**

# SIMULATORS

## FLIGHT SIMULATOR DEVELOPMENT CENTER

**“Innovation Beyond Horizon: Where Excellence Takes Flight”**

*At Flight Simulator Development Center (FSDC) Pakistan, we bring the skies to your fingertips with our state-of-the-art immersive flight training solutions. Designed with cutting-edge technology, our simulators offer pilots a high-fidelity flying experience that mirrors real-world conditions. Built to the highest standards of reliability, performance, and efficiency, we guarantee exceptional training every time.*

- ❑ **Our Mission:** To revolutionize flight training with innovative, high-fidelity simulation technologies that provide pilots with an unparalleled learning experience
- ❑ **Our Vision:** To be the leading provider of immersive flight simulation solutions, empowering pilots and aviation professionals with the skills they need to excel



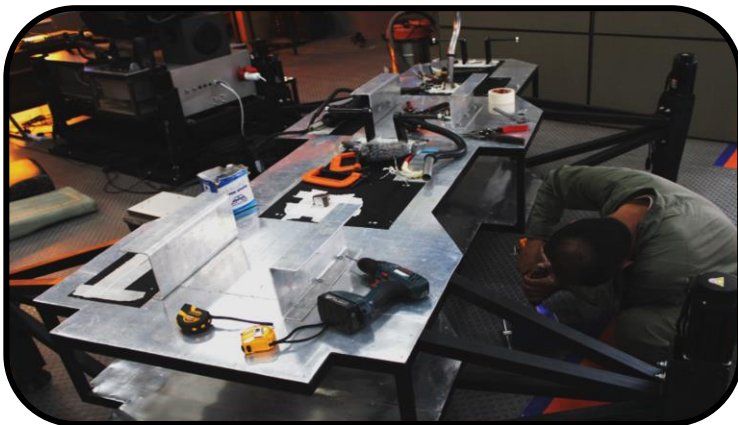


# SIMULATORS

## FLIGHT SIMULATOR DEVELOPMENT CENTER

“Innovation Beyond Horizon: Where Excellence Takes Flight”

- ❑ **Advanced Manufacturing Facility:** Our state-of-the-art manufacturing facility ensures top-tier production of custom-designed simulators
- ❑ **On-Site Customization:** We offer full customization to meet the specific training needs of our clients
- ❑ **Highly Skilled Engineering Team:** Our expert engineers specialize in developing simulators that meet global aviation training standards
- ❑ **End-to-End Solutions:** From concept to completion, we provide tailored solutions and deliver high-fidelity simulation experiences
- ❑ **Support & Maintenance:** We offer comprehensive support services, ensuring your simulators run efficiently and reliably





# SIMULATORS

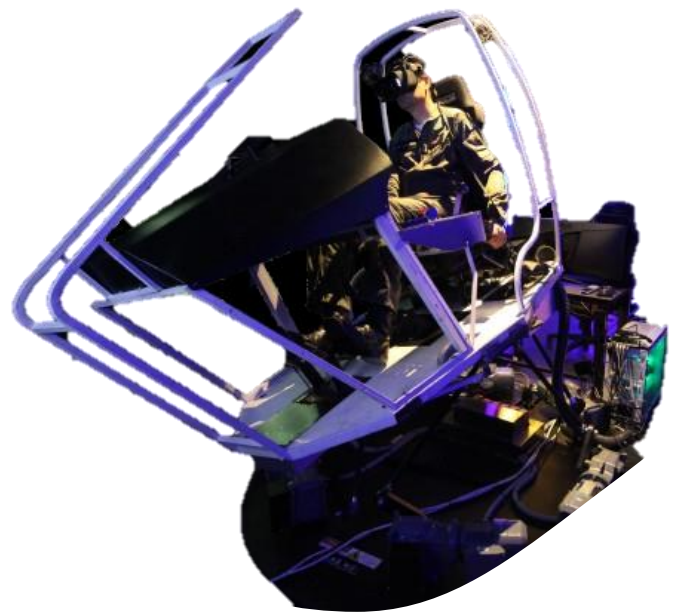
## FLIGHT SIMULATOR DEVELOPMENT CENTER

Established in 2019, we are a premier provider of flight simulation products, dedicated to innovation and quality

### Products We Offer



**Full Motion Simulator**



**Extended Reality Solutions**

- ❑ **Customized Flight Training Solutions:**
  - Tailored solutions that meet the specific requirements of aviation schools, military training, and airline operators
  - Customization options include aircraft type, control systems, avionics, e.t.c

### AEROSIM – SWIFTWING SERIES

With its unique modular architecture, the FSDC Pakistan delivers a Full Motion Simulator with a high degree of reliability, maintainability, and supportability for users

Our **AeroSim Swiftwing Series** include digital electrical control loading and electric motion systems to reduce power consumption and provide high trainer availability, ensuring minimal operational and running costs



#### ❑ Motion System

- Fully Electric high fidelity 6 DOF Motion with continuous 360° on Yaw Axis

#### ❑ Visual System

- A multi-projector visual system interface with COTS projectors delivering 200° Horizontal (Complete Cross shoulder) and 70° Vertical FOV

#### ❑ Flight Controls

- A control loading system replicating the forces pilots feel on actual aircraft controls. This ensures that every control input feels just like it would in an actual cockpit, making your training not only realistic but also effective

#### ❑ Flight Model

- High fidelity custom designed Flight Model
- Fine Tuned by highly experienced instructor pilots

#### ❑ Simulator capabilities

- Capable of performing all Normal / emergencies procedures as per Pilot Operating Handbook

#### ❑ Cockpit

- 1:1 Cockpit Replica with all systems operational
- Custom-designed and developed flight instruments

#### ❑ Instructor Operating Station (IOS)

- On Board IOS
- All emergencies simulated as per Aircraft Operator Manual

*3 x AeroSim (MI-17 Helicopter, AS350 Helicopter & MFI-17 aircraft) are currently being used by the Pakistan Institute of Simulator Training (PAIST)*



# SIMULATORS

## FLIGHT SIMULATOR DEVELOPMENT CENTER

### AEROSIM – MODELS



FULL FLIGHT SIMULATOR MI-17 HELICOPTER



FULL FLIGHT SIMULATOR ECUREUIL AS350/ H125



FULL FLIGHT SIMULATOR ECUREUIL AS350/ H125

# SIMULATORS

## FLIGHT SIMULATOR DEVELOPMENT CENTER

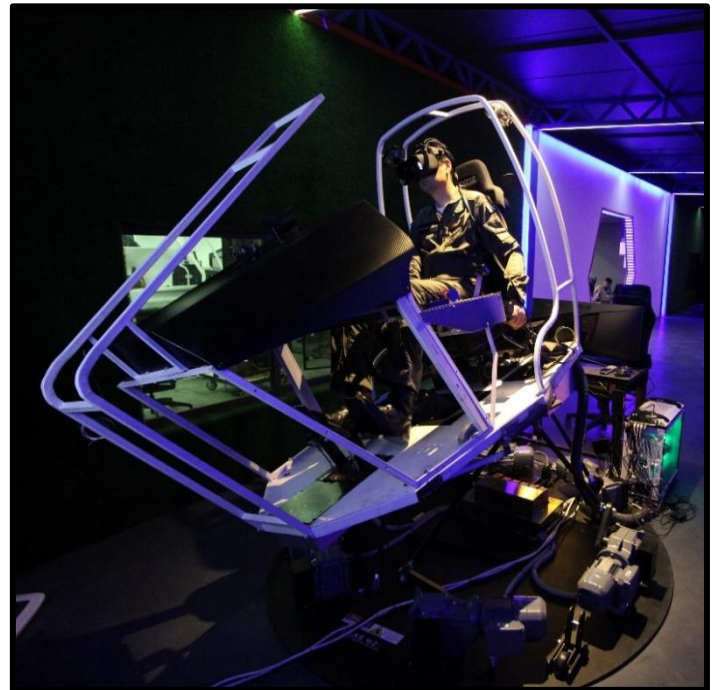
### XTENDED REALITY PRODUCTS

Revolutionize your training journey with our VR/XR solutions—where unparalleled immersion meets high-fidelity learning for peak pilot performance

- ❑ **AeroFlex -VR**
- ❑ **AeroFusion- Hybrid Infinity**
- ❑ **AeroMixed- MultiCrew**

Characteristics of all these solutions:

- ❑ **Motion System**
  - Fully Electric high fidelity 6 DOF Motion with a compact Footprint
- ❑ **Visual System**
  - Varjo Headsets the most immersive mixed reality headset ever constructed, photorealistic visual fidelity across the widest field of view of any XR headset. And with depth awareness, real and virtual elements blend together naturally
- ❑ **Controls**
  - Professional grade control loading system on all axes finely tuned to replicate accurate forces
  - Actual hydraulic failure forces feel
- ❑ **Flight Model**
  - High fidelity custom designed Flight Model
  - Fine Tuned by highly experienced instructor pilots
- ❑ **Customize Solutions**
  - Our expertise extends to fixed wing aircraft & rotary wing aircraft
  - Can meet any user specific requirements

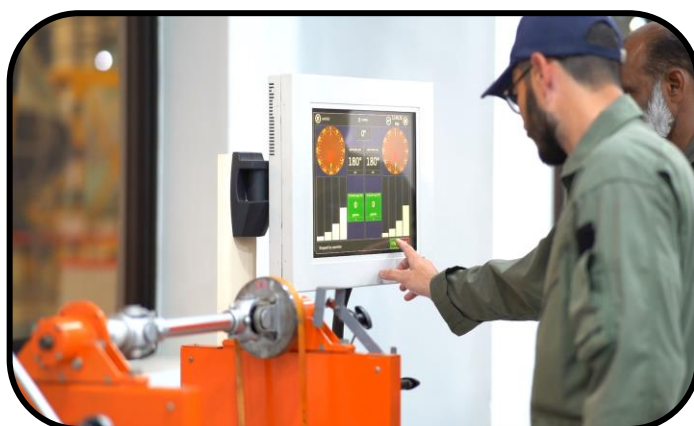




## MI-17 OVERHAUL CAPABILITY

**We are equipped for overhaul, repair, schedule inspections, modifications and cal life extension inspections of Mi-17 & its aggregates**

- ❑ **Complete MI-17 Overhaul Facility**  
(Excludes Engines and Main Gearbox)
- ❑ **Structural inspections**
- ❑ **Dynamic components overhaul/ inspection**
- ❑ **Avionics equipment maintenance**
- ❑ **Dedicated support shops and services**





## MI-17 OVERHAUL CAPABILITY

### SHOPS LAYOUT

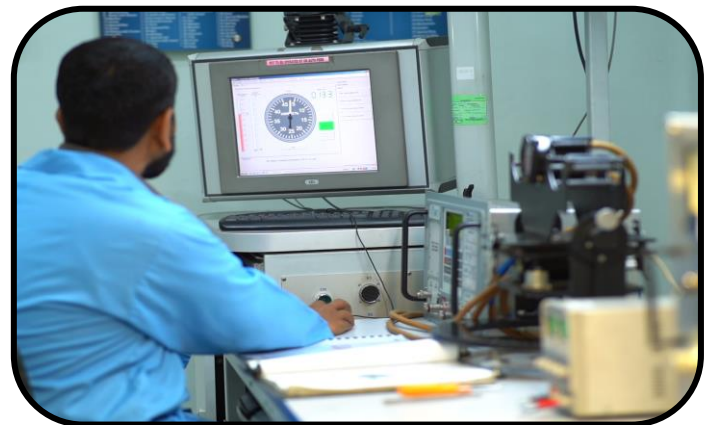
#### ■ Aerospace:

- Transmission System
- Hydraulic System
- Fuel & Pneumatic System
- Flight Control & Landing Gear
- Oil Radiator & Piping
- Metal Sheet

#### ■ Avionics:

- Instrument Lab
- Auto Pilot & Gyro Lab
- Electrical Assemblies Lab
- Communication & Navigation Lab
- Assembly Line Shops

**Our company has overhauled 37 x MI-17 Helicopters till to date**





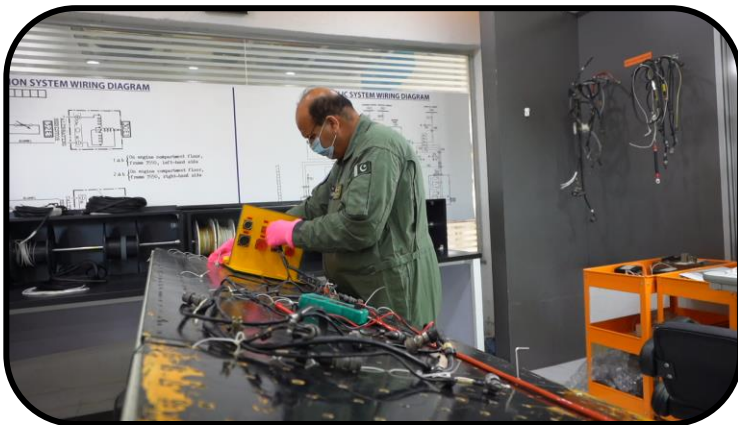
## PUMA OVERHAUL CAPABILITY

**Our facility is capable to conduct overhaul, repair, schedule inspections, modifications of PUMA Helicopter**

- ❑ Airframe repair and refurbishment
- ❑ Turmo IV-C Engine overhaul & testing of engine (including accessories)
- ❑ Overhaul, repair and inspections of all dynamic components
- ❑ Hydraulic systems overhaul
- ❑ Fuel systems servicing and repair
- ❑ Manufacturing of Electrical harnesses
- ❑ Cockpit panels refurbishment
- ❑ Repair of main & tail rotor blades



**47 x PUMA Helicopters have been Overhauled by our company**

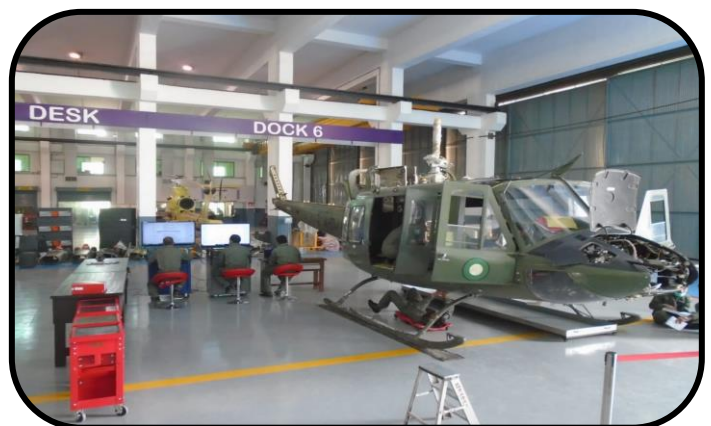
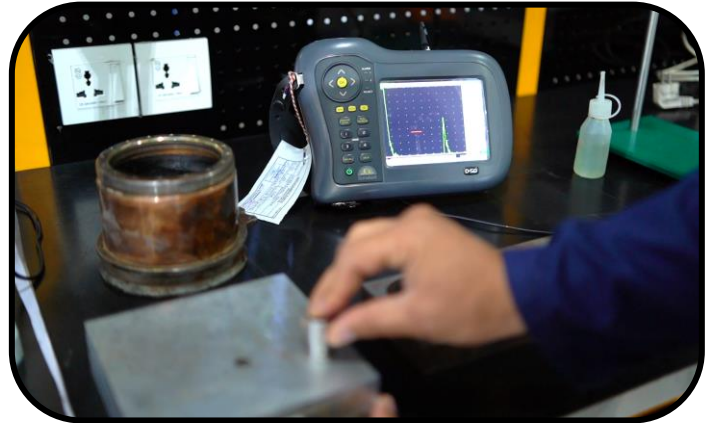




## BELL-412 OVERHAUL CAPABILITY

### CAPABILITIES

- ❑ 2500 Hour Special Inspection
- ❑ Components Overhaul:
  - Overhaul of drive train assemblies
  - Transmission & Main drive shaft
  - 90 & 42 degree gear box
- ❑ Overhaul of dual hydraulic cylinder
- ❑ Structural Repair:
  - Empennage & Tail boom
  - Skids
- ❑ Overhaul, repair and inspections of all dynamic components
- ❑ Repair of main & tail rotor blades
- ❑ Repair & surface treatment of components





## PRATT & WHITNEY PT6 ENGINE CAPABILITY

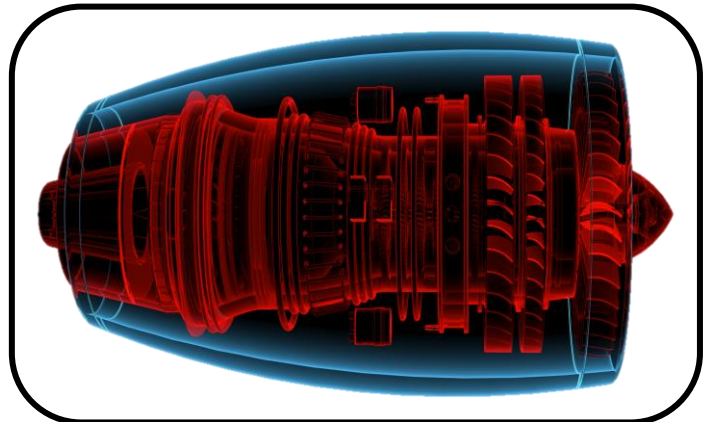
### CAPABILITIES

Our outfit is fully equipped to undertake Hot Section Inspection (HSI) of Pratt & Whitney engines being used on Cessna 208 Grand Caravan, Cessna 208 B and Beechcraft aircrafts

Engines within our facility includes:

- ❑ **PT6T 3DF** (Bell-412 Helicopter)
- ❑ **PT6A-114A** (Cessna 208 B)
- ❑ **PT6A-140** (Cessna 208 B Grand Caravan)
- ❑ **PT6A-60A** (Beechcraft B350 King Air)

Our expert team offers quick fault diagnosis and cost effective repair of Pratt and Whitney engines





## AGUSTAWESTLAND AW-139 CAPABILITY

### CAPABILITIES

- ❑ **Dedicated Inspections:**
  - 4 years
  - 1200 hour
- ❑ **Airframe inspection station**
  - Structural repairs
  - Modifications
- ❑ **Engine inspection station**
- ❑ **Avionics inspection station**
  - Inspection and maintenance

Our skilled team is committed to uphold stringent inspection protocols, ensuring that every AW-139 is maintained to meet optimal safety and operational readiness standards





## EUROCOPTER ÉCUREUIL & FENNEC CAPABILITY

### CAPABILITIES

- ❑ 144-month inspections
- ❑ Overhaul of Arriel Engine 2B1/2C/2D
- ❑ All dynamic components overhaul
- ❑ Repair of main and tail rotor blades
- ❑ Avionics assemblies station

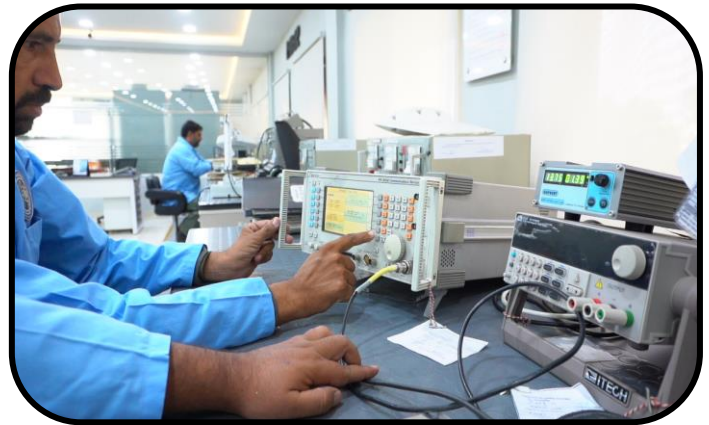




## AVIONICS CENTER OF EXCELLENCE

### CAPABILITIES

- ❑ **Diagnostic Facility:** Comprehensive testing for avionics equipment at both modular & component levels using modern equipment
- ❑ **Cockpit Instruments:** Servicing & calibrating instruments for operational accuracy
- ❑ **Navigation & Communication Systems:** Advanced maintenance to meet desired performance
- ❑ **PCB & Electrical Repairs:** Precision repairs to meet reliability and accuracy
- ❑ **Precision Measuring Equipment Lab (PMEL):** Calibration of instruments for accuracy & compliance





## DYNAMIC COMPONENTS OVERHAUL CAPABILITY

### CAPABILITIES

Our dynamic components overhaul services include a range of specialized repairs and overhauls:

- ❑ **Ecureuil & Fennec Helicopters Dynamic Component Overhaul**
- ❑ **Main & Tail Rotor Blade Repairs**
- ❑ **Propeller Overhaul**
- ❑ **PUMA Components:**
  - Main Gearbox (MGB) Overhaul
  - Tail Gearbox (TGB) Overhaul
  - Main Rotor Head (MRH) Overhaul
  - Intermediate Gearbox Overhaul
  - Tail Drive Shaft (TDS) Repairs





## TURBINE ENGINE OVERHAUL CAPABILITY

### CAPABILITIES

- ❑ **Turmo IV C & Arriel Engines:** Complete overhaul for peak performance and reliability
- ❑ **Accessories Overhaul:** Inspection and repair of engine accessories for optimal operation
- ❑ **Chemical Cleaning:** Removing contaminants to restore components
- ❑ **Dynamic Balancing:** Precision balancing for smooth engine operation
- ❑ **Engine Testing Facility:** Advanced equipment for performance evaluation
- ❑ **Inspection Services:** X-ray, Ultrasonic, Magnetic Particle, Eddy Current
- ❑ **Spectrometric Oil Analysis Program**





## PISTON ENGINE OVERHAUL CAPABILITY

### CAPABILITIES

- ❑ **Piston Engine Overhaul:** Restoring performance and giving a new lease of life
- ❑ **Engine Testing Facility:** Digital test bench to evaluate engine functionality and performance
- ❑ **Fuel Injector Overhaul:** Inspection and repair for precise fuel delivery
- ❑ **Constant Speed Unit (CSU) Overhaul:** Servicing CSUs for optimal integration with engine systems
- ❑ **Magnetos Overhaul:**
  - Bendix
  - Slick
  - Kelly





## GENERAL ENGINEERING CAPABILITY

### CAPABILITIES

Our General Engineering Group provides an extensive array of services to meet diverse engineering needs:

- ❑ Machining and Precision Grinding
- ❑ Electroplating
- ❑ Painting
- ❑ Glass Reinforced Plastics (GRP)
- ❑ HVAC System
- ❑ Upholstery and Carpentry
- ❑ 3D Design & Printing
- ❑ Welding and Fitting

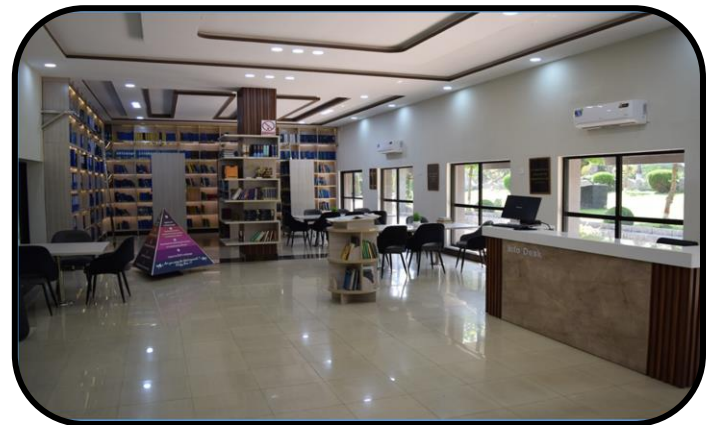
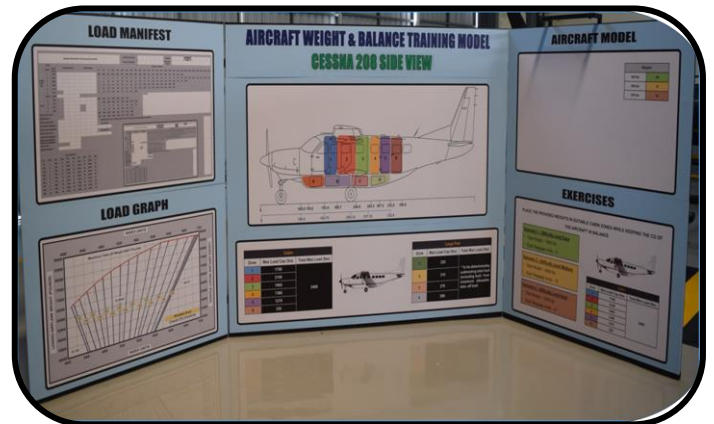




Established in 1969, the school is leading aviation maintenance training hub for MRO managers, quality inspectors, and technicians from general aviation, defence sector and allied countries

We offer a wide range of specialized courses designed to meet industry standards:

- ❑ **Quality Inspector and Human Factors Course (8 weeks):** This course integrates the Human Factor Program recommended by EASA, Quality Management Systems, and Error Tolerance/Mitigation Mechanisms
- ❑ **Type Rating Course (8-12 weeks):** Our Type Rating curriculum adheres to EASA/PCAA recommendations and PCAA-approved



## AVIATION ENGINEERING SCHOOL

- ❑ **Crew Chief Course (4-6 weeks):** Focused on aircraft/ helicopter mission support planning, fault troubleshooting and compliance to service bulletins / technical orders. This course prepares technicians to assume crew chief responsibilities effectively
- ❑ **Flight Engineers Course (12 weeks):** Specializing in PUMA and Mi-17 helicopters, this course covers pre/ post flight inspections, weight and balance operations, mission support equipment use, helicopter startup and in-flight operations including emergency procedures, equipping technicians to perform as flight engineers
- ❑ Our institute boasts **27 cutaway models**, including turbine and piston engines, gearboxes, and rotor components. We provide modern facilities such as computer labs, a language lab with 30 stations, advanced classrooms, a technical library with large bank of manuals, and an auditorium for conferences / group activities

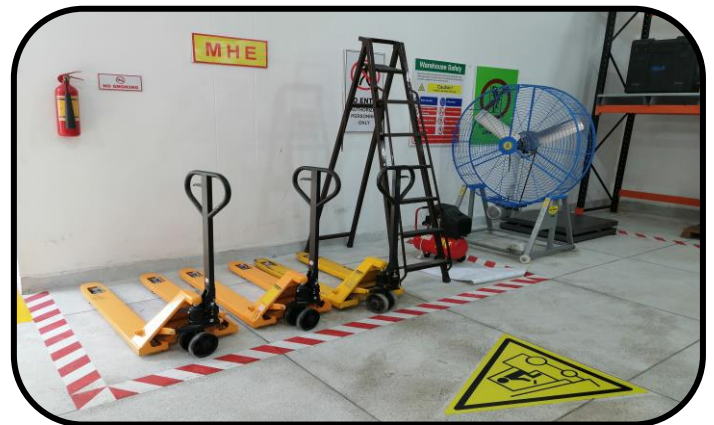




## AVIATION SPARES DEPOT

Our logistics & spares support offers:

- ❑ **Global Sourcing:** Procurement of aviation parts from a broad vendor base
- ❑ **30+ OEM Contracts:** Strong partnerships with leading aviation manufacturers
- ❑ **24/7 Global Operations:** Round-the-clock logistics support from across the globe
- ❑ **State-of-the-Art Storage:** Advanced facilities for all types of aviation spares
- ❑ **Skilled Team & MHEs:** Trained staff and equipment for seamless management
- ❑ **Import/Export:** Dedicated personnel for efficient handling of all logistics functions







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