

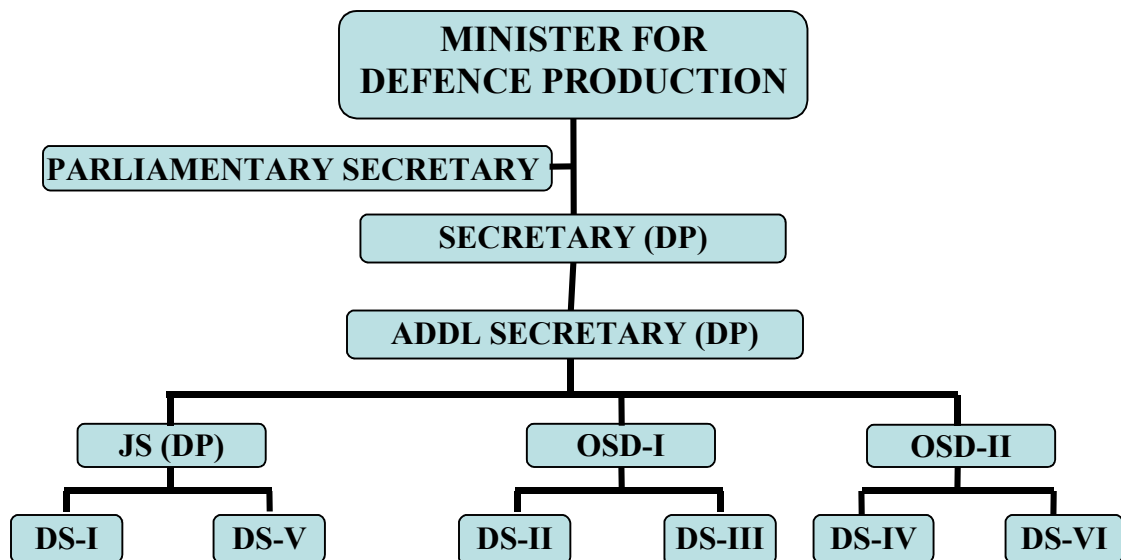
# MINISTRY OF DEFENCE PRODUCTION

## INTRODUCTION

Ministry of Defence Production (MoDP), created in 1972 as a Division of Ministry of Defence, is now a separate Ministry. MoDP is responsible for the policy, formulation of plans and coordination between Procurement and Development in the field of Defence Production. The Ministry is implementing a programme to achieve the following objectives:

- To provide base for maximum self-reliance in the production of Defence material.
- To accelerate the pace of technological development to contemporary levels.
- To identify, integrate and utilize the industrial potential available in public and private sector for production and procurement of defence stores and equipment.
- To attain economy of scales through optimum production.

The Organization set-up of Ministry of Defence Production is as under:



## PAKISTAN ORDNANCE FACTORIES BOARD

POF Board has at present following 14 factories and also possesses 100% shares of Wah Industries Ltd., which is a Subsidiary and commercial window of POF.

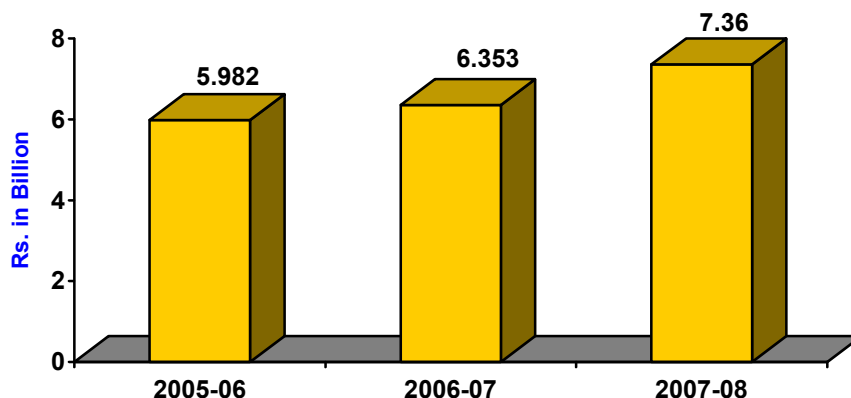
- Medium Artillery Ammunition Factory, Wah Cantt.
- Heavy Artillery Ammunition Factory, Sanjwal Cantt.
- Tank/Anti Tank Ammunition Factory, Gadwal in Wah Cantt.
- Bombs & Grenade Factory, Wah Cantt.
- Small Arms Ammunition Factory, Wah Cantt.
- Weapons Factory, Wah Cantt.
- Machine Gun Factory, Wah Cantt.
- Explosives Factory, Wah Cantt.
- Propellant Factory, Havelian Cantt.
- Tungsten Alloy Factory, Wah Cantt.
- Brass Mill, Wah Cantt.
- Clothing Factory, Wah Cantt.
- Filling Factory, Wah Cantt.
- Carbide Factory, Wah Cantt.

### FINANCIAL HIGHLIGHTS

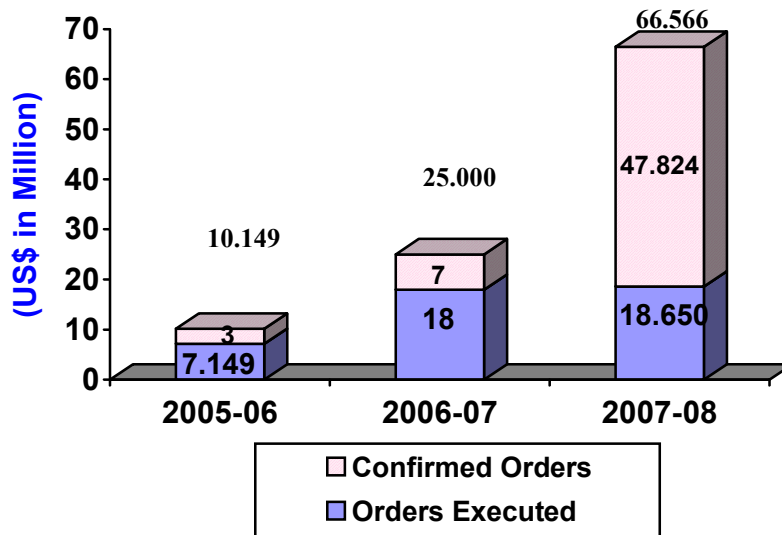
The Annual Budget of Rs. 8,566.756 Million was allocated for the targets of Armed Forces.

### PRODUCTION

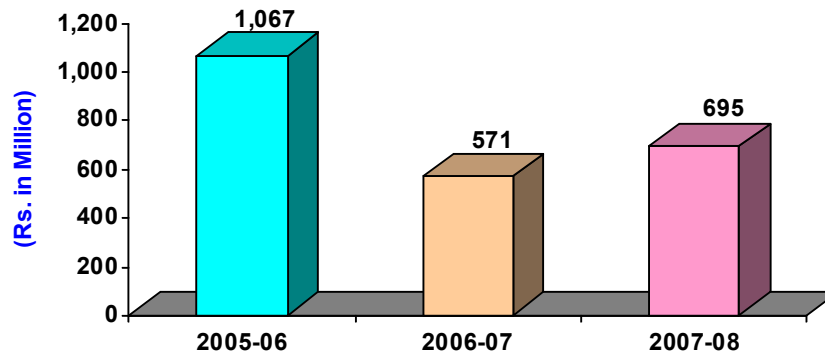
#### PRODUCTION (TARGET VS DESPATCH) – FY 2007-2008.



## EXPORTS



## COMMERCIAL SALES



## POF'S SUBSIDIARIES

### M/S WAH INDUSTRIES LTD (WIL)

Its overall sales during the year 2007-2008 were Rs. 1,376.551 Million, which are 27% higher than the sales of 2006-07.

### M/S WAH NOBEL (PVT) LTD

Is a subsidiary of POF in which M/S WIL holds majority share, while M/s SAAB of Sweden and Al-Misehal of Saudi Arabia are other shares holders. The sales figures rose by 32% increase.

## M/S HI-TECH PLASTICS (PVT) LTD

Manufactures plastic parts. During financial year 2007-2008, gross sales of Hi-Tech Plastics were 3% higher than the sales of 2006-07.

## R & D PROJECTS

- 122 mm Smk D-30
- 122 mm How Trg
- 122 mm Illu How (T-54)
- 155 mm How Trg
- 155 mm How Smk
- 155 mm How Illu
- 120 mm Mor Illu
- Grenade 40 mm GP-25
- 120 mm Mor Bomb Trg
- 125 mm Heat
- 122 mm RDMS (Long Range)
- EVT for 120 mm Illu & 81 mm Mor
- DRH -02A for 125 mm HE
- Fuze # 6 for 30 mm
- Programmable Electronic Variable Time Fuze for HE Rds
- DNN Powder
- Modular Charge for 155 mm
- Charge for 155 mm M-203
- 76 mm Smk Grenade
- HARP i.e. Hold Fast Apparatus Rocket Projected
- 81 mm Aerosol Smk Grenade
- 12 Bore Repeater

## QUALITY ASSURANCE

POF has already obtained the accreditation of ISO in following standards, which were audited by External Auditors during the year and accreditation extended:-

<b>ISO 9001-2000</b>	Pertains to International Quality Standards for Design, Development & Manufacture of Small Arms and Ammunitions etc.
<b>ISO-14001</b>	International Certificate for maintaining ideal Environmental Standards.
<b>ISO-17025*</b>	Pertains to the Certification of Material Testing Labs, Ballistic Labs and Standards Labs.
<b>ISO-18001</b>	Pertains to occupational Health & Safety Management Systems.

\*The scope of accreditation includes 52 different tests, which are performed in these labs. Incidentally no defence industry in the whole of Asia possesses the accreditation of the said three standards at a time, which is a distinction for the POF.

## VISION 2020

Like any dynamic and progressive organization POF has evolved a futuristic Vision-2020 to cater for the emerging economic and global challenges and to enter into new areas of excellence. Salient features are as under:-

- To become a 2020 Technology savvy organization.
- To become a system integrator.
- To emerge as an Industrial R&D Hub.
- To become a centre of excellence for human resource development in the industrial sector.

As part of the Vision-2020, POF has undertaken a number of joint venture propositions with foreign partners on the basis of co-production and co-marketing, to

allow inflow of Technology and enhance our capacity. Some of the joint ventures are:-

- [M/S POONGSAN, SOUTH KOREA \(155MM BB DPICM\)](#)
- [M/S NEXTER – FRANCE \(155MM BASE BLEED ARTILLERY AMMO\)](#)
- [M/S UNIS PRETIS – BOSNIA \(COPRODUCTION OF 125 MM HEAT ROUND\)](#)
- [M/S MKEK – TURKEY \(JOINT R&D\)](#)
- [M/S INFLEX ARGENTOIL \(CNG CYLINDERS\)](#)
- [M/S EDEPRO - SERBIA \(EXTENSION IN RANGE OF 122MM MBRL\)](#)
- [M/S OERLIKON - SWITZERLAND \(35MM ANTI AIRCRAFT AMMO\)](#)
- [M/S FN HERSTAL OF BELGIUM – \(9.MM PISTOL\)](#)
- [M/S DIEHL BGT DEFENCE GERMANY \(ARTY AMMO\)](#)
- [M/S NITROCHEME – SWITZERLAND \(155MM MODULAR CHARGE SYSTEM\)](#)

### [POF INSTITUTE OF TECHNOLOGY \(POFIT\)](#)

POFIT is imparting both Technical & Management Training to Artisans, Staff and Officers. In Addition, 3 years Diploma of Associate Engineering Classes are also held in five Disciplines in the Evening. Following important decisions were taken during the year to avail the surplus capacity facilities available in POFIT:-

- Two Courses of 12-weeks duration for 120 students in each batch under NAVTEC Skill Development Programme, sponsored by National Vocational & Technical Education Commission.
- One-year Diploma course in Bio-Medical Technology under the affiliation of Punjab Board of Technical Education, Lahore.
- POFIT is now being up-graded to meet requirements of Wah Engineering College.

### [SCHOLARSHIPS](#)

More than Rs. 3.000 Million worth scholarships were given to deserving students.

## WELFARE ACTIVITIES

25 employees were sent to perform UMRAH and 2 for Hajj in recognition of their good work.

In addition 13 buses are run from Wah Cantt to Rawalpindi/Islamabad, five buses from POF Havelian to Havelian Town/Abbottabad/Wah Cantt and five buses from POF Sanjwal to Wah Cantt/Islamabad for students.

## MEDICAL FACILITIES

The POF Hospital is a modern, tertiary health care complex of 500 beds providing health care facilities to POF Employees and their families. It also extends its health care support to the general public within the vicinity and to industries and dwellers in the outskirts of Wah Cantt. It has been recognised as a teaching hospital, and Wah Medical College has been declared as an integral part of POF Hospital. A fleet of 15 Nissan ambulances has been added in hospital transport facility. 4 ambulances are being equipped as cardiac flying squads, 3 as maternity ambulances and 8 as general purpose ambulances.

## EDUCATION

POF Wah has the distinction of having 98% literacy rate, which is highest in the country.

University of Wah & Wah Engineering College have been granted Accreditation. Wah Engineering College building is being upgraded at a cost of Rs. 70 Million.

Wah Medical College (WMC) students showed excellent result in MBBS professional examinations and secured top positions in University during 2007.

The building of Girls Hostel of WMC has been completed and girls shifted therein, while Boys Hostel is also near completion.

Nasheman School for Special Children is imparting education to 372 students upto Class XII. Their six students participated in Special Olympics at Shanghai China and won two Gold, one Silver and three Bronze Medals.

## HEAVY INDUSTRIES TAXILA

### HIT PRODUCTS

Heavy Industries Taxila (HIT) is a large defence equipment production industry comprising six major production units and engineering support facilities. The industry is under taking following activities:-

- Rebuilding, up-gradation and modernization of tracked vehicles.
- Manufacturing of tanks, armoured personnel carriers and its variants, armoured recovery vehicles, tank guns and security vehicles.
- Research and development of modern armour systems in order to incorporate latest trends in tank technology.

Presently HIT is undertaking production/upgradation of under mentioned world class products:-

### TANK AL-KHALID

It is a medium weight tank having high agility and excellent maneuverability. Incorporation of the latest electronic equipment has placed Al-Khalid amongst the leading contemporary tanks of the world.



### TANK AL-ZARRAR

Project Al-Zarrar was conceived to keep the armour fleet of Tanks T-59 and T-69, operationally and technologically compatible with modern tanks by upgrading its firepower, mobility and armour protection at a fraction of the cost of latest Main Battle Tanks.



### APC TALHA

APC factory of HIT has indigenously designed and manufactured APC Talha, which is an all terrain, amphibious infantry support vehicle with 12.7 mm





Machine Gun as its main armament.

### [APC SAAD](#)

Indigenous Production of this APC will give “Fighting Mounted Capability” to the Pakistan Army.



### [APC \(RBS-70\) MOUZ](#)

Mouz is a Talha based APC Carrying RBS-70 Weapon System along with its crew of 4 persons. This vehicle has been designed and manufactured by HIT engineers.



### [BAKTAR SHIKAN MAAZ](#)

Maaz is a Talha based APC carrying Baktar Shikan Weapon System.



### [LOGISTIC VEHICLE AL-QASWA](#)

The vehicle platform can also be used for other adaptations such as weapon station, refrigeration unit, radar, ambulance, etc.



### [INFANTRY FIGHTING VEHICLE AL-HAMZA](#)

This vehicle has been developed with a Chinese one-man turret and 25 mm cannon.



### [SECURITY VEHICLE MOHAFIZ](#)



### [CASH CARRYING VEHICLE NEGEHBAN](#)



## RECOVERY VEHICLE AL-HADEED

It has mini workshop including lathe, welding plant, compressor, grinder, battery charger, towing and illumination equipment.



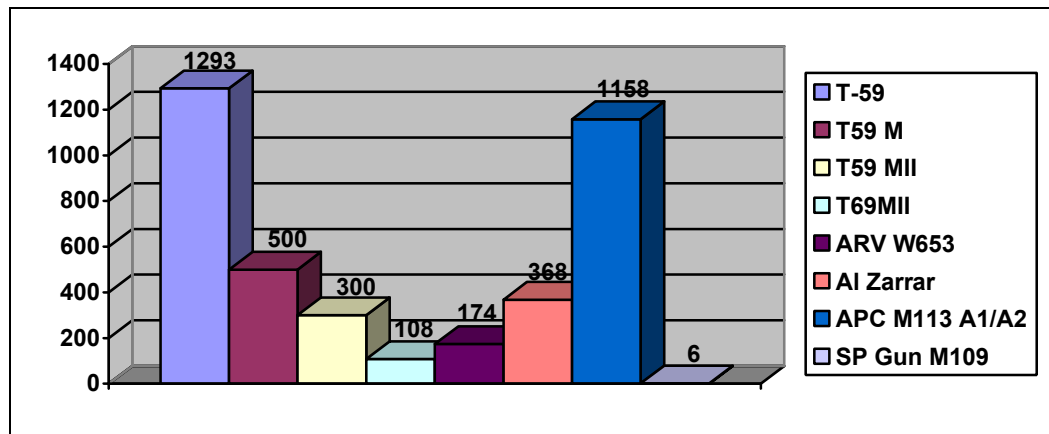
## 125 MM TANK GUN

125 mm Tank Gun manufactured by HIT is installed on Al Khalid and Al Zarrar Tanks.



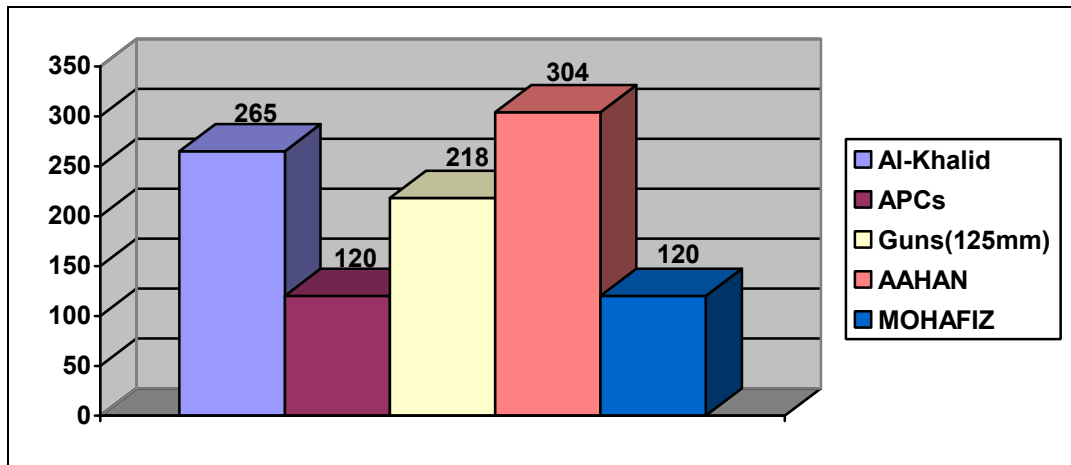
## Rebuilt/Upgraded AFVs/Equipment Upto Apr 2008

### Production Output



## NEW MANUFACTURED AFVS/EQUIPMENT UPTO APR 2008

### PRODUCTION OUTPUT



## R & D OF T-SERIES TANK ASSEMBLIES / FEATURES

Additional features have been incorporated through modification/up gradation of T-Series Tanks. Facilities already available have also been upgraded / modified. Details are as under:-

S/No	Name of Project	Started during FY	Completed during FY	Under Progress	Remarks
(1)	Fire Control Computer Tank Al-Zarrar	2007-2008	2007-2008	-	Completed Under Instl
(2)	Voltage Regulator	2007-2008	2007-2008	-	Completed

## ESTABLISHMENT OF FACILITIES

HIT is constantly engaged in upgrading and modernizing its facilities. The following new setups have been established in this regards:-

## ADVANCE ARMOUR SYSTEMS RESEARCH AND DEVELOPMENT, INFORMATION AND INTEGRATION CENTRE (AARDIC)

R&D is a back bone of any progressive and dynamic organization. HIT had been making efforts for over a decade for achieving a sound research oriented out fit which would cater for the desired indigenization through a well organized setup. Keeping said R&D requirements of HIT, AARDIC was established as a centre of advanc

handle challenges of manufacturing, rebuild and applied R&D. The project encompasses following engineering support and development facilities:-

- Research, develop, rebuild and integrate advance armour systems.
- Support indigenous development/production of high tech systems.
- Implement deletion of assemblies and stand alone system through R&D and reverse engineering with in house manufacture and in collaboration with local/foreign industrial setup.

State of the art research and development facilities available with AARDIC to accomplish assigned tasks are:-

- Design Lab
- Rapid Prototype Lab
- Electronics (Fire Control System/Gun Control System) lab
- Printed Circuit Board Lab
- Metrology Lab
- Materials Lab
- Metal Casting Lab
- Data, Documents and Information Cell
- Stand alone systems lab
- Advance Systems Rebuild Factory (ASRF)

### **ADVANCE SYSTEMS REBUILD FACTORY (ASRF)**

- A corollary to AARDIC, ASRF has been established to undertake rebuild and integrate Advance Armour Systems and support indigenous development/ production of High-tech TI Sights (THETIS) for Tank Al-Zarrar of the Armour fleet of Pakistan Army.

### **DEPOSIT REPAIR WORK ORDERS (DRWO)**

Besides rebuild / upgrade and manufacture of Armoured Fighting Vehicles for the Pak Army, HIT is also providing maintenance support in terms of assembly rebuild to the Army units to keep the vital equipment in best operational condition at all times.

### **COMPUTERIZATION EFFORTS**

HIT is actively engaged in comprehensive computerization of HIT to meet the modern day industrial management and production requirements including CAD / CAM

In order to facilitate the State of the Art Computer communication, purchase of State-of-the-Art Network infrastructure/ equipment is in the process of finalization.

### **EXPORT AND DOMESTIC SALE**

Export and domestic sale of HIT products in international and national market has achieved unprecedented success.

## PAKISTAN AERONAUTICAL COMPLEX KAMRA

Pakistan Aeronautical Complex (PAC) Kamra started as a project in 1972 with the establishment of F-6 Rebuild Factory (F-6RF) and was later on augmented with Mirage Rebuild Factory (MRF). The main factors that led to the establishment of this project were:-

- To maintain PAF in the highest state of operational readiness
- To reduce the exorbitant cost and long lead times involved in the overhaul of aircraft and engines from abroad
- To provide a Base for an aviation industry in Pakistan

The complex was subsequently expanded with the addition of Aircraft Manufacturing Factory (AMF) and Kamra Avionics and Radar Factory (KARF) in order to increase the supportability of PAF. PAC accomplishes its task with the help of nearly 9000 personnel and a diversified state of the art engineering facilities such as precision machining, structural repair, surface treatment, PCB stuffing, calibration, plasma spray, sophisticated welding and Non Destructive Techniques (NDT).

The vision “To provide the most cost effective engineering solutions and thereby increasing indigenous support to Pakistan Air Force and friendly countries”, PAC at present is supporting PAF in the following dimensions:-

- Overhaul of F-7, FT-7, F-7PG, A-5III, FT-5, K-8, Y-12, MIR-III & MIR-V aircraft and their components.
- Manufacture of Subsonic & Supersonic drop tanks of F-7 aircraft.
- Overhaul of ATAR, F-100 & T-56 engines and propeller of T-56 engine.
- Overhaul of MPDRs and TPS-43G radar.
- Life Cycle maintenance of Grifo-7 radar, Grifo-M3 radar and other Avionics System LRUs.
- Manufacture of UAVs.
- Retrofit of PAF Mushshak/ Super Mushshak Aircraft to Ret III C

## MANUFACTURING CAPABILITY

In addition to the Maintenance, Repair and Overhaul (MRO) services, PAC has also ventured into the manufacturing domain through the following projects:-

- Manufacture of Mushshak aircraft for PAF and Pak Army.
- Manufacture of Aerial Target Drones.
- Manufacture of Radar, AVTR, IFF & Grifo-7 Radar.

## QUALITY CERTIFICATIONS

During the last few years, PAC has achieved ISO 9001-2000 Aerospace 9100 version "A" & "B" and Boeing Quality Management System (BQMS) certifications.

## COMMERCIAL PROJECTS

The commercial projects undertaken by PAC include:-

- Sale of Mushshak aircraft to Oman, Saudi Arabia, Iran, South Africa and Syria.
- Overhaul of Mirage aircraft of UAE Air force and F-7, FT-5 & FT-6 aircraft of Sri Lankan Air Force.
- Manufacturing of parts for Boeing 777 & 767 aircraft for Boeing Company as their sub vendor.

## F-6 REBUILD FACTORY

- FY 2007-08 remained quite eventful for F-6RF as the Factory successfully undertook the assigned General Over Haul (GOH) as well as the associated tasks to extend assured and sustained support for PAF operations.

The following new projects were also accomplished by F-6RF during the period under review:-

### **ESTABLISHMENT OF F-7PG/FT-7PG AIRCRAFT OVERHAUL FACILITY**

The responsibility for the GOH of F-7PG aircraft and its LRUs was assigned to F-6RF by MoDP in Jan, 2005 for which factory level facilities for smooth conduct of the activity were accordingly established.



### **FT-5 AIRCRAFT LOTEX PROGRAMME FOR STRUCTURAL LIFE ENHANCEMENT**

LOTEX programme was initiated by PAF in collaboration with M/S Aero Structures, Australia with an aim to enhance structural life of FT-5 aircraft by ten percent. To undertake this programme a contract was signed between PAF and Aero Structures, Australia. F-6 RF was tasked to undertake LOTEX program on all 15 grounded FT-5 aircraft on the basis of Supplement Structural Inspection Data (SSID version-1) received from Aero Structures Australia.





## MIRAGE REBUILD FACTORY

- Mirage Rebuild Factory is entrusted with the task of supporting Mirage, F-16 & C-130 fleet of PAF.

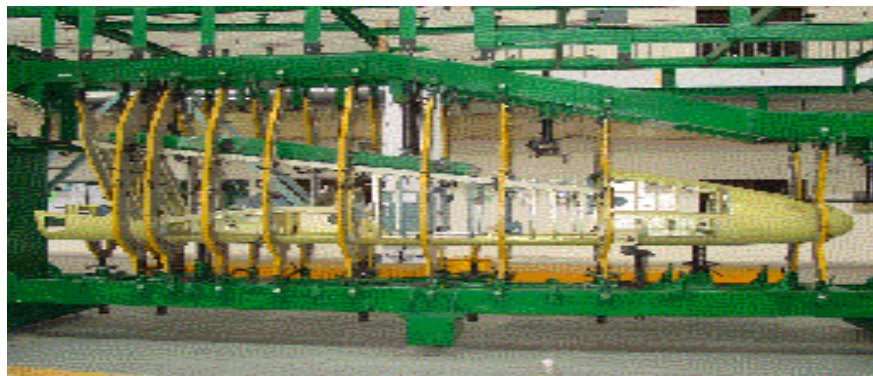
## AIRCRAFT MANUFACTURING FACTORY (AMF)

### CO-PRODUCTION OF JF-17 THUNDER AIRCRAFT

The co-production of JF-17 aircraft in Pakistan is an integral part of JF-17 Programme ever-since its inception. The preparatory works for undertaking the production started in 2004. A new technical area, comprising twenty workshops with a covered area of over 100,000 square meters, was designed by the reputed Chinese company, China Aviation Project Design Institute.

### MANUFACTURING OF K-8 SUB-ASSEMBLIES & FRONT FUSELAGE

AMF has already acquired the capability of manufacturing K-8 aircraft Horizontal Stabilizer, Vertical Stabilizer, Engine Cowling and Front Fuselage. The factory has already manufactured 05 batches of Sub Assemblies and 01 batch of Front Fuselage.



## **CONVERSION OF MFI-17 TO SUPER MUSHSHAK**

Re-configuration of 12 PAF MSK to SMK Ret-III Plus was completed in July, 2007. AMF has been tasked to upgrade 34 Super Mushshak aircraft for Ret-III Plus Mod.

## **ESTABLISHMENT OF JF-17 PRODUCTION FACILITIES**

### **ESTABLISHMENT OF 'D' LEVEL REPAIR FACILITIES FOR AIR DATA COMPUTER OF F-7 PG**

The Air data compactor (ADC) is a critical Electrical & Instrument system of F-7 / FT-7PG A/C which senses and calculates the height of the A/C above mean sea level. ADC consists of 7 SRUs. 'D' level testers for repairing and testing of all the SRUs have been successfully commissioned at KARF under a contract signed between PAF and M/S CATIC. The new facility would result in financial saving and would reduce the MTTR of the ADC.

## **COMMERCIAL VENTURES**

### **BOEING AIRCRAFT PARTS PRODUCTION**

During the fiscal year 2007-08 a total of 321 commercial aviation parts were manufactured by F-6RF under Boeing Offset programme. With the full-fledged production of these parts, PAC is now included in the category of high performance suppliers of Boeing Airplane Company. Viewing the overall quality performance, PAC was awarded with "Silver Category" rating.



### **SUPER MUSHSHAK AIRCRAFT FOLLOW-ON CONTRACT**

Performance contract for 20 super Mushshak Aircraft supplied to Royal Saudi Air Force was extended for another term of 03 years.

# **KARACHI SHIPYARD & ENGINEERING WORKS LIMITED**

## **INTRODUCTION**

The Karachi Shipyard & Engineering Works Limited (KSEW) is a public limited company, with all shares owned by the Government of Pakistan. It is an autonomous body under administrative control of Ministry of Defence Production. The KSEW is situated geographically within the boundaries of Karachi Port. The set up has been designed and built to undertake construction & repair of small to medium size ships and to undertake heavy engineering activities. It was built with the technical assistance of H. C. Stulcken Shon of Germany, in 1956.

## **MAIN FUNCTIONS**

### **PAKISTAN NAVY'S REQUIREMENT**

As per Government's mandate KSEW caters for Pakistan Navy's requirements as HIT and PAC KAMRA cater for Pak Army and PAF's requirements respectively. Additionally, KSEW undertakes commercial activities mainly, Shipbuilding, Shiprepair and General Engineering.

### **SHIPBUILDING**

#### **COMMERCIAL**

- KSEW is equipped to build all types of Marine Crafts, Motor Cargo Vessels, Container Ships, Oil Tankers, Bulk Carriers of up to 26,000 TDW, Harbour Tugs, Pilot Boats, Hopper Barges, Dredgers and Launches etc.

#### **MILITARY**

- F22P Frigate for Pakistan Navy will be built at KSEW in collaboration with CSTC of China, alongwith ToT.
- The KSEW now has the needed expertise and the project will be executed in collaboration with OEM. Submarine construction trained manpower from PN Dockyard will shift to KSEW.
- To support this shipbuilding activity, KSEW houses three Ship building berths.

## **MAJOR PRODUCTS** **F22P FRIGATE**

A multi mission conventionally powered Frigate, having displacement of 2800 tons and designed for a maximum speed of 29 Knots.



## **FAST ATTACK CRAFT (MISSILE)**

Multi-purpose Auxiliary Craft (MPAC) fitted with the most modern Missile System. The craft has a designed speed of 32 Knots and a maximum displacement of 250 tons. Fitted with C-802 Surface to Surface Missiles, the boat makes a lethal platform at sea.



## **FLOATING DOCKS**

State of the Art Floating Docks indigenously constructed at KSEW. Built in various sizes ranging from 1000-4000 tons lifting capacity, these docks provide extremely sophisticated mini dockyard facilities at point of choice. The facility is extremely useful for ports not having Dry Docks, can be towed and parked at small ports for use as required.



## SHIP REPAIR

- Good facilities exist in KSEW for undertaking all types of above water and under water repairs of ships and offshore drilling rigs. KSEW Shiprepair Section is organized to undertake above water repairs of vessels within KSEW premises, in Karachi Harbour and at the outer anchorage (if required). Uptill now, KSEW has repaired over 5000 Ships, including foreign flag carriers and warships belonging to France, Iran, Oman and Royal (UK) Navies.



**Ships under repair at KSEW**

- A 500 Meters Quay Wall is available on the northern end and 165 Meters on the southern end for maintenance/berthing of vessels and above water repairs.

## GENERAL ENGINEERING PRODUCTS



**Sewerage Treatment Plant**



**FRP Tanks**



**Wind Turbine Towers**

## **FUTURE PROSPECTS**

- Fabrication and Installation of Ship Lift System.
- Barytes Grinding Mill at Khuzdar – Balochistan for Bolan Mining Enterprises
- 3 Ton capacity E.O.H Crane for PNS Mehran
- Fabrication of Wind Turbine Towers
- Flood Light Towers for Polo Ground Lahore for Philips Electrical Industries
- 5,000 IG & 10,000 IG Tanks for Shell Pakistan Ltd.

## **SHIP LIFT AND TRANSFER SYSTEM**

The project for installation of Ship Lift and Transfer System to lift ships, submarines and commercial vessels has been approved by the Government. The initial feasibility and engineering studies have been completed. The contract for procurement and installation of the system is scheduled to be signed in Sept 08. Once completed the project has great potential to attract a vast range of clients for repair and new construction of warships, submarines and commercial vessels.

# NATIONAL RADIO AND TELECOMMUNICATION CORPORATION HARIPUR

## HISTORY

National Radio and Telecommunication Corporation (NRTC) the high tech industry engaged in manufacturing of telecommunication equipment in Pakistan. NRTC is the pioneer in Telecommunication Equipment in Pakistan and leader in the field of communication for the last over three decades. NRTC is producing high quality products for Defense services, Pakistan Telecommunication Corporation (PTCL) and other Organizations since 1965-66. NRTC is **ISO-9001-2000** certified which is the highest degree of quality management and quality assurance of products.

## OBJECTIVE

To provide our Customers World Class Quality Radio & Telecommunication Equipment, which meets all their Operational Requirements; in time, at affordable costs. User Satisfaction must be given top priority by each employee in the process chain, from receipt of the raw material, through manufacture and delivery, till final acceptance. Employee Performance must achieve the Aim and Delight the Customers. This must be ensured through quality, recruitment, job assignment, training, appraisal, and continual guidance.

## LIST OF PRODUCTS MANUFACTURED BY NRTC



(Digital Electronic Field Exchange PFX-6416)



(Automag Field Exchange (4+12))



VHF/FM Freq Hopping Radio Set PRC-9610 (5W Manpack)



Land Mobile Radios - Base\_Mobile Radio



NiCD Bty Pack PRC-77

## TECHNICAL PERFORMANCE / CAPABILITIES

NRTC has the following technical facilities/capabilities for the Manufacture, Assembly, Testing and Measuring of following equipment/tasks:-

- HF and VHF Military Version Radios.
- VHF and UHF Commercial Mobile Radios.
- VHF and UHF Single/Dual/Multi Channel Extend Radios.
- Military Version Switches/EPABXs 16 lines, 40 lines and 96 lines.
- Commercial Version Switches/EPABXs 50 lines to 1024 lines.
- Digital Field Telephone and Ruggedized Auto Field Telephone.
- Linear, Regulated Power Supplies.
- Printed Circuit Boards for all type of Telecommunication equipment.
- DP Boxes, Cabinets and other accessories of out side plants.
- VHF/UHF Antennae for Military/Commercial Radios including Extend Radios.
- Environmental Test facilities as per MIL-STD-810E

NRTC is also planning to get access to the other segments on telecommunication market both for Defence and Commercial Sectors.



## DIRECTORATE GENERAL DEFENCE PURCHASE

Financial Year 2007-08 like previous fiscal years was eventful and rewarding from procurement point of view. In depth analysis of entire procurement activities has been undertaken and a substantial improvement has been observed in all facets. The improvement in output is attributed to wholehearted and well-coordinated efforts put in by all agencies and organizations, which certainly deserve appreciation. The salients of the achievements are reflected in succeeding paras. During the preceding financial year procurement to the tune of **Rs. 127.420 billion** has been made for the Armed Forces.

### PROCUREMENT ACTIVITIES DURING FY 2007-08

#### DIRECTORATES OF PROCUREMENT (DsP)

#### AGAINST DEVELOPMENT PACKAGES

S/No	Org	Indents Received	Crossmandated	Cancelled/ Not Concluded	Contracts Concluded
1.	DGP (Army)	45	01	35	09
2.	DP (Navy)	<b>No contract concluded by DP (Navy) during Fin Year 2007-08</b>			
3.	DP (Air)	01	-	-	01
<b>Total:</b>		<b>46</b>	<b>01</b>	<b>35</b>	<b>10</b>

#### AGAINST SERVICE BUDGET

S/No	Org	Indents Received	Crossmandated	Cancelled/ Not Concluded	Contracts Concluded
1.	DGP (Army)	655	28	262	426
2.	DP (Navy)	940	354	198	388
3.	DP (Air)	406	63	33	352
<b>Total:</b>		<b>2001</b>	<b>445</b>	<b>493</b>	<b>1166</b>

ADPs assist DGDP and DsP in procurement of equipment, which is not available locally and can be purchased directly economically from abroad. For this purpose indents are crossmandated by procurement agencies to ADP abroad. Detail of indents

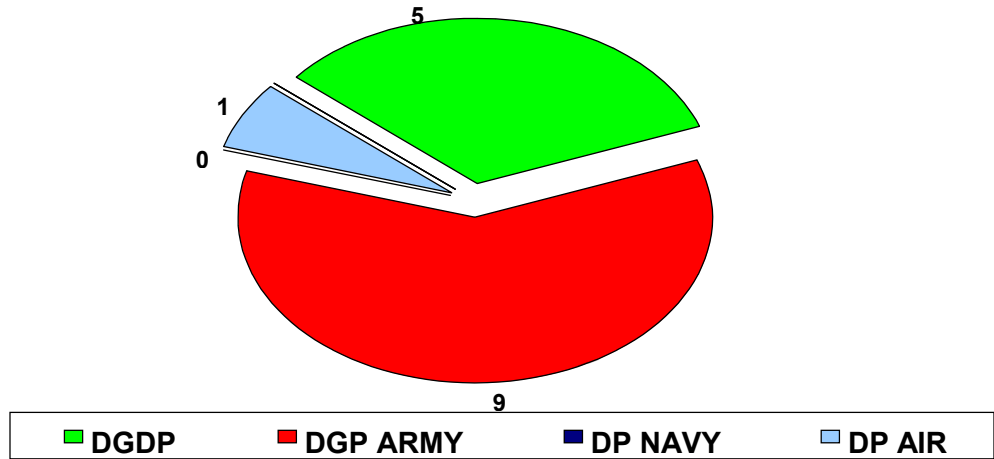
crossmandated and contracts concluded during last financial year is as under:-

**PROCUREMENT ACTIVITIES OF ATTACHES DEFENCE PROCUREMENT (ADP) DURING FY 2007-08**

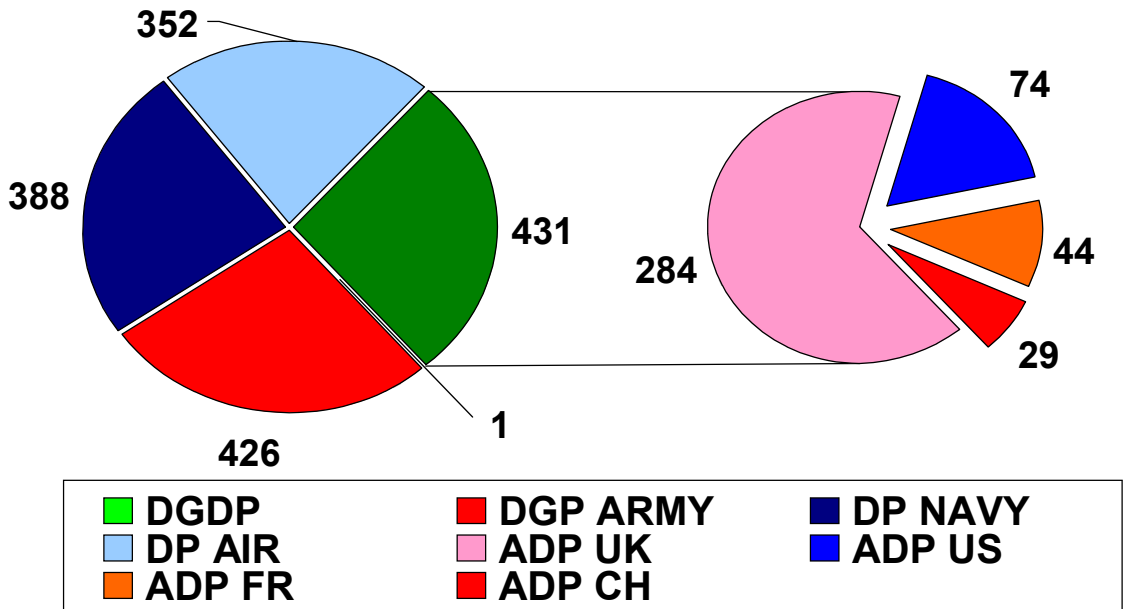
**AGAINST DEVELOPMENT PACKAGES**

- No contract has been concluded by ADP against Development Packages.

**DIRECTORATE WISE DISTRIBUTION OF CONTRACTS OUT OF DEVELOPMENT PACKAGES**



**DIRECTORATE WISE DISTRIBUTION OF CONTRACTS OUT OF SVC BUDGET**



## REGISTRATION OF FIRMS

The results of registration activities during the LFY are tabulated as under:-

➤ New firms registered	-	115
➤ Renewal of registration	-	510
➤ Additional indexation of Firms	-	791
➤ Total No. of defaulting firms	-	16

## DIRECTORATE GENERAL MUNITIONS PRODUCTION

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### GENERAL

Directorate General Munitions Production (DGMP) is a tri services organization, which was created in 1970. It promotes indigenization of defence equipment through public and private sector to achieve self-reliance. It has handled projects like indigenous assembly / manufacture of Land Rover Defender Jeeps, Truck 5 Ton 4x4 Hino JT3HHKA (Ammo Carrier), Co-production of Frequency Hopping VHF Radio Sets 9600 Series and is now engaged with production of AGOSTA 90-B Submarine and F-22P Frigate. It has a long list of other equipment locally developed and delivered to the Armed Forces. It is also in touch with local industry, Chamber of Commerce, and other interested parties with in and outside Pakistan for investment in joint ventures. To ensure increase in indigenization, all procurements from abroad are now first cleared by DGMP and a No Objection Certificate / Sales Tax Exemption Certificate is issued in this regard.

### NUMBER OF CONTRACTS SIGNED WITH VALUE DURING THE YEAR 2007-08 (INCL ESTBS)

➤ Total number of contracts signed	-	43
➤ Value in Local Currency	-	Rs. 2640.3295 Mn
➤ Value in FE	-	US\$ 1.158958 Mn
	-	¥ 20.173 Mn
	-	£ 2.38976 Mn

### INDIGENIZATION EFFORTS.

The mandate of DGMP is indigenization in Defence Production in order to achieve self-reliance. This organization has accordingly encouraged the local industry and developed a large no of items for Defence Services. Some of the major items developed / co-produced through local industry are as under:-

- Land Rover Jeeps/Dodges
- 5 Ton Hino Trucks 4x4
- Up-gradation of AN/PRC-77 Radio Sets
- Objective Lenses 95mm for AN/PVS-4A & GP/NVB-4A
- Eye Piece Lens Assy for AN/PVS-4A & NVG (AN/PVS-5C)
- Objective Lens Assy for NG (AN/PVS-5C)

- Carrying Case GP/NVB-4A & PVS-4A (by utilizing a special kind of engineering plastic)
- Battery Housing for PVS-4A
- Day light Cover for PVS-4A & GP/NVB-4A
- Eye Guard Assy for PVS-4A
- Mechanical Components of DVNP
- Day & Night Marker
- Batteries of Stone Fish Mine
- Camouflage Cloth
- All Weather Electronic Anti Lifting Device
- Round 105mm DS/T Practice
- Simulation Mine

### **ACHIEVEMENTS OF DGMP ESTABLISHMENTS.**

Briefly, the achievements / activities of DGMP's sub-ordinate establishments are as under:

#### ⇒ **MILITARY VEHICLE RESEARCH AND DEVELOPMENT ESTABLISHMENT.**

#### **COMPLETED PROJECTS.**

28 x projects have been completed successfully in FY 2007-08.

#### **HIGH TECH PROJECTS.**

The following high-tech projects were developed / produced in year 2007-08:-

- 2 x Aviation Fuel Bowzer 4500 Liters
- 1 x Collapsible Fuel Tank for Storage of POL Products Capacity 18000 Liters
- 1 x Collapsible Fuel Tank for Storage of POL Products Capacity 45000 Liters
- 5 x Dynamic Integrated Trg Simulators for Tank Al-Khalid
- 1 x Dynamic Integrated Trg Simulator for Tank Al-Zarrar
- 1 x Dynamic Integrated Trg Simulator for Tank T-80UD
- Up-gradation of TSM-2 Simulator
- 3 x HP Air Compressor Plant
- 50 x Troll Anti Mine

⇒ **ARMAMENT RESEARCH AND DEVELOPMENT ESTABLISHMENT.**

Major achievement / activities of ARDE during the year 2007-08 are as under:-

**PROJECTS COMPLETED.**

The following projects have been completed successfully:-

- 525 Meters Camouflage Cloth
- 20 x All Weather Electronic Anti lifting Device
- 710 x Round105MM DS/T Prac
- 50 x Simulation Mine

**HIGH TECH PROJECTS**

- Indigenous Development of 125mm APFSDS/T (DU) Naiza
- Indigenous Development of Multi Channel Exploder

⇒ **INSTITUTE OF OPTRONICS.**

The Institute of Optronics is actively involved in research development and production of Optronics Systems not only for the three services but their products are also available to friendly countries. Major achievement of IOP:-

- STG (PVS-7D) developed with XR-5.II tube has been approved by GHQ after test and trials and an order of qty 14624 has been placed.
- An order of qty 129 M949/AN/PVS-9 placed to Northrop Grumman System Corp with collaboration of IOP.
- Weapon sight NS-685C developed with XR-5.II Tube have been approved by GHQ after test & trials and an order of qty 7404 has been placed.

⇒ **SUBMARINE REBUILD COMPLEX.**

Major achievement / activities of SRC during the year 2007-08 are as under:-

- 2 x contracts signed with total value of Rs. 407.7 Mn.
- Soil investigation of additional land.
- 95% of reclamation work of additional land has been completed.

## DEFENCE EXPORT PROMOTION ORGANIZATION

Defence Export Promotion Organization (DEPO) since its inception in 2000 has been promoting both Public and Private Sectors Defence Industries. The details of achievements of DEPO in 2007-2008 are explained in the subsequent paragraphs.

### EXPORTS

The defence export figures for the year 2007-2008 US\$ 63.180 Million.

### IDEAS-2008.

The Fifth International Defence Exhibition and Seminar (IDEAS-2008) is being held in Expo centre Karachi from 24-28 November 2008. The invitations to foreign dignitaries, as official guest of Pakistan has been extended by DEPO to nearly 172 delegations from 73 countries. It is expected that more than 500 delegates from various countries will attend the event. Preparations of the event are being made.

### PARTICIPATION IN EXHIBITIONS

Pakistan pavilion is being established in the selected international exhibitions to promote / boost export of defence related equipment / products. The show casing of Pakistani defence products has not only created a feeling of comfort / good will amongst the comity of Nations but has also introduced our public and private manufacturers to the outside world which has helped in broadening their vision.

### FOREIGN DELEGATION VISIT TO DEPO

DEPO is maintaining 3x product galleries belonging to public and private sector, which is of great interest to any delegation visiting DEPO. DEPO through product galleries and knowledge of customers requirements world wide has emerged as a useful platform to promote Pakistani Defence products. All delegations visiting Pakistan, any defence organization, JSHQ and three services are sent to DEPO for briefing/ visit to

product galleries. Following is the detail of visits for year 2007-2008:-

S No.	COUNTRY'S NAME	NO OF VISITORS
a.	Turkey	34
b.	South Africa	02
c.	Djibouti	08
d.	Morocco	07
e.	Saudi Arabia	04
f.	Libya	05
g.	Sudan	08
h.	Swazilan	03
j.	Jordan	04
k.	Egypt	07
l.	Nigeria	20
m.	Azerbaijan	06
n.	Indonesia	02
o.	Singapore	03
p.	Afghanistan	22
q.	Brunei	05
r.	Malaysia	09
s.	Vietnam	04
t.	Sri Lanka	06
u.	Bangladesh	05
v.	Bosnia	06

DEPO is committed to successful conduct of IDEAS-2008 and help promote products of defence industry through participation in foreign exhibitions and conducting visits of foreign delegations to DEPO.

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