

TÜRK HAVA YOLLARI TEKNİK

FAALİYET RAPORU 2010



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Our Vision : To be a developing, reliable and global company in the field of aviation technical services, of which the shareholders feel proud.

Our Mission : To lead the aviation industry in all kinds of maintenance, repair, modification and design services of aircraft and components; in accordance and standards, by ideally fulfilling the expectations of shareholders, by continually improving its competences (capabilities) with an understanding of optimum quality-price balancing and with awareness of environmental and social responsibility.

1. MAINTENANCE/FLIGHT SAFETY AND CUSTOMER FOCUS

To obtain the customer satisfaction by always providing reliable service and products in parallel to the expectations of the customers and taking the maintenance and flight safety as a prime concern.

2. QUALITY MANAGEMENT SYSTEM

To continuously increase the efficiency of Quality Management System by internalizing.

3. EFFECTIVE MANAGEMENT

To achieve the missions of the company within the defined strategies by improving the communication, harmony and co-operation between the employees and with the awareness of responsibilities.

4. CONTINUOUS DEVELOPMENT AND PRODUCTIVITY

To be a continuously improving company by keeping corporate loyalty and team spirit at the highest level with planning, information and technology based approaches.

5. OCCUPATIONAL HEALTH AND SAFETY

To ensure absolute compliance of human and environmental factors in all activities of the company, based on the principles of occupational health and safety.

6. ENVIRONMENTAL AWARENESS

To ensure that environmental protection and development consciousness is adopted by all employees.

7. COMPLIANCE TO STANDARDS AND REGULATIONS

To get the support of all personnel to ensure absolute compliance with national and international rules and regulations and company procedures.

8. HUMAN FACTOR

To work in accordance with the principles of human factor.

9. COOPERATION WITH THE QUALITY AUDITORS

To provide the cooperation of all personnel with the quality auditors of Turkish DGCA, Turkish Technic, other authorities and operators/customers.

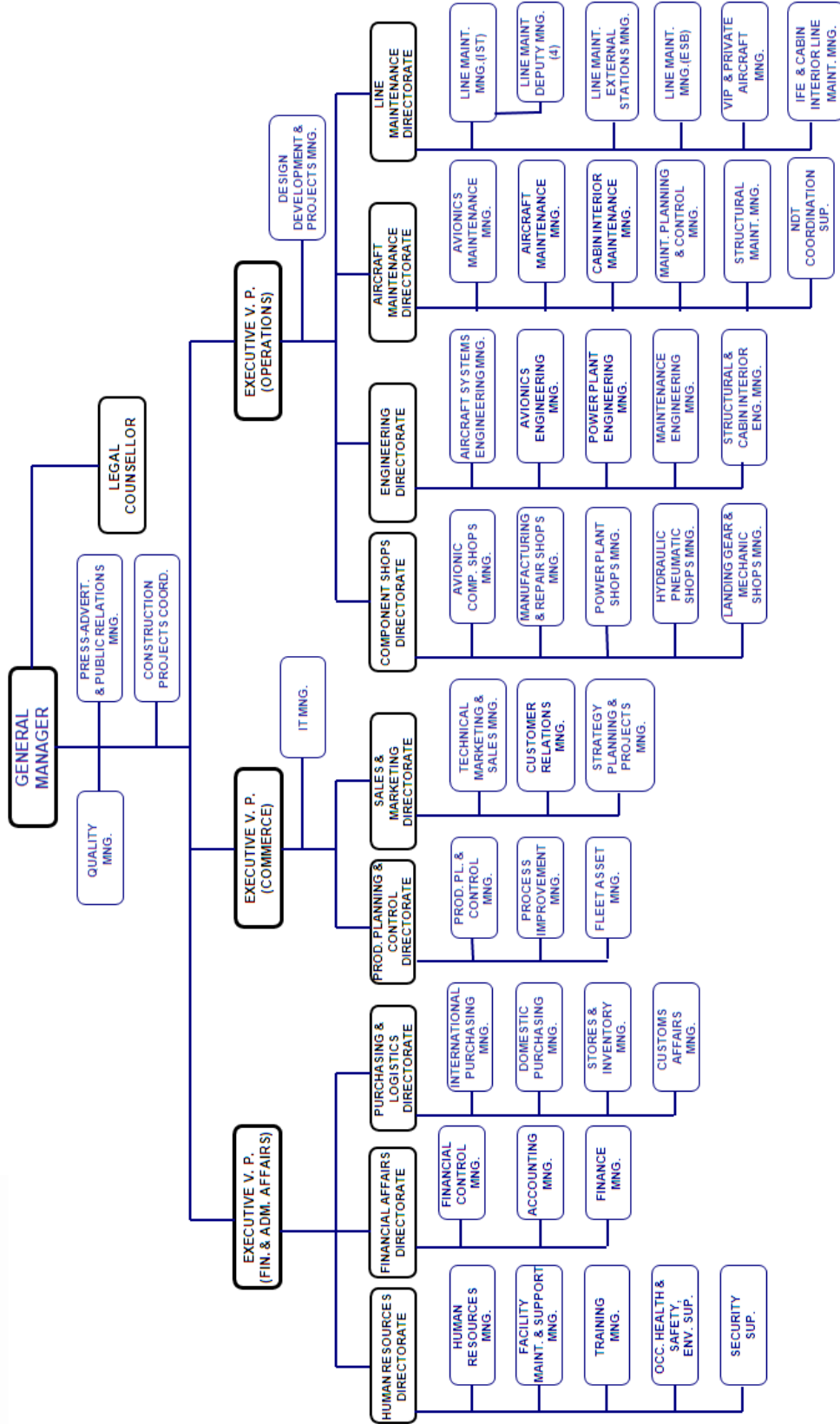
10. REPORTING

To encourage personnel to report maintenance related errors/incidents

Message from Chairman

Board of Directors and Members of Audit Board

Organisation Chart



Global Maintenance, Repair & Overhaul (MRO) Industry

Recent research and studies conducted internationally show that the MRO market has fallen by 7.5% at the end of 2010, reaching a revenue of 42 Billion US Dollars (USD) compared to a revenue at the end of 2009 was around 45 Billion USD. The reasons for this decrease may be listed as follows:

- A 4.2% decrease in airline fleet capacity
- A decrease in load factors
- A decrease in base maintenance, line maintenance and component costs
- Retiring of old aircraft from fleets
- Longer Maintenance intervals for new generation aircraft

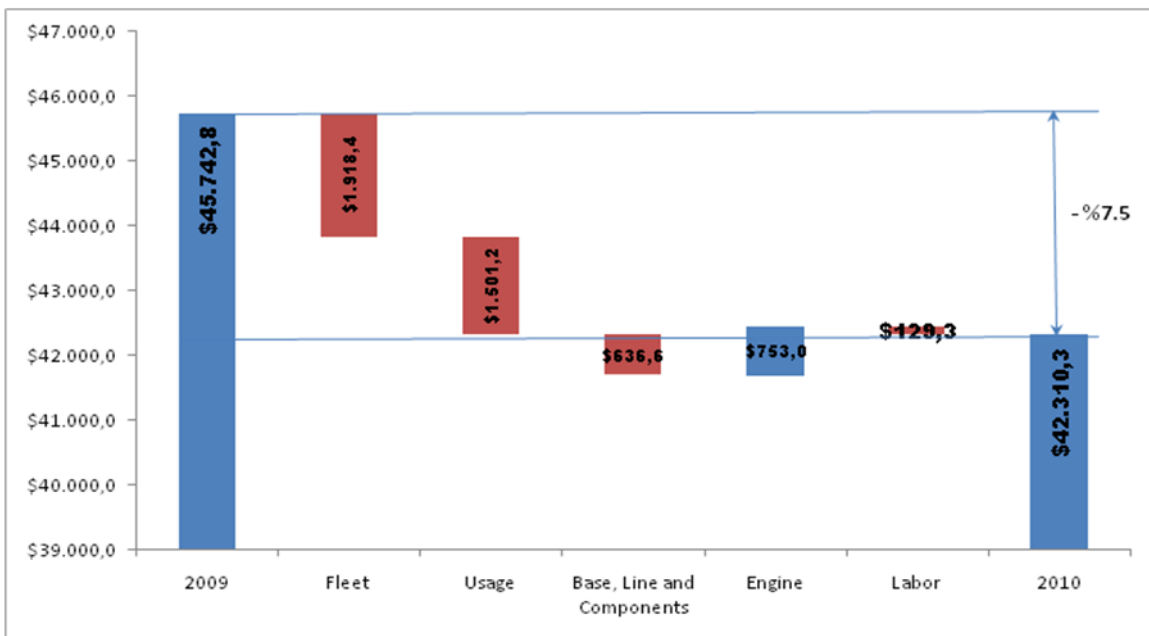


FIGURE 1: Comparison of 2009 and 2010 Total Maintenance Spendings

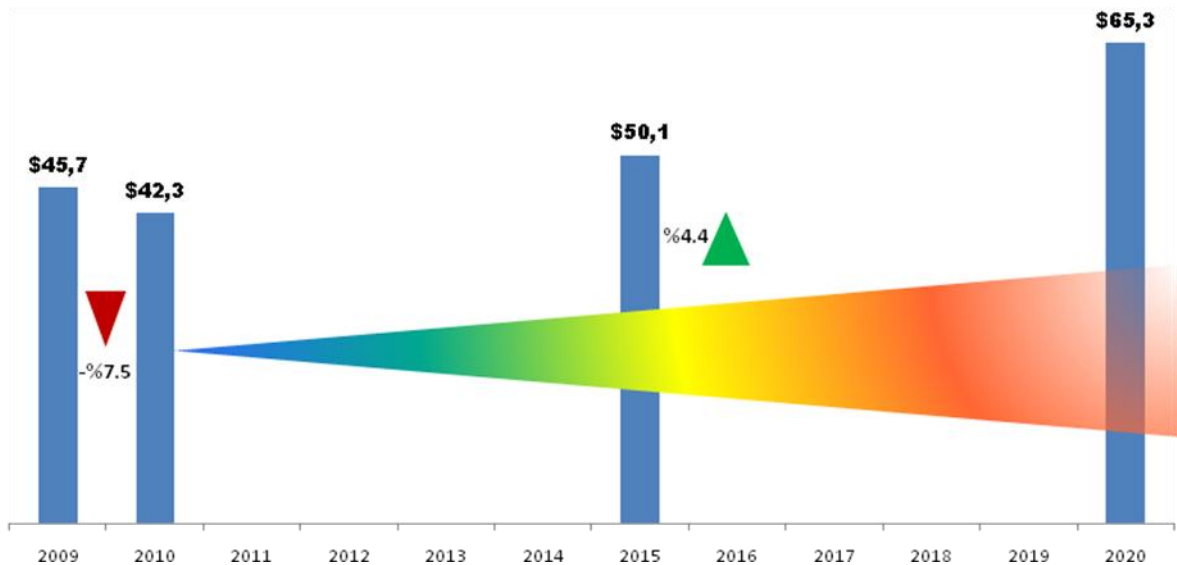
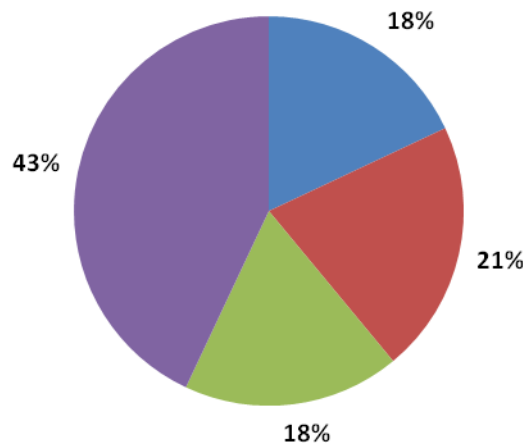


FIGURE 2: MRO Market Forecast

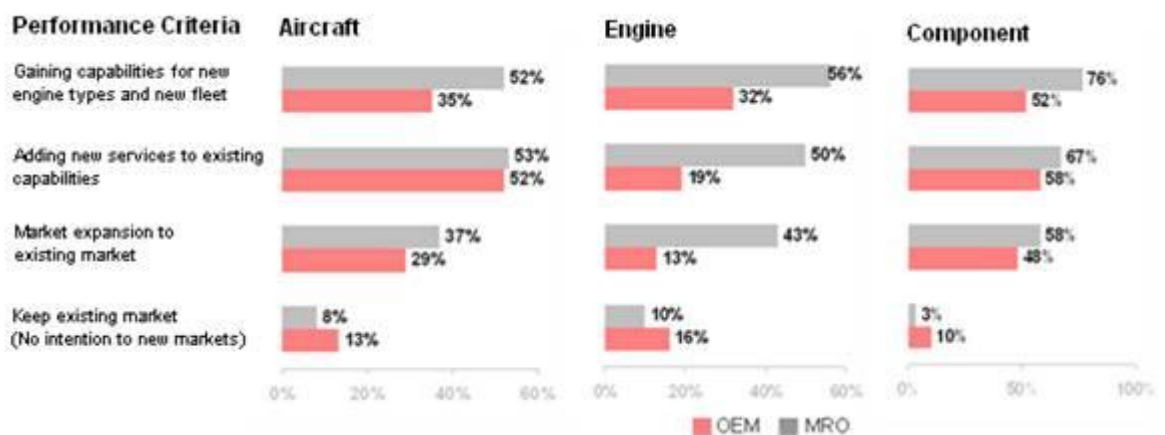


Line maintenance ■ Heavy maintenance and Mod ■ Components ■ Engine

Figure 3: 2010 MRO Market Segments

There were 19,330 commercial aircraft in 2009, whereas this number increased to 19,675 in 2010. With the increase of less maintenance intensive next generation aircraft in fleets, maintenance costs have decreased from an average of 2.4 Million USD per aircraft in 2008 to 2.1 Million USD in 2010. All of these are indicators of the presence of serious competition in the market in 2010.

According to conducted market research, 43% of MROs and 50% of OEMs see each other as competitors. The remaining 57% and 50% of MROs and OEMs respectively have reported that they see each other as partners or customers. Furthermore, in the 4 performance criteria developed for each of the 3 segments (Airframe, Engine and Components), MRO responses seemed to indicate that they have more aggressive growth plans compared to OEMS.



The main players in the MRO market have not changed in 2010. In terms of both man-hours as well as revenue generated, MROs such as Lufthansa Technik, ST Aerospace, Air France Industries-KLM Engineering&Maintenance, SR Technics and TIMCO continue to dominate the market. The increasing influence of OEM firms in the MRO market has caused several maintenance firms to increase their relations with OEMS and brought about partnerships.

Turkish Maintenance, Repair & Overhaul (MRO) Industry

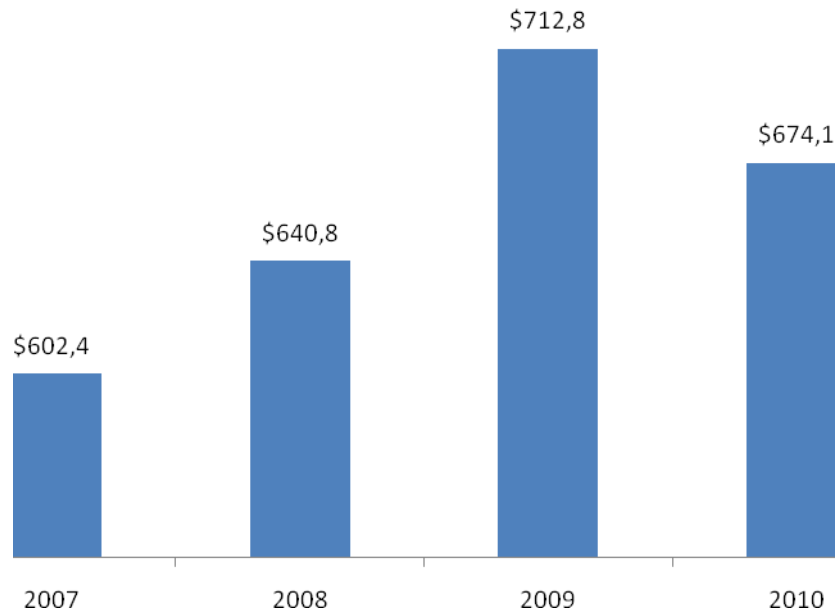


Figure 4: Turkey MRO market (in Million USD Dollars)

- Nearly 85% of the Turkish MRO market is being serviced by maintenance firms within our country.
- The remaining 15% of the market is serviced by overseas maintenance firms.
- The general decline in the global MRO market in 2010 has also been reflected in the Turkish MRO market.
- 85% of all maintenance and repair activities performed in Turkey are being supplied by Turkish Technic and its affiliates.

Quality Certificates

Quality Certificates

- ISO9001 : 2008 Quality System Management Certificate



- AS9100 Quality System Management Certificate



- ISO14001 Environment Management Certificate



- OHSAS 18001 Occupational Health and Safety Management Cert.



- Green Company Certificate



SHGM - EASA - FAA Certificates



- SHY-145/JAR-145 Turkish DGCA Approval Certificate



- EASA Part-145 Approval Certificate



- FAA Air Agency Certificate (TQKY 144F)



- DOT Certificate

Other Countries Authority Certificates

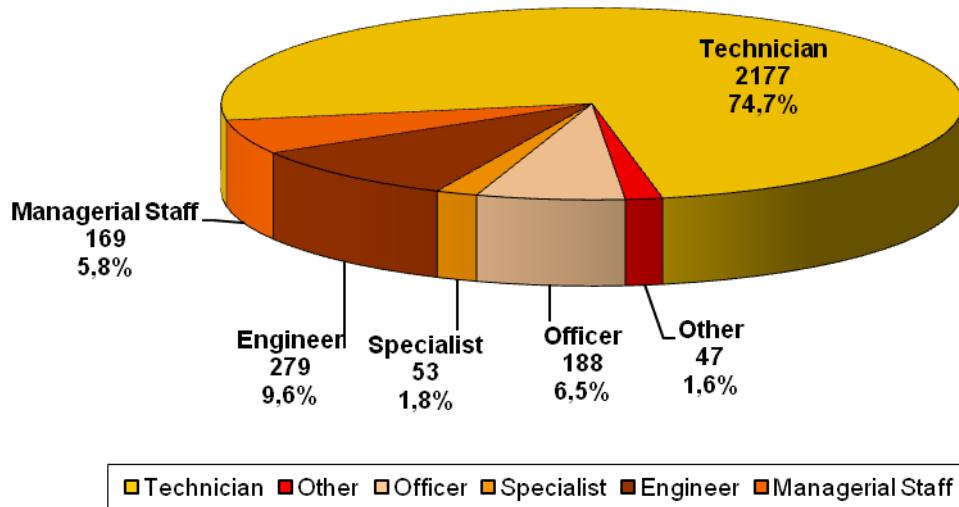
- Bahrain CAA AMO Approval Certificate  Civil Aviation Affairs
- Qatar CAA Certificate of Acceptance 
- BAE GCAA Approval Certificate 
- Ukraine SAA Maintenance Organization Certificate 
- Bermuda AMO Approval Certificate
- Kuwait DGCA Approval Certificate
- YEMEN Certificate of Approval 
- Pakistan CAA Approval Certificate 
- Egypt Approval Certificate 
- Libya
- Aruba

Staff Profile

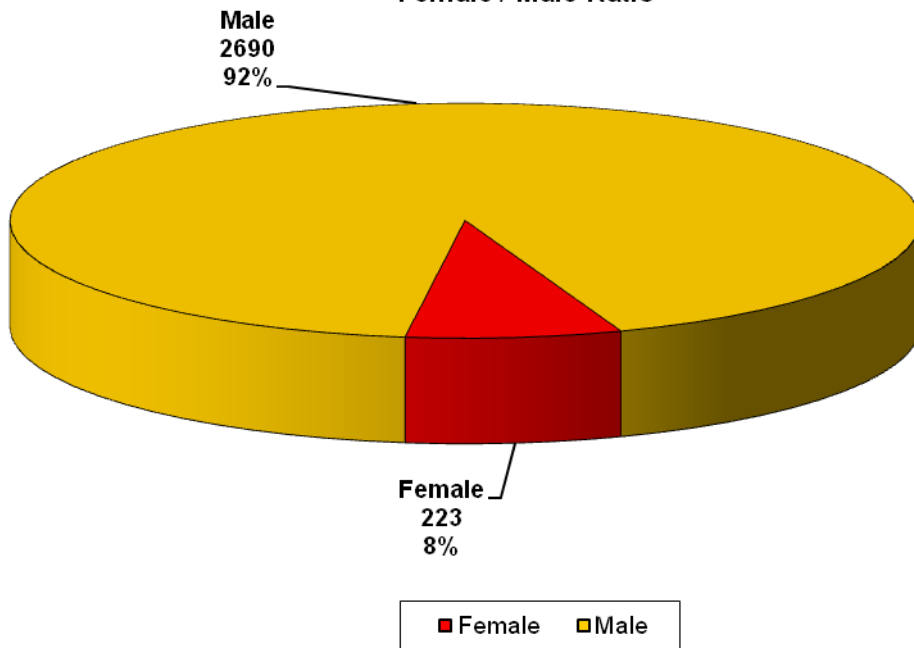
As of December 12th, 2010 total number of employees is 2913. Average employee age is 34,9 and the average work experience is 9,5 years.

In the year 2010 the average number of employees is 2.648 where the turnover rate is 6,33%.

Employee Distribution with regard to Title Groups

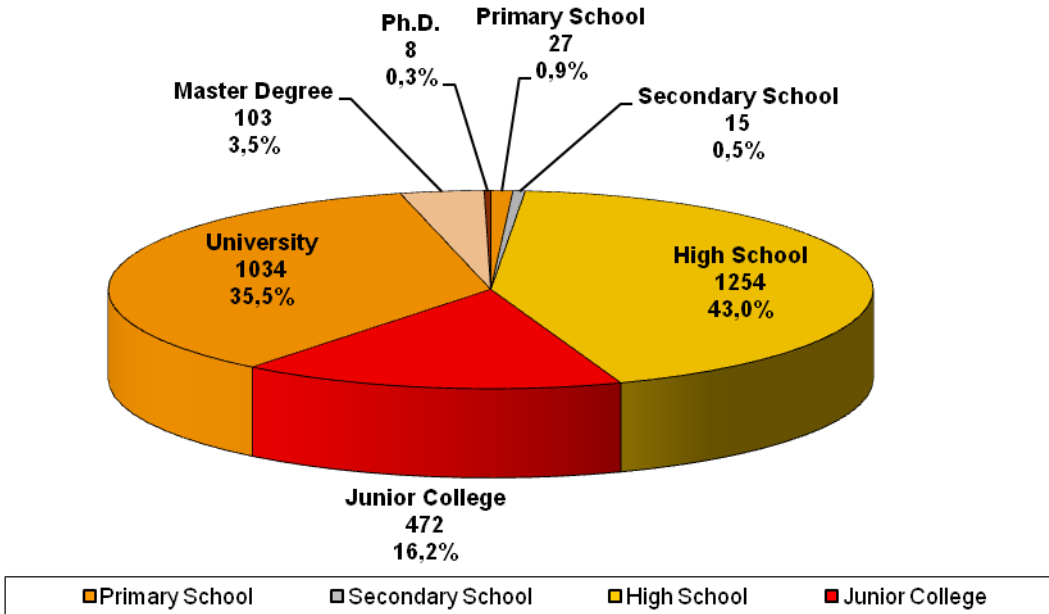


Female / Male Ratio

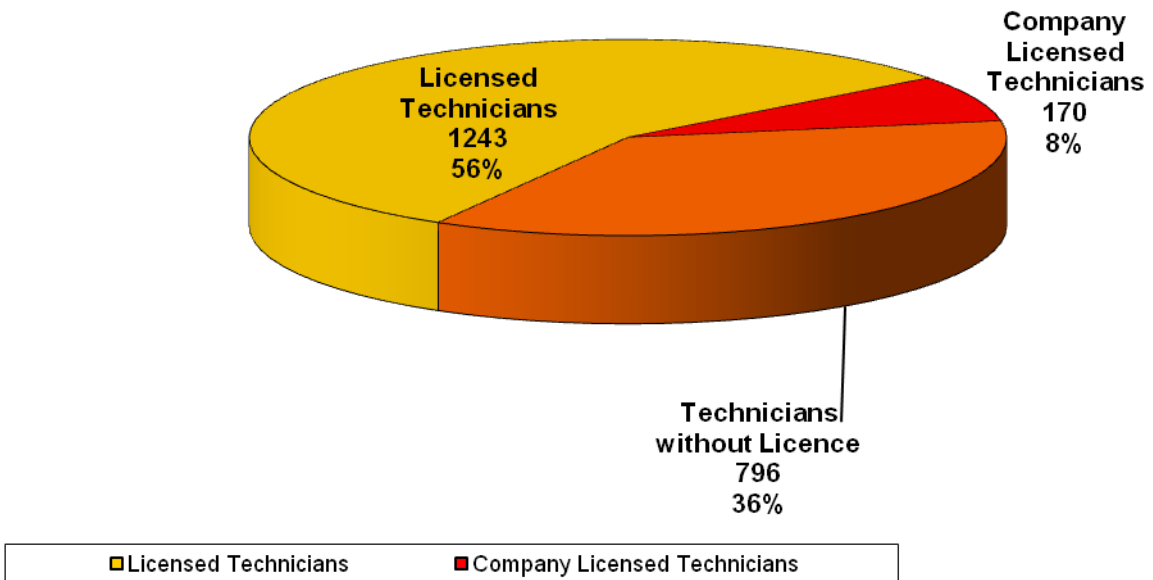


Staff Profile

Employee Distribution According to Education Level



Technician Distribution According to Licence



Training, Scholarship And Internship at TURKISH TECHNIC INC.

- In 2010, 1459 trainings were performed and 15026 people were trained for various technical subjects by training department.
- In addition to 9643 participants from Turkish Technic Inc. Totally, 5328 people both turkish and foreign 3rd part company attendants were trained.
- In 2010 every affair concerning AME licenses were tracked, activities such as limitations ending, category changes, adding type ratings, new license issuing, were monitored by training department.
- The Internship availability was existed in our firm, therefore in 2010 Summer 653 people and 2010 winter 197 student accomplished their internship in Turkish Technic Inc.
- The scholarship project was done in coordination with some aviation colleges and high schools. 40 students deserved to gain the scholarship in 2010-2011 term.
- An important further step for collaboration with aerospace colleges in Turkey was completed. A bilateral protocol was signed with Civil Aviation Occupational College of Anadolu University and Civil Aviation Occupational College of Erciyes University, per that protocol the possibility to make a half-term-long practical training for senior students of those schools was provided. The succesful students of those protocols could mostly be employed by Turkish technic Inc.
- In order to supply quality workforce and meet the need of our company's qualified staff some projects in collaboration with ISKUR (Turkey Employment Agency) are still going on. The project will reduce the adaptation time of every AME into their work environment. Those coaching programmes will be continued in 2010 and 2011.

Month	Number of Trainings	Participants from Turkish Technic Inc.	Participants from 3rd Party companies	Total participants
Jan	93	544	624	1.168
Feb	117	893	455	1.348
March	123	710	762	1.472
April	138	724	738	1.487
May	144	655	722	1.377
June	148	804	830	1.364
July	104	552	367	919
Aug	131	812	271	1.083
Sep	117	836	241	1.077
Oct	139	1.350	327	1.677
Nov	83	746	119	865
Dec	122	1.017	172	1.189
Total	1.459	9.643	5.328	15.026

Hangar I

56m (l.) x 178m (w.) x 18m (h.)

35,000 sqm enclosed area

- Landing Gear
- Brake
- Paint
- NDT
- Engine, APU and Fuel Systems
- Structural Repair, Cabin Interior
- Machine, Coating and Welding
- Hydraulics, Mechanic and Pneumatic
- Oxygen & Filling
- Avionics

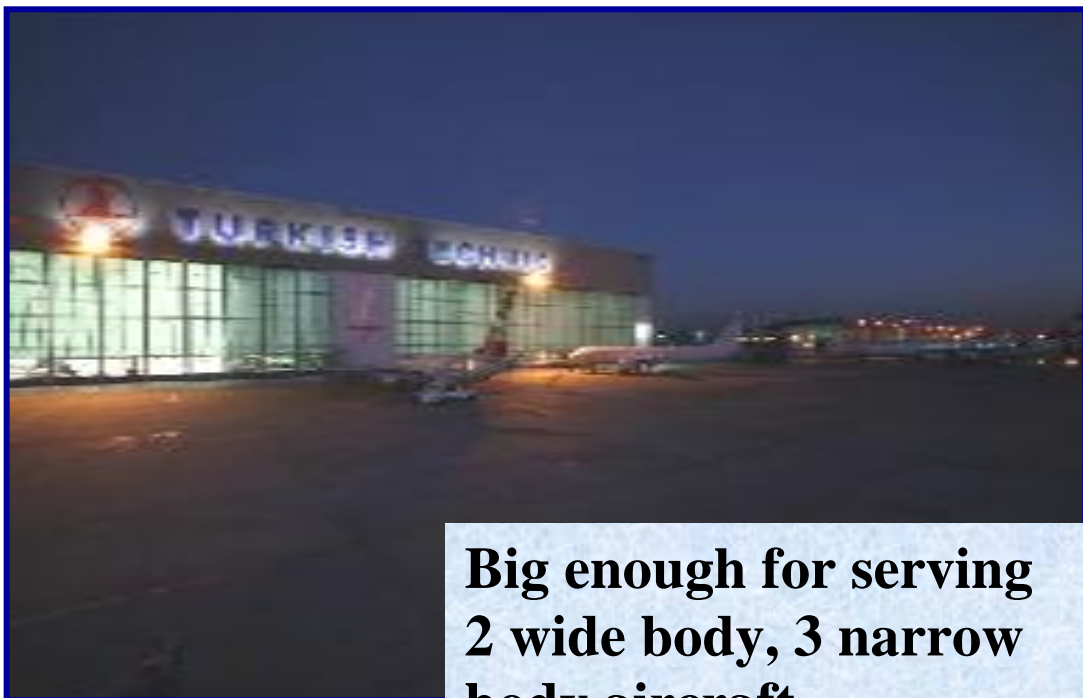


Big enough for serving 2 wide body, 3 narrow body aircraft simultaneously

85m (l.) x 160m (w.) x 26m (h.)

75,000 sqm enclosed area

- Aircraft Overhaul Electric and Electronic
- Aircraft Painting
- Structural Repair, Composite
- Cabin Interior
- Seat
- Dry Cleaning
- Storage



**Big enough for serving
2 wide body, 3 narrow
body aircraft
simultaneously**

VIP HANGAR

1,500 sqm enclosed area



**Big enough for serving
2 Business Jets and 5
aircraft below 5.700 kgs
simultaneously**

ESENBOĞA HANGAR

106m (l.) x 54m (w.) x 17m (h.)

6,750 sqm enclosed area

Other Facilities

14,000 sqm enclosed area

- Engine Test Cell
- Hangar Equipment
- Temporary Shops Facility
(Battery, Cargo Equipment, Galley, Emergency Equipment, Nitrogen Shop)
- Pneumatics
- Treatment Facility
- Explosive Materials Storage
- Powerplant
- Wheels & Tire Shop

Base Maintenance and Line Maintenance Capabilities

Maintenance Capabilities - AIRBUS

	Line	Base
A300B2/B4/C4/F4	√	√
A300-600	√	√
A310-200/300	√	√
A318 Series	√	
A319/A320/A321	√	√
A330 Series	√	√
A340 Series	√	√



Maintenance Capabilities - BOEING

	Line	Base
B707-120/-320	√	
B727-200	√	
B737-200	√	
B737-300/400/500	√	√
B737-600/700/800/900	√	√
B747-400	√	
B757-200	√	
B767-200/-300	√	
B777-200/-300	√	

Maintenance Capabilities - Other

	Line	Base
MD 80 Series	√	
Bae RJ-70/-85-100	√	√
BAe146QT	√	
Gulfstream G-IV	√	√
Gulfstream G500/550	√	√
CESSNA 172	√	√
Diamond DA 42	√	√

Engine Maintenance Capabilities

- CFMI CFM56-3 Series
- CFMI CFM56-5C Series
- CFMI CFM56-7B
- General Electric CF6-80C2 Series
- V2500 (Test)
- GE90 Fan Split/Mating
- LM 6000 Modules (AGB, HPT etc.)
- QEC/Component Removal-Installation



APU Maintenance Capabilities

- Sundstrand APS 2000 series (HS Authorized Service Center)
- Sundstrand APS 3200 series (HS Authorized Service Center)
- Honeywell GTCP131-9B
- Honeywell GTCP85-129H
- Honeywell GTCP331-250F / H

Motor Test Cell : Yearly average maintenance projection of more than 120 engines

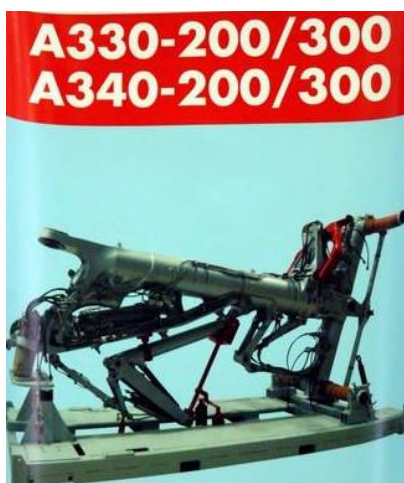


**APU Shop and Test Center :
Yearly average maintenance projection of more than 70 APU's**



Landing Gear Capabilities

Landing Gear Capabilites	Spare L/G
❖ Airbus A300-B4 A/C Landing Gears	Not available
❖ Airbus A310 A/C Landing Gears	1 Shipset
❖ Airbus A320 Series A/C Landing Gears	2 A319/A320 Shipset 1 A321 Shipset
❖ Airbus A330/A340 Nose Landing Gear	1 NLG
❖ A340 Center Landing Gear	1 CLG
❖ A340 MLG Basic / Growth / Enhanced	1+1 MLG Basic (LH+RH) 1+1 MLG Enhan. (LH+RH)
❖ Boeing 737 CL	1 (B737-400) Shipset 1 (B737-500) Shipset
❖ Boeing 737 NG	2 (B737-800) Shipset



Component Maintenance Capabilities

WHEEL, TIRE AND BRAKE SHOP CAPABILITIES :

Repair, Test, Modification and Overhaul capabilities for Wheel Rim & Brake Assy of A310, A300, B757, A320, A330/340, B777 ve B737-400/500/800/900 aircraft for both Turkish Airlines and other customer fleets.



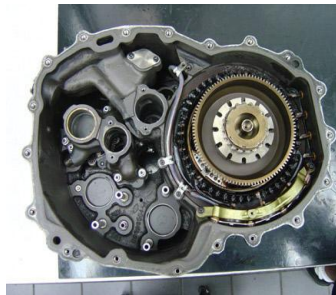
PNEUMATIC SHOP CAPABILITIES :

- **Pressurize and Air Conditioning system components,**
- **400 °C Hot air test of Engine Bleed System components,**
- **Pressure Regulation Valve, Shutoff Valve,**
- **Safety Valve,**
- **Pneumatic Engine Starter,**
- **Air Chiller,**
- **Pneumatic Thrust Reverser Actuator (CDU),**
- **Air Cycle Machine,**
- **Flow control valve,**
- **Anti ice valve,**
- **Thermostat and sensors that controls hot air flow,**
- **Toilet System Components,**
- **Vacuum Toilet assy.**



HYDRAULIC SHOP CAPABILITIES :

- Engine Driven and Electric Driven Hydraulic Pumps, PTU,
- Servo-Controlled and Hydraulic Actuators
- Hydraulic valves that is used at different volumes of flow, pressure or to control the way of flow,
- Hydraulic Pressure Switches, Transducers,
- Servo Valves,
- Telescopic Strut, Retraction/Extension Actuator, Swivel, Lock Actuator, Shimmy Damper, Steering Unit,
- Faucet Assy,
- APU and Motor Lube Pumps,
- CSD and IDG.



MECHANIC SHOP CAPABILITIES :

Heat Exchangers,
Fuel/Oil coolers,
Air/Oil Coolers,
Pilot & Co-pilot seats,
Slat/Flap screwjack ve transmission,
Slat/Flap mechanism,
B737-400/-500/-800 Stabilizer Trim Actuator,
Sliding & Fixed cocpit windows,
Variable Bleed Valves,
Cargo Door/Cargo Compartment Latch Assy,
B737-400 air stair,
Flap/Slat Position pick off unit (PPU),
Kabin pressure safety valve,
Cabin Pressure Outflow valve,
Ram Air Actuators,
Wiper Motors,
Fill Drain Valves,
Skin Air Valves.

COMPRESSED GAS CYLINDER OVERHAUL SHOP CAPABILITIES :

Compressed gas cylinder overhaul shop provides test, repair and overhaul for aircraft fire extinguishers and oxygen equipment. The components are tested, repaired and overhauled according to DOT regulations and Component Maintenance Manuals. Compressed gas cylinder overhaul shop is approved as a DOT station (D030). We are equipped with water jacket for undertaking hydrostatic proofs to cylinders according to US DOT 49 CFR regulations.

The shop capabilities ;

- Engine , cabin and cargo fire extinguishers,
- Crew and passenger oxygen regulators and cylinders
- Emergency slide regulator and cylinders
- Pilot oxygen masks



EMERGENCY EQUIPMENT SHOP CAPABILITIES :

Aircraft slides and life vests are tested, repaired and overhauled according to the approved manufacturer documents at emergency workshop. Emergency equipment shop provides test, repair and overhaul A310, A319 A320, A321, A330, A340, B737-400/500/800, B777 A/Cs slides.





Using the worlds most preferred test systems, ATE Shop provides services with 2 ATEC Series 6 and 1 ATEC 5000. Below are some of aircraft systems and components in capability :

Chapter 21 : Air Conditioning

- AEVC, CPC, ACSC , ZC, PC...

Chapter 22 : Navigation

- FMGC, FMGEC, ATH , FCC ,TCC , FAC, MCP, FCU , MTP, MCDU...

Chapter 23 : Communications

- RMP

Chapter 24 : Electrical Power

- GCU, GPCU, CBMU, BCL, Balast...

Chapter 27 : Flight Controls

- FCPS, FCSC, SEC ,EFCU ,ELAC,SFCC...

Chapter 28 : Fuel

- FCMC ,FQIC ,FQIC.P , FQIC.S ...

Chapter 30 : Ice and Rain Protection

- WHC, PHC...

Chapter 31 : Indicating / Recording / System

- FWC , SDAC , CMC , DU , LCDU...

Chapter 32 : Landing Gear

- LGCIU

Chapter 34 : Navigation

- AFMC , FMC, FMS CDU, ADIRU, ADM...

Chapter 36 : Pneumatic

- BMC

Chapter 49 : Airborne Auxiliary Power

- APU ECB, ECB

Chapter 73 : Engine Fuel and Control

- ECU, FADEC ECU, EEC...

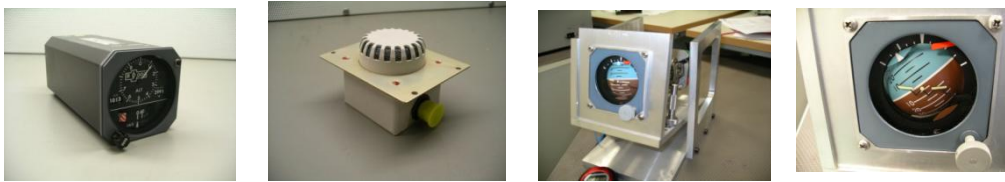


In addition to these there are many other components that are being overhauled using special test systems.

AC generators, starter engines, fans, internal and external lights, water heaters and boilers, coffee makers, ovens, bun warmers, ignition leads and exciters, relays, contactors, main and auxiliary/emergency batteries.



Airdata Group: Test, repair or overhaul procedures of the components such as Altimeter ind., Standby Air speed ind., DDRMI, Cabin Rate Ind., Mach Air Speed Ind., Clock, Smoke Detector are applied.



Gyro Group: Test, repair or overhaul procedures of the components such as Standby Gyro, FCM, Window & Pitot Heat Module, Chime Module Assy., Joystick, Generator Drive&Standby Power Module Assy., AC System GEN/APU Control Module are applied.

Electromechanic Group: Testing, repair or overhaul procedures of the components such as FQC(Fuel Quantity Computer), Fuel probe, Fuel Quantity Ind., N1 & N2 speed Ind., Fuel Summation Unit, Fire and Overheat Detectors installed on engine and APU, Vibration Computer and Sensor, AOA (Angle of Attack) Sensor, oil and hydrolic Transmitter and Transducer, Flap Position Transmitter and Ind., Break Pressure Ind. are applied.

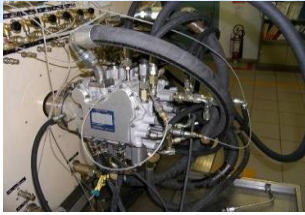


In Radio & IFE Component Shop, the following units are repaired, tested, overhauled (if applicable), and modified (if applicable) :

- In Flight Entertainment LRUs of **Panasonic IFE MPES System & System 3000i**,
- Honeywell Weather Radar System units, such as **Weather Radar Transceivers, Weather Radar Control Panels, Weather Radar Antenna Drive units**,
- Honeywell Navigation System units, such as **ADF Receivers, VOR Receivers, ILS Receivers, DME Interrogators**,
- Honeywell **CVRs** and **FDRs** (Cockpit Voice Recorders, Flight Data Recorders),
- Honeywell **EGPWCs** (Enhanced Ground Proximity Warning Computers),
- Thales & Rockwell Collins **Radio Altimeter Transceivers**,
- Thales **ATC/TCAS control Panels**,
- Gables & TEAM & AVTECH **Control Panels**,
- Rockwell Collins Communication LRUs such as **HF Transceivers, VHF Transceivers, HF Antenna Couplers, HF Control Panels**,
- Thales **Radio Management Panels, ADF Control Panels, HF Control Panels, VOR Control Panels, ILS Control Panels**,
- Rockwell Collins **Marker Beacon Receivers, VOR/ILS Receivers**,
- KANNAD, ARTEX, ELTA, Techttest type **ELTs including Reprogramming services**,
- Honeywell **FDR and CVR Download Capabilities**,
- L3 Communications **FDR and CVR Download Capabilities**

Other Maintenance Capabilities

CFMI CFM56-7B HMU Licensed Maintenance Station



Licensed Maintenance Station for
CFM56-7B Honeywell HMU's
(Hydro Mechanical Unit)

V2500 FMU Licensed Maintenance Station



Licensed Maintenance Station for
V2500 Engine FMU's (Fuel
Metering Unit)

Licensed Wing Tip Assembly Center



BOEING 737 (NG) Wing Tip
Licensed Assembly Center.

Painting Activities



Complete painting capabilities for all aircraft models
with Telescopic and Mobile Platforms.

Specialized Services

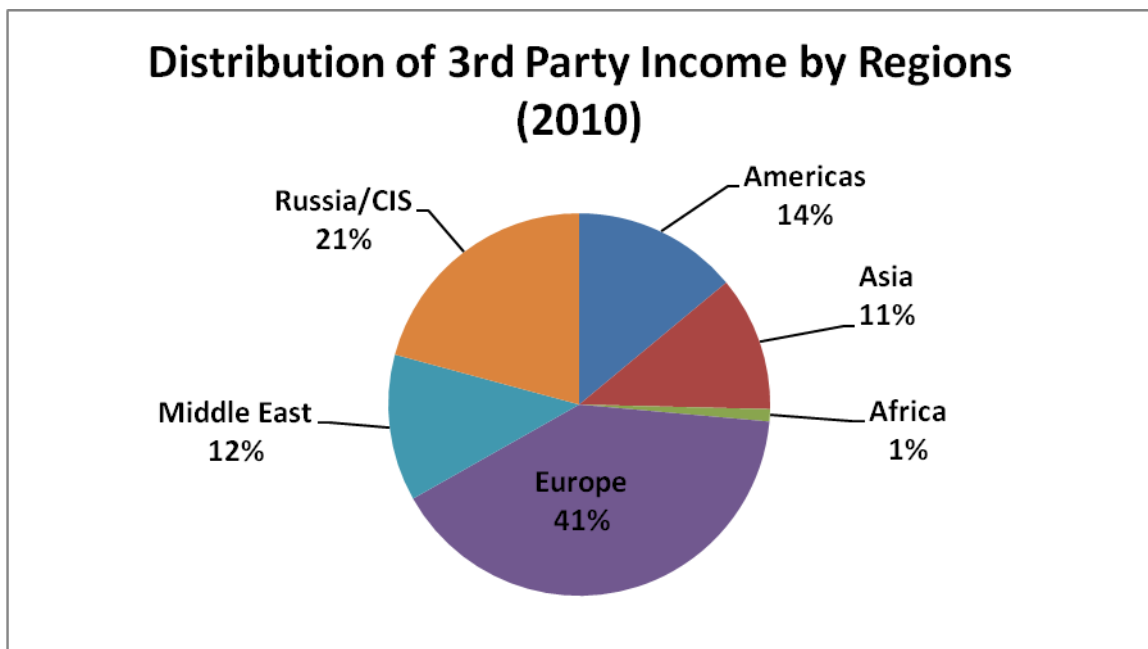
D1 Non-Destructive Test (Liquid leakage test, ultrasonic test, vortex
currents test, magnetic particle test, radiographic roentgen test).

Sales and Marketing

Turkish Technic, Inc. offers maintenance, repair and overhaul services to airline and VIP jet operators by its four hangars located at İstanbul and Ankara with a total enclosed area of 73500 m². Being one of the pioneer maintenance facilities of the region, provides a wide scope of services from aircraft heavy maintenance to engine, apu and landing gear overhauls. Besides the primary customer Turkis Airlines, Turkish Technic provides services and solutions for over 600 customers spread accross Europe, Asia, Russia/CIS, Africa and Americas regions.

35% of the total income of Turkish Technic is from the third party operators. This percentage is targetted to reach 55% of the total income within five years. Turkish Technic continously improves the customer portfoglio with the attended exhibitions and performed customer visits. According to the data of year 2009, a total income of 455,2 million US Dolars is achieved. The 117,6 million US Dollars of this number is received from 3rd Party customers.

When the distribution of the international income of Turkish Technic is examined, the biggest share is of European customers with 41% of the total. Europe is followed by Russia/CIS region with 21% and Americas with 14%. The total of Middle East, Asia and Africa regions is 24% of the total international income.



New aircraft maintenance cotracts are signed with airlines such as; Pegasus, SunExpress, Amsterdam Airlines, OrenAir, NEOS, Balkan Holidays, Yemenia Airlines, and Air Via within the year 2011. Also Landing Gear and APU overhaul agreements are signed with OrenAir, Landing gear overhaul agreements are signed with Yemenia Airlines, and APU overhaul agreements are signed with Air Via.

Exhibitions/Conferences Participated by Turkish Technic Inc.

MRO Middle East / Dubai

28 Feb - 01 March, 2010

Aircraft Maintenance Russia and CIS

2-3 March, 2010

MRO Africa / Algeria

22-25 March, 2010

MRO Europe / London

27-30 September, 2010

MRO Asia / Singapore

03-04 November, 2010

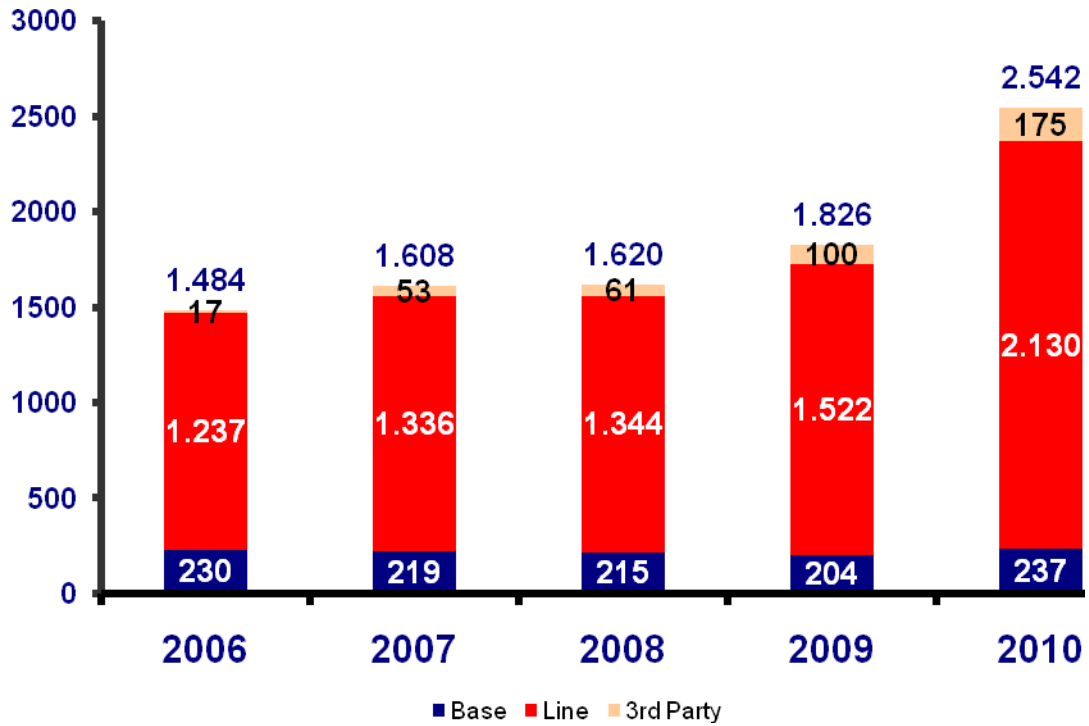
MEBA / Dubai

07-09 December, 2010



Yearly Total Number of Aircraft Maintenance

In Year 2010 total number of maintenance is increased compared to 2009 with the affect of new aircraft in THY fleet. In addition, total number of maintenance for 3rd Party Work is also increased compared to 2009.



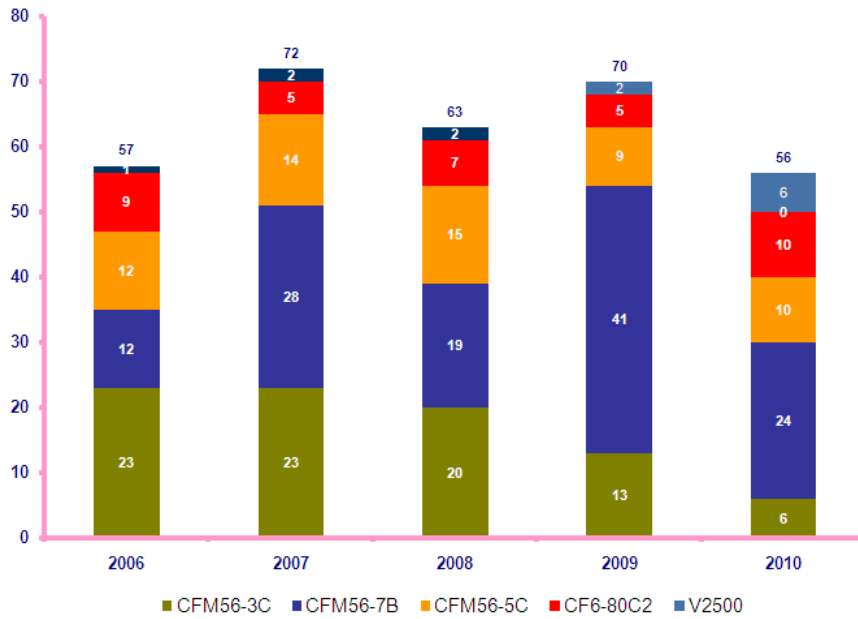
* "Base Maintenance" indicates maintenance activities that are planned in our long term maintenance plan which requires to stay in hangar for a few days or weeks according to check type.

** "Line Maintenance" indicates maintenance activities that are planned in our short term maintenance plan and held outside of hangars by line maintenance staff

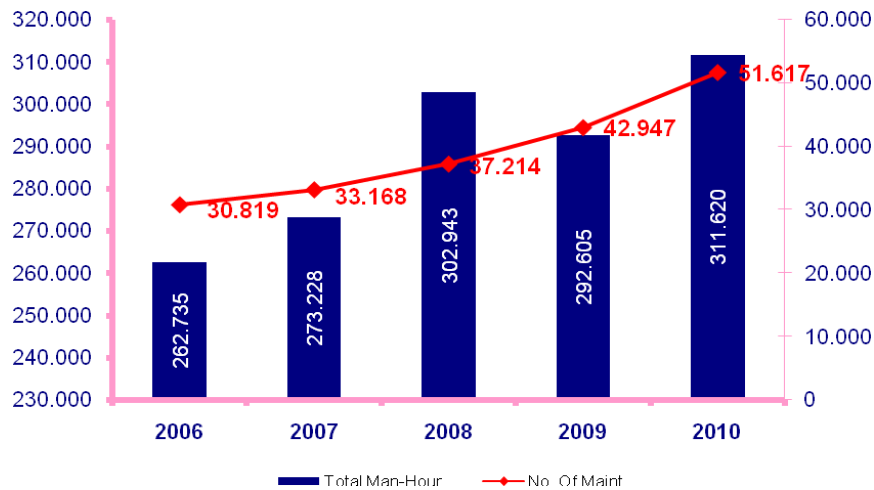
Yearly Total Number of Engine Maintenance

	CFM56-3C	CFM56-7B	CFM56-5C	CF6-80C2	CF6-80A3	V2500	Toplam
2006	23	12	12	9	1	0	57
2007	23	28	14	5	2	0	72
2008	20	19	15	7	2	0	63
2009	13	41	9	5	0	2	70
2010 (THY Technic)	1	9	0	0	0	1	11
2010 (TEC)	5	15	10	10	0	5	45

- The shop visit numbers (SV) of engines include performance restorations, hot section inspection/restoration (HSIR) and shop visits according to repair types.



Yearly Total Number of Component Maintenance / Man-Hour



Production Planning and Control in Numbers

LETTER CHECKS PLANNED AND MAINTENANCE PACKAGES CREATED

- **Approx. 4.700 checks**

ENGINEERING ORDERS PLANNED

- **Approx. 9.000 EO's (AD, Aircraft, Component)**

LLP and HARD TIME COMPONENTS PLANNED;

- **Approx. 35.000 LLP (Life Limited Part)**

- **Approx. 26.000 Hard Time**

3RD PARTY WORK

- **For Approx. 160 customers;**

- **Approx. 1.200 Proposals**

- **Approx. 200 Packages**

CONSUMABLES AND COMPONENTS PLANNED / MANAGED

- **Approx. 120.000 units**

- **Approx. 110.000 Consumables + Approx. 10.000 Components**

- **Approx. 300 Million USD**

- **Approx. 200M USD Consumables + Approx. 100M USD Components**

ENGINE, APU AND LANDING GEARS PLANNING

- **Approx. 350 Engines - (Approx. 3 Billion USD)**

- **Approx. 170 APUs - (Approx. 50 Million USD)**

- **Approx. 460 Landing Gears - (Approx. 800 Million USD)**

Investments and Projects

The year 2010 was a period of initiating investments and partnerships for Turkish Technic. The HABOM project, which has been worked upon with meticulousness for years, has had its first foundation laid in March 2010. The facilities, which are worth around 450 Million USD, have been designed taking into account the latest technologies and provision of social facilities in a modern maintenance complex in the form of a campus. A building, containing a component maintenance and repair shop, is planned to be built in the facilities that will contain 2 separate hangars for narrow and widebody aircraft. 12 narrowbody aircraft and 3 widebody aircraft can undergo maintenance at the same time in their respective hangars. The facilities being built in Sabiha Gökçen International Airport is expected to enter service with the completion and beginning of operations of the narrow body hangar by the last quarter of 2011. HABOM, with its completion by the last quarter of 2012, will become the largest aircraft MRO facility in the region.

Turkish Engine Center, formed as a joint-venture between the global aircraft engine manufacturer Pratt&Whitney and Turkish Technic, is Turkish Technic's first affiliate and began operations in 2010. CFM56 and V2500 engine maintenance has been performed in the facilities in 2010. Work is ongoing in 2011, to reach the 250 engine capacity of the facilities. For this purpose, it has concentrated on to develop repairs on V2500 engine by building a repair shop within the facilities. The facilities received the LEED®Gold Standards certificate in 2010.

As it indicated in 2010, Turkish Technic has been carried out many projects successfully throughout the year. In July two very important JV agreements have been signed, one of them with Goodrich, one of the biggest component manufacturers in the world and the other and the second agreement was signed with Zorlu O&M which is well-respected domestic company.

Turkish Technic's second affiliate, Goodrich Turkish Technic Service Center (GTTSC) has officially been registered and established in December. GTTSC plans to start operating at the first quarter of 2011 in a new 4,000sq meter closed facility located within Gebze Industrial Zone. Within its region GTTSC is the first company that overhauls nacelle and thrust reverser for aircraft engines such as CFM56, V2500, CF6-80, 700/800, GE90 and PW4000.

Turkish Technic is entering into a new business area which is relating to LM Series industrial Gas Turbine used at energy industry with Zorlu O&M by combining its capability, technology and experience. Also the JV is planning to perform overhaul and maintenance of CF6-80 Series Gas Turbine. The JV is planning to operate in 2011

In December of 2010 Turkish Technic and TUSAŞ (Turkish Aerospace Inc.) signed Joint Venture agreement to establish a company to design, manufacture, modify cabin interior parts and components including logistic support and marketing activities. The JV company will manufacture cabin interior parts such as crew rest area, galley, Literature Pocket, Divider & Wind Screen, Doghouse & Bustle, Stowage, Stairhouse, Coatroom, Video Control Compartment, Magazine Racks. The JV is planning to penetrate into the world market by these products. The company will be established and will start operating in 2011.

Beside these tangible steps, Turkish Technic has shown serious progress in numerous projects. Particularly, the aircraft part exhibit in March was very successful and gained attention among the Turkish manufacturers. Also this exhibit for Turkish Technic was a good implication of being a frontier for the potential aircraft part manufacturer.

Turkish Technic's affiliate TEC, is providing maintenance for CFM56 series and V2500 engine types. Turkish Technic has also expanded its maintenance activities of landing gears by increasing its shop capacity from 300 square meters to 1,000 square meters and enlarging spare component parts. Turkish Technic will enter into three new business areas with its new affiliates including Industrial Gas Turbines, Engine Thrust Reversers and Nacelles and Cabin Interior parts.

Turkish Technic is closely reviewing and following all of the developments within the industry with its experienced engineer workforce in order to respond increasing demands. Turkish Technic is targeting to be a Design, Manufacture and R&D company beyond to be just an MRO by its projects within Strategic Plan 2010-2015. With this goal in mind, Turkish Technic plans to show its success in bringing its projects one by one in 2011 as well. During the year 2011, the biggest project HABOM is planned to be in operations and this will be a serious step to reach the target to become one of the top five MRO companies within the world until 2015.

Engineering Activities

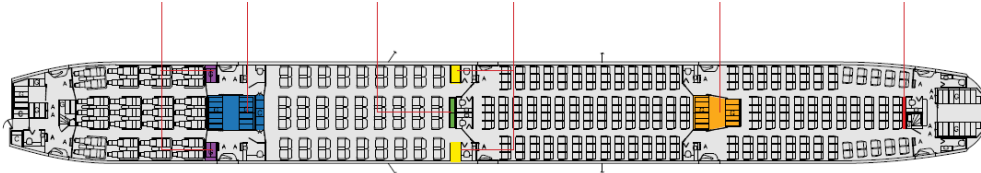
Engineering Works for THY's New Aircraft Purchase Program :

Technical activities necessary for the selection of and the configuration determination for the narrow and wide body aircraft were performed in cooperation and coordination with THY Technical Directorate. Within this scope,

- Configuration determination for the selected aircraft types:
 - Technical comparison of the candidate engine types and evaluation of agreements for the selected engines,
 - Preparation of technical specifications, obtaining proposals, technical evaluation and comparison, evaluation of agreements, attendance to design meetings, and project management for the BFE/SPE (Buyer's Furnished Equipment and Seller's Furnished Equipment) such as IFE (In-flight Entertainment System), seats and galleys,
 - Technical evaluation , obtaining proposals, and evaluation of agreements for the other optional systems and components

were carried out.

Moreover, proposal evaluation and technical comparison study for Bombardier CS100 and CS300 aircraft were carried out.



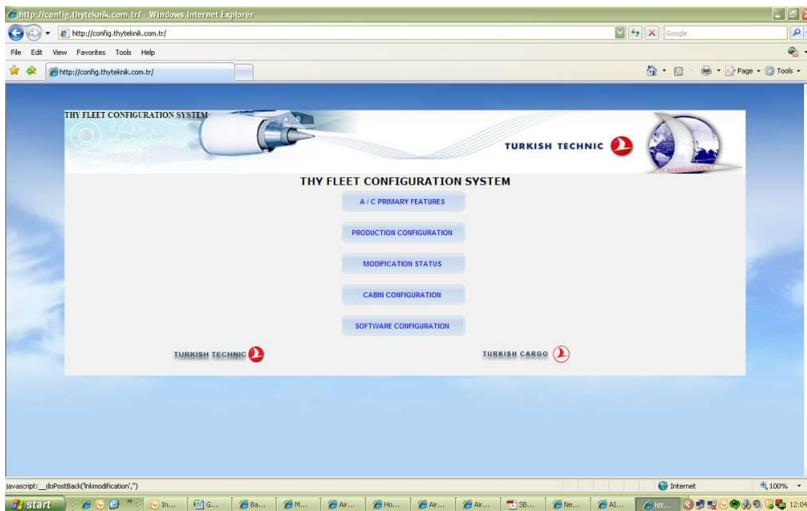
Project Management for the Cabin Configuration Changes:

Project management was carried out for the preparation of engineering publications issued by EASA approved design organizations for the cabin configuration changes which were performed on some aircraft in THY fleet, and engineering support was provided during their implementation on aircraft.



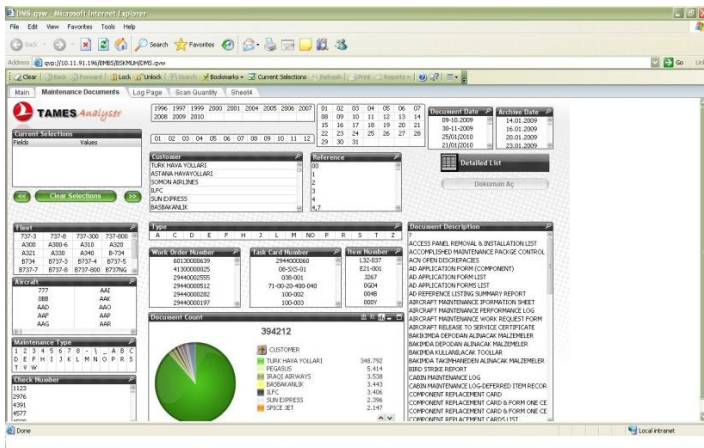
Engineering Support to Turkish Engine Center (TEC):

For the V2500 engines to be repaired at TEC, detailed worksopes have been prepared and by visiting them regularly we have given them engineering support and be a bridge between them and engine MRO's for technical issues.



Electronic Archive :

Maintenance records of 9,110 each work orders applied to the aircraft in THY fleet and 300,000 each AMPL and CML pages of these A/C were electronically archived.



LINEDOCS – Online Documentation Access System :

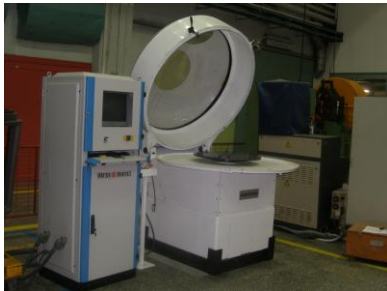
The maintenance documents used by THY line stations were provided on an online system called LINEDOCS. Final achieved usage rates of the system are 81% for international stations and 94% for domestic stations.



ENGINE SHOP

Modification/Modernization of the Static Balance Equipment

The Static Balance Equipment used in the balancing of the Low Pressure Turbine (LPT) Disk Blade Assembly of the CF6-80C2 motors undergoing overhaul was found to be nonworking. The equipment is ready for use after being modified and modernized at Mess-Matic firm operating out of Izmir.



ENGINE TEST CELL

Test Capability has been gained for V2500 Engines that are installed on THY A320 Fleet.



FUEL COMPONENTS SHOP

According to the Authorized Repair Center Agreement which was signed with vendor (Woodward Governor Co.), the overhaul tool and breakdown materials have been ordered for the V2500 Fuel Metering Unit. Main Engine Control test stand in shop was modified by Bauer Inc. for this component and the capability was achieved for the test of this component by the shop. After taking the necessary overhaul training from the vendor by the first quarter of 2011, V2500 FMU will be added to Turkish Technic Capability List.



Because of the workload at the HMU test stand caused by CFM56-7B HMU, CFM56-5B/-5C HMUs were waiting for test . This caused a longer TAT for the component. For CFM56-5B/-5C HMU , MEC test stand was modified by manufacturer so that both of the test stands can do HMU test.



APU SHOP

Capability of removal of blades from Stage 1 & Stage 2 Turbine Wheel of APS 3200 type APU and following balancing assembling them to those Turbine Wheels again have been gained after training course taken from Hamilton Sundstrand.



Stage 1 Turbine Wheel



Stage 2 Turbine Wheel

In order to perform Eddy Current Inspection Process of APS 3200 type APU's rotating parts (Stage 1 ve Stage 2 Turbine Wheel, Load Compressor Impeller, Engine Compressor Impeller) at NDT Shop, System design has been carried out by Design Development & Projects Management and so Capability of Eddy Current Inspection has been gained by NDT Shop.



NDT Robotic ECI Tool



Aps3200 APU Rotational Parts

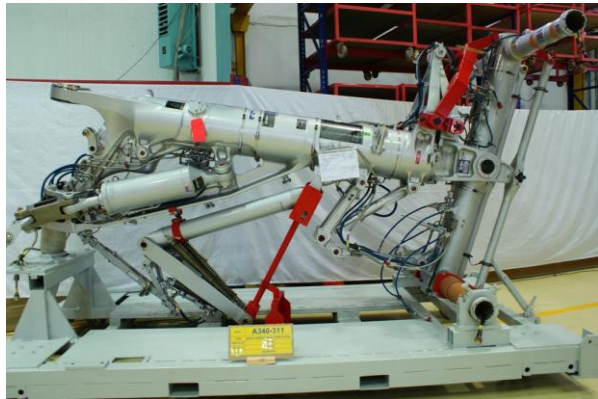
LANDING GEAR OVERHAUL SHOP

Turkish Technic Landing Gear Overhaul Shop has gained A340/A330 Basic/Growth MLG and Bombardier CL215 landing gear overhaul capabilities in 2010. The benefits of the A340/A330 Basic/Growth MLG capability are;

a) Turkish Technic has prestige with gaining A340/A330 Basic/growth MLG capabilities in a few MRO in the World.

b) It was difficult to find slot for A330/A340 MLG overhaul in other MRO(s). This condition is no more exist.

c) The overhaul cost of A3340/A40 MLG in Turkish Technic is almost half price of the other MRO(s) offer.



HYDRAULIC SHOP

Newly purchased Servo Valve Test Stand installation has been accomplished. The test stand is capable of doing semi-automatic servo valve tests according to applicable CMM's. Necessary software and hardware trainings completed. Thus, test and repair capability works has been started.



New purchased Hydraulic Test Stand, which is able to supply high flow (50 gpm) and high pressure (5000 psi), has been installed properly and began working. With this test stand, shop capability has been increased including A380 and B787 aircraft hydraulic components which are working at high pressures (5000 psi).



Particle analysing of oil is a requirement of component manufacturers. Because of this requirement, particle analysers has been searched through the market, quotations has been reviewed and manufacturer's references has been considered. MP Filtri Lase Particle Analyser has been selected and purchased. BMS3-11 Skydrol, MIL-L-23699 Jet Oil and MIL-H-5606 Red Oil type oils can be analysed with this unit.



Avtron IDG Test stand upgraded for B777 and A320 Enhanced type IDG's and all hardware requirements provided. Sample tests has been performed. Necessary repair tools ordered. Test, Repair and Overhaul capabilities will be gained after necessary special tools delivered.

INTEGRATED DRIVE GENERATOR OPERATION

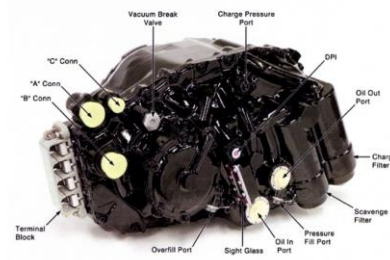
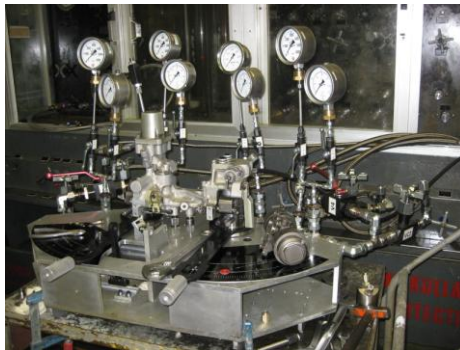


Figure 101: Integrated Drive Generator (IDG) View 1

All the test fixtures and repair tools of B737-800 STEERING UNIT (MPN: 383900-1005, 383900-1007, 383900-1011) was manufactured and so the component has been included into capability list. 18000 cycles hard time has been assigned to this component. Also customer may request test for their steering units while their nose landing gear is overhauled.



Specifications and requirements for a Lube Oil Test Stand was determined and bidding was opened. Manufacturer's proposals are being evaluated and it will be provided manufacturing the test stand in 2011.

EMERGENCY SLIDE SHOP

A heating and cooling oven (20/+100 °C) was manufactured for packing process of slide assy.



WHEEL AND TYRE SHOP

Blasting Machine Set Up

During overhaul processes of the wheels, paint must be removed before penetrant inspection. After assuring blasting machine, wheels do not need to send Special Processes Shop so that paint removing operation has started to be applied in the shop. As a result of this process, %10 of the overhaul TAT is saved.

AUER brand new wheel blasting machine has been set up in wheel&tyre shop in October of 2010 and spent 20.000 EURO.



SANITARY SHOP

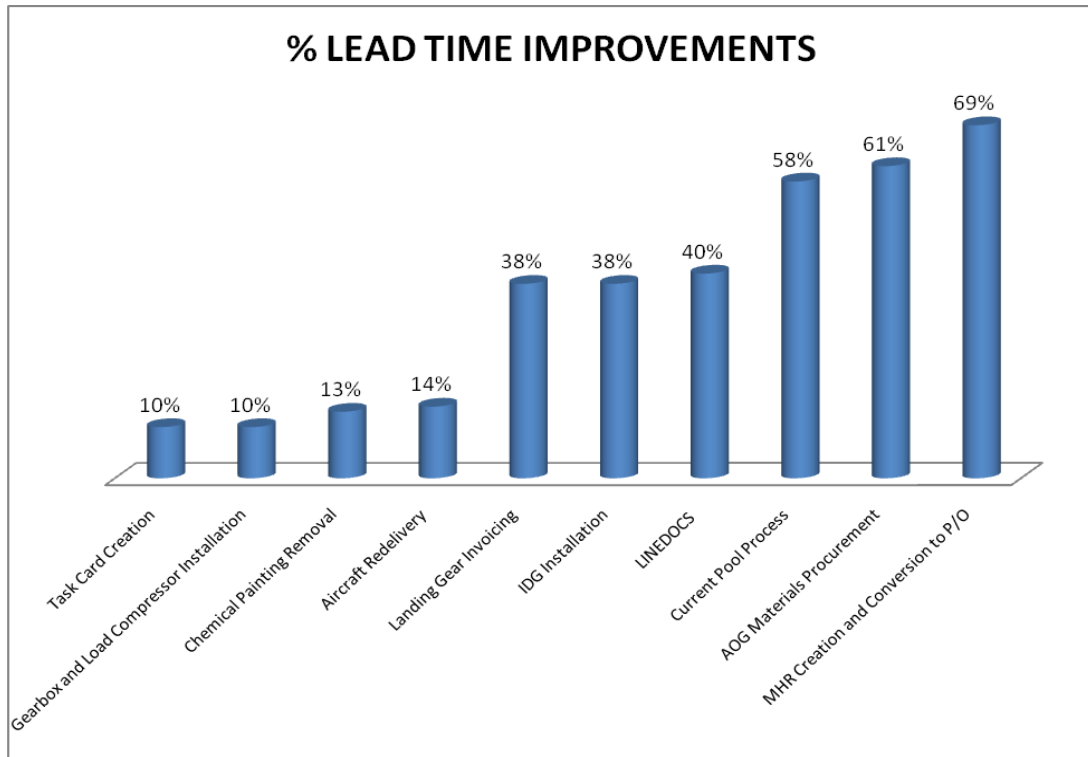
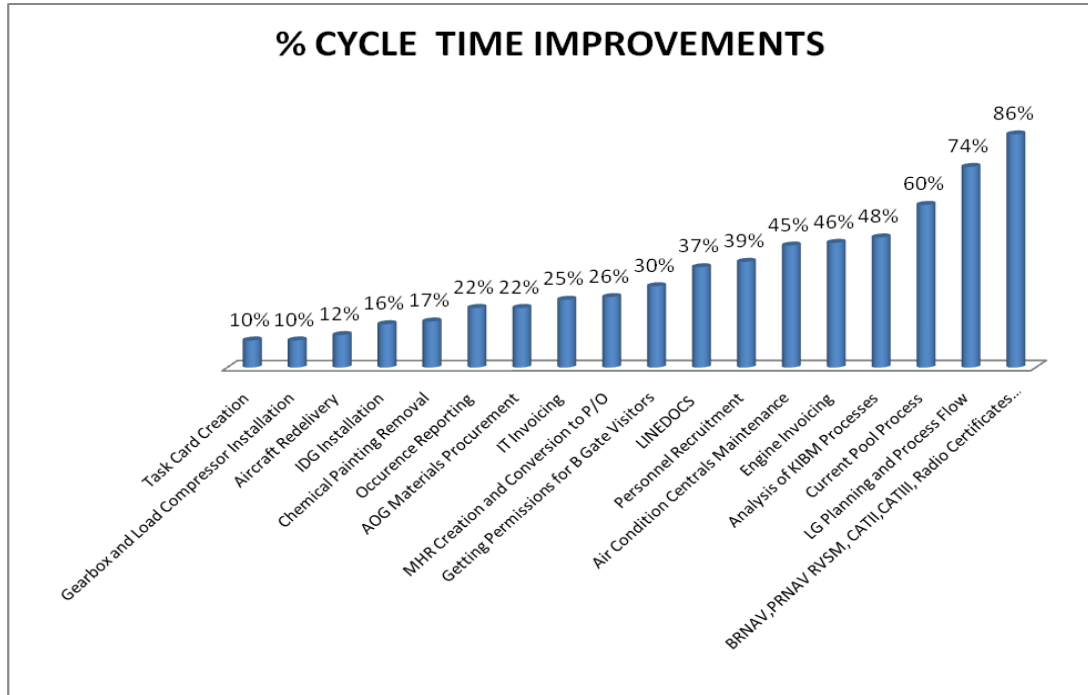
All waste system components (38 Chapter) maintained in the Component Workshop Directory have been designated under code 96 (Sanitary Workshop). The Sanitary Workshop has 77 component codes with 162 part numbers, and the capability scope of this workshop has been extended to include 83% of these components.

Process Improvement Management

In 2010, below workshops are realized in Process Improvement Management;

- 18 VSMS –Value Stream Mapping
- 22 AIWs –Accelerated Improvement Workshop

The CT (Cycle Time) recoveries sustained by workshops realized in 2010 are illustrated in below chart;



Sample Work;

MECHANICS SHOP ONE PIECE FLOW REPLACEMENT PROCESS

CURRENT STATUS

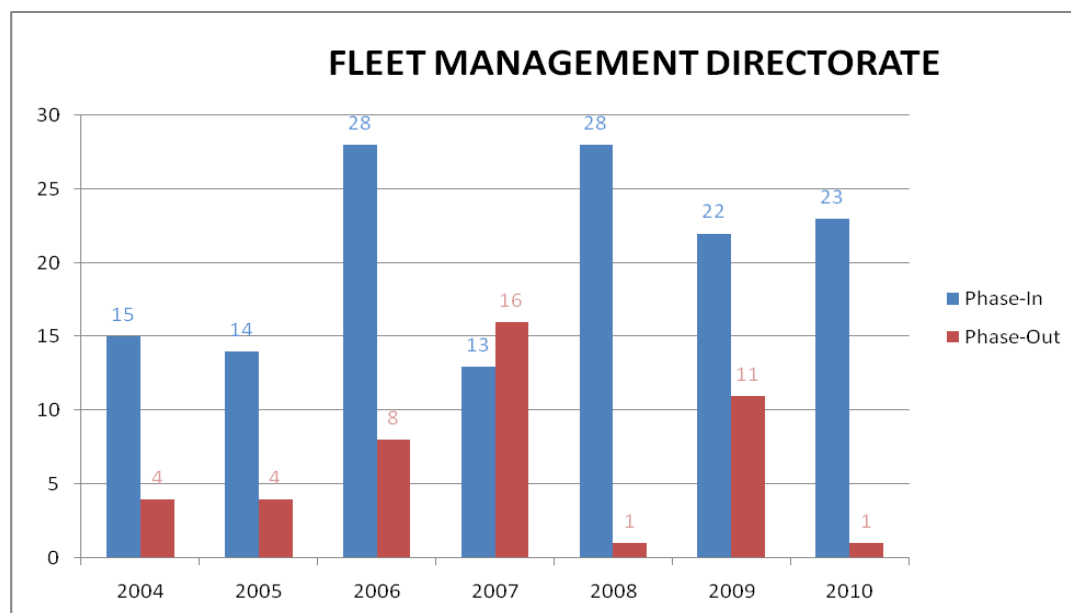


FUTURE STATUS



Fleet Asset Management

The number of phase in and phase out Turkish Airlines aircrafts as per years under the coordination of Fleet Management Directorate are provided in the below chart;



TOTAL SUPPORT SERVICES PROVIDED TO THE OTHER OPERATORS WITH THE TOTAL CARE COORDINATION IN 2010 BY TURKISH TECHNIC INC.

AIRLINE	AIRCRAFT TYPE	NUMBER OF AIRCRAFT	SERVICE	A MAINT. NUMBER	B MAINT. NUMBER	C MAINT. NUMBER	LINE MAINT. NUMBER
ARIANA AFGAN AIRLINES	A310	2	MS& ENGINEERING	14	11	1	
			LINE MAINTENANCE				
			COMPONENT POOL SERVICES				
IRAQI AIRWAYS	B737-700	2	MS& ENGINEERING	12			28
			LINE MAINTENANCE				
			COMPONENT POOL SERVICES				
PAMIR AIRWAYS	737-400	4	MS& ENGINEERING	40			
SOMON AIRLINES	B737-800	2	ADDITIONAL SUPPORT	11		2	23
			BRAKE SERVICES				
			MS& ENGINEERING				
			TIRE & WHEEL				
			TOOL & MATERIAL SUP.				
BH AIRLINES	A319	1	MS& ENGINEERING	1			
			LINE MAINTENANCE				
			COMPONENT POOL SERVICES				
			ADDITIONAL SUPPORT				
			TIRE & WHEEL				
			BRAKE SERVICES				