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**OPERATION AND MAINTENANCE
OF AN AIRCRAFT FLEET IN THE
INDIAN AIR FORCE**

MINISTRY OF DEFENCE

**PUBLIC ACCOUNTS
COMMITTEE
2008-2009**

EIGHTY-FIRST REPORT

FOURTEENTH LOK SABHA



**LOK SABHA SECRETARIAT
NEW DELHI**

EIGHTY-FIRST REPORT
PUBLIC ACCOUNTS COMMITTEE
(2008-2009)

(FOURTEENTH LOK SABHA)

OPERATION AND MAINTENANCE OF AN AIRCRAFT
FLEET IN THE INDIAN AIR FORCE

(MINISTRY OF DEFENCE)



*Presented to Lok Sabha on 18.02.2009
Laid in Rajya Sabha on 18.02.2009*

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*Elected *w.e.f.* 17th December, 2008 *vice* Shri Brajesh Pathak ceased to be a Member of Committee consequent upon his election to Rajya Sabha.

**Elected *w.e.f.* 17th December, 2008 *vice* Shri Rajiv Ranjan 'Lalan' Singh resigned his seat in Lok Sabha on 11th November, 2008.

***Prof. Vijay Kumar Malhotra resigned his seat in Lok Sabha *w.e.f.* 18th December, 2008.

INTRODUCTION

I, the Chairman, Public Accounts Committee, as authorised by the Committee, do present this Eighty-first Report relating to "Operation and Maintenance of an Aircraft Fleet in the Indian Air Force" on Chapter I of the Report of C&AG of India for the year ended 31 March 2006 (No. 5 of 2007), Union Government (Defence Services—Air Force and Navy) Performance Audit.

2. The Report of the C&AG of India for the year ended 31 March, 2006 (No. 5 of 2007), Union Government (Defence Services—Air Force and Navy) Performance Audit was laid on the Table of the House on 14th May, 2007.

3. The Committee took the evidence of the representatives of the Ministry of Defence on the subject at their sitting held on 6th June 2008. The Committee considered and finalised this Report at their sitting held on 9th January, 2009. Minutes of the sittings form Part II of the Report.

4. For facility of reference and convenience, the Observations and Recommendations of the Committee have been printed in thick type in the body of the Report.

5. The Committee would like to express their thanks to the officers of the Ministry of Defence for the cooperation extended by them in furnishing information and tendering evidence before the Committee.

6. The Committee place on record their appreciation of the assistance rendered to them in the matter by the Office of the Comptroller and Auditor General of India.

7. The Committee also place on record their appreciation for the invaluable assistance rendered to them by the officials of Lok Sabha Secretariat attached with the Committee.

NEW DELHI;
28 January, 2009
8 Magha, 1930 (*Saka*)

SANTOSH GANGWAR,
Chairman,
Public Accounts Committee.

REPORT

“OPERATION AND MAINTENANCE OF AN AIRCRAFT FLEET IN INDIAN AIR FORCE”

PART I

BACKGROUND ANALYSIS

I INTRODUCTION

The Indian Air Force (IAF) contracted for procurement of 118 Aircraft 'A' (AN-32 Aircraft) and 64 spare engines at an aggregated cost of Rs. 495 crore between 1981 and 1987. These Aircraft are Medium Tactical Transport Aircraft (METAC) primarily used for transport of troops and cargo, para-trooping, supply dropping and casualty evacuation. They were inducted into squadron service between 1984 and 1991 to replace aging Dakota, Caribu and Packet aircraft. Since then, they have been the workhouse of the IAF's transport fleet, performing varied roles and operating in all terrain conditions. They have also been extensively employed to provide timely response both for military and civil requirements. Over the years it has been reported that thirteen aircrafts were lost in flying accidents and presently IAF is holding an inventory of 105 Aircraft 'A'. They are being operated from different locations through six IAF squadrons, one para trooping school, one Air Force Station and Training School.

2. The aircraft consists of aero engines and airframe, which require maintenance and overhaul at prescribed intervals. Airframe of Aircraft 'A' had an initial calendar life of 15 years/20000 flying hours/ 15000 landings and Time Between Overhaul (TBO) was 6 years/4000 flying hours/3000 landings. As Total Technical Life (TTL) of airframes, both in terms of landing and flying hours were not fully utilized, the technical life of the Airframe was extended indigenously from 15 to 18 years in January 1999 and again from 18 to 25 years in November 2001. However, the Air HQ (June 2006) had approached the designer of the Aircraft 'A' for life extension of airframe further to 25 years for which Original Equipment Manufacturer (OEM) had made a proposal. The service life of aero engines was 3000 flying hours and the Time Between Overhaul (TBO) was 1000 hours. In 1994-95, the service life of engine was extended from 3000 to 4000 flying hours and TBO was increased from 1000 to 2000 flying hours. In 2003 and 2005, contracts have been entered into with the OEM for full overhaul alongwith extension of life of the engines up to 6000 hours. However, the OEM has not agreed to transfer the technology for the same to IAF.

3. The flying task fixed by Government/Ministry of Defence is 66 hours per month per aircraft. The maximum and minimum payload of the aircraft is 6700 kg. and 3000 kg. respectively. The passenger carrying capacity of the aircraft is 40 to 50. The aircraft has a range of 1000 km. and is capable of landing and taking off from semi-prepared advanced landing grounds. The operating squadrons/wings are responsible for carrying out the first and second line servicing of the aircraft. Third and fourth line

repair/overhaul of airframes and aero engines are undertaken at Kanpur Base Repair Depot and at Chandigarh Base Repair Depot respectively. The annual installed capacity for overhaul of airframes is 18 at BRD Kanpur. No new facility for repair/overhaul of aero engines of Aircraft 'A' was created at BRD Chandigarh. The facilities already existed at BRD Chandigarh created for aero engines of Aircraft 'B' was utilised with some additions and modifications.

II AUDIT REVIEW

4. Performance Review was conducted by Audit between June and October 2006 covering the period 2001-02 to 2005-06. The review focused on the aspects of operation and utilisation of aircraft such as flying tasks, assigned role, serviceability and Aircraft on Ground (AoG). Adequacy of facilities for repair and maintenance and their use were also examined by Audit.

5. The broad objectives of Audit were to seek an assurance whether:—

- (i) The operational squadrons of Aircraft 'A' functioned efficiently achieving their assigned tasks;
- (ii) The aircraft were used in an economic and efficient manner for bona fide role;
- (iii) The serviceability of aircraft was maintained as per laid down standards to minimize aircraft on ground;
- (iv) Facilities for aircraft repair and overhaul were timely set up and are adequate to meet the needs of the fleet;
- (v) Servicing and maintenance of Aircraft 'A' was carried out efficiently, without delay, in a cost effective manner; and
- (vi) Internal control systems were effective.

6. The findings of Audit can be classified into two broad categories — (i) Operation and Utilization of aircraft (ii) Repair and Maintenance facilities. Audit review revealed certain serious shortcomings in the operation and maintenance of Aircraft 'A' Fleet in Indian Air Force. These are enumerated as under:—

- (i) The serviceability levels achieved by the aircraft fleet were low and the percentage of Aircraft on Ground (AoG) was high indicating low efficiency of operation of the fleet;
- (ii) Aircraft were predominantly used for routine and miscellaneous tasks at the expense of primary air maintenance and training tasks;
- (iii) Eight aircraft were modified for "VIP Role" without approval of Government thereby diverting them from their operational tasks;
- (iv) Moreover, the modification lacked justification as a separate specialised communication squadron with adequate aircraft for use by VIPs already existed;
- (v) In the Para-trooping School and in a training centre set up to impart training, most of the courses showed shortfall in achievement of targeted output;

- (vi) There were delays in conducting overhauls and repair both by the engine and airframe overhaul facilities;
- (vii) Base Repair Depot at Chandigarh failed to complete a large number of allotted repair and overhaul tasks during the last 5 years due to shortage of spares which had resulted from delayed and inadequate provisioning;
- (viii) There were delays in completing second line servicing in a significant percentage of cases due to shortage of spares; and
- (ix) Though, indigenisation of mandatory and non-complex spares at BRDs has made significant progress, commercial exploitation has been limited.

These along with other issues have been discussed in detail by the Committee in the succeeding paragraphs.

III. OPERATION AND UTILISATION OF AIRCRAFT

(Para 1.6.1)

7. Audit examination in relation to operation and utilization of aircraft mainly focused on (i) achievement of prescribed norms for aircraft serviceability and targets specified for flying tasks; (ii) efficiency of utilisation of aircraft in terms of payloads; (iii) levels of AOG as these have a critical bearing on aircraft serviceability and also reflects on the adequacy and efficiency of support and maintenance facilities; (iv) utilisation of aircraft for *bona fide* roles; and (v) deployment of operational manpower in various squadrons.

A. UTILISATION RATES, SERVICEABILITY AND AIRCRAFT ON GROUND (AOG) LEVELS

(Para 1.6.1.1)

8. Audit examination revealed that the efficiency of operation and utilization of the Aircraft 'A' fleet was low due to high rate of Aircraft on Ground (AoG), low serviceability and less achievement in flying tasks. The year-wise position with regard to serviceability, AoG and flying task achievement of Aircraft 'A' for 2002-2005 is given in the following Table:

Year	Percentage of serviceability		State of AOG percentage	Flying task (Hours per month per aircraft)		
	Achieved	Short-fall		Authorised	Achieved	Percentage achieved
2002*	50.98	32.06	23.94	66.66	20.06	30.09
2003	49.46	34.06	29.96	66.66	33.86	50.79
2004	48.77	34.98	32.26	66.66	30.04	45.06
2005	46.94	37.42	33.29	66.66	33.04	49.56

* For the year 2002, data in respect of flying hours was available for last quarter only. Air HQ stated in June, 2006 that during the year 2002 most of the hours had been exhausted in flying for Operation Parakaram.

9. Audit scrutiny has revealed that as against the serviceability level of 75 per cent assumed by the Ministry at the time of procurement, actual serviceability rates of aircraft ranged between 47 and 51 per cent during last four years. The number of AOG was also high and increased from 23.94 per cent in 2002 to 33.29 per cent in 2005. Actual flying tasks performed using aircraft 'A' therefore, fell significantly short of the flying task norm of 66.66 hours per month per aircraft prescribed by the Government. The shortfall ranged from 49.21 to 54.94 per cent during the period 2003-05.

10. In their explanation to the aforesaid Audit observation, the Air HQ stated (June 2006) that during 2002-05 the rate of flying tasks achieved was more than the rate of 30 hours per month per aircraft prescribed by it in 1995. It was further stated that they had lowered the flying task in 1995 to conserve life of engines and airframes and on account of lower availability of serviceable aircraft and pilots. However, Audit felt that the reduction in authorized flying task was done without the approval of the Government and the flying tasks had to be reduced due to constraints on account of aircraft availability and shortage of pilots.

11. The Committee desired to know about the reasons for high rate of Aircraft on Ground, low serviceability and less achievements in flying task of Aircraft 'A'. In response, the Ministry of Defence stated in a note as under:

“The facility for repair and overhaul of aircraft at BRD, Kanpur was delayed due to non-availability of specialist from Ex-USSR (Ukraine) to set up the aggregates repair facilities. Hence, the critical aggregates were required to be sent abroad for repair. In doing so that lead time increased, which resulted in reduced/delayed availability. Hence the down time of aircraft increased.”

12. When asked about the number of times as well as the time duration for which Aircraft 'A' were grounded during 2007 for want of spares and rotables, the Ministry in a written reply stated as under:

"During mid 1990's the IAF undertook in house overhaul of Aircraft 'A' at 1 BRD. During the Transfer of Technology phase many problems were faced and the first aircraft rolled out in 1996. With the breakdown of erstwhile USSR, the supply lines virtually dried up, the problem got compounded as both major Original Equipment Manufactures (OEMs) *i.e.* M/s Aviant for Airframe and M/s Motor Sich for Aeroengine were in Ukraine. Since all protocols etc. were linked with Russia and the location of OEM being in other country (Ukraine), the situation further aggravated. During the year 2007, there were 14 aircraft on AOG for want of spares rotables, which has now reduced to 10 aircraft in year 2008 against 24 aircraft on AOG during Audit period."

13. On being enquired about the remedial measures that were taken to streamline the system so as to avoid delays in overhaul of aircraft for want of spares in future, the Ministry in a note stated as under:

"Adequate steps were initiated for timely indenting of the spares, by way of detailed provisioning reviews. Detailed guidelines were also issued by Ministry of Defence/Air HQ on all aspects of provisioning. The indenting

action was done in time, but the vendor response was found wanting. Thus, the main reason of delay was limited product support, since vendors/suppliers of spares spread all over CIS countries including Russia were not able to honour the commitments on time due to their internal problems with the designer and OEM located in Ukraine. Hence, as a remedial measure, Air Attache element was created at Ukraine (CIS country) in year 1995 in addition to Russian mission. This provided a medium to establish liaison with suppliers. Also, the concept of decentralized procurement was introduced by Ministry of Defence, wherein the financial powers were enhanced in July, 2006 for imports Rs. 30 crore, for indigenous procurement except on PAC basis where limit is Rs. 10 crores."

14. When asked whether IAF has taken any steps to improve the serviceable state of the aircraft, the Ministry in a written reply stated as under:

"The following steps have been taken by the Indian Air Force to improve the serviceable state of the aircraft (i) The introduction of IMMOLS (Integrated Material Management On-Line System) has given an entire asset visibility to Air HQ and Command HQ. Hence, the AOG item if available anywhere in the country is been diverted. The provisioning module of IMMOLS is also functional, which will ultimately mean real time on line procurement of all deficient item reducing the administering lead time drastically. The same is being used quite often, and has resulted in reducing the number of AOG; (ii) the annual firm task of all repair agencies was enhanced to liquidate the available Cat Ds so that serviceability state of the aircraft can be improved. Contracts were initiated and concluded for ROH abroad of Nose Landing Gears, TG-16M Turbo Generator & GS-24A-3S DC Generator. Also long term contract of 05 years for ROH abroad of seven critical aggregates was initiated and for six aggregates contract has already been concluded. The contract for seventh aggregate is under finalisation. These steps have improved the serviceable state of the aircraft. The percentage of serviceability and AOG state of Aircraft 'A' fleet during the year 2006 are 63.87 per cent and 18.49 per cent respectively and for the year 2007 it was 66.26 per cent and 15.55 per cent respectively."

15. Enumerating the initiatives that have been taken to minimise the time period of grounding the Aircraft, the Ministry stated in a note as under:

"Delegation of financial power has been revised and issued *vide* Government of India/Ministry of Defence letter No Air HQ/95378/1/Fin P/2431/US(RC)/Air-II/06 dated 14 June 2006. As per this order, the financial power to procure items against AOG has been increased to Rs. 50 lakh through Air Attache placed in the respective Embassies of India. The same is being used quite often and has resulted in reducing the number of aircraft on ground. Ministry of Defence has also approved the long term contract of 03 years for ROH abroad of aero-engines which is one of the critical aggregates due to which aircraft were on ground."

16. To a specific query whether the IAF are going to achieve the stage of providing spares on demand by Base Repair-Depots and Units to bring down the AOG to less than five per cent, the Ministry stated in a note as under:

".....After the CIS countries got their act together and when our indigenization efforts started bearing fruit, AOG started reducing. The current AOG levels have been brought down to below 10 per cent, and keeping in view the high inventory carrying cost and other factors trying to achieve an AOG level below 5 per cent, is neither achievable nor desirable. The Ministry has taken suitable corrective actions. Thus the concept of long term ROH contracts was evolved. Following are the details of contracts signed:

Item	Contract details
(a) ROH of Aero-engines over three years for Qty 105.	1323/658-EO6-158-IN356 dated 16th Oct. 2006.
(b) ROH of six critical aggregates over five years.	STE-1-54-K/KE-07 dated 18 May 2007.
(c) ROH of RPM governor over five years for Qty 95.	356/07571160/77003 dated 14 Dec. 2007."

17. The Committee enquired about the steps that have been taken to ensure timely repair and maintenance service to increase the utilisation rates and serviceability of Aircraft 'A' fleet. In response, the Ministry in a written reply stated as under:

"The data of aircraft and aero engines are being closely monitored at Unit, Command and Air HQ. The arising of aircraft, aero-engine and aggregates are calculated as per the approved Rate of Effort (RoE). Accordingly, task and induction plan for overhaul and major servicing are being issued by Air HQ to respective repair agencies. This helps in ensuring the maximum availability and serviceability of Aircraft 'A'. The action has been taken by Air HQ to ensure the maximum availability and serviceability of Aircraft 'A' aircraft are: (i) The introduction of IMMOLS has given an entire asset visibility to Air HQ and Command HQ. The AOG item if available anywhere in the country is been diverted. The provisioning module of IMMOLS is also functional, which will ultimately mean real time on line procurement of all deficient item reducing the admin lead time drastically. The same is been used quite often and has resulted in reducing the number of aircraft on ground; and (ii) Delegation of new financial power issued *vide* GOI/MoD letter No. Air HQ/95378/Fin P/2431/US(RC)/Air.II/06 dated 14th June 2006 to procure items against AOG has been increased Rs. 50 lakh through Air Attache, placed in the respective Embassy of India. The same is been quite often and has resulted in reducing the number of aircraft on ground."

18. When asked as to why the Ministry failed to take the prior approval of the Government before reducing the flying tasks. In response, the Ministry in a note explained

their position as under:

"The maximum authorised flying hours as stipulated by the Government of India (GoI) is 66 hours per month per aircraft. Considering sustained low serviceability of the fleet, low aircraft availability and actual flying done by the units over the last few years, the task was revised to 360 hours per aircraft per year (30 hours/aircraft/month) in July 1995 under delegated powers. The miscellaneous tasks are included in the tasks of the operational units. These are fully authorized tasks and are essential for sustaining and maintaining combat readiness of the units. These encompass multifarious tasks and cannot be forecasted in advance specially missions of aid to civil power like Casevacuation, airlift of sensitive cargo, specialist teams, equipment, flood relief, earthquake relief etc."

19. As regards the steps taken to increase the availability of pilots, the Ministry informed the Committee as under:

"(i) To overcome the shortage of pilots in IAF, recently Government has sanctioned Short Service Commission Scheme for men and women in the Flying branch of Indian Air Force. The term of engagement has been revised from 10+4 years to 14 years. The inductions under this scheme will commence from January 2008. It is envisaged that more number of young men would opt for SSC with exit after 14 years rather than Permanent Commission, where they are committed to service in IAF until retirement; (ii) A proposal to increase the Short Service Commission (SSC) cadre (upto 30 per cent in flying branch) has also been submitted to Ministry of Defence as part of Ajay Vikram Singh Committee (AVSC) proposals. Considering the growing economy and improved market conditions, it is felt that SSC could present an attractive option to the youth thereby increasing inductions; (iii) In order to improve the pay structure and living conditions, and to adequately compensate for the risks and hazards the armed forces men face in the line of duty, a joint proposal on enhancement of pay and allowances of Armed Forces are being progressed with VI Central Pay Commission (CPC). Favourable implementation of the proposal would go a long way in addressing the concern over filling up of vacant posts with quality individuals; (iv) Concerted efforts have been undertaken by the IAF to carry out a proactive publicity campaign in order to reach the target group of talented youth across the country to join the Indian Air Force. The following steps have been taken towards this aim: (a) Publicity awareness Campaigns are being conducted at low response areas. These include Air shows, Band Concerts, Recruitment Publicity Stalls, Sky Diving shows, Projecting documentaries on IAF; (b) Participation in Career Fairs and Exhibitions to enhance one-on one interaction; (c) Conduct of Fast track Selection on the lines of campus placement being undertaken by the civil agencies; (d) Advertisements in Print and Electronic media including Recruitment and Career related articles; (e) Motivational lectures in schools/colleges; (f) Distribution

of creative and eye catching publicity material/promotional material amongst the target groups; (g) Catchy display of advertisements for recruitment of officers in various branches namely Flying, Technical and Ground Duties; (h) visuals/Signage at vantage points all over the country in a phased manner at strategic locations; (i) Establishment of Publicity Cells at Command HQ and all Air Force Stations."

20. Asked about the steps taken to carry out a comprehensive review regarding effective utilization of aircraft, the Ministry stated in a note as under:

"The following steps have been taken to carry out a comprehensive review regarding the effective utilization of aircraft: (i) The tasking and utilization of all the aircraft is closely monitored at unit level (by Cos), at Wing level (by COOs), at Command level (by Air-II) and at Air HQ (by Date of Operations T&H); (ii) The planned itinerary is received at each monitoring node in advance: and (iii) Dove tailing/re-scheduling is done to ensure optimum utilization of the airborne platforms."

21. When asked whether the Indian Air Force have been able to bring the utilization of the aircraft closer to the flying task fixed by the Government, the Ministry in their reply have stated as under:

"Consistent efforts are in place to improve aircraft serviceability and availability in the IAF. It is submitted that the flying task as stipulated by Government of India of 66 hours/month per aircraft and this is the maximum flying that is permitted to be under taken in peace time operations. Based on the actual flying hours achieved and the number of aircraft available in the fleet, the rate of effort is calculated for the year for a particular type of aircraft. Thereafter, the task per aircraft is revised to a realistic and achievable figure by the VCVAS under his delegated powers as per Government of India letter Air HQ/95378/1/Fin P/2431/US(RC)/Air-II/06 dated 14th July, 2006. Against the revised authorized flying task of 29160 hrs./year, the Aircraft 'A' fleet has achieved the task in all the preceding years. The details are: 2001-02—28973 hrs.; 2002-03—28404 hrs.; 2003-04—28969 hrs.; 2004-05—30022 hrs.; 2005-06—30164 hrs.; and 2006-07—33667 hrs. It is pertinent to note that whenever the need has arisen like Tsunami and other emergent situations, the aircraft utilization has been closed to the initial proposed rate. For example, the fleet flew 1100 hrs. in 60 days towards Tsunami disaster relief operations. All this bears testimony to the fact that despite the reduction in approved task, the operational preparedness of the fleet has continued to be good. Also, the fleet Aircraft 'A' is ageing and is nearing its end of 25 years of TTL. To sustain 100 per cent serviceability on such an old platform is practically not feasible. It would thus not be in order to perceive shortfall with respect to the maximum authorized flying of 66 hours/month/aircraft. The IAF has been achieving all its authorized tasks and also other unforeseen tasks of aid to civil authorities in terms of HA/DR etc. on all occasions whenever it has been tasked."

**B. UNDERUTILISATION OF PAYLOAD CAPACITY
(Para 1.6.1.2)**

22. According to Audit, the maximum payload capacity of the Aircraft 'A' is 6700 kg. The payloads carried in the sorties undertaken during the period 2001-2006 are analysed in the following Table:

Year	Total sorties	Percentage of sorties as compared to total sorties				
		Less than 1000 Kg.	Between 1000 Kg. to 2000 Kg.	Between 2000 Kg. to 3000 Kg.	Between 3000 Kg. to 4500 Kg.	More than 4500 Kg.
2001-02	10664	37.30	12.59	15.66	30.71	3.74
2002-03	12600	28.42	13.11	20.30	34.91	3.26
2003-04	12192	29.72	12.10	20.19	35.10	2.89
2004-05	12766	29.29	15.23	20.12	31.54	3.82
2005-06	12680	33.69	14.11	17.66	31.05	3.47

23. From the aforesaid Table, it would be seen that during the period 2001-2006, the percentage of sorties in which payloads carried were less than the 3000 kg. (less than 50 per cent of the maximum capacity) ranged between 61.83 per cent and 65.64 per cent. As such not only were the Aircraft underutilised in terms of flying hours, these were also underutilized in terms of payloads carried. Thus, high capacity aircraft were used for carrying low loads although smaller aircrafts and other modes of transport were available at lower cost. The utilisation of these aircraft was not made in a cost effective manner.

24. While taking cognizance of the aforesaid Audit observation, the Committee sought an explanation from the Ministry for under utilisation of aircraft in terms of both flying hours and pay loads. In response, the Ministry stated in a note as under:

"A transport aircraft carries payload as per the fuel and payload combination. For this type of aircraft, this is 9000 Kgs. The fuel carried depends upon mission flying time which in turn decides the maximum payload that can be carried. The aircraft payload capacity also depends upon combination of Weight, Altitude & Temperature (WAT) limitations. At Leh airfield during winter months when temperature is sub-zero, 'A' fleet aircraft carry 30 passenger whereas, during summer months, when temperature is between 15-25°C, aircraft can carry only 10 to 5 passengers and beyond 25°C temperature aircraft operations to Leh and Thoise airfield have to be completely suspended. Tasking is done by Air HQ/Commands to ensure optimal loading of aircraft, however, on certain occasions like special missions like carriage of sensitive cargo of various defence/research agencies, etc., and missions on aid to civil power involving airlift of specialist teams, equipment, casualty evacuation, etc. this is not feasible. The option of using smaller aircraft is always considered but at times due to limitation in performance, in speed and cruise altitudes, it is not operationally feasible. During HA/DR missions often the civil authorities are not able to position requisite load in time."

25. Enquired whether IAF has reviewed the use of high capacity aircraft for carrying low loads keeping in view the high operating cost of the aircraft and availability of other smaller transport and other modes of aircraft, the Ministry in their note stated as under:

"The option of using smaller aircraft is always considered but at times due to limitation in performance, in speed and cruise altitudes, Aircraft 'A' fleet aircraft have to be used for example where terrain is very high as in case of Leh, Thoise , etc. and carriage of specialist cargo, teams, casualty evacuation, etc. Wherever feasible, operationally viable, smaller aircraft are also utilized to undertake the allotted task. It is stated that any transport aircraft carries payload as per fuel and payload combination. To carry maximum payload say 6700 kgs, the aircraft would carry a minimum fuel of 2300 kgs. This would entail a maximum flying duration of 30 minutes only. Such a mission with maximum load but minimum fuel would entail numerous landings/refueling halts leading to shear wastage of flying hrs. and aircraft landing apart from additional wear/tear. Thus, it would not be in order to have a comparison of payload lifted to the max certified payload on all missions. Tasking is done by Air HQ/Commands to ensure optimal loading of aircraft, however on certain occasions like special missions like carriage of sensitive cargo of various civil/DRDO/Defence agencies and missions on and to civil power involving airlift of specialist teams equipment and casualty evacuation, this is not practically feasible."

26. Asked about the amount of financial loss that have been incurred on account of under utilization of aircrafts in term of low pay load carried, the Ministry in a note submitted as under:

"Tasking is done by Air HQ/Commands to ensure optimal loading of aircraft on all occasions. Dovetailing of task is an essential ingredient in mission planning to ensure aircraft payload capability is fully utilised unless the mission demands otherwise. On tasks involving carriage of sensitive cargo of DRDO/Defence agencies, casualty evacuation, airlift of rescue teams, specialist equipment for disaster relief etc. it is not feasible to combine other low priority pay loads on the same task as it would entail additional landings/refueling halts and delay the task completion. Thus, it would not be in order to have comparison on pay load lifted to the maximum certified payload on all missions. Wherever, feasible airlift demands are combined to ensure utilisation of aircraft payload to its full capacity. Alternatively, the option of tasking smaller aircraft is utilised."

27. Explaining the corrective measures that have been taken to ensure that the utilization of Aircraft 'A' is done in a cost-effective manner and put to optimum use, the Ministry in a note stated as under:

"Air Maintenance demands from various agencies are vetted at Ministry level once a year in the month of January and the air maintenance task allocated appropriately. Air HQ, thereafter, sub allocates the task to the concerned Air Commands depending on their area of operations. The Commands further task the units as appropriate. The progress of the air

maintenance task is reviewed every quarter by Ministry of Defence and the task allocated earlier in the beginning of the year is revised appropriately, if the situation so demands. Air lift demands of civil, para military and ministries and Government of India (*i.e.* other than Air maintenance) are vetted and authorized at Ministry of Defence level. Air lift demands (*i.e.* other than Air maintenance) Armed Forces for airlift utilizing aircraft of 'A' fleet are received at respective Commands/Air HQrs. The demands are vetted at Command level by Air Branch and Directorate of Operations (T&H) at Air HQs and accorded priority as per the requirements of the task at these levels. The demands from all the various users, thereafter, are consolidated date-wise. Similar loads are grouped together and various tasks dovetailed to ensure optional utilisation of air assets. Depending on the volume of the payload, the quantity of aircraft of fleet 'A' required to accomplish the task are identified and the operating unit closest to the place of origin of the airlift demand is tasked. The movement of the aircraft, thereafter, is closely monitored at Unit, Command/Air HQ levels to ensure that utilisation of the aircraft is done optimally in a cost effective manner at all stages."

**C. DEPLOYMENT OF AIRCRAFT IN VARIOUS ROLES
(Para 1.6.1.3)**

28. In 1995, Air HQ fixed flying tasks for each existing squadron/unit and also prescribed flying hours for each role assigned to the aircraft. Audit examination revealed that Air HQ had fixed flying tasks for each unit that was far below the task fixed by the Government for Aircraft 'A'. Besides, Air HQ allocated flying tasks into three categories *i.e.* Routine Transport Role (RTR), Air Maintenance and training. Air Maintenance tasks cover the designated primary role of the aircraft *viz.*, troops and cargo carrier and also includes para trooping training. Detailed analysis of flying tasks allotted for various roles and actual achievement by six squadrons/units test checked is given in the Table below:

Role	Task allotted by Government	Task allotted by Air HQ	(in flying hours)		
			Task actually achieved with reference to flying hours fixed by Government		Percentage Shortfall in task achievement with reference to Air HQ targets (+) excess/ (—) shortfall
			Flying Hours	Percentage of total achievement	
RTR	97440	41400	47583	48.83	(+)14.93
AM	78960	33600	19150	24.25	(—) 43.01
Training	79600	43800	18382	23.09	(—)58.04
Misc.	NIL	NIL	29398	All excess	All excess
Total	256000	118800	114513	44.73	(—) 3.61

29. It may be seen from the above that while there was an overall shortfall of 55 per cent in achievement of flying task, targets fixed by the Government, the shortfall against targets fixed by Air HQ was only 4 per cent. Audit, however, observed that the aircraft were used for routine and miscellaneous tasks by diverting them from their primary roles of air maintenance and training. Of the total 114513 flying hours utilized, only 33 per cent were used for primary role of air maintenance and training, and the balance 67 per cent were spent for routine tasks and miscellaneous duties. This resulted in serious shortfall of 43 per cent in achieving air maintenance task and 58 per cent in training with reference to the reduced targets fixed by Air HQ. It was also noted by Audit that 25 per cent of total flying hours utilized were spent on miscellaneous duties though no task for such duties were allocated either by the Ministry or by the Air HQ.

30. In this regard, the Air HQ had informed the Audit (December 2006) that "miscellaneous tasks" are fully authorised and essential for maintaining operational readiness of the squadron. However, Audit contested the reply of Air HQ as the orders issued in 1995 have never been revised creating this category and authorizing flying hours under it. Further, the nature of tasks stated to be included in this category does not justify such a high utilization. In respect of training, Air HQ stated that exclusive continuous training sorties are launched only when necessary. The training requirements of the unit are thus always achieved by combining training with other tasks, which leads to savings in operational expenditure. However, Audit contended that this reply is not acceptable as in the case of operational squadrons flying hours allocated for continuous training have been kept at very low levels. Besides, training in course of normal flying limits the effectiveness of such training and also compromises flight safety.

31. Further, Audit review of the performance of squadrons showed that the annual flying tasks are not being prepared in advance based on any assessment of load and projections of tasks. Instead sorties and flights are planned on the basis of messages/signals received from Air HQ and Commands which are sent only a few days in advance. Thus, aircraft utilisation is not a planned exercise but is mostly requisition driven and not amenable to control and monitoring with reference to approved flying tasks for various roles.

32. Asked about the reasons for the low allocation of flying hours for air maintenance, the Ministry in a note stated as under:

"The routine flying task comprise majority of transport aircraft operations under common terminology called Route Transport Role (RTR) which entail airlift of men and material from one place to another. Whereas air maintenance or Transport support Role (TSR) is a another task which is specifically carried out in support of Army and other agencies requiring to be maintained by air to places not connected by road transport means due to terrain, weather or geography. Similarly, training of aircrew is required at all stages to maintain continuity and proficiency. Thus training is integral to any aircraft fleet type and cannot be considered as primary role. Other

roles include Para-trooping, supply drop, casualty evacuation, HA/DR operations, etc. Thus, it may be noted that 'air maintenance' does not correspond to primary role but is one of the many roles assigned to the aircraft. 'A' Fleet aircraft are capable of performing all such roles. Hence, IAF utilises these aircraft in different roles depending upon area of deployment. These are appended below:—

Areas	Primary Task	Secondary Tasks
Chandigarh	Transport Support Role (air maintenance)	Route Transport Role (RTR) and all other task as defined above.
Jorhat	Transport Support Role (air maintenance)	RTR and all other task as defined above.
Agra	Para Bombing RTR	Para Training and all other task as defined above.
Sulur	RTR (courier flights to A & NC)	RTR and all other task as defined above.
Yelahanka	<i>Ab-initio training</i>	RTR and all other task as defined above.

33. On being asked whether the low air maintenance task is due to the fact that sufficient requirement of air maintenance does not exist in the IAF as well as in Army and Navy, the Ministry in their note stated as under:

"The air maintenance requirements are solely dependent on the demands projected by user agencies. The location of the squadron also dictates the roles assigned to the Squadron. In case of missions of aid to civil manpower, the provision of timely relief at short notice is of a prime concern. Hence, to preclude wastage of flying hours and ensure optimum utilization of aircraft, squadron involved in air maintenance on regular basis are also tasked for other roles."

34. Enquired whether the Ministry have examined the reasons for difference in the projections of shortfall in achievement of flying task targets fixed by the Government and that of AIR HQ which is about 51 per cent, the Ministry in their note stated as under:

"The maximum authorised flying hours as stipulated by the Government of India is 66 hours, per aircraft, per month, which corresponds to 792 hrs. per month for squadron strength of 12 aircraft. This however, is the maximum permissible authorization and has been visualized to be utilised only during emergent situations. During peace time operations the utilization rate may

be limited due to emphasis on utilisation of alternate/cheaper means of transportation (other than air) for routine missions, periodic servicing and maintenance inspections, rectifications, aircraft deployment away from base due to operational requirements etc. There are certain other constraints imposed on flying due to weather, airspace closures and certain operational and administrative imperatives. Considering the above mentioned factors and based on actual flying done by the units over the years during peace time, the task was revised to a 360 hrs, per aircraft, per year *i.e.* 30 hours/aircraft/month. This rate of effort is also revised every year in order to forecast requirement of rotables and spares for the aircraft. This ensures that the flying task is always maintained within the Government authorization without any extra cost to the exchequer with optimum utilisation of the valuable air assets and retaining the capability for higher utilisation under emergencies like war etc."

35. To a query as to when did the Ministry of Defence noticed this difference and what action was taken to reconcile the same, the Ministry in their reply stated as under:

"..... Air assets are a very precious resource of a Nation and are inherently expensive in utilization. Hence, for routine peace time operations, the aircraft utilization is lower than the maximum authorized due to emphasis on utilisation of alternate/cheaper means of transportation (other than air). Also, during peace time tasking, aircraft utilization is lower than maximum authorized due to servicing and maintenance activities, lack of spares due to procurement delays, whether constraints, airspace closures and operational requirements etc. The country faced a severe crisis in 1994-05 where in the foreign exchange resources had depleted and there was a need to adopt austerity measures and one, was, to reduce the flying task. Considering the above and in order to ensure that the flying carried out by the operations unit and the fleet is always maintained within the task as authorized by the Government, the task was revised to a realistic and achievable figure of 30 hours per aircraft/month without incurring any additional cost to the State. Thus, the task revision ensures optimum utilisation of the valuable air assets while retaining the capability for increased utilisation when required in mobilization and war like situations etc. To this effect, the Rate of Effort as indicated every year is monitored and adhered to at all levels."

36. The Ministry further added:

"With respect to air maintenance, the allocated task was always achieved during the period under Audit. A review of the task allotted for air

maintenance for Northern & Eastern sector for this period is given below:

Year	Northern Sector		Surplus/ Deficient Allotted	Eastern Sector		Surplus/ Deficient Eastern	Reason for short- fall
	Achieved	North- ern Sector		Achieved	Sector		
01-02	19601T	20862T	+1192T	2258T	963T	-1295T*	
02-03	21174T	23089T	+1915T	1805T	1052.913T	-752.087T*	*Load not provided by
03-04	24187T	24362T	+175T	1347T	915T	-432T*	Indenting agencies
04-05	24943T	27505T	+2562T	1550T	894T	-659T*	
05-06	23500T	24171T	+671T	1810T	1326.7T	-483.3T*	
	Initial allotment 23030T. Thereafter, 30 Tonnes transferred to J & K Govt. and 1000 T surrendered.						

There has always been over achievement of the allocated task in the Northern sector. The shortfall in the Eastern sector has been mainly due to non provision of load by intending agencies (certificates of surrender available with Air HQ)".

37. Elaborating further, the Ministry stated that:

"The training when carried out exclusively as pure training is indicated as continuation training and is logged under the training head. However, IAF to ensure optimum utilisation of every sortie, most of the training is done as on the job training. The on job training thus carried out is indicated under the heads like Route Transport Role (RTR), air maintenance etc. but not as training. The operation preparedness of the fleet is thus maintained with a judicious mix of On Job Training and pure training. To provide more definite instruction for recording flying under various heads like training, Route Transport Role (RTR), On the Job Training (OJT), air maintenance etc., IAF has ordered a study to standardize the flying returns of all the units of the transport fleet. This web based application once implemented would provide uniformity and greater details of task achievement including OJT, pure training etc. The tasks listed under 'Miscellaneous tasks' would also be formalized into appropriate categories."

38. The Committee sought to know as to how the inclusion of miscellaneous task in the flying programme is justified. In response, the Ministry in a note stated as under:

"Miscellaneous tasks are fully authorized tasks which are essential for maintaining operational readiness of the squadron. Since this encompasses multifarious tasks, these are thus marked as miscellaneous tasks and are (a) Positioning flights for couriers, air maintenance, staging flights, Route Transport Role (RTR) missions. (b) Ferry flights to and from overhaul

agencies where no payload carriage is permitted. (c) Special missions like carriage of sensitive cargo of various defence/research agencies etc. (d) Missions on aid to civil power involving airlift of specialist teams, equipment, casualty evacuation etc. (e) Air Tests, calibration sorties, aircrew test sorties, system check sorties."

39. Explaining the reasons for diversion of tasks of aircrafts from their primary roles of air maintenance and training to routine and miscellaneous task which resulted in serious shortfall of 43 per cent in achieving air maintenance task and 58 per cent in training, the Ministry in a note stated as under:

"The routine flying task comprise majority of transport aircraft operations under common terminology called Route Transport Role (RTR) which entail airlift of men and material from one place to another. Whereas air maintenance to Transport Support Role (TSR) is another task which is specifically carried out in support of Army and other agencies requiring to be maintained by air to places not connected by road transport means due to terrain, weather or geography. Similarly, training of aircrew is required at all stages to maintain continuity and proficiency. Thus training is integral to any aircraft fleet type and cannot be considered as primary role. Other roles include para trooping, supply drop, casualty evacuation, Humanitarian Assistance/Disaster Relief (HA/DR) operations, etc. Thus it may be noted that 'air maintenance' does not correspond to primary role but is one of the many roles assigned to the aircraft. 'A' Fleet aircraft are capable of performing all such roles. Hence, IAF utilizes these aircraft in different roles depending upon area of deployment. These are appended below:-

Areas	Primary Task	Secondary Tasks
Chandigarh	Transport Support Role (air maint)	Route Transport Role and all other task as defined above.
Jorhat	Transport Support Role (air maint)	Route Transport Role and all other task as defined above.
Agra	Para Bombing Route Transport Role	Para Trooping and all other task as defined above.
Sulur	Route Transport Role (courier flights to Andamand & Nicobar Islands)	Route Transport Role and all other task as defined above.
Yelahanka	<i>Ab-initio</i> Training	Route Transport Role and all other task as defined above.

40. When asked to explain the reasons for non-planning of the flying task well in advance, the Ministry in a note stated as under:

"The flying tasks are generally planned well in advance. However, the demands of the user agencies which include civil agencies constantly vary as per the requirement of the situation and hence, at times, do not

adhere to the planned tasks. To retain operational effectiveness and to provide timely relief (in case of aid to civil agencies), this method is adopted."

41. Asked as to why the planning process does not include exigencies such as aid to Civil Agencies, situation analysis etc., the Ministry in their reply stated as under:

"Aid to civil agencies, humanitarian assistance, disaster relief, casualty evacuation etc. are all need driven missions and due to their inherent unpredictable nature. Despite advances in modern science, it is not feasible to predict their scale, location and frequency. No amount of proactive forecasting can predict such requirement which have innumerable variables like scale, location of the affected area from the nearest rail/road/air head, the accessibility of the area, the state of the existing disaster management machinery, the prevalent weather conditions etc. which vary largely with the prevalent situation. Tsunami, the Jammu & Kashmir issue and Bihar floods stand testimony to the complexity of such relief missions. The category of 'Miscellaneous tasks' was thus created to plan for such tasks."

42. Enquired whether the Ministry have now evolved a system of periodical review regarding utilization of aircrafts so as to ensure their fuller utilization and also be enable for carrying out their primary role, the Ministry in their written reply stated as under:

"A system of monthly review of task achieved by the units has been in place for the Aircraft 'A' fleet ever since the aircraft became fully operational (1984-85) in the IAF. The details of flying carried out by each unit of 'A' fleet in the IAF is scrutinized every month at wing/command and finally at Air HQs levels. These returns contain data on aircrew and technical manpower availability, aircraft and spares availability, servicing cycles and flying task achieved etc. Flying hours achieved *viz-a-viz* payload airlifted as projected in these returns are analyzed critically to ensure effective task accomplishment within available resources. Any anomalies, if observed are suitably addressed. All commands/wings have been instructed to ensure that the demand of all user agencies are vetted at appropriate levels, prioritized and dovetailed with other tasks like RTR, training etc. to ensure optimum utilisation of air lift capability."

D. SHORTFALL IN UNDERTAKING TRAINING TASKS AT TRAINING CENTRES (Para 1.6.1.4)

Para-trooping School

43. As per the Audit, one of the primary tasks of the Aircraft 'A' fleet is para trooping and to achieve this task, a Paratroopers Training School (PTS) was set up with 12 aircraft. The school is required to operate a combination of two types of courses i.e. one type deploying six aircraft for para-trooping and medical Para Course Basic (PCB) training (Flight 'A'), and another type using the balance six aircraft for conducting conversion course (Flight 'B').

44. However, Audit examination showed that even though the primary task of the PTS was training, 53 per cent of flying tasks were allotted for RTR with allocation for para-trooping being only 18 per cent. Even this low allocation for para-trooping training was utilised only to the extent of 51-67 per cent during the past five years. Audit examination also disclosed that except for basic para-trooping course, there was shortfall with respect to annual targets in each year for all other Flight "A" courses. Besides, the school was required to conduct Medical PCB and refresher courses and aircrew para ground training courses on "as required" basis. However, during the period no such courses were conducted. In the case of Flight "B" courses, for which six aircraft were earmarked, it was seen that none of the envisaged courses *i.e.* FA Controller Courses, Air Crew Paratrooping Courses and Air Crew Conversion Courses were conducted in the last five years. The facilities and aircraft earmarked for Flight "B" courses remained totally unutilised.

45. The details of para-trooping training courses sand conversion courses envisaged and actually held, actual output and shortfall against envisaged output during the period 2001-06 are given in the following Table:

FLIGHT 'A'

Sl. No.	Course	Output as per policy page	Actual output					Shortfall in percentage				
			01-02	02-03	03-04	04-05	05-06	01-02	02-03	03-04	04-05	05-06
1.	Basic	1250	1401	1342	1357	1447	1403	-	-	-	-	-
2.	Refresher	11700	8153	9124	10067	8275	9572	30	22	14	29	18
3.	Basic FF	100	100	77	-	01	13	23	100	100	99	87
4.	Refresher FF	800	63	80	48	14	29	92	90	94	98	96
5.	Path Finder	12	-	06	-	06	10	100	50	100	50	17
6.	Jump Master	72	-	24	-	44	55	100	67	100	39	24
7.	PJI Course	As required	10	09	08	07	07	Shortfall not known as output not specified in policy page				
8.	Medical PCB	As required	100 per cent shortfall due to non-allotment of task by Air HQrs.									
9.	Medical PC Refresher	As required	100 per cent shortfall due to non-allotment of task by Air HQrs.									
10.	Aircrew Para Ground Training Courses	As required	100 per cent shortfall due to non-allotment of task by Air HQrs.									

FLIGHT 'B'

Sl. No.	Course	Duration (Days)	No. of courses to be conducted in a year	Intake per course	Output as per policy page	Actual output
1.	FA Controller Airborne Course	On required basis	—	On required basis	—	NIL
2.	Aircrew para-trooping course					
A.	Basic	28	12	08	96	NIL
B.	Refresher	07	24	12	288	NIL
C.	Jump Master	07	—	—	72	NIL
3.	Aircrew conversion course					
A.	Captain conversion course	120	03	10	30	NIL
B.	Second pilots conversion course	120	03	08	24	NIL
C.	Navy pilots conversion course	120	03	09	27	NIL
D.	Flight Engineer conversion course	120	03	09	27	NIL

46. In their explanation to aforesaid Audit observation, Paratroopers Training School stated that the shortfalls were on account of the Army not detailing troops for para-trooping courses and non-allotment of tasks by Air HQ for the other types of courses. Air HQ had informed the Audit that medical courses were disbanded in 1999.

47. Asked about the reasons for non-utilisation of the facilities and aircraft earmarked for flight 'B' course, the Ministry stated in a note as under:

"Due to conversion course training being reassigned to Yelahanka, six aircraft of Para Training School (PTS) were now utilised more for RTR and as a result there is quantum increase in this role over the years. Due to central location of the unit, these aircraft have been utilised in quick relief missions during natural calamities etc. This ensures optimum utilisation of aircraft and precludes wastage of flying hours. Therefore, it would be incorrect to say that the 'A' fleet aircraft of PTS have been diverted from their primary task of para-trooping and training. In fact while fulfilling the critical capabilities of para trooping these aircraft have been optimally utilised for other assigned roles. In 1987, the *ab initio* conversions training of pilots were relocated to 414 Air Force Stations from PTS. Only Flight Engineers conversion course is now being held at PTS on a regular basis. The unit has conducted 12 Flight Engineers courses since 2001 training about 110 aircrew and hence there is not shortfall in training tasks."

48. When asked about the rationale behind assigning only 18 percent of the tasks for the purpose of para-trooping inspite of its being a primary task, the Ministry stated in a note as under:

"The 'A' Fleet aircraft are capable of performing many operational roles. Para-trooping is a role which is specifically carried out in support of Army and other agencies as per the requirements projected by them. The other roles of the aircraft are supply drop, casualty evacuation, routine transport operation, aid to civil power and humanitarian and disaster relief. Thus, Para-trooping is one of the many roles assigned to the aircraft. All the requirements of the user agencies for Para trooping have always been met. The number of hours allocate for each task for the last 5 years is as follows:—

Year	Unit	Yearly Planned	Achieved		
			RTR	TRG/MISC	TSR
2001-02	PTS, AF	3480 Hrs	2451 Hrs	741 Hrs	487 Hrs
2002-03	PTS, AF	3480 Hrs	2373 Hrs	784 Hrs	720 Hrs
2003-04	PTS, AF	3480 Hrs	2368 Hrs	785 Hrs	803 Hrs
2004-05	PTS, AF	3480 Hrs	2610 Hrs	833 Hrs	776 Hrs
2005-06	PTS, AF	3480 Hrs	2507 Hrs	903 Hrs	792 Hrs"

49. The Committee sought to know as to whether the Ministry have examined the reasons for allocation of 53 per cent of flying tasks for Routine Transport Role (RTR) instead of the primary task of training by the Para-trooping School. In response, the Ministry in their reply stated as under:

"The plan for indigenization of all the parachutes in the inventory of the Army was taken up in the eighties. The Ordinance Parachute Factory (OPF) was tasked to produce these parachutes by using reverse engineering. There were initial teething problems on the prototypes during the trial jumps by the Para Jump Instructors which had to be sent back for modification to the manufacturer. There was delay in the manufacture and production of these parachutes. The shortfall of parachutes however, could not be met by the indigenous support and alternatives had to be looked into, without curtailing the training of paratroopers of the Brigade and Special Forces. A decision was taken in 1985 to reduce the jumps of Refresher Course from 04 descents to 02 descents for utilizing the limited parachutes available in the training stock at PTS, AF. The flying task had automatically reduced and the aircraft hours were put to use for important roles of casualty evacuation, disaster relief roles without hampering the para commitment role. There has been no delay in the completion of the courses except during inclement weather. In fact Para task gets priority over the routine training sorties during day to day flying at Agra. It is also pertinent to mention that the number of injuries is the least as compared to

any other training institution which conducts Para-trooping on such a large scale, because of which there are frequent courses at PTS, AF for trainees from various friendly countries."

50. Asked about the specific reasons for Army not detailing troops for para-trooping courses and non-allotment of task by Air HQ for the other type of courses, the Ministry stated in a note as under:

"For the shortfall in detainment of troops by the Indian Army, the matter is being taken up with their Head Quarters. Besides this, army units (Para BAns) deployed in operational Areas were unable to spare manpower due to operational commitments. However to ensure their para training currency, teams of Para Jump Instructors, SEWs and parachutes from PTS are regularly sent to operational locations to conduct *in situ* Para training. The reasons for shortfall in detailment of troops by the Indian Army is as follows: (i) Adequate number of trainees not being sponsored by the Army for training: The shortfall highlighted is due to non-detailment of troops by the Indian Army, which may be resolved with their Head Quarters. Besides this, inability projected by the army units (Para Btms) deployed in operational areas to spare manpower due to operational commitments. However, *in-situs* para refresher courses are conducted on regular basis by team of Para Jump Instructors, SEWs and parachutes from PTS, to ensure their para training currency at operational locations. During Para Year 2006-07, a total of 1,380 trainees were trained in basic para course and 11,648 were given refresher training. Improvement in achieving para training targets can be seen from the data on troops trained by PTS since 2001 as given below:

Sl. No.	Para Year	Planned Basic/Refresher	No. of Trainees Basic/Refresher
(a)	2000-2001	1250/11700	1369/8095
(b)	2001-2002	1250/11700	1401/8153
(c)	2002-2003	1250/11700	1342/9124
(d)	2003-2004	1250/11700	1357/10067
(e)	2004-2005	1250/11700	1447/8275
(f)	2005-2006	1250/11700	1403/9572
(g)	2006-2007	1250/11700	1380/11468
(h)	2007-2008	1320/11700	981/9751 (upto 30 April, 2008)

Excess training is Basic by 130 personnel and shortfall in ref. course by 232 personnel: (i) Free Fall Training: The revised training syllabus in respect of basic free fall and refresher course has been finalized. However, due to non-availability of combat free fall parachutes and further delay in

procurement of 700 free fall parachutes from OPF Kanpur, by Army HQ has led to shortfalls in subscribing basic as well refresher CFF courses. As per Army HQ, procurement procedure is under progress and indent is yet to be placed. Despite this limitation, free fall basic course for Indian Navy personnel and free fall basic/refresher courses for the Army is in progress at present. It may be noted that there is no separate infrastructure created nor was any additional manpower posted for free fall training at PTS; (ii) Presently, courses for both Pathfinder and Jump Master are being conducted at PTS after the revision of requisite syllabus by AATS and PTS. In case of PJI's, selection for the course is done as per the requirement; (iii) There has been no shortfall in medical basic and refresher course as No. 1 and 2 teams of Medical paratroopers Flight have been dispensed as per FOI letter No. Air HQ/S 18158/Plans/1/1109/U.S.(L)/D(Air. III) dated 14th July, 1999 and these flights are non-existent; and (iv) Air crew Para Ground Training Course is being regularly conducted at the training establishment."

51. The Ministry further stated:

"Due to shortage of free fall parachutes and delay in procurement of parachutes by Army HQ the task related to free fall training of Army personnel has not been achieved. Despite this limitation free fall conversion course for Indian Navy personnel has been carried out and free fall basic courses for the Indian Army and Navy are in progress at present. Also there has been no shortfall in Medical Basic and Refresher Courses as No. 1 and No. 2 teams of Medical Paratroopers Flight have been disbanded as per GOI letter No. Air HQ/S 18158/Plans/1/1109/US(L)/D(Air-III) dated 14 July, 99 and these flights are now non-existent. Apart from this, Aircrew para ground training courses are being regularly conducted at the training establishments."

52. When asked about the steps taken to improve the utilization of the capabilities of para-trooping school in consultation with user agencies, the Ministry stated in a note as under:

"In order to enhance training imparted at Para Trooping School, AF, new and meaningful apparatus/infrastructure is in the process of being provided. Recently, a Para Training simulator has been installed to train paratroopers, aircraft-in-flight drills. This simulator includes an Aircraft 'A' fuselage complete with para role modifications. Also statement of cases have been forwarded for the modernization of apparatus/infrastructure at Ground Training Faculty (GTF), Para-Trooping School (PTS)."

Training Centre at an Air Force Station

53. As per Audit, this training facility was created for training pilots on Aircraft 'A' with a UE of eight aircraft. The unit held one excess aircraft during 2001-02 and two during 2002-06 attributing the excess to additional training and other unspecified commitments. Details of flying task, allotted by Air HQ, and achievements against the same showed that against the allotted task of 5400 hours for training, achievement ranged between 2109 hours and 3459 hours showing a utilization rate which ranged from 39 per cent to 64 per cent. The unit also used aircraft for "miscellaneous and other tasks" for 1643 hours to 2174 hours, which was not authorized. Simultaneously, audit

also observed shortfalls ranging from 20 to 82 per cent in training of pilots which is illustrated in the table given below:

Year	Output per year as per policy page (Number of pilots)	Actual output per year (Number of pilots)	Percentage of shortfall
2001	44	17	61.37
2002	44	21	52.28
2003	44	27	38.64
2004	44	08	81.82
2005	44	35	20.46
Total	220	108	

54. Audit pointed out that in the context of the shortfalls in achieving targets for training of pilots, underutilization of aircraft on core training tasks was not justified.

55. When asked as to how the Air HQ can justify the excess use of 3 aircraft during the period 2001-02 and 2002-06 for additional training when in reality the actual achievement of flying tasks ranged between 2109 hrs. and 3459 hrs. against the allotted task of 5400 hrs., the Ministry in their written reply stated as under:

"Training is a complex time bound activity which requires concurrent use of available assets for timely completion of task. The training task also varies as per the intake of trainees of each course. Mid course relegations, suspensions, medical down gradations of trainees also vary the training tasks to a large extent. On review of monthly flying task at Air HQ, at times it is evident that air effort at the training station would have to be augmented to expedite the planned training so that the training targets are achieved without delay. On such occasions, Air HW resorts to increment of aircraft resources at the air station. Instructors from operational units are also attached to assist in accomplishment of planned training. The flying training of all the trainees was completed successfully as planned by the air station during the period 2001-2002 and 2002-2006. All the pilot/navigator trainees of Aircraft 'A' have successfully completed their training as planned. Break down of flying task achieved against planned task of air station is as follows:—

Year	Planned task	Achieved (Training)	Achieved (Other task)	Total Achieved
2001-02	4500	2118	1926	4044
2002-03	4500	2109	2174	4283
2003-04	4500	3032	1643	4675
2004-05	4500	2828	1860	4688
2005-06	4500	3459	1965	5424

It is evident from above that the flying task as planned has always been achieved. The variation in task achieved has been mainly due to the factors mentioned earlier and as enumerated in subsequent paragraphs."

The Ministry further stated:

"Aircraft of 'A' fleet of the IAF are capable of performing various roles such as para-trooping, supply dropping casualty evacuation, aid to civil power, disaster relief and humanitarian assistance etc. In case of emergent situation like casualty evacuation, disaster relief, Humanitarian assistance, movement of specialist cargo, airlift of rescue teams, timely relief is of paramount importance. Depending on the geographical location of the unit, the operational role of the unit, number of aircraft, aircrew available with the unit, Air HQ allots such tasks to the nearest located transport unit. Air Station at Yelahanka is the only other transport unit in Southern India. The unit thus was tasked to provide succour in times of Latur earthquake, Bhuj earthquake and Tsunami. The training required was carried out as On Job Training but could not be reflected under training task as only exclusive training sorties are logged under training head. To retain operational effectiveness, the training staff is also required to have currency in various other roles of the aircraft and hence the aircraft of the training station are also tasked for air borne exercises, target dropping, supply dropping etc. The training task thus achieved by the air station includes a judicious mix of On Job Training and pure training. As mentioned earliera study has been ordered by the IAF to issue definite instructions on the methodology of recording each kind of flying activity undertaken by various operating units of the IAF. A preliminary review was submitted by the team in end of Aug 08. Field trials of this application would commence once Air Force Net is fully operational at unit levels. Once implemented, the new pattern of flying returns would provide greater details of task accomplishment including OJT, pure training etc."

56. When asked whether any measures which have been taken for reducing the shortfall in achieving the targets for training of pilots, the Ministry in their written reply stated as under:

"In 1987, the *ab-initio* conversion training of pilots and navigators was reassigned from PTS Agra to Yelahanka. However, conversion course for Flight Engineers continues to be conducted at PTS Agra on required basis. The unit has trained a total of 91 trainees in 10 courses conducted since 2001. A course for 14 Flight Engineers is being conducted presently. The training of pilots is being effectively carried out as per schedule at Air Force Station, Yelahanka and there is no shortfall in the training of pilots."

57. To a specific query as to why the aircraft held by the training school/centers been significantly used for Routine Transport Role and miscellaneous tasks, the Ministry in their reply stated as under:

"Once the conversion training was reassigned to Yelahanka, the aircraft on the strength of the training school were now utilized more for RTR and

other operationally necessary miscellaneous tasks and as a result there is quantum increase in this role over the years. The unit is located in central location from where it is possible to provide airlift at relatively shorter duration of time in relief missions during natural calamities, casualty evacuation etc. This ensures optimum utilization of aircraft and precludes wastages of flying hours. In fact while fulfilling the critical capabilities of para trooping these aircraft have been optimally utilized for other assigned roles."

**E Modification and Utilization of Aircraft 'A' for VIP use
(Para 1.6.1.5)**

58. During 2001-03, Air HQ modified six Aircraft 'A' for VIP use. It had earlier modified two aircraft for VIP use between 1992-99. Audited scrutiny revealed that the modification and utilization of eight aircraft was not only irregular but also lacked justification on account of the following reasons:—

- (i) IAF did not have adequate number of serviceable Aircraft 'A' for its primary role of air maintenance, as a result the flying tasks assigned had to be reduced considerably. Therefore, diversion of such large number of aircraft (20 per cent of the total serviceable aircraft with IAF) for VIP use showed an unexpected indifference to its primary role;
- (ii) the modification involved change in the rule of the aircraft from what had been approved by the Government. Hence the modification required approval of the Government. In December, 1995, however, approval for modification of Aircraft 'A' was denied by the Government. Despite this, the IAF continued modifying aircraft and altered their role irregularly;
- (iii) a specialized Communications Squadron consisting of two Boeings, four executive jets, seven Avros and six helicopters, exists for use by VIPs, Government orders issued in 1981 regulate use of these aircraft by VIPs *i.e.*, the President, the Vice-President and the Prime Minister who are the only personages ordinarily entitled to use the aircraft in this squadron. Other entitled personages (OEP) including senior service officers can use aircraft of the Communications Squadron, if it is essential to do so and aircraft are available. Given the existence of a specialized and dedicated squadron with adequate number of aircraft for flying VIPs and OEPs, diverting eight Aircraft 'A' for VIP/OEP use was not justified;
- (iv) during 1999-2004, the Avro fleet in the Communications Squadron was used only to the extent of 3.9 per cent by the three entitled personages and 46.9 per cent by OEPs. It was thus evident that existing aircraft in the specialized Communications Squadron were underutilized. This further diluted the justification for modifying Aircraft 'A' for VIP/OEP use; and
- (v) if there was unfulfilled demand for aircraft for VIP/OEP use, increase in the holding of the existing Communications Squadron should have been considered instead of designating Aircraft 'A' for this purpose outside of the Communications Squadron. Earmarking aircraft for VIP role outside the Communications Squadron also led to dilution of control on use of service aircraft by VIPs and OEPs.

59. In their explanation to the aforesaid Audited observation, the Ministry stated that the modification of aircraft for VIP role is temporary and it does not change the role of the aircraft for which it has been fixed. The modification does not impact the functioning of the IAF as commanders and senior officers undertake tours and inspections necessary for upkeep of operational readiness and morale of the troops. Military Commanders are authorized to travel in service aircraft on inspection tours to areas under their jurisdiction as per provisions Paras 3 to 7 of AFI 9/83 (duly approved by Ministry of Defence). Further, that these aircraft are utilized for their assigned roles which include communication duties to mountainous regions like Leh, Srinagar, Kargil and Advanced Landing Grounds in Northern Eastern regions.

60. Asked about the reasons for the modification and utilization of Aircraft 'A' by the Air HQ for VIP use especially when a specialized Communications Squadron with adequate number of aircraft already existing for this purpose, the Ministry in a note stated as under:

".....This is the only aircraft capable of operating out of Advanced Landing Grounds and high altitude airfields and have been employed on communication duties for the entitled military commanders to such areas. Thus these aircraft are utilized for their assigned roles which include communication also."

61. Enquired about the present position of modification of Aircraft 'A' for VIP use, the Ministry informed the Committee that all the temporarily modified VIP aircraft have been de-modified to freighter role last year itself and the role in/roll out modifications would be available for future use if the situation so demands.

62. The Committee asked whether the Ministry would agree that diversion of such large number of aircraft *i.e.* 20 per cent of the total serviceable aircraft with IAF for VIPs showed an unexpected indifference of IAF to its primary role. In response, the Ministry in their reply stated as under:

".....the primary roles of the ac comprise majority of transport aircraft operations under common terminology called Route Transport Role (RTR) which entail airlift of men and material from one place to another, Air maintenance or Transport Support Role (TSR) which is specifically carried out in support of Army and other agencies requiring to be maintained by air to places not connected by road transport means due to terrain, whether or geography, para-trooping, supply drop, casualty evacuation, Humanitarian Assistance/Disaster Relief (HA/DR) operations, etc. Being temporary easy to role in/roll out modifications, these aircraft are de-modified whenever they are inducted for servicing and the modification shifted to another aircraft if so required. Being temporary modification, these aircraft were de-modified during disaster relief operations and utilized for carrying cargo along with the service commanders, dignitaries, press teams, rescue teams etc. Thus, the aircraft has been performing all its assigned primary roles."

63. when enquired about the details of the total expenditure incurred in respect of each of the eight aircraft, the Ministry submitted in a note as under:

"A total expenditure of Rs. 56 lakh has been incurred for modification of the eight aircrafts. The details are as follows:-

Sl. No.	Aircraft No.	Date of Modified	Unit	Command
(a)	K-3065	Apr. 1992	43Sqn	EAC
(b)	K-2758	May 1999	12 Sqn	CAC
(c)	K-2715	Aug. 2001	33 Sqn	SAC
(d)	K-2721	Prior to Nov. 2001	48 Sqn	WAC
(e)	K-2717	Mar. 2002	43 Sqn	EAC
(f)	K-2744	10 May 2002	48 Sqn	WAC
(g)	K-2677	Feb. 2003	33 Sqn	SAC
(h)	K-2750	Aug. 2003	12 Sqn	CAC

The expenditure incurred on modification of VIP role was intimated *vide* Air HQS letter No. Air HQ/82897/1/BM-2/Eng. D 3(T) dated 13th September 2007. However, towards de-modification of VIP aircraft Nil expenditure was incurred."

64. In their Post Evidence Reply, the Ministry stated as under:

"A total expenditure of Rs. 56 lakhs had been incurred for modification of these 08 aircraft. However, towards de-modification of VIP aircraft nil expenditure was incurred. Air HQ had approved modification using delegated power for revenue expenditure. The de-modification was ordered by Air HQ."

65. The Committee specifically asked as to how the Ministry would explain as well as account for the expenditure of Rs. 56 lakh for temporary modification of the aircraft; and also whether any explanation had been sought from the concerned officials for this un-authorised modification of aircraft. In response, the Ministry in a note stated as under:

"The total expenditure of Rs. 56 lakh was arrived at, by extrapolating the amount spent for modification of one aircraft, which is Rs. 7 lakh as per records available at the Air HQ. The modifications were temporary *i.e.* roll-in/roll-out type and did not effect the basic freighter role of aircraft. The benefit of modification is for movement of Army Commanders and other service dignitaries to certain airfields and advance landing grounds where only Aircraft 'A' aircraft can be operated. It was an organisation decision and not any individual. Hence, no explanation was asked from any individual."

66. Asked about the details of passengers who used modified aircraft indicating name of passengers, destination and duration of flying, the Ministry stated in a note as under:

"The Civilian VIPs are flown based on their entitlement/clearance by appropriate authority. Serving senior officers fly on duty related missions due operational necessity based on existing instructions. The details of flying undertaken during last five years for various VIP tasks undertaken by Aircraft 'A' aircraft category-wise exclusive of positioning hours are as follows:

Year	Service Dignitaries	VIP/OEPs
2002	180	84:10
2003	377:30	133:40
2004	821:30	29:05
2005	718:00	37:20
2006	608:15	02:15
Total	2705:15	286:30"

67. Audit scrutiny further disclosed that the modified aircraft were not used by any of the three VIPs and were instead predominantly utilised by OEPs such as senior officers of the Services, AFWA/AWWA Presidents and their accompanying staff. AFWA/AWWA Presidents are not even covered under the category of OEPs. Expenditure on use of these aircraft by OEPs amounted to Rs. 75 crore since their modification. Further, after modification, the payload and the passenger carrying capacity of the modified aircraft was significantly reduced to 1800 kg. and 19 persons respectively. Test check by Audit regarding the use of a modified aircraft during one year showed that it carried an average of three passengers and 2 kg. payload per sortie as against the passenger carrying capacity of 40-50 persons and load carrying capacity of 6700 kg. of the aircraft.

68. When asked as to how the Ministry can justify use of the modified aircraft by the unauthorised/OEPs, the Ministry in a note stated as under:

"No unauthorized personnel have been allowed to use these aircraft. Commanders and senior officers undertake tours and inspections necessary for upkeep of operational readiness and morale of the troops. Military commanders along with their spouse are authorised to travel in service aircraft on inspection tours to areas under their jurisdictions as per provisions of Para 3 to 7 of AFI 9/83 which is duly approved by Ministry of Defence."

F. DEPLOYMENT OF OPERATIONAL PERSONNEL

69. Audit review has further revealed that there was surplus/deficiency in operational manpower in eight operational units/squadron of Aircraft 'A' during the

peirod 2001-06. the details of which are given as under:

Year	Percentage of surplus/deficiency		
	Pilot	Navigator	Flight Engineer
2001-02	- 22	+13	+10
2002-03	- 19	+1	+14
2003-04	- 18	+13	+25
2004-05	- 14	+5	+27
2005-06	- 13	+28	+34

70. It may be seen from the above that the Aircraft 'A' squadrons/units had serious shortages of Pilots but surplus of Flight Navigators and Flight Engineers. The deficiency in the number of Pilots, however, declined from 22 per cent in 2001-02 to 13 per cent in 2005-06. In the case of Flight Engineers, the surplus manpower increased substantially from 10 per cent in 2001-02 to 34 per cent in 2005-06. According to Audit, deficiency in pilot strength would have adverse impact on the rate of utilization of the aircraft. In fact, Air HQ, while justifying lowering the flying task from 66.66 hours to 30 hours per month in 1995, attributed this, *inter-alia*, to shortage of pilots. Further, deficiencies in pilot strength along with surplus in the strength of navigators and engineers indicates imbalance in deployment of operational manpower in these squadrons/units.

71. Audit scrutiny further disclosed that two squadron/unit held surplus pilots over authorisation, six other squadrons/units faced deficiencies. Air HQ had stated that additional manpower was being provided in the units entrusted with Air Maintenance role. However, Audit contested the reply of the Ministry as according to them significant shortages of pilots existed in three squadrons and in PTS which had critical Air Maintenance and para-trooping training role.

72. Further, the Air HQ, also justified excess manning in the two units on account of increase in task. However, Audit scrutiny disclosed that the tasks acheived in these two units, have not shown any significant variation. Audit stated that no explanation as given by the HQ, for holding surplus Navigators and Flight Engineers in most of the units especially in view of significant shortage of pilots in some of the units.

73. Asked about the reasons for holding surplus navigators and flight engineers in most of the squadrons/units, the Ministry in their reply stated as under:

"Excess Navigators and Flight Engineers: The Government of India authorised induction of navigators is 24 per year. Induction is through the pool of Flying (Pilot) training who are suspended from flying training. After *ab-intio* training at Navigation Training School (NTS) and 414 AFS, young navigators are posted to 'A' fleet units to build up competency. The manning of Navigators and Flight Engineers for the period of report was marginally in excess of the Norms fixed (01 per aircraft for navigators and 1.25 per aircraft for Flight Engineer). This was done to cater for the overall qualificaton status of the units under reference. There was no induction into the Flight (Navigator) cadre from 1984 to 1988. Thereafter the induction

of Flight (Navigator) officers has been satisfactory, which led to a younger seniority profile of the Flight (Navigator) cadre from 1990 till date. If statistics were to be compared, 348 experienced navigators exited the Indian Air Force between 1990 and 2000. During this period, a total of 260 navigators were inducted. This translates to an average of 32 exits and 24 entries per year for the period. This led to a reduction of fully qualified navigators in the Indian Air Force. If the Aircraft - 'A' units were to be manned as per norms, the overall qualification status of the unit would have been sub-optimal. Thus the units were manned marginally in excess. This ensured availability of adequate Fully Operations navigators in units. Further, going by the relatively lower seniority of the Under Trainee (U/T) navigator, they could not have been employed elsewhere and thus need the necessary training. There was also a requirement of training adequate navigators for new aircraft inductions planned between 2005 and 2011. This was a transitory phase which addressed issues of Operational potential of 'A' fleet units and future requirement. At present, 'A' fleet units have achieved necessary optimal Operational status and are in a position to reduce the manning numbers of navigators. Navigators are also being posted to Su-30 units as WSOs and as UAV/SAGW/Aerostat Operational Crew. This would eventually result in reduction of navigators in 'A' fleet units. The situation of manning imbalance would gradually get stabilized. A similar situation occurred in respect of Flight Engineers. The 'A' fleet had a sizeable number of senior Flight Engineers who were due to exit active flying duties *w.e.f.* 2006. To address the requirement of manpower overlap and to ensure that the new entrants become fully operational prior to departure of senior Flight Engineers, the manning of Flight Engineers was maintained above norms. The same would stabilize *w.e.f.* 2007."

74. When asked how would the Ministry explain for imbalance in the manpower deployed in the Aircraft 'A' squadrons/units where there is shortage of pilots *vis-a-vis* surplus of Flight Navigators and Flight Engineers, the Ministry explained their position in a note as under:

"Shortfall of Pilots: The Ministry of Finance had placed a ban on creation of new posts in 1984. Since 1984, a large number of new Aircraft/Equipment were inducted into the IAF and many existing systems were upgraded. However, manpower for these new systems was not sanctioned due to the Ban. Thus, all new inductions had to be manned by pulling out manpower from the existing units. This led to under manning of a large number of units in order to serve the overall operational requirement of the IAF, which also resulted in pilot shortfalls in the 'A' fleet. During the period of Audit, the IL 78 Air to Air Refueller (AAR) and Embraer executive aircraft were also inducted. Qualified manpower from existing transport fleets (including 'A' fleet) was diverted for the same. However, this lower manning could be sustained due to lower serviceability status of the 'A' fleet. The Government of India had sanctioned additional posts in 2006 in waiver of the Ban so as to make good manpower shortages in the IAF. Effort is on to

enhance induction of pilots so as to fill up the recently sanctioned posts over a 5-7 year period. The manning status of pilots in 'A' fleet has shown a significant improvement in the last two years. Excess of Navigators and Flight Engineers: A total of 348 experienced navigators existed the IAF between 1990 and 2000. These navigators had been employed on duties that included flying, ground weapons and administration. The average induction of navigators for this period was 24 per annum. These navigators were all posted to flying units (predominantly 'A' Squadrons) towards achieving flying proficiency. There was also a requirement of training adequate navigators for new aircraft inductions planned between 2005 and 2011. Thus the 'A' fleet went through a transitory phase of over manning of Navigators. A similar situation existed for Flight Engineers. This over manning was primarily towards addressing the operational training of these young aircrew and their preparation for future fleet inductions. Imbalance: the transitory excess manning of navigators and Flight engineers did not affect the operational functioning of the 'A' fleet."

75. When asked whether the position of operational manning in units has been reviewed in consonance with tasks allocated to units, the Ministry stated in their reply as under:

"The position of operational manning in units has been reviewed in consonance with tasks allocated to units. There are certain units that are assigned specific roles. These roles require aircrew to possess specific experience and competency levels. Further, training for such roles involves time. For example, certain 'A' Fleet units have air maintenance as primary role, while other could have para-trooping or overseas couriers as primary task. Manning of respective units is based on the above requirements.

76. Enquired whether any fresh study has been conducted to assess the manpower requirement in the squadrons/units, the Ministry in a note stated as under:

"The TBM Boards conducted regularly (annually/every two years), work out the minimum manpower requirement for every unit in the IAF. These boards are necessitated so as to cater for the manpower shortfall in the service, wherein the available manpower is optimally distributed across units in the IAF. The TBM Board caters for the following parameters: (i) Branch wise and system-wise establishment of manpower; (ii) The bare minimum manpower requirement per unit to ensure acceptable operational/functional potential. This would be based in the operational imperatives of the particular unit; (iii) Envisaged tasking/workload for the unit for the next one year; (iv) Available effective manpower excluding those on deputations and long courses; and (v) Manpower training issues for future requirement. The TBM Board draws inputs from filed units, Command HQs, Specialist Directorates at Air HQ before deliberating the final unit based manning figures. Once finalized, the TBM figures are circulated to all Command HQs for ratification prior to implementation."

The Ministry added:

"TBM Board 2008 for the 'A' Fleet: The TBM Board conducted in January 2008 included deliberations on the manning requirement for the 'A' Fleet. The tangibles considered were: (i) The forecast aircraft distribution between units in the 'A' Fleet; (ii) The forecast operational and training flying task for 'A' fleet units; (iii) The forecast number of fresh trainees expected in the fleet; (iv) Air Force Standing Establishment Committee (AFSEC) manning norms for the 'A' Fleet; (v) Overall availability of 'A' fleet qualified aircrew; (vi) Forecast requirement for diverting qualified aircrew for other advanced transport ac fleets (eg. AWACS, BBJ and Embraer); (vii) Per capita flying for an individual aircrew; and (viii) Forecast number of 'A' fleet aircrew on Low Medical Category, long courses and deputations. Based on the above, the TBM manpower figures for the 'A' fleet were worked out. It would be ensured that the actual manning of the unit is maintained at/above these values (but at/below establishment/AFSEC norms values). The following facts emerge: (i) The TBM value of 'A' fleet pilots has been increased in 2008 compared to 2007, thus bringing it closer to AFSEC norms; (ii) The TBM value of 'A' fleet navigators has been reduced in 2008 as compared to 2007, bringing its closer to AFSEC norms; and (iii) The above also addresses a few observations by the CAG Report.

Aircraft 'A' Fleet Unit	Aircrew manning			Statistics		
	Pilots			Navigators		
	TBM 2007	TBM 2008	Change	TBM 2007	TBM 2008	Change
12 Sqn	24	28	4	16	14	-2
PTS	25	28	3	16	14	-2
25 Sqn	16	14	-2	8	8	0
48 Sqn	26	28	2	16	14	-2
33 Sqn	26	26	0	15	14	-1
43 Sqn	24	28	4	16	14	-2
49 Sqn	24	28	4	16	14	-2
Total	165	180	15	103	92	-11"

77. To a query regarding the corrective action taken to ensure that sufficient number of staff are deployed in all the squadrons/units, the Ministry stated in a note as under:

"The manning level of pilots and navigators has shown an increment from 2007 onwards. This has been an outcome of improved induction and controlled exits of manpower. The TBM Board makes an assessment of optimal distribution of these aircrew between various squadrons/units. The units are presently optimally manned. Each unit in the 'A' fleet has

specified roles assigned. SOPs exist which amplify the crew composition and qualification for undertaking these roles. These SOPs are factored in the TBM Board when arriving at a final optimal manning figures for a particular 'A' fleet unit. The TBM figures ensure that the unit is capable of undertaking its assigned operational task."

G . DEFICIENCIES IN RECORDS MAINTAINED FOR TRANSPORT OF PASSENGERS AND CARGO

78. Audit scrutiny of flight records held by two squadrons pertaining to six different months during the period 2004-06 disclosed the following inadequacies:

- (i) a manifest of a flight provides details of passengers/cargo carried in the aircraft. Proper accounting of the manifests is essential to ensure that no unauthorised passenger/cargo is carried in the service aircraft. Audit observed that the manifests of Aircraft 'A' did not carry any serial or control number to ensure proper identification and accounting of the manifests. Manifests were also not entered into any control register by squadrons/unit providing airlift;
- (ii) entries in the passenger manifests were altered without unauthorisation of the competent authorities. Further, operational requirement for airlifts and movement of cargo is often not brought out in the manifests; and
- (iii) Unauthorised cargo such as personal belongings and other non-operational stores have been included in the manifests.

Therefore, Audit concluded that the inadequate notices disclosed dilution of internal controls and increased risk of unauthorised use of aircraft.

79. Asked about the reasons for maintenance of manifests without serial and control numbers, the Ministry informed the Committee that the Aircraft 'A' is used for air transportation of cargo/personnel from various airfields spread across the length and breadth of the country. Manifests are issued by various user agencies based on/near these airfields with their own control numbers. The Flight Engineers on reaching back to their parent bases documents these manifests with unit level serial number.

80. On being asked whether the Ministry would agree that it is a control failure which facilitated carriage of unauthorised passengers and cargo in Aircraft 'A' flights, the Ministry contended that flight authorising officers at the unit level and supervisors at squadron, wing, command and AHQ ensure that only authorised freight/passengers are carried in the aircraft.

81. When asked about the improvements that have been made in maintaining flight details and in recording and control of flight manifests, the Ministry stated that the units maintain and record the flight details as stipulated by IAF publication IAP-3314. The inspection teams of commands, Air HQs and the Aircrew Examination Board scrutinise these documents in their periodic visits to the operating units.

82. As regards the initiatives that have been taken to review the operational manning units to ensure that they are in consonance with tasks allocated to units, the Ministry informed the Committee that the task allotted and task achieved are closely monitored periodically at various levels in the Indian Air Force so as to ensure that the operational manning is in consonance with tasks allocated to units.

IV. REPAIRS AND MAINTENANCE

(Para 1.6.2)

83. In view of the complexity of aircraft systems, their utilisation and serviceability is critically dependent on the timely availability of supporting repair and maintenance infrastructure and services. Aircraft 'A' have now been in service for a period of 15-19 years and the need for effective repair and maintenance is now greater so that operational advantages do not get reduced with the age of the aircraft. It is in this background that Audit examined the availability of repair and maintenance facilities and their utilization and also studied repair and maintenance activities, including procurement and indigenisation, to assess, if these were efficient and promoted economy.

ADEQUACY OF REPAIR AND MAINTENANCE FACILITIES

A. DELAYS AND INADEQUACIES IN CREATION OF FACILITIES FOR OVERHAUL AND REPAIR OF AIRFRAMES AT BRD—KANPUR

(Para 1.6.2.1)

84. Audit has pointed out that since Aircraft 'A' were inducted by IAF during 1984-1991, therefore, facilities for overhaul and repair of airframes should have been set up by 1990 to carry out first major overhaul due in that year. However, the facilities were established substantially only in 2002 *i.e.* after a delay of 12 years. The delays in setting up of these facilities and the resultant requirement of sending airframes abroad for overhaul at a cost of Rs. 69.56 crore were reported earlier in Paragraph No. 3 of Audit Report No. 8 of 1998. Further audit examination showed that items supplied by the OEM for creating the repair and overhaul facilities consisted of 116 test rigs used for testing of aggregates during overhaul of airframes. Out of 116 test rigs procured between 1995-2000, 11 test rigs were yet to be installed as of October 2006 due to defects and deficiencies.

85. Asked about the reasons for the inordinate delay in establishment of facilities for overhauling and repairing of airframes, the Ministry explained in a note as under:

"A Protocol for inter-governmental technical assistance was signed between India and USSR in year 1985. The setting up of overhaul line with assistance of General Tech Department (GTD) of erstwhile USSR was thus agreed upon for a contract was signed in 1987. However, this contract for setting up overhaul line at BRD, Kanpur was of general nature without DPR and prices. As DPR wise break down list of test rigs and items required for the overhaul line were not covered in the contract subsequently, a supplementary agreement was signed in year 1991 with the list of DPRs and the total cost of project. Thereafter, due to break up of USSR the firm changed hands from GTD to Rosvooronzhenie and later to Rosobornexport (ROE). The ROE was located in Russia where as the Designer and OEM of the Aircraft 'A' aircraft were in Ukraine. Hence M/S ROE was unable to muster sufficient support from the Ukrainian firms for setting up facilities at BRD Kanpur. This delayed the process of identifying and finalizing agreement for items and test rigs to be supplied and setting up of the overhaul facility of Aircraft 'A'. First aircraft K-2671 under the Plot Project passed out after major overhaul on 01 January 1996. As seen above, the

major contribution for the delay in setting up facilities was the break up of USSR & the uncertainties thereafter in that region."

86. When asked as to why the Ministry did not take any corrective action in spite of Audit pointing out earlier in Para No. 3 of Audit Report No. 8 of 1998 regarding delays in setting up facilities for overhauling and repairing of airframes resulting in sending airframe abroad for overhauling at a cost of Rs. 69.56 crore, the Ministry in a note stated as under:

"Delay took place due to break-up of erstwhile USSR. As a result when aircraft were due for overhaul, the facility had still not been set up. However, our continuous effort resulted in setting up complete overhaul facilities by year 1996. The OEM had initially assigned calendar TBO life of only 6 years for the airframe. Thus, before the facilities were fully set up certain aircraft fell due for overhaul on calendar basis. Thus 46 airframes were required to be sent to OEM for overhaul at an average cost of Rs. 1.5 crore per aircraft, resulting in a total expenditure of Rs. 69.56 crore. However, no airframe has been sent abroad after year 1998 and BRD Kanpur has been consistently undertaking overhaul since then. Also, a payment of Rs. 7.88 crore was withheld from vendors, since all the contractual obligations were not honoured in time."

87. Enquired about the present position of installation of remaining 11 test rigs, the Ministry in a note stated as under:

"The detailed status on the 11 test rigs (05 in Aircraft and 06 in Rotable division) are **Aircraft Division**: (a) 01 test rig fully serviceable (DPR 037); and (b) 04 test rigs that were installed with indigenous efforts are unserviceable due to lack of know-how. (DPR 126, 3577,010 & 2447). **Rotable Division**: (a) 01 test rig serviceable (DPR 2384); (b) 01 test rig (Balancing Machine for Turbo cooler overhaul) replaced by an Indian made (DPR 1653); (c) 01 test rig partially serviceable (DPR 4531); and (d) 02 test rigs commissioned but unserviceable due to vintage components/spares (ex flow-meter etc.) not available at any source. (DPR 502, 504 & 1329). The balance of the task is either carried out in-situ or taken to external agency (IIT Kanpur).

88. As a consequence of the delay in setting up complete overhaul capabilities and non-availability of essential spares, Audit found that 32 overhauls undertaken at BRD-Kanpur between 2002 to 2006 were cleared by Air HQ with a number of 'deficiencies/concessions'. These concessions were on account of non-replacement of mandatory spares and deviations from provisions of bulletins relating to modifications and non-testing for leaks in fuel tanks till next overhaul. This was a deviation from the requirement as rules permit clearing aircraft with concession for only three months followed by a review.

89. Audit has also pointed out that despite Main Landing Gear (MLG) and Nose Landing Gear (NLG) being critical airframe aggregates, however, the in-house capability for undertaking overhaul of MLGs remained limited due to non-availability of some equipment. As a result, overhaul of MLGs were being cleared with deviations. In the

case of NLGs, BRD Kanpur stated that it had set up necessary facilities for overhaul by June 2003 using available resources. However, it continued to rely on other BRDs and HAL for certain critical tasks. Due to delayed and incomplete establishment of overhaul facilities and shortage of non-mandatory spares, overhaul of 20 NLG had to be entrusted to the OEM in April 2005 at a total cost of USD 252000 (Rs. 1.12 crore).

90. When asked about the total expenditure incurred on setting up facilities for repair/overhaul of airframes, the Ministry replied in a note as under:

"As per the records available total expenditure incurred on setting up facilities for overhaul of airframe is Rs. 29.58 crores. Details are (a) Ground Equipment, Tools, Test Eqpt.: Rs. 19.40 crores Machinery, Instrument etc.; and (b) Work Services: Rs. 10.18 crores."

91. Enquired whether the facilities for overhaul of airframes have now been fully set up, the Ministry in a note stated that:

"The facilities have been fully set up since July 2003. However, few "Type A" concessions are being given due to non-availability of spares. These are dynamic in nature and are being removed from time to time as per the periodicity or availability of spares whichever is earlier."

92. Enumerating the steps that have been taken to ensure that all spares are available to facilitate full repair/overhauling of airframes, the Ministry in a note stated that:

"As discussed earlier the indigenisation is a key area and 97-98 per cent of the mandatory items required for overhaul of airframe are available within India. Also, regular provisioning reviews are done to ensure that the spares are available in time."

B. DELAY IN SETTING UP REPAIR AND OVERHAUL FACILITIES FOR TURBO GENERATORS
(Para 1.6.2.2)

93. The repair facilities for TG-16M Turbo Generators fitted on Aircraft 'A' which are used for running of air conditioners in the aircraft were set up at BRD Chandigarh in 1995-96. Based on a feasibility study conducted by Hindustan Aeronautics Limited (HAL), Koraput Division, Government sanctioned the project in January 2001 for establishing overhaul facility for these generators at a total cost of Rs. 10.42 crore with a probable date of completion of July 2003. Following Government sanction for creation of overhaul facilities at HAL, the existing repair facility at BRD-Chandigarh was dismantled and drawings/spares etc. were handed over to HAL in 2001-02.

94. Audit scrutiny further revealed that the overhaul facility, which was scheduled to be set up by July 2003 was yet to be established as of August 2006 even though alternative repair facilities were not available in the country. Further, only Rs. 2.42 crore out of the Rs. 10.42 crore sanctioned had been spent by HAL upto December 2005 indicating only 25 per cent progress of work in setting up the repair and overhaul facilities. Air HQ failed to monitor the creation of facilities and called for reasons for delay from HAL only in August 2006. Air HQ stated in August 2006 that the expected date of establishment of overhaul facilities of HAL was September 2006 but these were yet to be established as of October 2006.

95. As a result of the aforesaid delay in setting up overhaul facilities, IAF got 57 TG-16M generators overhauled abroad at a total cost of USD1862190 (*i.e.* Rs. 8.38 crore) under two contracts signed in September 2004 and November 2005. Besides, a contract for overhaul of 62 number of GS-24A generators (an aggregate of TG-16M generator) was signed in July 2004 at a total cost of USD188145 (*i.e.* Rs. 0.85 crore). Had the indigenous overhaul facility been set up in time *i.e.* by July 2003, the generators along with their aggregates could have been overhauled at a cost of Rs. 11.25 lakh (after considering escalation over cost estimated in 1999) per generator. The additional cost due to offloading of overhaul task worked out to be Rs. 4.82 lakh per generator. This resulted in extra expenditure of Rs. 2.75 crore on overhaul of 57 numbers of TG-16M generator. These generators would continue to be sent abroad for overhaul till the facilities are set up.

96. When enquired about the status of establishment of the overhaul facilities as on June 2007, the Ministry in a note stated as under:

"Yes, the overhaul facilities have been established at HAL, Koraput for repair and overhaul of TG-16M Turbo Generator as of June 2007, It is submitted that the reported contents on file that overhaul facilities for Turbo Generators have been established as on June 2007 was based on HAL(KPT) confirmation received and not the views of Air HQrs. Accordingly, long term contract was signed for overhaul abroad due to more arising and availability of Cat 'D' as production of HAL and not stabilized. It is expected that it will take 2-3 years. Before going for long terms contract HAL(KPT) was approached by Air HQ on whether they will be able to take up the task of following from you or else Air HQ will go for overhaul abroad. After the consent of HAL(KPT) only Air HQ has gone for a long term contract. The visit of Air HQ team to HAL(KPT) for finalization of Fixed Price Quotes and examine the facilities established of HAL(KPT), so far is appended below:

Task Year	Task	Production	Remarks
2004-05	05	04	Carry forward task of Qty-01
2005-06	10	02	Oty-01 produced against Task Year 2004-05
2006-07	05	09	Qty-01 produced against Task Year 2005-06 & Nil production against Task Year 2006-07
2007-08	05	03	Against Task Year 2006-07"

97. Asked whether the generators are still being sent abroad for overhauling, the Ministry in their reply stated as under:

"Yes, the Turbo Generators are being sent abroad due to the capacity constraints of HAL (Koraput). The stabilisation of overhaul facilities will take another 2-3 years. Therefore, to meet arising of Cat 'D' Turbo generators,

a long term contract has been signed for next four years as per the following rates: 2008-19,800 USD, 2009-20, 460 USD, 2010-21,200 USD and 2011-21,900 USD. The cost of overhaul in India as per the budgetary quotes forwarded by the HAL (KPT) is Rs. 38.32 lakh. Fixed Price Quotes of Rs. 29.62 lakhs for overhaul of TG-16M Turbo Generator has been received from HAL (KPT) and is under consideration."

98. The Committee desired to know about the capacity constraints of HAL due to which Turbo Generators are still being sent abroad for overhauling. In response, the Ministry in a note stated as under:

"Turbo Generators were sent abroad for overhauling to meet requirements of field units since the facility for the overhaul was required to be set up indigenously at HAL Koraput. This involved tooling and development of test rigs by reverse engineering especially the facility for two of its main rotables viz. DC Generators and Fuel Flow Regulator. The same are set up and are under trial at HAL Koraput since June 2007. By the time large number of Cat 'D' had already piled up and HAL could handle only Qty. 10 per year."

99. When asked whether Indian Air Force have taken any steps to identify the causes for delay and also fixed responsibility for the same, the Ministry in note stated as under:

"Air HQ has asked HAL (KPT) the reasons for delay in setting up of facilities to fix the responsibilities for the same for which following reasons were forwarded by HAL (KPT): (a) HAL (KPT) had to prepare specification of many new test rigs and develop them with indigenous sources; (b) During the progress of overhaul it was found that many new tools were required to complete the overhauling and HAL had to design and fabricate/procure these tools; and (c) The division had to indigenously develop many mandatory/non-mandatory spare of TG-16M and its aggregates with the help of Cat 'A' samples as no drawing were available. The non-availability of such Cat 'A' samples delayed the development of such spares. Even with the above constraints, HAL(KPT) Division completed the first overhaul of TG-16M in October 2004. Now HAL has completed the setting up of facilities needed for overhaul of TG-16M unit and as of 31 March 2007 HAL(KPT) has completed repair and overhaul of Qty. 15 Turbo Generators. Fixed prices quotes of Rs. 29.62 lakh for overhaul of TG-16M Turbo Generator has been received from HAL (KPT) and is under consideration".

100. As regards the measures taken to remove the capacity constraints so as to enable HAL to undertake overhaul/repair of generators indigenously, the Ministry in a note stated that HAL has so far completed overhaul/repair of 17 Turbo Generators indigenously and the firm and forecast task is as follows:

Type of Task	Firm Task		Forecast 2010-11	Task	
	2008-09	2009-10		2011-12	2012-13
ROH	10	15	20	20	20"

101. Asked about the initiatives that have been taken by Air HQ to ensure completion of the project, the Ministry in a note stated as under:

"Air HQ is continuously monitoring the progress of setting up of facilities at HAL (KPT) and the progress of task allotted to them. A meeting was held with HAL representatives at Air HQ on 19 July 2006 on the review of setting up of facilities of TG-16M Turbo Generator at HAL (KPT)."

102 When asked about the total expenditure incurred on setting up facilities for repair/overhaul of airframes, the Ministry stated as under:

"HAL, Koraput is established for overhaul/repair of Turbo Generator only. For the purpose a Govt. sanction was accorded for Deferred Revenue Expenditure amounting to Rs. 1042 lakh. The HAL, Koraput has already commenced overhauling of Turbo Generators."

103. Enquired whether the HAL, Koraput have been able to develop indigenously mandatory/non-mandatory spare of RG-16M, the Ministry in a note replied in affirmative.

104. Asked about the manner in which the projects are being monitored, the Ministry stated that all the projects are monitored by the concerned agencies regularly and the delay, if any, is being raised to the highest level accordingly.

**C. INDIGENISATION OF AIRCRAFT 'A' SPARES
(Para 1.6.2.5)**

105. Another important aspect relates to indigenisation of spares which is critical to reducing reliance on foreign suppliers for spares. As such, this was an important task to be undertaken in the context of Aircraft 'A' where problems were being faced in sourcing spares from the OEM/foreign suppliers. Audit examination revealed that in BRD-Kanpur till March 2006, 3202 mandatory and Automatic Replenishment System (ARS) items of non-complex design had been indigenised for which supply orders valued at Rs. 11 crore for 335 lines of spares were placed on various private firms. As of June 2006, of the orders placed, 197 lines of spares valued at Rs. 3.62 crore ordered during 2003-06 were yet to be received. The task allotment for indigenisation of spares had progressively decreased. This was because initially only items of non-complex design were undertaken and thus these progressed on a fast track. During later years, as the remaining items were complex in nature, indigenisation exercises were need based.

106. When enquired about the present position with respect to indigenization of 197 lines of spares at BRD-Kanpur, the Ministry in a note stated as under:

"The outstanding amount for 197 lines is reflected as Rs. 3.62 crores in the Test Audited Party report. However, it is seen that the amount is only Rs. 1.92 crores. The present status of outstanding indigenised contracts

with number of lines as brought out in the Performance Audit Report is as follows:

Year	No. of Indents	No. of contracts	No. of contracts outstanding	No. of lines outstanding	Amount in Rs.
2001-02	13	13	Nil	Nil	Nil
2002-03	16	16	Nil	Nil	Nil
2003-04	08	08	01	01	14,016
2004-05	07	07	01	01	15,288
2005-06	13	13	04	05	18,18,363
Total	57	57	06	07	18,47,667"

107. In this regard, the Committee asked as to why the Ministry did not point out the difference in the outstanding amount for 197 lines to Audit, at the draft para stage itself, well before the subject was selected by the Committee for examination. In response, the Ministry in a note explained their position as under:

"Initial observation of the test Audit party report was—As of June 2006, of the orders placed above (197 lines), spares valued at Rs. 3.62 crore ordered during 2003-06 were yet to be received. The anomaly regarding outstanding amount for 197 lines was revealed only after detailed examination, hence, it could not be pointed out at the draft para stage. However, on receipt of questionnaire, it was replied that the amount for 197 lines was wrongly mentioned as Rs. 3.62 crore, instead of Rs. 1.92 crore."

108. Audit examination also revealed that in BRD-Chandigarh as against the indigenisation target of 1900 spares set up during 2001-06, BRD-Chandigarh had indigenised 2011 spares. Full information on supply orders placed for indigenized spares was provided only for the years 2004-05 and 2005-06. It was seen that in 2004-05, 78 orders covering 86 items were placed of which 48 orders were yet to materialise. In 2005-06, 395 orders covering 436 items were placed of which 341 orders were yet to materialize.

109. When asked whether the remaining 48 orders (2004-05) and 341 orders (2005-06) placed on BRD-Chandigarh have been materialized, the Ministry in a note stated that all the 48 orders that were pending in year 2004-05 have been materialized and in 2005-06, out of 341 pending orders, 294 have been materialized and remaining orders are at various stages of supply.

EFFICIENCY AND ECONOMY IN REPAIR AND MAINTENANCE ACTIVITIES

D. DELAY IN SECOND LINE SERVICING AT OPERATING UNITS (Para 1.6.2.6)

110. As per the extant practice/procedure for aircraft maintenance, the first and second line servicing of Aircraft 'A' is carried out in operating squadrons/units. The stipulated downtime for carrying out servicing at 300 hours is 13 working days and for

servicing at the end of every 900 hours it is 22 working days. A total of 110 cases pertaining to three units comprising 89 cases pertaining to 300 hours servicing and 21 cases pertaining to 900 hours were examined in Audit. It was seen that in 65 cases (59 per cent) the time taken for servicing exceeded the prescribed days as per details given in the Table below:

Type of servicing	Extent of delay in days					Total No. of cases
	Within 24 hours	1 to 10 days	11 to 25 days	26 to 50 days	51 to 100 days	
300 Hours	NIL	17	23	04	01	45
900 Hours	NIL	07	11	02	02	20

111. In the exit conference it was explained that the aforesaid delays were often caused due to non-availability of spares or detection of snags during servicing. However, according to Audit in two units there were also shortages in maintenance personnel which could have also contributed to delay. These delays cause aircraft to become Aircraft on Ground.

112. The Committee desired to know as to why the task allotment for indigenisation of spares progressively decreased. In response, the Ministry in a note stated as under:—

"1 BRD: The task allotment for indigenisation of spares progressively decreased because items indigenised initially were of simpler technology, low cost and high volume (mandatory and ARS items). About 98 per cent items have already been indigenised. Remaining 2 per cent are of high technology, high value and low quantity items and the response from vendors were poor. This was due to complex spares which require research and development work. The hindrance in indigenisation of such high value items is non-availability of raw material and particular technology; and 3 BRD: Indigenisation task is never decreased. The depot has indigenised 260 items in the year 2006-07. The achievement in the year 2006-07 is 265. Out of the 661 mandatory items of Aircraft 'A' the depot has indigenised 604 items. Status of balance items is as (i) Items in various stages of indigenisation-13; (ii) Items of complex nature (declared NINF)-36; and (iii) Stock available more than MPE-08."

113. When asked whether steps have been taken to improve the commercialisation and productionisation of indigenous items, the Ministry responded in a note as under:

"Yes, further initiative has been taken up to improve the commercialisation and productionisation of indigenous items. 1 BRD: From high valued electrical items total of 22 lines and from ground equipments total 6 lines have been indigenised. In addition about 52 lines have been indigenised for Aircraft 'A' fleet. Effort has been taken to attract wider vendor base by conducting display during Aero India shows, Exhibitions and Seminars. Also in-house training programme has been conducted for improving knowledge on indigenisation process, materials and engineering aspects; and 3 BRD: High value high technology items Qty. 33 of NINF nature were

displayed at Aero India and CII meet. This attracted the best firms of aviation industry in the country. RFPs were given to potential vendors on the spot, as a special case. Response has been received from vendors for 25 items and these items are under development."

114. Asked about the steps taken to ensure that indigenisation plans are adequately supported with funds/resources and followed up with adequate commercial exploitation, the Ministry in a note stated as under:

"Ministry has taken up further initiatives for improving the commercialisation and production of indigenous items. Adequate funds are allotted under code head 753/01 (IND) specifically for indigenous efforts to meet base requirements. out of the total projection of 3.05 crore, 1.9 crore have already been allotted for indigenisation and the additional allotment is expected soon. Out of this, 25 lakh have been allotted to 1 BRD and 15 lakh for 3 BRD in the current financial year for indigenisation activities."

**E. DELAY IN MEETING AIRCRAFT ON GROUND DEMANDS
(Para 1.6.2.7)**

115. Audit further noted that Aircraft on Ground (AOG) demands for spares and rotables are required to be met within 24 hours so that incidents of AOG and their duration are minimised. However, a large number of aircraft remained AOG for inordinate periods on account of non-availability of spares and rotables as shown in the table below:

Year	Number of aircraft on AOG				
	1 to 6 months	6 to 12 months	12 to 18 months	18 to 24 months	More than 24 months
2001-02	39	7	—	—	—
2002-03	47	10	—	2	—
2003-04	30	11	—	—	1
2004-05	42	12	—	1	—
2005-06	26	17	3	—	—

116. Satisfaction levels with regard to AOG demands at operating units is given in the following Table:

Satisfaction level with regard to AOG demands at operating units

Year	Total No. of demand raised	Demand satisfaction level				
		Between 1-15 days	Between 16-30 days	Between 31-180 days	More than 180 days	Demand pending/Cancelled
2001-02	2476	462(19%)	862(35%)	848(34%)	143(6%)	161(6%)
2002-03	1880	306(16%)	541(29%)	871(46%)	142(8%)	20(1%)
2003-04	4612	996(22%)	1131(25%)	2018(44%)	350(7%)	117(2%)
2004-05	5359	1316(25%)	1387(26%)	2161(40%)	291(5%)	204(4%)
2005-06	6238	1517(24%)	1491(24%)	2326(38%)	272(4%)	632(10%)

117. An analysis of satisfaction levels with regard to AOG demands at operating units disclosed that only 48 per cent of AOG demands could be met within 30 days whereas 34-46 per cent of the demands took one to six months to be met. This indicates deficiencies in provisioning and procurement of spares and rotables.

118. When asked about the remedial measures that have been taken to minimize the deficiencies in provisioning and procurement of spares and rotables, the Ministry stated in a note as under:

"Vide the delegation of financial power newly issued vide Government of India/Ministry of Defence letter No. Air HQ/95378/1/Fin./P2431/US(RC)/Air-II/06 dated 14 Jun. 06, the amount has been increased to Rs. 50 lakh to procure items against AOG through Air Attache, placed in the respective Embassy of India. The same is being used quite often, and has resulted in reducing the number of aircraft on ground. The introduction of IMMOLS has given an entire asset visibility to Air HQ and Command HQ. Hence, the AOG item if available any where in the country is being diverted. The provisioning module of IMMOLS is also functional, which will ultimately mean real time on line procurement of all deficient item reducing the administering lead time drastically. Hence, by incorporating all the above factors tangible gains are expected in the near future."

F. SHORTFALL IN ACHIEVEMENT OF ANNUAL OVERHAUL TASK AND OFFLOADING OF AERO ENGINES ABROAD FOR OVERHAUL (Para 1.6.2.8)

119. Despite having a capacity to undertake 30 overhauls each year, yet BRD Chandigarh failed to achieve annual targets both for overhaul and repair tasks fixed during the period 1999-2005 as shown in the Table below:

Year	Task allotted		Task achieved		Percentage of Achievement	
	Overhaul	Repair	Overhaul	Repair	Overhaul	Repair
1999-00		45		10	36	100
2000-01	30	30	12	16	40	53
2001-02	30	30	05	15	17	50
2002-03	30	30	08	26	27	87
2003-04	15	30	09	26	67	87
2004-05	27	26	20	18	74	69
2005-06	10	20	14	21	100	

120. It may be seen from the above that in 2005-06, targets fixed were achieved largely due to the drastic reduction in the target for the tasks itself. However, Audit

examination revealed that failure to achieve tasks was on account of non-availability of spares due to incorrect assessment of requirement and delay in procurement as discussed below:

- (i) Air HQ issued the forecast task for repair/overhaul of aero-engines of Aircraft 'A' for the production years 1999-2003 and 2000-2004 in August 1997 and in August 1998 respectively. BRD Chandigarh, however, finalized the requirement of spares for undertaking servicing and repairing of engines during 1999-2004 after a delay of more than two years *i.e.* between May and September 2000. This led to delay in initiating procurement action for required spares. Air HQ concluded contracts of procurement of 157 lines of spares in January 2002 of which 121 spares were received only in April/June 2003. The delay in supply of 115 lines of spares was due to inordinate delay in opening LOC and in deciding on the question of waiver of LD. Thus, spares required for the production year 1999-2004 were received 49 to 51 months after the start of task of production period 1999-2004.
- (ii) Due to the combined allotment of tasks upto 1999-2000 without fixing tasks separately for repairs and overhauls, the BRD undertook a disproportionately large number of repairs and few overhauls. As such estimates of requirement of spares for overhaul were understated and led to supplies that proved to be inadequate when tasks were separately fixed for overhauls and repairs. This further compounded the problem of shortage of spares; and
- (iii) There was an accumulation of large number of Cat 'D' engines at BRD for repair and overhaul due to non-availability of spares as shown in the Table below:

Year	Overhaul due	Capacity of BRD	Overhaul at BRD	Overhaul Abroad	Awaiting Overhaul
2000-01	17 98*	30	12	40 + =80	63
2001-02	48	30	05	40	66
2002-03	84	30	08	40	102
2003-04	19	30	09	40	72
2004-05	45	30	20	—	97
2005-06	45	30	14	43	85

*Carry forward Cat 'D' from previous year.

121. Audit pointed out that as a consequence of the failure of the BRD to meet overhaul targets as also to fully utilise available capacities, 120 engines had to be sent abroad between 2000 and 2002 for overhaul at an aggregate cost of US\$ 14,160,000 (Rs. 64.12 crore). According to Audit had timely action been taken to procure the required spares, 120 aero engines sent abroad could have been overhauled in India at a total cost of Rs. 27 crore (Cost computed based on average overhaul cost of Rs. 22.36 lakh per aero-engine at BRD Chandigarh during 2000-01 to 2002-03) with a possible

saving of Rs. 37 crore. Further, indigenous production and maintenance facilities also remained under-utilised during the period. Shortfalls in achievements of overhaul tasks owing to non-supply of spares by the OEM and consequent offloading of overhauls tasks to the OEM was highlighted in paragraph 3 of Audit Report 8 of 1998. Even after a lapse of seven years such shortfalls in execution of overhaul tasks persist.

122. Enumerating the reasons for shortfall in achievement of task in overhaul of aero engines by 3 BRD, the Ministry in a note stated that the main reason for the Depot not meeting its task of production is due to non-availability of critical spares from OEM. Supply of spares even against concluded contracts had been poor. Probable dates of supply of most of the spares had expired leading to non-availability of spares and hold up of production. This has led to dispatch of engines for overhaul at OEM plant to clear back log of engines awaiting overhaul. During overhaul at OEM the engines were reviewed with the life of 6000 hours also.

123. The Committee desired to know as to why the allotment of the task upto 1999-2000 were fixed as a combined task for repair and overhaul. In response, the Ministry in their note stated as under:

"The allotment of task is being given to BRDs as per IAP 1541 (Section leaflet 30) in which 75 per cent task is for overhaul and maximum of 25 per cent is for repair. However, upto year 1999-2000 were fixed as a combined task for repair and overhaul in which Air HQ later realised that better appreciation for the task of overhaul and repair cannot be done in the combined task. Hence from year 2000-01 onwards separate task for Overhaul and Repair is being issued to 3 BRD after Ministry of Defence approval."

124. Asked about the action taken for repair of Cat-D engines by 3 BRD Chandigarh, the Ministry informed the Committee that depending upon the defect, repair of Cat D engines are being undertaken by 3 BRD on priority so that availability of serviceable engines are there at operating units are aircraft is not on ground for want of engines. During 2006-07 against a repair task of 30 engines, 31 engines were repaired and produced by 3 BRD.

G . PREMATURE WITHDRAWAL OF INDIGENOUSLY OVERHAULED ENGINE (Para 1.6.2.9)

125. Audit review pointed out that during the period 2001-2006, BRD Chandigarh overhauled 56 aero engines. Of these, 13 engines were withdrawn prematurely within 500 hours. Out of the 13 engines, seven were prematurely withdrawn due to major defects. An expenditure of Rs. 58 lakh had to be additionally incurred on the repair of twelve of the 13 aero engines withdrawn prematurely. One aero engine withdrawn prematurely was still under repairs (October 2006). The failure rate of 25 per cent with regard to overhaul is indicative of deficiencies in the quality and standard of overhaul task carried out by BRD.

126. When asked whether premature withdrawal of indigenously overhauled engines has been investigated by Air HQ, the Ministry in a note stated as under:

"Yes, premature withdrawals of indigenously overhauled engines are being investigated by Air HQ also and depending upon the recommendations of

the defect Investigation Report, remedial measures are being implemented at Overhaul agency/operating units as per the case. Also in case of requirement, OEM of the engine is being approached for reasons of premature withdrawal of engine and remedial measures to avoid such failures in future."

H DELAY IN RECEIPT OF SPARES DUE TO LACK OF PROPER MONITORING OF PROCUREMENT (Para 1.6.2.13)

127. In January 2002, Air HQ concluded a contract for supply of spares with a foreign firm at a cost of USD 368049. This was based on a "most critical maintenance/production hold up" requirement projected by BRD 'Y' for the year 2001-02. These items were supplied in two lots in August 2002 and November 2002. Payment was released to the supplier against shipping and other documents in terms of the contract. Though documents showed that the first lot of spares consisting of 19 lines contained in nine cases, only one case consisting of 14 lines was received and the remaining eight cases containing five lines valued at USD 329343 (Rs. 1.61 crore) were not received. Non-receipt of these items, however, came to the notice of Air HQ only in August 2003 *i.e.* after one year. Air HQ took up the matter with the firm which accepted the discrepancy and despatched the balance spares in January 2004. Out of the five lines not supplied, two lines were required for replacement of blades in 10 Aircraft kept dismantled at BRD since 2001-02. As such, spares due for supply to the BRD in April, 2001, were received only in December 2003 thereby delaying critical overhaul tasks. This reflects poor management of procurement and inadequate monitoring of purchases by Air Force authorities and Ministry of Defence even in cases of spares identified as "most critical" by user units. The long period of one year taken to detect short supply is indication of failure of internal controls and holds considerable risk of fraud and misappropriation of Government money.

128. When asked about the reasons due to which Air HQ took a year to notice non-receipt of eight cases containing five lines valued at USD 329343 (Rs. 1.61 crore), the Ministry in a note replied as under:

"In the instant case, the AWB/customs documents etc. pertained to shipment of complete consignment. However, only partial consignment was shipped. After protracted correspondence, the balance items were traced and reshipped after reprocessing customs documents/AWB etc. The firm expressed its ignorance of the real situation regarding short supply and regretted the error. To avoid recurrence of similar nature all the major consignments are now directly flown from OEM (M/S MSE) to 3 BRD."

129. On being asked whether the factors behind inadequate monitoring of purchases even in cases of spares identified as 'most critical' by user units have been analysed, the Ministry in a note replied as under:

"The response from the vendors was not very prompt and there were not many suppliers available. The introduction of stringent regulations like PBG/LD clause etc. has improved the response to a great extent. Now, Ukrainian and Russian vendors in general are meeting their contractual

obligation. The last 02 years supply percentage against concluded contract is fairly encouraging. The under-mentioned status proves the same:—

Year	No. of contracts	Contracted amount Mn USD	Supplied amount Mn USD	Remarks
2006-07	64	7.05	6.66	Around 90 per cent fill rate
2007-08	74	31.43	13.10	also covers long PDS items like AE's

The orders are monitored regularly, especially for items causing AOG/hold-up at Air HQ end."

130. The Committee sought details regarding (i) number of Annual Review of Demands (ARDs) finalised for Aircraft 'A' aircraft spares during the last five years showing the date of finalisation; (ii) number of indents raised against each of the ARDs finalised; (iii) details of contracts concluded against each of the indents issued; and (iv) details of contracts for which supply are yet to be completed during the last five years from 2001-02 to 2005-06. The Ministry in a written reply furnished the details as under:—

"There are two major depot providing support to Aircraft 'A' i.e. 29 ED and 3 BRD. The last five years data of both the depots as received is indicated in the tabular form:—

Period	No. ARD	Date of finalisation between	No. of Indents	No. of Contracts concluded	No. of contract yet to be completed
2002-03	11	Jul. 03-Dec. 03	16	05	01
2003-04	24	Dec. 03-Mar. 04	27	18	01
2004-05	12	Mar. 04-Sept. 04	25	21	08
2005-06	12	Sep. 04-Jan. 05	25	20	12

Details of contracts for which supply are yet to be completed are given below:

Sl. No.	Contract No.	Date of contract
1.	84/682/06-356	11 May 06
2.	356/07571160/34348	22 Mar. 05
3.	356/07571160/35322	26 Apr. 05
4.	356/07571160/35323	12 Apr. 05
5.	70-05/35602-04	24 May 05
6.	70-06/35603-15	26 May 06

Sl. No.	Contract No.	Date of contract
7.	70-06/35603-15	26 May 06
8.	70-06/35603-15	26 May 06
9.	76-0606/3562118	31 Oct. 06
10.	76-0604/3562108	30 Mar. 05
11.	76-0604/3562118	21 Apr. 05
12.	AHQ/AOG/NMO/92310/9090/200426503/FPW/PUR	30 Aug. 05
13.	AHQ/NMO/92310/9170/200526505	17 Feb. 06
14.	AHQ/NMO/AN32/92310/9388/200525602/FPW/PUR	19 Dec. 06
15.	76-0605-3562110	19 Sept. 05
16.	C: 356/07571160/0732,92310/9463/200625/588/ FPW/PUR	23 May 07
17.	AHQ/NMO/AN32/92310/9389/200525557/FPW/PUR	13 Dec. 06
18.	C:70-06/35602-51/AHQ/NMO/AN32/92310/9428/ 200525557/FPW/PUR	06 Mar. 07
19.	1323.658/E06-137-IN356	30 Aug. 06
20.	356/07571160/36328	11 Aug. 06
21.	76-0606/3562115	24 Nov. 06
22.	1323/658/E06-257-IN356	22 Dec. 06"

PART-II

RECOMMENDATIONS AND OBSERVATIONS

131. The Aircraft 'A' was procured by the Indian Air Force (IAF) through a contract with the erstwhile Soviet Union at an aggregated cost of Rs. 495 crore between 1981 and 1987. During this period the IAF procured 118 aircraft and 64 spare engines of the aircraft. The procurement of this aircraft was primarily for its Medium Tactical Transport Aircraft (METAC) role which focus on transport of troops and cargo, para trooping, supply dropping and casualty evacuation. These aircraft were inducted into squadron service between 1984 and 1991 to replace the aging Dakota, Caribu and Packet aircraft. Since, then, these Aircraft have been the workhouse of the IAF's transport fleet and performing varied roles and operating in all terrain conditions. They have also been extensively employed to provide timely response both for military and civil requirements. Over the years the IAF have, so far lost 13 aircraft in flying accidents and as of date IAF are holding 105 Aircraft 'A' aircraft in their inventory. Notwithstanding their valuable contribution to the operational requirement of IAF, the Committee's examination of the subject has revealed that several technical and maintenance problems have affected the performance of the aircraft which have drastically limited the serviceability of the fleet.

[Recommendation Sl. No. 1]

132. Audit conducted a performance review of the operation and maintenance of aircraft fleet in Indian Air Force between June and October, 2006 covering the period 2001-02 to 2005-06. The review was focused on the aspects of operation and utilisation of aircraft such as flying tasks, assigned role, serviceability and Aircraft on Ground (AOG) as well as adequacy of facilities for repair and maintenance and their use. Audit examination *inter-alia* revealed that the serviceability levels achieved by the aircraft fleet were low and the percentage of Aircraft on Ground (AOG) was high indicating low efficiency of operation of the fleet. It was also highlighted that the aircraft were predominantly used for routine and miscellaneous tasks at the expense of primary air maintenance and training tasks. Eight aircraft were modified for "VIP Role" without approval of Government thereby diverting them from their primary and operational tasks. Moreover, the modification lacked justification as a separate specialised communication squadron with adequate aircraft for use by VIPs already existed. Analysis of the performance of the Paratrooping School and a training centre set up to impart training revealed that most of the courses showed shortfall in achievement of targeted output. There were delays in conducting overhauls and repair both by the engine and airframe overhaul facilities. The Base Repair Depot at Chandigarh failed to complete a large number of allotted repair and overhaul tasks due to shortage of spares, on account of delayed and inadequate provisioning. Although indigenisation of mandatory and non-complex spares at BRDs has made significant progress, however, commercial exploitation was still found to be wanting. Actual

utilization both in terms of flying hours and payload carried were much lower than that was fixed by the Government there were also deviations from the basic Medium Tactical Transport Aircraft (METAC) role of the aircraft and the predominant use of the aircraft for routine transport assignments and other tasks at the expense of air maintenance role. These alongwith other issues arising out of the Committee's examination of the subject have been discussed at length in the succeeding paragraphs.

[Recommendation Sl. No. 2]

133. The Committee are concerned to note that as against the serviceability level of 75 *per cent* assumed by the Ministry at the time of procurement, actual serviceability rates of Aircraft 'A' ranged between 47 and 51 *per cent* during the period 2002-2005. The number of Aircraft on Ground (AOG) was also high and increased from 23.94 *per cent* in 2002 to 33.29 *per cent* in 2005 and as a result the actual flying tasks performed by using Aircraft 'A', fell significantly short of the flying task norm of 66.66 hours per month per aircraft as prescribed by the Government, which ranged between 49.21 to 54.94 *per cent* during the period 2003-05. In a note furnished to the Committee, the Ministry contended that there has been a decline in AOG as it reduced to 10 aircraft in 2008 from 14 in 2007 and from 24 during the Audit period, the percentage of serviceability and AOG state of Aircraft 'A' during the year 2006 stood at 63.87 *per cent* and 18.49 *per cent* respectively and for the year 2007 it was 66.26 *per cent* and 15.55 *per cent* respectively. the Committee were assured that with the commissioning of Integrated Material Management On-Line System (IMMOLS) the administering lead time will drastically reduce and ultimately it would result in reducing the number of AOG. Further, a long term contract of 5 years for Repair and Overhauling (ROH) abroad for the seven critical aggregates have been initiated and is under finalisation and in respect of six aggregates including ROH abroad of aero-engines, which is one of the critical aggregates contracts have already been concluded. The Ministry have claimed that these steps have improved the serviceability of Aircraft and in reduction of AOG. However the Ministry have pointed out that AIRCRAFT 'A' is ageing and is nearing its end of 25 years of Total Technical Life (TTL) and to sustain 100 *per cent* serviceability on such an old platform is practically not feasible. The Committee are not convinced with the reply of the Ministry as the efforts made by them are far from satisfactory and had only led to marginal increase in the percentage of serviceability from a range of 47 and 51 *per cent* during 2002-2005 to 66.26 *per cent* in 2007, which is far below the 75 *per cent* stipulated at the time of procurement. Further, the reduction in AOG to 15.55 *per cent* in 2007 was also not very significant. The Committee, therefore, urge upon the Ministry to take corrective steps so as to increase the serviceability of aircraft and minimize AOG. The Committee also stress the need for close interaction and coordination between top functionaries of HAL and IAF in resolving differences on the technical matters if any, with a view to improving the serviceability of aircraft and in reducing AOG by ensuring timely repair and maintenance service combined with availability of essential spares. The Committee would like to be apprised of the progress made in the functioning of Integrated Material Management Online-System and also the progress made in finalisaing the contract for seven critical aggregates and their impact in enhancing the serviceability of the aircraft and reduction of Aircraft on Ground.

[Recommendation Sl. No. 3]

134. The Committee note that as against the maximum payload prescribed capacity of 6770 kg. the percentage of sorties in which payloads carried by Aircraft 'A' during the period 2001-2006, were less than 3000 kg (less than 50 per cent of the maximum capacity) and ranged between 61.83 per cent and 65.64 per cent. The high capacity aircraft were used for carrying low loads although smaller aircrafts and other modes of transport were available at lower cost. This shows that these aircraft were not utilized in a cost effective manner. The Ministry informed the Committee that the payload capacity of this type of aircraft is 9000 kg. The aircraft payload capacity depends upon combination of Weight, Altitude & Temperature (WAT) limitations and the tasking is done by Air HQ/Commands to ensure optimal loading of aircraft. However, on certain special missions like carriage of sensitive cargo of various defence/research agencies, etc., and missions on aid to civil power involving airlift of specialist teams, equipment, casualty evacuation, etc, this is not feasible. The option of using smaller aircraft has always been considered but at times due to the limitation in performance, speed and cruise altitudes, they are not operationally feasible. The Ministry also informed that to carry maximum payload say 6700 kgs, the aircraft would carry a minimum fuel of 2300 kgs. and this would entail a maximum flying duration of 30 minutes only. Such a mission with maximum load but minimum fuel would entail numerous landings/refueling halts leading to sheer wastage of flying hours and aircraft landing, apart from additional wear and tear. The Ministry contended that it would not be in order to have a comparison of payload lifted to the maximum certified payload on all missions. The Committee are not convinced with the explanation given by the Ministry as they are of the view that the limitations pointed out should have been considered/studied by the concerned authorities well in advance before signing the contract with the foreign firm. The Committee recommend that necessary steps should be taken at the earliest for suitably upgrading the avionics equipment on the aircraft so that the underutilization in terms of payloads carried are minimal. The Committee also recommended that IAF should review the use of high capacity aircraft for carrying low loads especially keeping in view their high operating cost and availability of other smaller transport aircraft and other mode of aircraft.

[Recommendation Sl. No. 4]

135. The Committee note that in 1995, Air HQ had fixed the flying tasks for each existing squadron/unit and has also prescribed the flying hours for each role assigned to the aircraft. However, Audit examination revealed that the flying tasks fixed by the Air HQ for each unit was far below the task fixed by the Government. Apart from this Air HQ had categorised the flying tasks into three categories i.e. Routine Transport Role (RTR), Air Maintenance and Training. Air Maintenance tasks cover the designated primary role of the aircraft viz., troops and cargo carrier and also includes para trooping training. While there was an overall shortfall of 55 per cent in achievement of flying task, against the targets fixed by the Government, the shortfall against targets fixed by Air HQ was only 4 per cent. The Committee are concerned to note that the aircraft were used for routine and miscellaneous tasks by diverting them from their primary roles of air maintenance and training. Out of the total 114513 flying hours utilized, only 33 per cent were used for primary role of air maintenance and training, and the balance 67 per cent were spent for routine tasks

and miscellaneous duties. As a result of this there was serious shortfall of 43 per cent in achieving air maintenance task and 58 per cent in training with reference to the reduced targets fixed by Air HQ. The Committee are dismayed to find that 25 per cent of the total flying hours utilized were spent on miscellaneous duties though no task for such duties were allocated either by the Ministry or by the Air HQ. In this regard, the Ministry have informed the Committee that the maximum authorised flying hours as stipulated by the Government of India is 66 hours, per aircraft, per month, which corresponds to 792 hours per month for squadron strength of 12 aircraft. However, this is the maximum permissible authorization and has been visualized to be utilised only during emergent situations and during peace time operations the utilization rate may be limited due to emphasis on utilisation of alternate/cheaper means of transportation (other than air) for routine missions, periodic servicing and maintenance inspections etc. Besides, there are certain other constraints imposed on flying due to weather, airspace closures and certain operational and administrative imperatives. Considering these factors and based on actual flying done by the units over the years during peace time, the task was revised to a 360 hours, per aircraft, per year i.e. 30 hours/aircraft/month. This rate of effort is also revised every year in order to forecast requirement of rotables and spares for the aircraft to ensure that the flying task is always maintained within the Government authorization without any extra cost to the exchequer with optimum utilisation of the valuable air assets and retaining the capability for higher utilisation under emergencies like war etc. The Ministry stated the miscellaneous tasks are fully authorized tasks which are essential for maintaining operational readiness of the squadron. Since they encompass multifarious tasks, they are marked as "miscellaneous tasks". The Ministry further stated that the routine flying task comprises majority of transport aircraft operations under common terminology called Routine Transport Role (RTR) which entail airlift of men and material from one place to another. The air maintenance or Transport Support Role (TSR) is another task which is specifically carried out in support of Army and other agencies requiring to be maintained by air to places not connected by road transport. Similarly, training of aircrew is required at all stages to maintain continuity and proficiency, and is, therefore integral part to any aircraft fleet type and cannot be considered as primary role. Thus according to the Ministry, air maintenance does not correspond to primary role but is one of the many roles assigned to the aircraft. The Committee are of the view that though the bench mark set up by the Government with regard to flying tasks is maximum permissible limit and which is not possible to achieve in the peace time operations, nevertheless, the fact remains that the flying tasks fixed by the AIR HQ should not be very low so that it may lead to gross under-utilisation of the Aircraft capacities and capabilities and scaling down of the flying tasks assigned for the primary role viz . Air Maintenance and Training. The Committee recommend that there is an urgent need for comprehensive review of the utilization of aircraft with a view to enhance their capacity utilization and as far as possible bring it closer to the flying tasks fixed by the Government. Further the allocation of the flying task hours for each role needs to be reviewed so as to ensure that the flying tasks invariably correspond closely to the primary role of

the aircraft especially in respect of air maintenance and training role of the Units. The Committee may be furnished about the monitoring aspects of this task and the achievements thereof.

[Recommendation Sl. No. 5]

136. The Committee are concerned to note that even though the primary task of the Para Trooping School (PTS) was training, 53 per cent of flying tasks were allotted for Routine Transport Role (RTR) whereas the allocation for paratrooping was only 18 per cent. Even this low allocation for paratrooping training was utilised only to the extent of 51-67 per cent. It was further revealed that except for basic para trooping course, there was shortfall with respect to annual targets in each year for all other Flight "A" courses. The Committee also note that though PTS was required to conduct Medical Para Course Basic (PCB) and refresher courses and aircrew para ground training courses on "as required" basis, however, no such courses were conducted. In the case of Flight "B" courses, for which six aircraft were earmarked, it has been observed that none of the envisaged courses *i.e.* FA a controller Courses, Air Crew Para Trooping courses and Air Crew Conversion Courses was conducted. The facilities and aircraft earmarked for Flight "B" courses had, therefore, remained totally unutilised. The Ministry informed the Committee that Aircraft 'A' are capable of performing many operational roles and para trooping is one of the many roles assigned to the aircraft and all the requirements of the user agencies for Para Trooping have always been met. As regards, allocation of 53 per cent of flying tasks for RTR, the Ministry informed the Committee that the plan for indigenization of all the parachutes was taken up in the eighties and the Ordinance Parachute Factory (OPF) was tasked to produce these parachutes by using reverse engineering. However, there were initial teething problems and hence they had to be sent back for modification to the manufacturer. As the shortfall of parachutes could not be met by the indigenous support, this led to a decision to reduce the jumps of Refresher Course from 04 descents to 02 descents. Therefore, the flying task had to be automatically reduced and the aircraft hours were put to use for other miscellaneous task without hampering the para commitment role. The Ministry, however, claimed that there has been no delay in the completion of the courses except during inclement weather. The Ministry have further informed the Committee that in order to enhance training imparted at Para Trooping School recently, a Para Training simulator has been installed to train paratroopers, aircraft in-flight drills. Further, the statement of cases has been forwarded for the modernisation of apparatus/infrastructure at Ground Training Faculty (GTF), Para Trooping School (PTS). The Committee regret to point out that if the increasing trend of human error accidents in recent years, is any indication, the remedial steps taken so far in this regard appears to be inadequate. The lacunae in the training infrastructure and equipment further substantiate that IAF really has to toil hard to equip and fine tune the training programme to avoid any further loss of human lives due to inadequacy in training. The Committee recommend that proactive steps should be taken to improve utilisation of the capabilities of Para-Trooping School in consultation with user agencies.

[Recommendation Sl. No. 6]

137. The Committee are concerned to note that in spite of the non-approval of the Government in 1995, Air HQ had modified six Aircraft 'A' during 2001-03 for VIP use and prior to this, they had also modified two of the aircraft between 1992-99 for the same purpose. What has surprised the Committee is the revelation that not only the modification and utilization of eight aircraft was irregular but also lacked justification owing to the fact that IAF did not have adequate number of serviceable Aircraft 'A' due to which their assigned flying tasks had to be reduced considerably. The Committee are of the opinion that diversion of such large number of aircraft (20 per cent of the total serviceable aircraft with IAF) for VIP use showed an unexpected indifference to its primary role. What was more disturbing to the Committee was the fact that despite the disapproval of modification of aircraft by Government in 1995, the IAF had continued modifying aircraft and altered their role irregularly in spite of having a specialized Communications Squadron consisting of two Boeings, four executive jets, seven Avros and six helicopters for the use by VIPs. Further, as per the Government orders issued in 1981, these aircraft can be used by VIPs *i.e.*, the President, the Vice President and the Prime Minister. Besides, the other Entitled Personages (OEP) including senior service officers can also use this aircraft if it is essential to do so and if aircraft is available. However, the Committee's examination revealed that during 1999-2004, the Avro fleet in the Communications Squadron was used only to the extent of 3.9 per cent by these entitled personages and 46.9 per cent by OEPs. It was thus evident that existing aircraft in the specialized Communications Squadron were underutilized which further diluted the justification for modifying Aircraft 'A' for VIP/OEP use. The Committee strongly feel that if there was unfulfilled demand for aircraft for VIP/OEP use, increase in the holding of the existing Communications Squadron should have been considered instead of designating Aircraft 'A' for this purpose. Earmarking of aircraft for VIP role outside the Communications Squadron also led to dilution of control on use of service aircraft by VIPs and OEPs. The Ministry have informed the Committee that the modification of the aircraft for VIP role is temporary and it does not change the role of the aircraft for which it has been fixed. It also does not impact the functioning of the IAF as military commanders and senior officers undertake inspection tours necessary for upkeep of operational readiness and morale of the troops. The Ministry also stated that this is the only aircraft capable of operating out of Advanced Landing Grounds and high altitude airfields and have been employed on communication duties for the entitled military commanders to such areas. The Committee are not satisfied with the reasons given by the Ministry regarding the modification of the aircraft especially in view of overall shortfall in achievement of the flying task fixed by the Government with respect to Aircraft 'A'. Therefore, the Committee would like to know about the circumstances that have compelled the modification of Aircraft in spite of the Government refusal for the same way back in 1995. They would also like the Ministry to furnish the details of the number of flights/sorties undertaken by these modified Aircraft for use by OEPs along with the purpose during 1999-2004. While expressing their serious concern over the unjustified modification of the Aircraft which had led to reduction in the assigned flying task, the Committee expect that the IAF would now wake up to their responsibility and take earnest steps to utilise the aircraft only for the purpose for which they have been procured. They also recommend that in future

IAF should desist any move for the diversion of Aircraft 'A' from operational squadron for the use of VIP/OEPs.

[Recommendation Sl. No. 7]

138. The Committee are amazed to note that the modified aircrafts were not used by any of the three entitled VIPs but they were predominantly utilised by Other Entitled Persons (OEPs) such as senior officers of the Services, AFWA/AWWA Presidents and their accompanying staff. What is surprising to the Committee is the fact that even though AFWA/AWWA Presidents are not covered under the category of OEPs, they were included in this particular category. Expenditure on use of these aircraft by OEPs amounted to Rs. 75 crore since their modification. Further, after modification, the payload and the passenger carrying capacity of the modified aircraft was significantly reduced to 1800 kg and 19 persons respectively. The Audit review revealed that the use of a modified aircraft during one year showed that it carried an average of three passengers and 2 kg payload per sortie as against the passenger carrying capacity of 4050 persons and load carrying capacity of 6700 kg of the aircraft. The Ministry have informed the Committee that no unauthorized personnel have been allowed to use these aircraft. Commanders and senior officers undertake tours and inspections necessary for upkeep of operational readiness and morale of the troops. Military commanders along with their spouse are authorised to travel in service aircraft on inspection tours to areas under their jurisdictions as per provisions of Para 3 to 7 of AFI 9/83 which is duly approved by Ministry of Defence. However, the reply of the Ministry is conspicuously silent with regard to travel of AFWA/AWWA Presidents who are not entitled to travel by the modified Aircraft. While expressing their apprehension over the reported misuse of modified Aircraft by the non-entitled personnel such as AFWA/AWWA Presidents, the Committee recommend that the Ministry should thoroughly investigate into the matter including gross under-utilisation of the aircraft in terms of persons carried and payload and submit a report to them specifying the steps taken to prevent such misuse in future within 3 months from the presentation of the Report to the Parliament. The Committee would like to be informed about the amount spent on carrying the non-entitled passengers by Aircraft 'A' during the last 10 years. The Committee further recommend that Ministry should examine the feasibility of formulating detailed guidelines specifying the rank of the officers who shall be eligible for travelling in the Aircraft and the purpose for which the travel is undertaken with a view to prevent misuse of the Aircraft.

[Recommendation Sl. No. 8]

139. The Committee are concerned to find that the Aircraft 'A' squadrons/units had serious shortages of pilots but surplus of flight navigators and flight engineers. The deficiency in the number of pilots, however, declined from 22 per cent in 2001-02 to 13 per cent in 2005-06. In the case of flight engineers, the surplus manpower increased substantially from 10 per cent in 2001-02 to 34 per cent in 2005-06. The Committee feel that deficiencies in pilot strength along with surplus in the strength of navigators and engineers indicates imbalance in deployment of operational manpower in these squadrons/units. What is most surprising is the fact that Air HQ had justified excess manning in the two units on account of increase in

task. However, Audit scrutiny disclosed that the tasks achieved in these two units, have not shown any significant variation. No explanation has been provided by Air HQ for holding surplus navigators and flight engineers in most of the units especially in view of significant shortages of pilots in some of the units. Regarding shortfall of pilots in the IAF, the Ministry informed the Committee that a large number of new Aircraft/Equipment were inducted into the IAF and many existing systems were upgraded, however, manpower for these new systems was not sanctioned due to the ban imposed by the Ministry of Finance in 1984 on creation of new posts. Thus, all new inductions had to be manned by pulling out manpower from the existing units, which led to undermanning of a large number of units in order to serve the overall operational requirement of the IAF, which also resulted in pilot shortfalls in the Aircraft 'A' fleet. Presently, efforts are on to enhance induction of pilots so as to fill up the recently sanctioned posts over 5-7 years period and the manning status of pilots in aircraft 'A' fleet has shown a significant improvement in the last two years. While taking note of the initiatives of the Ministry to overcome the shortfall of pilots in IAF, the Committee would like to be apprised of the effectiveness of these steps on the operational requirement/deployment of pilots in various squadrons/units. They also desire to know whether the recently sanctioned posts have actually been filled up and whether or not this has led to achievement of the stipulated target of the flying task set by the Government. The Committee also recommend that in future the Air HQ/IAF should formulate a recruitment plan for filling up key posts well in advance so that there is no shortfall of pilots/engineers in any of the squadrons/units of IAF. Further, the present operational manning/deployment in squadrons/units should be reviewed so that they are in consonance with the task allocated to units. The Committee would like to be apprised of the progress made on this count.

[Recommendation Sl. No. 9]

140. Another area of concern relating to operation of aircraft 'A' is the inadequacies in the flight records held by two squadrons in respect to six different months during the period 2004-06. The Committee note that manifests of Aircraft 'A' did not carry any serial or control number to ensure their proper identification and accounting and these were also not entered in any control register by squadrons/unit providing airlift. It was also found that the entries in the passenger manifests were altered without authorisation by the competent authorities. Further, operational requirement for airlifts and movement of cargo is often not brought out in the manifests and unauthorised cargo such as personal belongings and other non-operational stores have been included in the manifests. The Ministry have informed the Committee that manifests are issued by various user agencies based on/near these airfields with their own control numbers. The Flight Engineers on reaching back to their parent bases, documents these manifests with a unit level serial number and the units maintain and record the flight details as stipulated by IAF publication IAP-3314. The inspection teams of commands, Air HQs and the aircrew Examination Board scrutinise these documents in their periodic visits to the operating units. The Committee are not satisfied with the Ministry's reply as it is conspicuously silent with regard to the inadequacies in the maintenance of the manifests as pointed out by Audit. The Committee are of the view that the inadequacies that were noticed disclose

the dilution of internal controls and consequent increase in the risk of unauthorised use of aircraft. While underscoring the urgency for removal of inadequacies in maintenance of flight records, the Committee recommend that all out efforts be made to bring improvement in maintaining flight details and in recording and control of flight manifests so as to ensure that no unauthorised passenger/cargo are carried in the service aircraft. The Committee also recommend that in future suitable deterrent action should be taken against all the officials who carry unauthorised cargo such as personal belonging and other non-operational stores.

[Recommendation Sl. No. 10]

141. For enabling proper operation and maintenance of Aircraft, setting up adequate overhaul facility is of vital importance. However, the Committee were dismayed to note that the overhaul facility which was scheduled to be set up by July 2003 was yet to be established as of August 2006 despite alternative repair facilities not available in the country. Further, only Rs. 2.42 crore out of the Rs. 10.42 crore sanctioned had been spent by HAL upto December 2005 indicating only 25 per cent progress of work in setting up the repair and overhaul facilities. Further, Air HQ failed to monitor the creation of facilities and called for reasons for delay from HAL only in August 2006. As a result of this IAF got 57 TG-16M generators overhauled abroad at a total cost of USD 1862190 (i.e. Rs. 8.38 crore) under two contracts signed in September 2004 and November 2005. Besides, a contract for overhaul of 62 numbers of GS-24A generators (an aggregate of TG-16M generator) was signed in July 2004 at a total cost of USD188145 i.e. Rs. 0.85 crore. Audit were of the view that had the indigenous overhaul facility been set up in time i.e. by July 2003, the generators along with their aggregates could have been overhauled at a cost of Rs. 11.25 lakh (after considering escalation over cost estimated in 1999) per generator. The additional cost due to offloading of overhaul task worked out to be Rs. 4.82 lakh per generator, which resulted in avoidable extra expenditure of Rs. 2.75 crore on overhaul of 57 numbers of TG-16M generator. The Ministry have informed the Committee that a long term contract was signed for overhaul abroad of Turbo Generators due to more arisings and availability of Cat 'D', as production of HAL had not stabilized and it was expected that it will take another 2 to 3 years. It was only with the consent of HAL (KPT) that Air HQ had gone for a long term contract. Air HQ is continuously monitoring the progress of setting up of facilities at HAL (KPT) and a meeting was held with HAL representatives at Air HQ on 19 July, 2006 to review the setting up of facilities of TG-16 M Turbo Generator at HAL (KPT). HAL had since completed the setting up of facilities needed for overhaul of TG-16M unit and as of 31st March, 2007 HAL (KPT) has completed repair and overhaul of Qty 15 turbo Generators. Fixed prices quotes of Rs. 29.62 lakh for overhaul of TG-16M Turbo Generator has been received from HAL (KPT) and is under consideration. The Committee are not satisfied with the reply of the Ministry as apparently no concerted efforts have been made by the AIR HQ. to ascertain the capacity constraints and other technological problems of HAL well in advance, so that early corrective measures could have been taken for completion of the stablisation of overhaul facilities at HAL, well in time. Obviously, there was lack of planning and monitoring on the part of AIR HQ. to anticipate the overhaul needs of its Aircraft and synchronise the same with that of setting up of the corresponding

facilities at HAL. The Committee recommend that AIR HQ. should impress upon HAL to further upgrade their overhaul facilities by inducting State of Art technology so that the Turbo Generators and other critical parts are overhauled well in time. The Committee would like to be apprised of the steps contemplated by Air HQ. to overcome the capacity constraints and other operational limitations of HAL to make overhaul facilities fully functional.

[Recommendation Sl. No.11]

142. Indigenisation of production of spares is critical to reducing reliance on foreign suppliers for spares and this assumes importance in the context of Aircraft 'A' where problems were being faced in sourcing spares from the Original Equipment Manufacture/foreign suppliers. Audit examination revealed that in BRD - X till March 2006, 3202 mandatory and Automatic Replenishment System (ARS) items of non- complex design had been indigenised for which supply orders valued at Rs. 11 crore for 335 lines of spares were placed on various private firms. The Committee note that as of June 2006, out of the orders placed, 197 lines of spares valued at Rs. 3.62 crore ordered during 2003—06 were yet to be received. Further, the task allotment for indigenisation of spares had progressively decreased, because initially only itmes of non-complex design were undertaken and thus these progressed on a fast track. During later years, as the remaining items were complex in nature, indigenisation exercises were need based. The Ministry have informed the Committee that with respect to BRD-X the task allotment for indigenisation of spares progressively decreased because items indigenised initially were of simpler technology low cost and high volue (mandatory and ARS items). About 98 percent items have already been indigenised and in respect of remaining 2 per cent which are of high technology, high value and low quantity items, the response from vendors was poor. This was due to complex spares which require research and development work and the hindrance in indigenisation of such high value items is non-availability of raw material and particular technology. Explaining the steps that have been taken to improve the commercialisation and production of indigenous items the Ministry informed that with respect to BRD-X from out of high valued electrical items, a total of 22 lines and from ground equipments a total of 6 lines have been indigenised. In addition about 52 lines have been indigenised for Aircraft 'A' fleet. Earnest steps have been taken to attract wider vendor base by conduction disply during Aero India shows. Exhibitions and Seminars and also through in-house training programme conducted form proving knowledge to indigenisation process, materials and engineering aspect. While underscoring the urgency to complete the indigenisation of all spares including those which are of complex nature by all BRDs within a time bound period, the Committee recommed that all out efforts be made in this direction by Air HQ so that all BRDs enter into an effective production phase. At the same time IAF should also ensure to facilitate the fulfilment of base requirements so as to check further outflow of precious foreign exchange.

[Recommendation Sl. No. 12]

143. The Committee further note that though the BRD-'Y' had a capacity to undertake 30 overhauls each year, yet it failed to achieve annual targets both for overhaul and repair tasks fixed during the period 1999-2005. However, in 2005-06,

targets fixed were achieved largely due to the drastic reduction in the target for the tasks itself. Besides, there was failure to achieve tasks on account of non-availability of spares due to incorrect assessment of requirement and delay in procurement. Audit examination revealed that Air HQ issued the forecast task for repair/overhaul of aero-engines of Aircraft 'A' for the production years 1999-2003 and 2000-2004 in August 1997 and in August 1998 respectively. However, BRD 'Y' finalized the requirement of spares for undertaking servicing and repairing of engines during 1999-2004 after a delay of more than two years *i.e.* between May and September 2000, and as result there was delay in initiating procurement action for required spares. Air HQ concluded contracts for procurement of 157 lines of spares in January 2002 of which 121 spares were received only in April/June 2003. The delay in supply of 115 lines of spares was due to inordinate delay in opening LOC and in deciding on the question of waiver of LD. Thus, spares required for the production period 1999-2004 were received 49 to 51 months after the start of task of production period 1999-2004. Further, due to the combined allotment of tasks upto 1999-2000 without fixing tasks separately for repairs and overhauls, the BRD undertook a disproportionately large number of repairs and few overhauls. As such estimates of requirement of spares for overhauls were understated and led to supplies that proved to be inadequate when tasks were separately fixed for overhauls and repairs which further compounded the problem of shortage of spares. The Committee are further constrained to note that there was an accumulation of large number of Cat 'D' engines at BRD for repair and overhaul due to non-availability of spares. As a consequence of the failure of the BRD to meet overhaul targets as also to fully utilise available capacities, 120 engines had to be sent abroad between 2000 and 2002 for overhauls at an aggregate cost of US\$ 14,160,000 (Rs. 64.12 crore). The Committee's examination revealed that had timely action been taken to procure the required spares, 120 aero-engines sent abroad could have been overhauled in India at a total cost of Rs. 27 crore (cost computed based on average overhaul cost of Rs. 22.36 lakh per aero-engine at BRD Chandigarh during 2000-01 to 2002-03) with a possible saving of Rs. 37 crore. Further, indigenous production and maintenance facilities also remained under-utilised during the period.

What perturbs the Committee most is the fact that the shrotfalls in achievement of overhaul tasks owing to non-supply of spares by the Original Equipment Manufacturer and consequent offloading of overhauls tasks to the OEM was highlighted by Audit way back in paragraph 3 of Audit Report 8 of 1998. In spite of this, even after a lapse of seven years such shortfalls in execution of overhaul tasks still continue to persist which is regrettable. The Ministry have informed the Committee that the main reason for the Depot not meeting its task of production is due to non-availability of critical sapres from OEM and supply of spares even against concluded contracts had been poor. Probable dates of supply of most of the spares had expired leading to non-availability of spares and hold up of production. This has led to dispatch of engines for overhaul at OEM plant to clear backlog of engines awaiting overhaul. The Committee are perturbed to note that there have been inordinate delays in execution of overhaul tasks of aero engines due to non-availability of critical spares from OEM. The Committee recommend that the matter regarding non-availability and non-supply of critical spares should be taken up with OEM at the highest level, and if necessary in the interest of country's Air Surveillance and Air

Maintenance needs, appropriate clause for imposition of penalty should be incorporated in the contract with OEM, so that in future such delays in supply of critical spares do not recur. The Committee further recommend that effective steps to overcome the problems associated with the overhaul facilities be taken in a time-bound manner so as to achieve the annual target of the overhaul and repair task and enhance operational efficiency of aircraft fleet. They also recommend that the bottlenecks in respect of utilising the capacity of repair and maintenance facilities arising out of shortage of spares should be suitably addressed through careful and prompt provisioning and procurement.

[Recommendation Sl. No. 13]

144. The Committee note that Air HQ concluded a contract for supply of spares with a foreign firm in January 2002 at a cost of USD 368049. This was based on a "most critical maintenance/production hold up" requirement projected by BRD-‘Y’ for the year 2001-02. These items were supplied in two lots in August 2002 and November 2002. Payment was released to the supplier against shipping and other documents in terms of the contract. Though documents showed that the first lot of spares consisting of 19 lines contained in nine cases, only one case consisting of 14 lines was received and the remaining eight cases containing five lines valued at USD 329343 (Rs. 1.61 crore) were not received. Non-receipt of these items, however, came to the notice of Air HQ only in August 2003 *i.e.* after one year. Air HQ took up the matter with the firm which accepted the discrepancy and despatched the balance spares in January 2004. Out of the five lines not supplied, two lines were required for replacement of blades in 10 aircraft kept dismantled at BRD since 2001-02. As such, spared due for supply to the BRD in April 2001, were received only in December 2003 thereby delaying critical overhaul tasks, reflecting poor management of procurement and inadequate monitoring of purchases by Air Force authorities and Ministry of Defence even in cases of spares identified as "most critical" by user units. The Committee cannot but conclude that the long period of one year taken to detect short supply is a clear indication of failure of internal controls and holds considerable risk of fraud and misappropriation of Government money. The Ministry have informed the Committee that in the instant case, the AWB/customs documents etc. pertained to shipment of complete consignment. However, only partial consignment was shipped and after protracted correspondence, the balance items were traced and re-shipped after reprocessing customs documents/AWB etc. The firm expressed its ignorance of the real situation regarding short supply and regretted the error. To avoid recurrence of similar nature all the major consignments are now directly flown from OEM (M/S MSE) to 3 BRD. Regarding inadequate monitoring of purchases even in cases of spares identified as 'most critical' by user units, the Ministry informed the Committee that the response from the vendors was not very prompt and there were not many suppliers available. The introduction of stringent regulations like PBG/LD clause etc. has improved the response to a great extent and in the last 2 years supply percentage against concluded contract is fairly encouraging. The Committee are not convinced by the reasons adduced by the IAF/Ministry given the fact that it was mandatory on the part of IAF to follow-up procurement process of spares with utmost care. This shows that there was slackness and ineptitude on the part of the Air HQ. in

the contract management and procurement of critical spares. While expressing concern over the inordinate delay in supply of critical spares by the foreign firm due to their negligence, the Committee recommend that Air HQ should recover the interest from the foreign firm on the amount paid. Considering the huge volumes of items of defence that were to be procured, the Committee recommend that the Ministry of Defence should streamline and simplify the procedures for procurement of critical spares so that they are purchased/supplied without any delay. They would also like to be apprised of the responsibility fixed against the concerned officials for the poor contract management in procurement of spares from the various vendors.

[Recommendation Sl. No. 14]

NEW DELHI;
28 January, 2009

8 Magha, 1930 (Saka)

SANTOSH GANGWAR,
Chairman,
Public Accounts Committee.

ANNEXURE-I

MINUTES OF THE THIRD SITTING OF PUBLIC ACCOUNTS COMMITTEE
(2008-09) HELD ON 6TH JUNE 2008.

The Committee sat from 1600 hrs. to 1750 hrs. on 6th June, 2008 in Committee Room 'B' Parliament House Annexe, New Delhi.

PRESENT

Prof. Vijay Kumar Malhotra — *Chairman*

MEMBERS

Lok Sabha

2. Shri Vijay Bahuguna
3. Shri Khagen Das
4. Shri Sandeep Dikshit
5. Shri P.S. Gadhavi
6. Shri Shailendra Kumar
7. Shri Brajesh Pathak
8. Shri Rajiv Ranjan 'Lalan' Singh
9. Shri Sita Ram Singh
10. Shri Kharabela Swain
11. Shri Tarit Baran Topdar

Rajya Sabha

12. Shri Raashid Alvi
13. Shri Prasanta Chatterjee
14. Shri Shanta Kumar
15. Sardar Tarlochan Singh

SECRETARIAT

1. Shri S.K. Sharma — *Additional Secretary (SK)*
2. Shri A. Mukhopadhyay — *Joint Secretary (AM)*
3. Shri Gopal Singh — *Director (SP&C)*
4. Shri Ramkumar Suryanarayanan — *Under Secretary*

Representatives of the Office of the Comptroller and Auditor General of India

1. Shri Vinod Rai	—	C&AG
2. Shri Samar Ray	—	ADAI(RC)
3. Shri P.K. Kataria	—	PD(RC)
4. Shri R.B. Sinha	—	PD(AF&N)

Representatives of the Ministry of Defence

1. Shri Vijay Singh	—	Defence Secretary
2. Shri P.K. Rastogi	—	Spl. Secretary (R)
3. Shrimati H.K. Pannu	—	FA(DS)
4. Shri S.K. Sharma	—	DG (Acq.)
5. Shri Bimal Julka	—	Joint Secretary (G/Air)
6. Shri R.K. Ghose	—	Joint Secretary & AM (Air)
7. Shri S.N. Mishra	—	Joint Secretary (Aero Space)
8. Shri Dalip Biswas	—	Addl. FA (D)
9. Smt. Arti Bhatnagar	—	Director (Air. III)
10. Shri Alind Rastogi	—	Director (Q)

2. At the outset, the Chairman, PAC welcomed the Members, Audit Officers to the sitting of the Committee. The Chairman informed the Members that the sitting has been convened to take oral evidence of the representatives of Ministry of Defence on Chapter-I of C&AG's Report No. 5 of 2007 Union Government (Defence Services) Air Force and Navy, Performance Audit relating to "Operation and maintenance of an aircraft fleet in the Indian Air Force".

3. Thereafter, C&AG of India briefed the Committee on the important points arising out of aforesaid Audit Report.

4. Then, the representatives of the Ministry of Defence were called in. The Chairman read out the contents of the Direction 58 by the Speaker regarding secret nature of the proceedings of the Committee.

5. The Secretary, Ministry of Defence after introducing the officers of the Ministry to the Committee asked his officials to give a brief power-point presentation on the corrective action taken by the Ministry on the Audit findings. The Secretary responded to the various queries raised by the Members. To certain queries, for which the witnesses could not give immediate replies, the Hon'ble Chairman directed the representatives of the Ministry to furnish the information as desired by the Members in writing at the earliest, particularly in regard to:

- (i) reasons and circumstances for reducing flying task of AN-32;
- (ii) rationality of using high capacity aircraft for carrying low pay load task;
- (iii) explanation for modification of the aircraft for flying ineligible officials without the approval of the Government;

- (iv) reasons for modification of AN-32 inspite of having a separate specialized communication squadron with adequate aircraft for use by VIPs;
 - (v) reasons for low aircraft serviceability and deficiency in spares provisioning;
 - (vi) ways to improve overhaul facilities for airframes; and
 - (vii) efforts for indigenisation of spares.
6. A copy of the verbatim proceedings of the sitting has been kept on record.

The Committee then adjourned.

ANNEXURE-II

MINUTES OF THE THIRTEENTH SITTING OF PUBLIC ACCOUNTS
COMMITTEE (2008-09) HELD ON 9TH JANUARY, 2009.

The Committee sat from 1500 hrs. to 1530 hrs. on 9th January, 2009 in Committee Room 'B' Parliament House Annexe, New Delhi.

PRESENT

Shri Santosh Gangwar—*Chairman*

MEMBERS

Lok Sabha

2. Shri Furkan Ansari
3. Shri P.S. Gadhavi
4. Prof. M. Ramdass
5. Shri Sita Ram Singh
6. Shri Kharabela Swain
7. Shri Tarit Baran Topdar

Rajya Sabha

8. Shri Raashid Alvi
9. Shri B.K. Hariprasad
10. Sardar Tarlochan Singh

SECRETARIAT

- | | | |
|--------------------------|---|-------------------------|
| 1. Shri A. Mukhopadhyay | — | <i>Joint Secretary</i> |
| 2. Shri Gopal Singh | — | <i>Director</i> |
| 3. Shri M.K. Madhusudhan | — | <i>Deputy Secretary</i> |
| 4. Shri Sanjeev Sharma | — | <i>Deputy Director</i> |

Representatives of the Office of the Comptroller and Auditor General of India

1. Shri R.B. Sinha — *Principal Director of Audit (Air Force/Navy)*
2. Smt. Prachi Pandey — *Deputy Director (Air Force/Navy)*

2. At the outset, the Chairman, PAC welcomed the Members to the siting of the Committee. The Committee then took up for consideration of the Draft Report on Chapter-I of C&AG's Report No. 5 of 2007, Union Government (Defence Services-Air Force and Navy) relating to "Operation and Maintenance of an Aircraft Fleet in the Indian Air Force" and adopted the same without any modifications/amendments and authorized the Chairman to finalise and present the same to the Parliament in the light of factual verification done by the Audit.

3. Thereafter, the Chairman raised the matter regarding large scale pendency of Remedial Action Taken Notes in respect of Audit Paragraphs contained in various Reports of C&AG that were to be submitted by the concerned Departments/Ministries to Public Accounts Committee. Committee were informed by PAC Secretariat officials that the matter was discussed in September, 2008 by PAC and a letter was addressed to Hon'ble Prime Minister by Chairman of PAC requesting that Ministries be asked to be more responsive in this matter. After some deliberation on the issue, the Committee decided that the Lok Sabha Secretariat should prepare a status report on the same for consideration of the Committee.

4. The Committee decided to hold its next sitting on 19th January, 2009

The Committee then adjourned.

CHAPTER I

OPERATION AND MAINTENANCE OF AN AIRCRAFT FLEET IN THE INDIAN AIR FORCE

Highlights

- Efficiency of operation and utilization of Aircraft 'A' fleet was low on account of low serviceability rate and high percentage of Aircraft on Ground (AOG) indicating inadequacies in repair and maintenance support. Payloads carried were also low as compared to the capacity of the aircraft.
(Paragraph 1.6.1.1 & 1.6.1.2)
- Aircraft were used for routine and miscellaneous tasks by diverting them from their primary roles of air maintenance and training. Of the total flying hours utilized by six squadrons/units, only 33 *per cent* were used for primary role of air maintenance and training, and the balance 67 *per cent* were spent for routine tasks and miscellaneous duties resulting in shortfall of 43 *per cent* in achieving air maintenance task and 58 *per cent* in training.
(Paragraph 1.6.1.3)
- In Para trooping school, most of the courses relating to para trooping showed shortfall in achievement of target outputs. Envisaged Conversion Courses, for which six aircrafts were provided, were not held at all in the past five years.
(Paragraph 1.6.1.4)
- Eight aircrafts were modified for "VIP Role"¹ without approval of the Government. Modification of aircraft diverted them from operational tasks and reduced their passenger and cargo carrying capacity. Such modification also lacked justification as a separate specialized communication squadron with adequate aircraft for use by VIPs already existed. Large scale diversion of serviceable aircraft for VIP/Other Entitled Persons use affected availability of aircraft for operation purposes.
(Paragraph 1.6.1.5)
- There was an overall shortage of pilots ranging from 13 to 22 *per cent* during the period of review. At the same time there was an excess of navigators and flight engineers. This indicates an imbalance in manpower deployment with respect to norms fixed per Aircraft 'A'.
(Paragraph 1.6.1.6)

¹VIP Role—For use by VIPs and other entitled persons.

- There was considerable delay in setting up repair and overhaul facilities for airframes at BRD 'X'. Deficiencies in the facilities still exist as some test rigs could not be installed. Full capability for overhaul of landing gear did not exist at the BRD, necessitating overhauls abroad.

(Paragraph 1.6.2.1)
- The project for creating a facility for overhaul of turbo-generators at HAL, Koraput, conceived in 1999 and approved in 2001, is yet to be completed as of October 2006. In the interim, generators continue to be sent abroad for overhaul involving additional expenditure.

(Paragraph 1.6.2.2)
- Indigenisation of mandatory and non-complex spares at BRDs has made significant progress. However, commercial exploitation has been limited.

(Paragraph 1.6.2.5)
- Servicing of aircraft at 300 hours and 900 hours took much longer than periods of down time prescribed in a significant percentage of cases due to shortage of spares.

(Paragraph 1.6.2.6)
- Satisfaction of AOG demands for spares and rotables were delayed in most cases leading to a large number of aircraft remaining AOG for long periods.

(Paragraph 1.6.2.7)
- Achievement with regard to engine overhauls and repairs at BRD 'Y', during the last 5 years were considerably lower than tasks fixed. This was due to shortage of spares. Audit examination revealed that these shortages resulted from delayed and inadequate provisioning for the spares leading to 120 engines being sent abroad to the OEM for overhauls at a cost of Rs. 64.12 crore.

(Paragraph 1.6.2.8)
- Several cases of premature withdrawals of overhauled engines and considerable delays in conducting overhauls and repair both by the engine and airframe overhaul facilities provide evidence of inefficiencies in operations.

(Paragraph 1.6.2.9 & 1.6.2.10)
- Inability to obtain technology for life extensions of engines beyond 4000 hours will make IAF completely dependent for overhauls on the OEM. This will make the IAF's overhaul facilities redundant and weaken IAF's position while negotiating charges and other terms for engine overhauls.

(Paragraph 1.6.2.17)

Summary of recommendations

- Repair and maintenance services combined with spare availability need improvement so that aircraft serviceability is increased and instances and duration of AOG are reduced.
- Use of high capacity aircraft for carrying low loads would need review by IAF keeping in view the high operating cost of the aircraft and availability of other smaller transport aircraft and other modes of transport.
- Allocations of flying tasks should correspond closely to the primary roles of the aircraft. This is especially for Air Maintenance and training role of the units. Achievement of these tasks needs to be closely monitored.
- Proactive steps should be taken to improve utilization of the capabilities of para trooping school in consultation with user agencies.
- Operational manning in units should be reviewed so that they are in consonance with tasks allocated to units.
- Improvements may be brought about in maintaining flight details and in control of flight manifests.
- Project management and monitoring should be accorded priority so that facilities needed to support aircraft serviceability are created timely and are designed to deliver full functionality.
- Bottlenecks on utilizing the capacity of repair and maintenance facilities arising out of shortage of spares should be addressed through careful and prompt provisioning and procurement.
- The quality of services and the level of efficiency in repair and maintenance facilities should be stepped up to eliminate delays, instances of premature withdrawals and use of man hours beyond norms.

1.1 Introduction

Aircraft 'A' are medium tactical transport aircraft (METAC) primarily used for transport of troops and cargo; para trooping; supply dropping and casualty evacuation. IAF contracted procurement of 118 Aircraft 'A' and 64 spare engines at an aggregated cost of Rs. 495 crore between 1981 and 1987. These aircrafts were inducted into squadron service between 1984 and 1991. Over the years thirteen aircrafts were lost in flying accidents and the present inventory of IAF is 105 Aircraft 'A'. These are being operated from different locations through six IAF squadrons, one para trooping school, one Air Force Station and one Training School.

1.1.1 Total Service Life

The aircraft consists of aero engines and airframe, which require maintenance and overhaul at prescribed intervals. Airframe of Aircraft 'A' had an initial calendar life of 15 years/20000 flying hours/15000 landings and Time Between Overhaul (TBO) was 6 years/4000 flying hours/3000 landings. As Total Technical Life (TTL) of airframes,

both in terms of landing and flying hours were not fully utilized, the technical life of the Airframe was extended indigenously from 15 to 18 years in January 1999 and again from 18 to 25 years in November 2001. Air HQ (June 2006) stated that the designer of the Aircraft 'A' had been approached for life extension of airframe further to 25 years for which OEM has made a proposal, which is still under consideration.

The service life of aero engines was 3000 flying hours and the TBO was 1000 hours. In 1994-95, the service life of engine was extended from 3000 to 4000 flying hours and TBO was increased from 1000 to 2000 flying hours. In 2003 and 2005, contracts have been entered into with the OEM for full overhaul alongwith extension of life of the engines up to 6000 hours. The OEM has, however, not agreed to transfer the technology for the same to IAF.

1.1.2 Flying tasks, payloads and other capabilities

As per policy page, the flying task fixed by Government/Ministry of Defence (MoD) is 66 hours per month per aircraft. The maximum and minimum payload of the aircraft is 6700 kg. and 3000 kg. respectively. The passenger carrying capacity of the aircraft is 40 to 50. The aircraft has a range of 1000 km. and is capable of landing and taking off from semi-prepared advanced landing grounds.

1.1.3 Maintenance philosophy

The operating squadrons/wings are responsible for carrying out the first and second line servicing of the aircraft. Third and fourth line repair/overhaul of airframes and aero engines are undertaken at Base Repair Depot 'X' (BRD 'X') and at Base Repair Depot 'Y' (BRD 'Y') respectively. The annual installed capacity for overhaul of airframes is 18 at BRD 'X'. No new facility for repair/overhaul of aero engines of Aircraft 'A' was created at BRD 'Y'. The facilities already existed at BRD 'Y' created for aero engines of Aircraft 'B' was utilised with some additions and modifications.

1.2 Scope of Audit

The performance audit in regard to Operation and Maintenance of Aircraft 'A' fleet in the Indian Air Force was conducted between June and October 2006 covering the period 2001-06. The performance audit focused on aspects of operation and utilisation of aircraft such as flying tasks, assigned role, serviceability and Aircraft on Ground (AOG). During the audit, adequacy of facilities for repair and maintenance and their use were also studied. Audit examination of the records at all operational wings, squadrons, two BRDs and at Air HQ was carried out.

1.3 Audit Objectives

The aircraft operation and functioning of repair and maintenance facilities for airframes and aero engines were examined in audit to seek an assurance that:

- The operational squadrons of Aircraft 'A' functioned efficiently achieving their assigned tasks;
- The aircrafts were used in an economic and efficient manner for *bona fide* role;

- The serviceability of aircraft was maintained as per laid down standards to minimize aircraft on ground;
- Facilities for aircraft repair and overhaul were timely set up and are adequate to meet the needs of the fleet;
- Servicing and maintenance of Aircraft 'A' was carried out efficiently, without delay, in a cost effective manner; and
- Internal control systems were effective.

1.4 Audit Criteria

- Authorised flying task; flying duties assigned; prescribed payload; authorised unit entitlement; and sanctioned establishment of operational staff.
- Adequacy and efficiency of repair and maintenance facilities.
- Scheduled timelines for setting up of facilities at BRDs; requirement of facilities as projected in project report and repair/overhauling capacity of BRDs in comparison to requirement.
- Provision of manuals and directives with regard to first and second line maintenance; targets set for overhauling tasks; achievement of TBO life; savings anticipated in cost; procedure prescribed for provisioning and procurement of spare and cost and quantity of spares procured locally subsequent to indigenization.

1.5 Audit Methodology

An entry conference was held at Air HQ on 14 June 2006 wherein the scope and objectives of audit and the broad compass of fieldwork planned were discussed with the representatives of the auditee organisation. Subsequent audit examination consisted of examination of documents and records at Air HQ, concerned wings and squadrons and at the BRDs; collection of information through issue of audit memos and questionnaires; interaction with key personnel at Air HQ, Operation and Maintenance units and examination of material collected in past audits.

While all squadrons/units were audited, focus was placed on two squadrons holding 24 aircrafts for examination of aircraft use and working of first and second line maintenance. Since overhauls of both airframes and engines carried out indigenously were limited during the period, all such overhauls were examined. Besides 25 *per cent* of other repair tasks were examined at both the BRDs. An exit conference was held on 6th December 2006 at Air HQ wherein the mainfindings of audit and related recommendations were discussed.

1.6 Audit Findings

The audit findings are in two broad categories—(a) Operation and utilization of aircraft, (b) Repair and Maintenance facilities.

1.6.1 Operation and utilization of aircraft

Aircraft 'A' are being used by IAF for transport of troops and cargo, para trooping, supply dropping, casualty evacuation, training and VIP duties. Audit examination focussed on:

- achievement of prescribed norms for aircraft serviceability and targets specified for flying tasks;
- efficiency of utilisation of aircraft in terms of payloads;
- levels of AOG were also studied as these have a critical bearing on aircraft serviceability and also reflect on the adequacy and efficiency of support and maintenance facilities;
- utilisation of aircraft for *bona fide* roles;
- deployment of operational manpower in various squadrons.

The main findings that emerged from audit examination have been discussed in the succeeding paragraphs.

1.6.1.1 Utilisation rates, serviceability and AOG levels

The efficiency of operation and utilization of the Aircraft 'A' fleet was low due to high rate of AOG, low serviceability and less achievement in flying tasks. The year-wise position with regard to serviceability, AOG and flying task achievement of Aircraft 'A' for 2002-2005 is given in the table below:

Year	Percentage of serviceability		State of AOG percentage	Flying task (Hours per month per aircraft)		
	Achieved	Shortfall		Authorised	Achieved	Percentage achieved
2002*	50.98	32.06	23.94	66.66	20.06	30.09
2003	49.46	34.06	29.96	66.66	33.86	50.79
2004	48.77	34.98	32.26	66.66	30.04	45.06
2005	46.94	37.42	33.29	66.66	33.04	49.56

* For the year 2002, data in respect of flying hours was available for last quarter only. Air HQ stated in June 2006 that during the year 2002 most of the hours had been exhausted in flying for Operation Parakaram.

Against the serviceability level of 75 *per cent* assumed by the Ministry at the time of procurement, actual serviceability rates of aircraft ranged between 47 and 51 *per cent* during last four years. The number of AOG was also high and increased from 23.94 *per cent* in 2002 to 33.29 *per cent* in 2005. This indicated that the required number of aircraft were not in ready to fly condition affecting their availability to the squadrons for use in assigned tasks. The high levels of un-serviceability and AOG of aircraft also indicate the existence of inadequate repair and maintenance capabilities at wings and repair depots.

Actual flying tasks performed using Aircraft 'A', therefore, fell significantly short of the flying task norm of 66.66 hours per month per aircraft prescribed by the Government. The shortfall ranged from 49.21 to 54.94 *per cent* during the period 2003-05. Air HQ stated in June 2006 that during 2002-05 the rate of flying tasks achieved was more than the rate of 30 hours per month per aircraft prescribed by it in 1995. Air HQ further stated that it had lowered the flying task in 1995 to conserve life of engines and airframes and on account of lower availability of serviceable aircraft and pilots. The reply highlights that this reduction in authorized flying task was done without the approval of the Government and flying tasks had to be reduced due to constraints on account of aircraft availability and shortage of pilots.

1.6.1.2 Underutilisation of payload capacity

The maximum payload capacity of the Aircraft 'A' is 6700 kg. The payloads carried in the sorties undertaken during the period 2001-2006 are analysed in the table below.

Year	Total sorties	Percentage of sorties as compared to total sorties				
		Less than 1000 Kg.	Between 1000 Kg. to 2000 Kg.	Between 2000 Kg. to 3000 Kg.	Between 3000 Kg. to 4500 Kg.	More than 4500 Kg.
2001-02	10664	37.30	12.59	15.66	30.71	3.74
2002-03	12600	28.42	13.11	20.30	34.91	3.26
2003-04	12192	29.72	12.10	20.19	35.10	2.89
2004-05	12766	29.29	15.23	20.12	31.54	3.82
2005-06	12680	33.69	14.11	17.66	31.05	3.47

It would be seen that the percentage of sorties in which payloads carried were less than the 3000 kg. (less than 50 *per cent* of the maximum capacity) ranged between 61.83 *per cent* and 65.64 *per cent*. As such not only were the Aircraft underutilised in terms of flying hours, these were also underutilised in terms of payloads carried. Thus, high capacity aircrafts were used for carrying low loads although smaller aircrafts and other modes of transport were available at lower cost. The utilisation of these aircrafts was not made in a cost effective manner.

1.6.1.3 Deployment of aircraft in various roles

In 1995, Air HQ fixed flying tasks for each existing squadron/unit and also prescribed flying hours for each role assigned to the aircraft. Audit observed that Air HQ had fixed flying tasks for each unit that was far below the task fixed by the Government for Aircraft 'A'. Besides, Air HQ allocated flying tasks into three categories *i.e.* Routine Transport Role (RTR), Air Maintenance and training. Air Maintenance tasks cover the designated primary role of the aircraft *viz.*, troops and cargo carrier and also includes para trooping training.

Detailed analysis of flying tasks allotted for various roles and actual achievement by six squadrons/units test checked is given in the table below:

Role	Task allotted by Government	Task allotted by Air HQ	(in flying hours)		
			Task actually achieved with reference to flying hours fixed by Government	Percentage of total achievement	Percentage Shortfall in task achievement with reference to Air HQ targets (+)excess/(-) shortfall
RTR	97440	41400	47583	48.83	(+)14.93
AM	78960	33600	19150	24.25	(-)43.01
Training	79600	43800	18382	23.09	(-)58.04
Misc.	Nil	Nil	29398	All excess	All excess
Total	256000	118800	114513	44.73	(-)3.61

While there was an overall shortfall of 55 *per cent* in achievement of flying task, targets fixed by the Government, the shortfall against targets fixed by Air HQ was only 4 *per cent*. Audit, however, observed that the aircraft were used for routine and miscellaneous tasks by diverting them from their primary roles of air maintenance and training. Of the total 114513 flying hours utilized, only 33 *per cent* were used for primary role of air maintenance and training, and the balance 67 *per cent* were spent for routine tasks and miscellaneous duties. This resulted in serious shortfall of 43 *per cent* in achieving air maintenance task and 58 *per cent* in training with reference to the reduced targets fixed by Air HQ. Audit noted that 25 *per cent* of total flying hours utilized were spent on miscellaneous duties though no task for such duties were allocated either by the Ministry or by the Air HQ.

Air HQ stated (December 2006) that "miscellaneous tasks" are fully authorised and essential for maintaining operational readiness of the squadron. The reply of Air HQ is not acceptable, as the orders issued in 1995 have never been revised creating this category and authorizing flying hours under it. Further, the nature of tasks stated to be included in this category does not justify such a high utilization.

Regarding training, Air HQ stated that exclusive continuous training sorties are launched only when necessary. The training requirements of the unit are thus always achieved by combining training with other tasks, which leads to savings in operational expenditure. This reply is not acceptable as in the case of operational squadrons flying hours allocated for continuous training have been kept at very low levels. Besides training in course of normal flying limits the effectiveness of such training and also compromises flight safety.

Audit at squadrons showed that the annual flying tasks are not being prepared in advance based on any assessment of load and projections of tasks. Instead sorties

and flights are planned on the basis of messages/signals received from Air HQ and Commands which are sent only a few days in advance. Thus, aircraft utilization is not a planned exercise but is mostly requisition driven and not amenable to control and monitoring with reference to approved flying tasks for various roles.

1.6.1.4 Shortfall in undertaking training tasks at training centres

Para-trooping School

One of the primary tasks of the Aircraft 'A' fleet is para trooping. To achieve this task, a Paratroopers Training Schools (PTS) was set up with 12 aircraft. The school is required to operate a combination of two types of courses *i.e.* one type deploying six aircraft for para-trooping and medical PCB² training (Flight 'A'), and another type using the balance six aircraft for conducting conversion course (Flight 'B').

Audit examination also showed that even though the primary task of the PTS was training, 53 *per cent* of flying tasks were allotted for RTR with allocation for paratrooping being only 18 *per cent*. Even this low allocation for paratrooping training was utilized only to the extent of 51-67 *per cent* during the past five years.

Audit examination also disclosed that except for basic para-trooping course, there was shortfall with respect to annual targets in each year for all other Flight 'A' courses. Besides, the school was required to conduct Medical PCB and refresher courses and aircrew para ground training courses on an "as required" basis. However, during the period no such courses were conducted. In the case of Flight "B" courses, for which six aircraft were earmarked, it was seen that none of the envisaged courses *i.e.* FA Controller Courses, Air Crew Paratrooping Courses and Air Crew Conversion Courses were conducted in the last five years. The facilities and aircraft earmarked for Flight "B" courses remained totally unutilized.

Details of paratrooping training courses and conversion courses envisaged and actually held, actual output and shortfall against envisaged output during the period 2001-06 are given in Annexure I.

PTS stated that the shortfalls were on account of the Army not detailing troops for paratrooping courses and non-allotment of tasks by Air HQ for the other types of courses. Air HQ has informed that medical courses were disbanded in 1999.

Paratrooping and casualty evacuation are among the primary tasks assigned to Aircraft 'A' for which a specialized school was set up with 12 aircraft. The underutilization of these specialized facilities, created to equip armed forces with critical capabilities, indicates inadequate attention in an important area.

Training Centre at an Air Force Station

This training facility was created for training pilots on Aircraft 'A' with a UE of eight aircraft. The unit held one excess aircraft during 2001-02 and two during 2002-06 attributing the excess to additional training and other unspecified commitments. Details of flying task, allotment by Air HQ, and achievements against the same showed that against the allotted task of 5400 hours for training, achievement ranged between 2109 hours and 3459 hours showing a utilization rate which ranged from 39 *per cent* to 64 *per cent*. The unit also used aircraft for "miscellaneous and other tasks" for 1643 hours to 2174 hours, which was not authorized. Simultaneously, audit also observed shortfall

²PCB-Para Course Basic

ranging from 20 to 82 *per cent* in training of pilots which is illustrated in the table given below:

Year	Output per year as per policy page (Number of pilots)	Actual output per year (Number of pilots)	Percentage shortfall
2001	44	17	61.37
2002	44	21	25.88
2003	44	27	38.64
2004	44	08	81.82
2005	44	35	20.46
Total	220	108	

In the context of the shortfall in achieving targets for training of pilots, underutilization of aircraft on core training tasks was not justified.

1.6.1.5 Modification and utilization of Aircraft 'A' for VIP use

Air HQ modified six Aircraft 'A' during 2001-03 for VIP use. It had earlier modified two aircraft for VIP use between 1992-99. The modification and utilization of eight aircraft was not only irregular but also lacked justification on account of the following:

- IAF did not have adequate number of serviceable Aircraft 'A' for its primary role of air maintenance, as a result the flying tasks assigned had to be reduced considerably as discussed in paragraphs 1.6.1.1 of this report. Therefore, diversion of such large number of aircraft (20 *per cent* of the total serviceable aircraft with IAF) for VIP use showed an unexpected indifference to its primary role.
- The modification involved change in the role of the aircraft from what had been approved by the Government. Hence the modification required approval of the Government. In December 1995, however, approval for modification of Aircraft 'A' was denied by the Government. Despite this, the IAF continued modifying aircraft and altered their role irregularly.
- A specialized Communications Squadron consisting of two Boeings, four executive jets, seven Avros and six helicopters, exists for use by VIPs. Government orders issued in 1981 regulate use of these aircraft by VIPs *i.e.* the President, the Vice President and the Prime Minister who are the only personages ordinarily entitled to use the aircraft in this squadron. Other Entitled Personages (OEP) including senior service officers can use aircraft of the Communications Squadron if it is essential to do so and aircraft are available. Given the existence of a specialized and dedicated squadron with adequate number of aircraft for flying VIPs and OEPs, diverting eight Aircraft 'A' for VIP/OEP use was not justified.

- During 1999-2004, the Avro fleet in the Communications Squadron was used only to the extent of 3.9 per cent by the three entitled personages and 46.9 *per cent* by OEPs. It was thus evident that existing aircraft in the specialized Communications Squadron were underutilized. This further diluted the justification for modifying Aircraft 'A' for VIP/OEP use.
- Besides, if there was unfulfilled demand for aircraft for VIP/OEP use, increase in the holding of the existing Communications Squadron should have been considered instead of designating Aircraft 'A' for this purpose outside of the Communications Squadron. Earmarking aircraft for VIP role outside the Communications Squadron also led to dilution of control on use of service aircraft by VIPs and OEPs.

Audit scrutiny also disclosed that:

- The modified aircraft were not used by any of the three VIPs and were instead predominantly utilized by OEPs such as senior officers of the Services, AFWA/AWWA Presidents and their accompanying staff. AFWA/AWWA Presidents are not even covered under the category of OEPs. Expenditure on use of these aircrafts by OEPs amounted to Rs. 75 crore since their modification.
- Further, after modification, the payload and the passenger carrying capacity of the modified aircraft was significantly reduce to 1800 kg and 19 persons respectively. Test check of use of a modified aircraft during one year showed that it carried an average of three passengers and 2 kg payload per sortie as against the passenger carrying capacity of 40-50 persons and load carrying capacity of 6700 kg of the aircraft.

The modification of eight aircrafts for VIP role was thus both irregular and improper as it was a deviation from the aircraft's assigned role that had been fixed by the Government. Further, assigning VIP role to additional aircraft was improper as a specialized Communications Squadron with adequate number of aircrafts already existed for this purpose, and the operational squadrons of IAF were facing serious shortage of serviceable Aircraft 'A'.

1.6.1.6 Deployment of operational personnel

Details of surplus/deficiency in operational manpower in eight operational units/ squadron of Aircraft 'A' during the period 2001-06 were as under:

Year	Percentage of surplus/deficiency		
	Pilot	Navigator	Flight Engineer
2001-02	-22	+13	-10
2002-03	-19	+1	+14
2003-04	-18	+13	+25
2004-05	-14	+5	+27
2005-06	-13	+28	+34

The Aircraft 'A' squadrons/units had serious shortages of Pilots but surplus of Flight Navigators and Flight Engineers. The deficiency in the number of Pilots, however, declined from 22 per cent in 2001-02 to 13 per cent in 2005-06. In the case of Flight Engineers, the surplus manpower increased substantially from 10 per cent in 2001-02 to 34 per cent in 2005-06. Deficiency in pilot strength would have adverse impact on the rate of utilization of the aircraft. In fact, Air HQ, while justifying lowering the flying task from 66.66 hours to 33 hours per months in 1995, attributed this, *inter-alia* to shortage of pilots. Further, deficiencies in pilot strength along with surplus in the strength of navigators and engineers indicates imbalance in deployment of operational manpower in these squadrons/units.

Audit examination further disclosed that two squadron/unit held surplus pilots over authorisation, six other squadrons/units faced deficiencies. Air HQ stated that additional manpower was being provided in the units entrusted with Air Maintenance role. This is not acceptable as it was seen that significant shortages of pilots existed in three squadrons and in PTS which had critical Air Maintenance and paratrooping training role.

Air HQ also justified excess manning in the two units on account of increase in task. Audit scrutiny, however, disclosed that the tasks achieved in these two units, have not shown any significant variation. No explanation has been provided by Air HQ for holding surplus Navigators and Flight Engineers in most of the units especially in view of significant shortages of Pilots in some of the units.

1.6.1.7 Deficiencies in records maintained for transport of passengers and cargo

A scrutiny of flight records held by two squadrons pertaining to six different months during the period 2004-06 disclosed the following inadequacies:

- A manifest of a flight provides details of passengers/cargo carried in the aircraft. Proper accounting of the manifests is essential to ensure that no unauthorised passenger/ cargo is carried in the service aircraft. Audit observed that the manifests of Aircraft 'A' did not carry any serial or control number to ensure proper identification and accounting of the manifests. Manifests were also not entered into any control register by squadrons/unit providing airlift.
- Entries in the passenger manifests were altered without authorisation of the competent authorities. Further, operational requirement for airlifts and movement of cargo is often not brought out in the manifests.
- Unauthorised cargo such as personal belongings and other non-operational stores have been included in the manifests.

The inadequacies noticed disclose dilution of internal controls and increased risk of unauthorised use of aircraft.

Recommendations

- Air HQ should take effective steps to increase serviceability of aircraft and minimize AOG by ensuring timely repair and maintenance services combined with the availability of essential spares.

- Use of high capacity aircraft for carrying low loads would need review by IAF keeping in view the high operating cost of the aircraft and availability of other smaller transport and other modes of aircraft.
- Utilisation of aircraft requires comprehensive review so that strategies to enhance utilisation and bring these closer to the flying task fixed for the aircraft by the Government. Else, the Government should revise the flying tasks based on ground realities.
- Allocations of flying tasks should correspond closely to the primary roles of the aircraft especially in respect of air maintenance and training role of the units. Achievement of these tasks needs to be closely monitored.
- Diversion of aircraft from operational squadrons for VIP/OEP use may be discontinued to ensure increased availability of serviceable aircraft to the operational units/squadrons for air maintenance and other primary roles.
- Proactive steps should be taken to improve utilisation of the capabilities of paratrooping school in consultation with user agencies.
- Operational manning in units should be reviewed so that they are in consonance with tasks allocated to units.
- Improvements may be brought about in maintaining flight details and in recording and control of flight manifests.

1.6.2 Repairs and Maintenance

Aircrafts are complex systems and their utilisation and serviceability is critically dependent on the timely availability of supporting repair and maintenance infrastructure and services. Aircraft 'A' have now been in service for a period of 15-19 years and the need for effective repair and maintenance is now greater so that operational advantages do not get reduced with the age of the aircraft. It is in this background that audit examined the availability of repair and maintenance facilities and their utilisation. Audit also studied repair and maintenance activities, including procurement and indigenisation, to assess if these were efficient and promoted economy. Findings in this regard have been discussed in the succeeding paragraphs.

Adequacy of repair and maintenance facilities

1.6.2.1 Delays and inadequacies in creation of facilities for overhaul and repair of airframes at BRD 'X'

The Aircraft 'A' were inducted by IAF during 1984-1991 and therefore, facilities for overhaul and repair of airframes should have been set up by 1990 to carry out first major overhaul due in that year. The facilities were, however, established substantially only in 2002 i.e. after a delay of 12 years. The delays in setting up of these facilities and the resultant requirement of sending airframes abroad for overhaul at a cost of Rs. 69.56 crore were reported earlier in Paragraph No. 3 of Audit Report No. 3 of Audit Report No. 8 of 1998.

Further audit examination showed that items supplied by the OEM for creating the repair and overhaul facilities consisted of 116 test rigs used for testing of aggregates during overhaul of airframes. Out of 116 test rigs procured between 1995-2000, 11 test rigs were yet to be installed as of October, 2006 due to defects and deficiencies.

Audit further observed that as a consequence of the delay in setting up complete overhaul capabilities and non availability of essential spares, 32 overhauls undertaken at BRD 'X' between 2002 to 2006 were cleared by Air HQ with a number of 'deficiencies/concessions'. These concessions were on account of non-replacement of mandatory spares and deviations from provisions of bulletins relating to modifications and non-testing for leaks in fuel tanks till next overhaul. This was a deviation from the requirement as rules permit clearing aircraft with concession for only three months followed by a review.

Further, Main Landing Gear (MLG) and Nose Landing Gear (NLG) are critical airframe aggregates. However, in-house capability for undertaking overhaul of MLGs remained limited due to non-availability of some equipment. As a result, overhaul of MLGs were being cleared with deviations. In the case of NLGs, BRD 'X' stated that it had set up necessary facilities for overhaul by June, 2003 using available resources. However, it continued to rely on other BRDs and HAL for certain critical tasks. Due to delayed and incomplete establishment of overhaul facilities and shortage of non-mandatory spares, overhaul of 20 NLG had to be entrusted to the OEM in April, 2005 at a total cost of USD 252000 (Rs. 1.12 crore).

1.6.2.2 Delay in setting up repair and overhaul facilities for Turbo Generators

Turbo generators are used for running of air conditioners in the aircraft. Repair facilities for TG-16M Turbo Generator fitted on Aircraft 'A' were set up at BRD 'Y' in 1995-96. Based on a feasibility study conducted by Hindustan Aeronautics Limited (HAL), Koraput Division, Government sanctioned the project in January, 2001 for establishing overhaul facility for these generators at a total cost of Rs. 10.42 crore with a probable date of completion of July, 2003. Following Government sanction for creation of overhaul facilities at HAL, the existing repair facility at BRD 'Y' was dismantled and drawings/spares etc. were handed over to HAL in 2001-02.

Audit examination disclosed that the overhaul facility, scheduled to be set up by July, 2003 was yet to be established as of August, 2006 even though alternative repair facilities were not available in the country. Further, only Rs. 2.42 crore out of the Rs. 10.42 crore sanctioned had been spent by HAL upto December, 2005 indicating only 25 per cent progress of work in setting up the repair and overhaul facilities. Air HQ failed to monitor the creation of facilities and called for reasons for delay from HAL only in August, 2006. Air HQ stated in August, 2006 that the expected date of establishment of overhaul facilities at HAL was September, 2006 but these were yet to be established as of October, 2006.

Due to delay in setting up overhaul facilities, "IAF got 57 TG-16M generators overhauled abroad at a total cost of USD 1862190 (*i.e.* Rs. 8.38 crore) under two contracts signed in September, 2004 and November, 2005. Besides, a contract for overhaul of 62 numbers of GS-24A generators (an aggregate of TG-16M generator) was signed in July 2004 at a total cost of USD 188145 (*i.e.* Rs. 0.85 crore). Had the indigenous overhaul facility been set up in time *i.e.* by July 2003, the generators along with their aggregates could have been overhauled at a cost of Rs. 11.25 lakh (*afte* considering

escalation over cost estimated in 1999) per generator. The additional cost due to offloading of overhaul task worked out to be Rs. 4.82 lakh per generator. This resulted in extra expenditure of Rs. 2.75 crore on overhaul of 57 number of TG-16M generator. These generators would continue to be sent abroad for overhaul till the facilities are set up.

1.6.2.3 Delay in commissioning of Test Rig in BRD 'Y'

For testing of fuel control units (FCUs) of aero-engines of Aircraft 'A', a supply order was placed on HAL in September 1998 for manufacture and supply of the test rig at a cost of Rs. 1.2 crore. the test rig was received in June 2001. However, the requisite work services for installation of the test rig were sanctioned only in December 2002. The work services were completed and the rig was commissioned in May 2005. As such, benefits from an investment of Rs. 1.2 crore made in a critical facility could not be obtained for almost four years after the equipment was received which indicated inadequate project management.

1.6.2.4 Shortfall in manpower deployment at aero-engine facility at BRD 'Y'

There was a shortfall in the availability of manpower in the production line of aero engine of Aircraft 'A' since 2001-02 as shown in table given in Annexure II. The deficiency of airmen ranged from 66 to 90 during last five years constituting 45-53 per cent of the authorised strength. BRD 'Y' stated in August 2006 that the shortfall was met by working after normal hours and on holidays and that no extra manpower was diverted from other units. However, as the facility consistently failed to meet targets for overhauls and also failed to deliver products and services of acceptable standards, adverse fall out of manpower shortage on the capacity and capability of the depot to undertake core tasks cannot be ruled out.

1.6.2.5 Indigenisation of Aircraft 'A' spares

Indigenisation of spares is critical to reducing reliance on foreign suppliers for spares. As such, this was an important task to be undertaken in the context of Aircraft 'A' where problems were being faced in sourcing spares from the OEM/foreign suppliers. Audit examination in this regard revealed the following:

BRD 'X'

- Till March 2006, 3202 mandatory and Automatic Replenishment System (ARS) items of non complex design had been indigenised for which supply orders valued at Rs. 11 crore for 335 lines of spares were placed on various private firms. As of June 2006, of the orders placed, 197 lines of spares valued at Rs. 3.62 crore ordered during 2003-06 were yet to be received.
- The task allotment for indigenisation of spares had progressively decreased. This was because initially only items of non-complex design were undertaken and thus these progressed on a fast track. During later years, as the remaining items were complex in nature, indigenisation exercises were need based.

BRD 'Y'

- Against the indegenisation target of 1900 spares during 2001-06, BRD indigenised 2011 spares. Full information on supply orders placed for

indigenised spares was provided only for the years 2004-05 and 2005-06. It was seen that in 2004-05, 78 orders covering 86 items were placed of which 48 orders were yet to materialise. In 2005-06, 395 orders covering 436 items were placed of which 341 orders were yet to materialise.

It would thus be seen that whereas substantial progress was made in both the BRDs in indigenising mandatory spares, commercial exploitation had only met with limited success. Thus the overall effectiveness of indigenisation efforts was diluted.

Recommendations

- Project management and monitoring should be accorded priority so that repair and overhaul facilities needed to support aircraft serviceability are created timely and are designed to deliver full functionality.
- Constraints on capabilities of facilities to deliver full services should be addressed.
- Indigenisation of spares should be adequately supported with funds and resources and followed up with adequate commercial exploitation.

Efficiency and economy in repair and maintenance activities

1.6.2.6 Delay in second line servicing at operating units

The first and second line servicing of Aircraft 'A' is carried out in operating squadrons/units. The stipulated downtime for carrying out servicing at 300 hours is 13 working days and for servicing at the end of every 900 hours it is 22 working days. A total of 110 cases pertaining to three units comprising 89 cases pertaining to 300 hours servicing and 21 cases pertaining to 900 hours were examined in audit. It was seen that in 65 cases (59 per cent) the time taken for servicing exceeded the prescribed days as per details given in the table below:

Type of servicing	Extent of delay in days					Total No. of cases
	Within 24 hours	1 to 10 days	11 to 25 days	26 to 50 days	51 to 100 days	
300 Hours	NIL	17	23	04	01	45
900 Hours	NIL	07	11	02	02	20

It was explained in the exit conference that these delays were often caused due to non-availability of spares or detection of snags during servicing. However, in two units there were also shortages in maintenance personnel which could have also contributed to delay. These delays cause aircraft to become AOG.

1.6.2.7 Delay in meeting AOG demands

AOG demands for spares and rotables are required to be met within 24 hours so that incidents of AOG and their duration are minimised. However, a large number of

aircraft remained AOG for inordinate periods on account of non-availability of spares and rotables as shown in the table below:

Year	Number of aircrafts on AOG				
	1 to 6 months	6 to 12 months	12 to 18 months	18 to 24 months	More than 24 months
2001-02	39	7	—	—	—
2002-03	47	10	—	2	—
2003-04	30	11	—	—	1
2004-05	42	12	—	1	—
2005-06	26	17	3	—	—

Satisfaction levels with regard to AOG demands at operating units were analysed and the results are tabulated in the Annexure III. The analysis discloses that only 48 per cent of AOG demands could be met within 30 days whereas 34-46 per cent of the demands took one to six months to be met. This indicates deficiencies in provisioning and procurement of spares and rotables.

1.6.2.8 Shortfall in achievement of annual overhaul task and offloading of aero engines abroad for overhaul

BRD 'Y' had a capacity to undertake 30 overhauls each year. Yet it failed to achieve annual targets both for overhaul and repair tasks fixed during the period 1999-2005 as shown in the table below:

Year	Task allotted		Task achieved		Percentage of achievement	
	Overhaul	Repair	Overhaul	Repair	Overhaul	Repair
1999-00	45		10	36	100	
2000-01	30	30	12	16	40	53
2001-02	30	30	05	15	17	50
2002-03	30	30	08	26	27	87
2003-04	15	30	09	26	67	87
2004-05	27	26	20	18	74	69
2005-06	10	20	14	21	100	

In 2005-06, targets fixed were achieved largely due to the drastic reduction in the target for the tasks itself. Audit examination showed that failure to achieve tasks was on account of non-availability of spares due to incorrect assessment of requirement and delay in procurement as discussed below:

- Air HQ issued the forecast task for repair/overhaul of aero-engines of Aircraft 'A' for the production years 1999-2003 and 2000-2004 in August 1997 and in

August 1998 respectively. BRD 'Y', however, finalized the requirement of spares for undertaking servicing and repairing of engines during 1999-2004 after a delay of more than two years *i.e.* between May and September 2000. This led to delay in initiating procurement action for required spares. Air HQ concluded contracts for procurement of 157 lines of spares in January 2002 of which 121 spares were received only in April/June 2003. The delay in supply of 115 lines of spares was due to inordinate delay in opening LOC and in deciding on the question of waiver of LD. Thus, spares required for the production year 1999-2004 were received 49 to 51 months after the start of task of production period 1999-2004.

- Due to the combined allotment of tasks upto 1999-2000 without fixing tasks separately for repairs and overhauls, the BRD undertook a disproportionately large number of repairs and few overhauls. As such estimates of requirement of spares for overhaul were understated and led to supplies that proved to be inadequate when tasks were separately fixed for overhauls and repairs. This further compounded the problem of shortage of spares.
- There was an accumulation of large number of Cat 'D' engines at BRD for repair and overhaul due to non-availability of spares as shown in the table below:

Year	Overhaul due	Capacity of BRD	Overhaul at BRD	Overhaul Abroad	Awaiting Overhaul
2000-01	17 98*	30	12	40 =80	63
2001-02	48	30	05	40	66
2002-03	84	30	08	40	102
2003-04	19	30	09	40	72
2004-05	45	30	20	—	97
2005-06	45	30	14	43	85

* Carry forward Cat 'D' from previous year.

As a consequence of the failure of the BRD to meet overhaul targets as also to fully utilise available capacities, 120 engines had to be sent abroad between 2000 and 2002 for overhaul at an aggregate cost of US\$ 14,160,000 (Rs. 64.12 crore). Had timely action been taken to procure the required spares, 120 aero engines sent abroad could have been overhauled in India at a total cost of Rs. 27 crore (cost computed based on average overhaul cost of Rs. 22.36 lakh per aero-engine at BRD 'Y' during 2000-01 to 2002-03) with a possible saving of Rs. 37 crore. Further, indigenous production and maintenance facilities also remained under-utilised during the period.

Shortfalls in achievement of overhaul tasks owing to non-supply of spares by the OEM and consequent offloading of overhauls tasks to the OEM was highlighted

in paragraph 3 of Audit Report 8 of 1998. Even after a lapse of seven years such shortfalls in execution of overhaul tasks persist.

1.6.2.9 Premature withdrawal of indigenously overhauled engine

During the period 2001-2006, BRD 'Y' overhauled 56 aero engines. Of these, 13 engines were withdrawn prematurely within 500 hours. Out of the 13 engines, seven were prematurely withdrawn due to major defects. An expenditure of Rs. 58 lakh had to be additionally incurred on the repair of twelve of the 13 aero engines withdrawn prematurely. One aero engine withdrawn prematurely was still under repairs (October 2006). The failure rate of 25 *per cent* with regard to overhaul is indicative of deficiencies in the quality and standard of overhaul task carried out by BRD.

1.6.2.10 Premature withdrawal of aero engines before completion of TBO

TBO of the aero engine is 2000 hours. 70 aero engines consisting engines overhauled both by BRD and the OEM were withdrawn during 2001-06 even before TBO of 2000 hours was completed. While 34 engines overhauled at BRD were withdrawn prior to completing TBO, 36 engines overhauled abroad were similarly withdrawn. Considering that the OEM had overhauled almost four times more number of engines than BRD this indicated inadequacies in overhauls being conducted in the BRD.

1.6.2.11 Delays in overhaul (third and fourth line serving) of aero-engines at BRD 'Y'

The average lead-time for overhaul of an aero engine at BRD is six months. Time allowed under contracts with the OEM for overhaul of aero-engines also ranges between six to eight months. Analysis of overhaul records for 56 engines overhauled at the BRD during 2001-06 disclosed that only one engine was overhauled within six months and in case of the other 55 engines time taken for overhauls was far in excess of the average lead-time of six months. Details of delays in case of these engines are given in the table below:

Period taken for overhaul	Between 6 to 12 months	Between 12 to 24 months	Between 25 to 36 months	Between 37 to 48 months	More than 48 months
No. of aero engines	3	17	12	12	11

In the case of repairs of engines undertaken during 2001-06, delays were observed in 23 out of a total of 106 cases of repairs. In 13 of the 23 cases delays were for a period exceeding one year.

Thus not only were there shortfalls in carrying out overhauls and repairs with respect to allotted tasks, these were carried out with delays indicating inefficiencies in overhaul and repair carried out by the BRDs.

1.6.2.12 Delays in undertaking repair/overhauls of airframe and aggregates at BRD 'X'

The annual installed capacity for overhaul of airframe is 18 and prescribed turn around time for overhaul of an airframe is six months. Analysis of overhaul records maintained at BRD reveals that time taken for overhaul in 39 out of 42 overhauls done

during 2001-06 was in excess of the lead time of six months. The extent of delay is given in the table below:

Period taken for overhaul	Excess time taken for overhaul of airframes		
	Upto 2 months	2 to 4 months	4 to 6 months
	12	18	9

Due to low level of arisings (6 to 10 airframes), tasks entrusted to BRD 'X' were much less than the installed capacity of the Depot. Yet overhaul tasks were delayed indicating lack of efficiency in undertaking these tasks. Excess time taken resulted in non-availability of the aircraft for operations.

Time taken for completing repair and overhauls of aggregates/rotables was examined in a sample of 10 per cent of cases during 2002-06. Delays were computed with reference to six months prescribed for conducting these tasks. It was seen that delays were observed in around 10 per cent cases in 2003-04, 15 per cent cases in 2004-05 and 20 per cent cases in 2005-06.

1.6.2.13 Delay in receipt of spares due to lack of proper monitoring of procurement

Air HQ concluded a contract for supply of spares with a foreign firm in January 2002 at a cost of USD 368049. This was based on a "most critical maintenance/production hold up" requirement projected by BRD 'Y' for the year 2001-02. These items were supplied in two lots in August 2002 and November 2002. Payment was released to the supplier against shipping and other documents in terms of the contract. Though documents showed that the first lot of spares consisting of 19 lines contained in nine cases, only one case consisting of 14 lines was received and the remaining eight cases containing five lines valued at USD 329343 (Rs. 1.61 crore) were not received. Non-receipt of these items, however, came to the notice of Air HQ only in August 2003 i.e. after one year. Air HQ took up the matter with the firm which accepted the discrepancy and despatched the balance spares in January 2004. Out of the five lines not supplied, two lines were required for replacement of blades in 10 Aircraft kept dismantled at BRD since 2001-02. As such, spares due for supply to the BRD in April 2001, were received only in December 2003 thereby delaying critical overhaul tasks. This reflects poor management of procurement and inadequate monitoring of purchases by Air Force authorities and Ministry of Defence even in cases of spares identified as "most critical" by user units. The long period of one year taken to detect short supply is indication of failure of internal controls and holds considerable risk of fraud and misappropriation of Government money.

1.6.2.14 Excess utilization of man hours on repair and overhaul of aero engine

The time taken by BRD 'Y' in overhaul and repair of aero engines was substantially higher than the prescribed norms. For overhaul of a single aero engine, the standard man-hours prescribed is 6050 hours per engine. BRD 'Y', however, took 8423 hours per engine for overhaul of 51 aero engines during the period 2002-06. Similarly, 1400 hours are prescribed as standard man-hours for repair of a single aero engine of Aircraft 'A'. BRD took 165378 hours for repair of 93 aero engines during the period 2002-06 at the rate of 1778 hours per engine.

BRD informed that extra man hours had become necessary due to ageing of aircraft and non-availability of skilled manpower. Excess utilization of man-hours, besides indicating lack of efficiency also added to the cost of overhauls and repairs.

1.6.2.15 Extra expenditure on overhaul of aero engines

A contract for overhaul of 80 aero engines was concluded with a foreign firm in June 2000. In terms of clause 4.3 of the contract, the firm was required to inform IAF before replacement of any unserviceable aggregates with new ones during overhaul. The firm without adhering to the terms, placed components in 58 engines for which it claimed payment of US \$ 367766 (Rs. 1.70 crores) from IAF in September 2001. The firm in support of its claim stated that the accessories replaced were found to be irreparable because previous overhauls of these engines in India had violated technological norms.

Another 40 aero engines were sent abroad for overhaul through an addendum of January 2002 to the aforesaid contract. Certain major items in case of four of the engines though not due for replacement were replaced by the firm during the overhaul. This was on account of the fact that the actual life of these items was not endorsed by the BRD 'Y' in the respective engine logbooks. The foreign firm claimed an extra amount of US \$ 270795 (Rs. 1.32 crore) on account of these replacements.

The above cases reveal inadequacies in overhauls conducted by BRD 'Y' deficiencies in enforcing contractual conditions and inadequate record maintenance, which caused additional expenditure of Rs. 3.02 crore.

1.6.2.16 Loss due to failure to avail of warranty

Hydraulic Pumps are used in aircraft to create pressure for operating various services that use hydraulic systems such as landing gears, ramps, doors and cabin pressure. Eighty hydraulic pumps of 435 F make were contracted in April 2004 at a cost of US\$ 432000 (Rs. 1.91 crore) and were delivered by January 2005. Of these, 25 pumps failed within the warranty period of 12 months. However, claims under warranty were forwarded in time only in 14 cases. In eight cases, claims were not forwarded at all due to non-availability of contract and supply details. Three other claims were not made in time. Thus, warranty claims in respect of eleven defective 435 F pumps were not raised in time resulting in a financial loss of US\$ 59400 due to deficiencies in maintenance of required purchase records.

1.6.2.17 Technology for extension of TTL of aero engines

The service life of the aero engines was increased to 4000 hours in 1994-95 by acquiring relevant life extension technology from the OEM. However, the OEM did not provide technology (2002) for increasing TTL of aero engines from 4000 hours to 6000 hours. Considering that almost all aero engines would have either exceeded a life of 4000 hours or would be very near doing so, IAF would be completely dependent on the OEM for overhaul of engines and extension of TTL to 6000 hours. In fact, the Ministry concluded two contracts with the OEM in September 2003 and March 2005, for overhaul of a total number of 83 aero engines abroad at a total cost of Rs. 48.67 crore. This was primarily on account of the fact that overhaul by the OEM had become inevitable, as they also needed life extensions, which only the OEM could provide.

Overhaul and TTL extension tasks would henceforth need to be combined and aero engines will continue to be sent abroad for overhaul as the TBO and the life extension being given are for the same number of hours *i.e.* 2000 hours. This would result in under utilisation of overhaul facilities existing at BRD 'Y'. In 2005-06, the overhaul tasks allotted to the BRD has already been scaled down to 10.

Audit examination showed that during technical discussions and price negotiations held in December 2002, the OEM had stated that it would positively consider the request of Air HQ to provide TTLE technology by the middle of 2003. However, no evidence was available to show that this was pursued further by IAF. Almost complete reliance on the OEM for engine overhauls on account of failure to obtain TTLE technology has encouraged the OEM to adopt rigid stand during price negotiations and has also increased the demand for changes, favourable to them, in contract terms and conditions. Very soon several engines would be reaching their extended life of 6000 hours and further life extensions would have to be considered.

Recommendations

- Bottlenecks on utilizing the capacity of repair and maintenance facilities arising out of shortage of spares should be addressed through careful and prompt provisioning and procurement.
- The quality of services and the level of efficiency in repair and maintenance facilities should be stepped up to eliminate delays, instances of premature withdrawals and use of man hours beyond norms.

1.6.3 Internal Control Mechanisms

One of the objectives of audit was to assess the efficacy of the system of internal control underlying operations and maintenance of Aircraft 'A'. Findings in this regard are given below.

- Basic record keeping with regard to flights and sorties needed enhancement as scope for improvement existed in preparing and recording flight manifests. This has been discussed in para 1.6.1.7 of this report.
- While MIS and other reporting mechanisms were in place, there was no assurance, however, that these were being used to monitor and control operations and maintenance activities. On the operations side, it was seen that flying tasks were not being forecast and allotted in advance at periodic intervals and recourse to need based flying was being taken, followed by ex-post facto regularisation. Actual utilisation of aircraft has continued to deviate from tasks allotted by Air HQ in 1995 without any review or correction. The deviations have been detailed in para 1.6.1.3 and 1.6.1.5 of this report. On the maintenance side, failure to meet targets of engine overhaul, delays in completing overhaul tasks, delays in procuring spares have continued year after year without adequate remedial action.
- Both BRD 'X' and BRD 'Y' were holding old and non-moving inventory valued at over Rs. 18 crored since 2001-02 and 2004-05 respectively. This, besides imposing avoidable inventory costs, reflects weakness in inventory control and management.

- Variations existed in the costing of overhaul of engines by BRD and Air HQ thereby indicating that no standard criteria for computing costs were in existence. This is evidenced by the cost of overhauls conveyed by Air HQ to MoD in 2004 as Rs. 72.30 lakh while processing of a case of contracting overhauls abroad, whereas it conveyed to audit that the average cost of overhaul during the year 2004-05 was Rs. 34.05 lakh.

1.7 Conclusion

The procurement of Aircraft 'A' was primarily for its METAC role which focusses on troop and cargo movement; para trooping and casualty evacuation. This report discloses that actual utilisation both in terms of flying hours and payloads carried were much lower than what was fixed by the Government. Deviations from the basic METAC role of the aircraft and the predominant use of the aircraft for routine transport assignments and "other tasks" at the expense of air maintenance role have also been highlighted. Of specific concern is the fact that training centres have been allocated substantial flying hours for routine transport role and these centres have logged considerable hours under this role and under "other tasks" while recording shortfalls with regard to their primary roles. As regards repair and maintenance, the necessity of toning up performance by repair and maintenance agencies and by provisioning and procurement agencies needs urgent attention. However, what is a matter of overriding concern is the growing reliance on the OEM for overhauls of aero engines as technology for extending life beyond 4000 hrs. has not been provided by the OEM. This, combined with the existing reliance on foreign firms for spares, poses a significant risk that would need to be addressed so that operational preparedness of Aircraft 'A' is maintained.

The matter was referred to Ministry in November 2006; their reply was awaited as of January 2007.

ANNEXURE I

(Refers to paragraph 1.6.1.4)

Details of Paratrooping training courses and conversion courses envisaged and actually held, actual output and shortfall against envisaged output

FLIGHT 'A'

Sl. No.	Course	Output as per policy page	Actual output					Shortfall in percentage				
			01-02	02-03	03-04	04-05	05-06	01-02	02-03	03-04	04-05	05-06
1.	Basic	1250	1401	1342	1357	1447	1403	—	—	—	—	—
2.	Refresher	11700	8153	9124	10067	8275	9572	30	22	14	29	18
3.	Basic FF	100	100	77	—	01	13	23	100	100	99	87
4.	Refresher FF	800	63	80	48	14	29	92	90	94	98	96
5.	Path Finder	12	—	06	—	06	10	100	50	100	50	17
6.	Jump Master	72	—	24	—	44	55	100	67	100	39	24
7.	PJI Course	As required	10	09	08	07	07	Shortfall not known as output not specified in policy page				
8.	Medical PCB	As required	100 per cent shortfall due to non allotment of task by Air HQrs.									
9.	Medical PC Refresher	As required	100 per cent shortfall due to non allotment of task by Air HQrs.									
10.	Aircrew Para Ground Training Courses	As required	100 per cent shortfall due to non allotment of task by Air HQrs.									

FLIGHT 'B'

Sl. No.	Course	Duration (Days)	No. of courses to be conducted in a year	Intake per course	Output as per policy page	Actual output
1.	FA Controller Airborne Course	On required basis	—	On required basis	—	NIL
2.	Aircrew paratrooping course					
A	Basic	28	12	08	96	NIL
B	Refresher	07	24	12	288	NIL
C	Jump Master	07	—	—	72	NIL
3.	Aircrew conversion course					
A	Captain conversion course	120	03	10	30	NIL
B	Second pilots conversion course	120	03	08	24	NIL
C	Navy pilots conversion course	120	03	09	27	NIL
D	Flight Engineer conversion course	120	03	09	27	NIL

ANNEXURE II

(Refers to paragraph 1.6.2.4)

Detail of availability of manpower in the production line of aero engine

Year	Authorised establishment		Posted strength		Deficiency	
	Officers	Airmen	Officers	Airmen	Officers	Airmen
2001-02	03	177	01	95	02	82
2002-03	03	170	01	94	02	76
2003-04	03	170	01	90	02	80
2004-05	03	147	01	81	02	66
2005-06	03	170	01	80	02	90

ANNEXURE III

(Refers to paragraph 1.6.2.7)

Satisfaction level with regard to AOG demands at operating units

Year	Total No. of demand raised	Demand satisfaction level				
		Between 1-15 days	Between 16-30 days	Between 31-180 days	More than 180 days	Demand pending/cancelled
2001-02	2476	462(19%)	862(35%)	848(34%)	143(6%)	161(6%)
2002-03	1880	306(16%)	541(29%)	871(46%)	142(8%)	20(1%)
2003-04	4612	996(22%)	1131(25%)	2018(44%)	350(7%)	117(2%)
2004-05	5359	1316(25%)	1387(26%)	2161(40%)	291(5%)	204(4%)
2005-06	6238	1517(24%)	1491(24%)	2326(38%)	272(4%)	632(10%)