Review Section

Report of the Comptroller and Auditor General of India

for the year ended March 2000

Union Government (Defence Services)
Air Force and Navy
No.8 of 2001

CONTENTS

PREFATORY REMARKS

Report for the year ending March 2000 has been prepared for submission to the President under Article 151 of the constitution. It relates mainly to matters arising from test audit of the financial transactions of Ministry of Defence, Air Force, Navy, Coast Guard and associated Defence Research and Development Organisation. Results of audit of Ministry of Defence, in so far as they relate to Army and Ordnance Factories, Army HQ, Ordnance Factory Board, field units of Army, Ordnance Factories, associated Research and Development units and Military Engineer Services have been included in Report No.7 of 2001.

The Report includes 21 paragraphs and reviews on (i) Upgradation of MiG Bis aircraft (ii) Procurement and modification of Jaguar aircraft.

The cases mentioned in the Report are among those which came to notice in the course of audit during 1999-2000 and early part of 2000-01 as well as those which came to notice during earlier years, but could not be included in the previous Reports.

OVERVIEW

The expenditure on Air Force and Navy, including capital expenditure during 1999-2000 was Rs 10475 crore and Rs 6885 crore respectively which together represents 35.68 per cent of expenditure of Rs 48657 crore on Defence Services.

Some of the major findings arising from test audit of transactions of Air Force, Navy and Coast Guard included in the Report are mentioned below:

I Upgradation of MiG Bis aircraft

In view of inadequacies of MiG Bis aircraft to meet perceived threats, Government approved in January 1996 upgradation of 125 MiG Bis aircraft at a total cost of US$ 626 million, equivalent to Rs 2003♣ crore stipulating its induction to commence from 1998-99 and completion by September 2001. The upgradation was to be achieved by integrating advanced avionics and weapon systems either to be imported or developed indigenously. However, due to delay in indigenous development of certain avionics systems coupled with the delay in flight testing, the MiG upgradation programme is now expected to be completed by 2004 after a delay of 36 months. Meanwhile, Air Force would neither have an upgraded aircraft nor the LCA. Obviously, the Air Force would be compelled to use the ageing MiG Bis aircraft.

The contract concluded with a foreign manufacturer for series modification of MiG Bis aircraft in March 1996 provided for TOT[1] to India without charging any fee/royalty for licenced production of new equipment fitted on the upgraded MiG Bis fleet. However, the manufacturer did not honour the contract provisions and TOT has not been finalised as of July 2000. The TOT for avionics systems have also not been finalised with Western vendors. This would pose difficulty in repair/overhaul and maintenance of the upgraded aircraft and would adversely affect the operational potential of the Air Force.

---

[1] **Transfer of technology**

♣ **1 US $ = Rs 31.99**

The TTL[2] of these aircraft has not yet been extended. Considering the high rate of accidents of the ageing MiG Bis fleet, their upgradation without extending the TTL poses a question on the efficacy of the upgradation programme.

The manufacturer violated the contractual provisions and supplied weapons valued at US$ 1.95 million, equivalent to Rs 7.06♠ crore which were 11 years old. The Ministry had to release the payment as it was contractually bound.

(Paragraph 6)

II Procurement and modification of Jaguar aircraft

Air Force continues to hold 35 Jaguar equipped with outdated first generation navigation and attack system called NAVWASS for about two decades. Their retromodification with third Generation DARIN INGPS[3] sanctioned belatedly in November 1996 at a cost of Rs 158 crore for completion by 2000-01 was yet to take off and is not expected to be completed before 2006. The contracts for five sub-systems with foreign vendors for this programme were at a stand still due to non-finalisation of mission computer by HAL[4] as the imported sub-systems were to be designed around this computer. In the meantime, 14 aircraft had to be grounded for periods ranging from 2 to 26 months due to prolonged unserviceability.

There had also been delays in procurement of maritime radar required to replace the existing outdated agave radars of Jaguar aircraft. This resulted in an extra expenditure of US$ 1.12 million. Besides, the Jaguar maritime fleet had to operate with old agave radars whose maintenance was becoming more and more difficult. Three out of five maritime Jaguars were lying unserviceable since March-June 1999.

Failure of Air HQ/Ministry to speed up the acquisition of auto pilot system for Jaguar aircraft was operationally detrimental. Due to non-availability of auto pilots, the Air Force not only lost four Jaguar aircraft costing Rs 141.40 crore in serious flying accidents, three pilots also died in these accidents.

---

[2] Total Technical Life
[3] Inertial Global Positioning System
[4] Hindustan Aeronautics Limited
♠ 1 US $ = Rs 36.15

Integration and flight trials of the laser designator pods procured at a cost of Rs 95 crore has also been delayed by 20 months. This would, apart from delaying the fleet modification of Jaguars, also impose operational limitations to the aircraft fleet. In the mean time, warranty of three pods valuing Rs 15.53 crore had expired. Further, the plan of Air Force to equip the Jaguar fleet with self protection jammer, a critical electronic warfare equipment, has been jeopardised even after an expenditure of Rs 184 crore.

(Paragraph 7)

III Delay in induction of a surveillance system

The critical requirement of a state of art surveillance system to replace the existing out dated and unreliable system has not been met even after a lapse of 16 years. Delay in development of two out of four sub-systems by DLRL[5] and failure of Air HQ/Ministry to place supply order timely on BEL[6] not only compelled the Air Force to shift its urgent plans for induction of the system from early 1990s to 2001 but also increased the cost of production by Rs 15.26 crore.

(Paragraph 2)

IV Delay in setting up of repair facilities for helicopter engines

Despite an expenditure of Rs 47.57 crore, the facilities for repair/overhaul of aero-engines of MI -17 helicopter, scheduled for completion by 1992 have not been set up. These are expected to be set up only by 2001 after 12-15 years of induction of the helicopter, by which time a substantial portion of the total technical life of majority of helicopters would be over. In the mean time, an expenditure of Rs 86.36 crore had been incurred on the repair/overhaul of the aero-engines abroad.

(Paragraph 8)

V Procurement of unreliable cells

Manufacturing defects in battery cells supplied by a firm and failure of the operating units to follow correct maintenance procedure for servicing the cells resulted in an aircraft accident involving a loss of Rs 53.37 crore.

(Paragraph 9)

---

[5] Defence Electronics Research Laboratory
[6] Bharat Electronics Limited

VI Sub-optimal utilisation of a radar

Injudicious decision of Air HQ to install a radar close to the sea in contravention of siting criterion resulted in sub-optimal utilisation of the radar procured at a cost of Rs 15.39 crore despite an additional expenditure of Rs 1.89 crore incurred on procurement of new software.

(Paragraph 14)

VII Avoidable expenditure due to delay in placing purchase order

Failure of Air HQ/Ministry to place timely purchase order on a foreign firm for overhaul of electronic warfare pod of a fighter aircraft, despite blanket approval of the Government for repair authorising Air HQ to despatch items abroad and availability of reasonable offer, resulted in an avoidable expenditure of Rs 2.24 crore.

(Paragraph 11)

VIII Overpayment to Hindustan Aeronautics Limited

The failure of DCDA(DAD)[7] HAL, Bangalore to regulate the bills of HAL for 220 wing drop tanks as per fixed cost quotation rate of the year 1990-91 led to an overpayment of Rs 5.94 crore.

(Paragraph 15)

IX Loss due to negligence of HAL

The Ministry failed to mention about HAL's responsibility and accountability in any letter or formal agreement while entrusting the first and second line servicing of the aircraft to them. Resultantly, the cost of damage to the aircraft due to negligence of the HAL's technicians amounting to Rs 1.19 crore remained unrecovered.

(Paragraph 18)

---

[7] **Deputy Controller of Defence Accounts (Defence Accounts Department)**

X Unauthorised deployment of Naval tanker for overseas purchase of oil

Naval HQ detailed an oil tanker along with three Naval Ships on a foreign goodwill mission to purchase oil overseas without obtaining Government sanction for the procurement. The tanker carrying oil sustained major damage as she collided with a foreign merchant vessel enroute. This led to avoidable expenditure of Rs 20.44 crore on account of repair of the damaged tanker, loss of oil and hiring of alternative cargo vessel.

(Paragraph 23)

XI Delay in development of a system

Naval HQ rejected a communication system developed by a Defence Research Establishment at a cost of Rs 67.23 lakh as it proved to be unsuitable for Naval use. To meet the requirement, Navy had to import alternative communication system at a cost of US $ 610,000 and also acquire technology from the supplier. Desptie this, the Ministry sanctioned another project at a cost of Rs 2 crore for developing similar communication facilities which seems redundant.

(Paragraph 3)

XII Repair/refit of boats of IOC out of Coast Guard funds

Negligence of CDA(N)[8] Mumbai to comply with Government orders and claim refund from IOC towards cost of repair/refit of their boats in the private shipyards led to non recovery of Rs 1.05 crore.

(Paragraph 25)

[8] **Controller of Defence Accounts (Navy)**

XIII Procurement of incorrect propeller shafts

Naval HQ failed to indicate the correct drawing/part number of the propeller shafts in the contract concluded in July 1995. Resultantly, propeller shafts costing Rs 32.81 lakh received in March 1997 were found unsuitable and were lying in stock.

(Paragraph 21)

XIV Inadmissible payment to a Public Sector Undertaking

Centre for Air Borne Systems made payment of Rs 95 lakh to a Public Sector Undertaking towards foreign exchange rate variation for which no provision existed in the supply order placed on the Undertaking because the firm had agreed to withdraw foreign exchange variation condition.

(Paragraph 16)

XV Avoidable expenditure due to delay in conclusion of contract

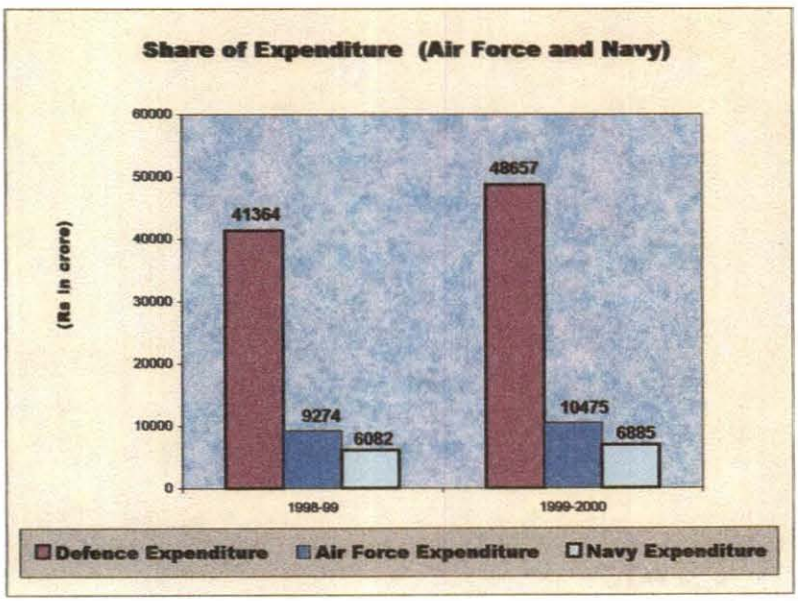
Despite Proprietary Article Certificate in favour of the manufacturer and availability of funds, Air HQ delayed the conclusion of contract which resulted in avoidable expenditure of Rs 43 lakhs.

(Paragraph 13)

CHAPTER I : FINANCIAL ASPECTS

1 Financial Aspects

1.1 The total revenue and capital expenditure on Defence Services during 1999 – 2000 was Rs 48657 crore, which was 17.63 *per cent* higher than the expenditure of 1998-1999. The share of the Air Force and the Navy in the total expenditure on Defence Services in 1999 – 2000 was Rs 10475 crore and Rs 6885 crore respectively including capital acquisition. The expenditure on Air Force was 12.95 *per cent* and Navy was 13.20 *per cent* higher than the expenditure during the preceding year.



1.2 The distribution among major areas of expenditure like capital acquisition, stores, pay and allowances and works etc., during 1999 – 2000 in Air Force and Navy is shown in the table below:

	AIR FORCE		NAVY	
	Rs in crore	Per cent of total	Rs in crore	Per cent of total
Capital Acquisition	4034	38.51	3237	47.01
Stores	3634	34.69	1245	18.08
Pay and Allowances	1898	18.12	1100	15.98
Works	668	6.38	395	5.74
Other Expenses	241	2.30	908	13.19
Total	**10475**		**6885**	

1.3 Test check of various transactions and review of certain projects/activities relating to Air Force, Navy and Coast Guard revealed instances of injudicious planning, delay in decision making, delay in upgradation of an aircraft, weaknesses in project implementation, extra expenditure, avoidable expenditure, losses and cost and time overruns in creation of facilities etc.

1.4 An amount of Rs 9.31 crore was recovered/being recovered at the instance of Audit during the year.

CHAPTER II : MINISTRY OF DEFENCE

2 Delay in induction of a surveillance system

Delay in development and placement of supply order for production of two out of four sub-systems of a system scheduled for induction in early 1990s led to non-availability of this operationally important system to the Air Force until March 2001. Remaining two sub-systems would be taken up after success of those already developed.

The critical requirement of a surveillance system has not been met as of October 2000 even after 14 years of sanctioning it. While DLRL[1] has developed only two out of its four sub-systems, the Ministry delayed placing of orders for them as discussed below:

The Ministry sanctioned indigenous development of four sub-systems in September 1986.

In order to match the threat scenario, Air HQ projected a requirement of a state-of-art ground based vehicle mounted surveillance system in February 1984 for replacing the existing outdated and unreliable system held since 1976-77. The system was required by early nineties. The Ministry accorded sanction in September 1986 for indigenous development of the system to be configured as four sub-systems 'A', 'B', 'C' and 'D' by DLRL, Hyderabad at an estimated cost of Rs 6.71 crore for completion by March 1990. As the requirement for the system was urgent and critical, Air HQ adopted a development-cum-production approach and identified BEL[2], Hyderabad as a production agency in early 1987. The development of the system in the initial phase, however, suffered from delays as it did not meet the Air Force specifications in the area of direction finding accuracy and other engineering aspects like shelter/rack layout, system software etc. This delayed the development efforts by five years and only two sub-systems 'A' and 'B' could be developed by May 1995 after incurring an expenditure of Rs 7.78 crore out of total sanctioned amount of Rs 8.37 crore. The development of other two sub-systems 'C' and 'D' was dispensed with till 'A' and 'B' was successfully produced and proven.

The development of the system over shot the schedule time by five years.

[1] Defence Electronics Research Laboratory
[2] Bharat Electronics Limited

BEL submitted a quote in May 1987 for manufacture of two sub-systems 'A' and 'B' at a cost of Rs 13.84 crore. The Ministry sanctioned production of sub-systems 'A' and 'B' in May 1989 at a cost of Rs 17.24 crore including cost of spares, test equipment, vehicles and generating sets not catered for earlier.

Sub-system 'B' failed to meet the qualitative requirements of the Air Force.

Meanwhile, sub-system 'B' developed by DLRL failed to meet the qualitative requirements of the Air Force for direction finding accuracies during field trials conducted in November-December 1994. Notwithstanding, Air HQ accorded go-ahead to BEL in January 1995 for production of two sub-systems 'A' and 'B' and emphasised for calling a PNC[3] meeting in March 1995 in order to place a firm order on BEL during 1994-95. However, the PNC could not be held due to an impasse between DLRL, BEL and Air HQ in finalising the technical specifications of the system. In the meantime, in June 1995 BEL submitted a fresh quote of Rs 35.40 crore subsequently revised to Rs 33.50 crore in July 1996 for supply of two sub-systems 'A' and 'B'.

The system developed by DLRL warranted improvements.

While the negotiations were in progress, Air HQ in September-October 1996 reassessed the capabilities of the system developed by DLRL and observed an inherent deficiency of loss of search function in the system while carrying out the analysis. The search function was not a part of original Qualitative Requirement. To overcome this deficiency, Air HQ suggested addition of a search receiver, GPS[4] facility and a non-rotational antenna. DLRL/BEL agreed to incorporate an additional search receiver at the production stage but expressed inability to incorporate the other improvements, apprehending major design changes.

The conclusion of contract with BEL took another two years.

BEL revised their offer in February 1997 to Rs 34 crore for supply of upgraded sub-systems 'A' and 'B', which was finally negotiated by the Ministry in March 1997 for Rs 32.50 crore. However, the Ministry placed an order on BEL only in March 1999 for supply of two sub-systems 'A' and 'B' at a total cost of Rs 32.50 crore. As per supply order, the first sub-system would be delivered by January 2001 and the second by March 2001. An advance payment totalling Rs 22.75 crore has been paid to BEL as of October 2000.

The systems would be available to the Air Force only by March 2001.

The Ministry stated, in October 2000, that arriving at mutually agreed specifications took time because of delays in development and demonstration of the system to the satisfaction of the Air Force during field trials. The Ministry also added that the existing systems were being used within their inherent technological constraints as they employ technology which has now become outdated.

---

[3] Price Negotiation Committee
[4] Global Positioning System

Thus, delay in development of two out of four sub-systems by DLRL and failure of the Air HQ/Ministry to place supply order timely on BEL not only forced the Air Force to shift its urgent plans for induction of the system in early 1990s to 2001 but also increased the cost of production by Rs 15.26 crore. Till such time, the Air Force would have no system worth the name as the existing system had become outdated and unreliable. The development of remaining two sub-systems 'C' and 'D' would depend on success of sub-systems 'A' and 'B'.

3 Delay in development of a system

Delay in development of a system led to import of its substitute at a cost of US $ 610,000. In view of transfer of technology to BEL for an imported equipment indigenous development has become infructuous.

A Defence Research Establishment initiated a project in 1993 for development of advanced data link to facilitate data transfer and communication between fleet units and shore, which would serve as digital data exchange for tactical, primary and broadcasting application. The Ministry sanctioned in May 1994 development and manufacture of six advanced data link systems through trade at a cost of Rs 67.23 lakh. The project was scheduled to be completed by March 1995. For this purpose, two orders were placed only in January 1996 on firm `A' and firm `B' for three sets each.

Delay in development led to import of communication sets at a cost of US $ 610,000.

Naval HQ projected in March 1995 the immediate requirement for 21 stand alone communication units, a substitute for advanced data link. The Ministry sanctioned the procurement of 21 units in May 1995 at US $ 610,000, equivalent to Rs 1.92[♠] crore from a foreign firm.

Coast Guard HQ and Naval HQ projected requirement of 69 and 45 stand alone communication units in April 1995 and October 1996 respectively. The Ministry sanctioned the procurement of 45 units for Navy and 55 units for Coast Guard during January and February 1998 at a total cost of Rs 11.04 crore and accordingly orders were placed on BEL[5] in March 1998 for their import before signing the technical collaboration agreement. Out of 121 sets, only 66 sets were delivered to Navy as of August 2000.

---

[5] **Bharat Electronics Limited**
[♠] **1 US $ = Rs 31.55**

The Ministry sanctioned another project at a cost of Rs 2 crore for improving the Adlinc.

Meanwhile, indigenous development of advanced data link was also completed in May 1998 at a cost of Rs 67.23 lakh. Naval HQ, however, did not accept this version of the equipment as it was found unsuitable for use on board aircraft and submarines due to its size. The Ministry, therefore, sanctioned in September 1998 another project Link-II at a cost of Rs 2 crore for improving indigenously developed advanced data link.

Thus, delay in development of advanced data link equipment necessitated import of a suitable system. However, further sanction of Rs 2 crore in September 1998 for Link-II project to develop similar communication facilities seems redundant, as BEL who have contracted transfer of technology with the foreign firm is normally expected to meet the requirement of Navy and others for the communication facilities.

The matter was referred to the Ministry in July 2000; their reply was awaited as of February 2001.

4 Response of the Ministries/Departments to Draft Audit Paragraphs

On the recommendations of the Public Accounts Committee, the Ministry of Finance (Department of Expenditure) issued directions to all Ministries in June 1960 to send their response to the Draft Audit Paragraphs proposed for inclusion in the Report of the Comptroller and Auditor General of India within six weeks.

The Draft Paragraphs are always forwarded by the respective Audit offices to the Secretaries of the concerned Ministries/departments through Demi-official letter drawing their attention to the Audit findings and requesting them to send their response within six weeks. It is brought to their personal notice that since the issues are likely to be included in the Audit Report of the Comptroller and Auditor General of India, which are placed before Parliament, it would be desirable to include their comments in the matter. Draft Paragraphs/Reviews proposed for inclusion in the Report of the Comptroller and Auditor General of India, Union Government, Defence Services (Air Force and Navy) for the year ended March 2000, No.8 of 2001 were forwarded to the Secretary, Ministry of Defence between May 2000 and October 2000 through Demi-Official letters.

The Ministry of Defence did not send replies to nine Draft Paragraphs/Reviews in compliance with above instructions of the Ministry of Finance issued at the instance of the Public Accounts Committee out of 23 Paragraphs/Reviews included in this Report. Thus, the response of the Ministry could not be included.

Ministry/Department	Total No. of Paragraphs on the Ministry/ Department included in the Report	No. of Paragraphs in which reply not received from the Ministry of Defence	Paragraph Numbers
Ministry of Defence	23	9	3, 6, 7, 14, 19, 20, 21, 22 and 23

5 Follow up on Audit Reports

Despite repeated instructions/recommendations of the PAC, the Ministry did not submit remedial Action Taken Notes on 40 Audit Paragraphs.

With a view to ensuring enforcement of accountability of the executive in respect of all the issues dealt with in various Audit Reports, the PAC[6] decided in 1982 that Ministries/ departments should furnish remedial/corrective ATNs[7] on all paragraphs contained therein.

ATNs are to be submitted within four months of placing the Report on the Table.

The Committee took a serious view of the inordinate delays and persistent failures on the part of large number of Ministries/ departments in furnishing the ATNs in the prescribed time frame. In their Ninth Report (Eleventh Lok Sabha) presented to the Parliament on 22 April 1997, the PAC desired that ATNs on all paragraphs pertaining to the Audit Report for the year 31 March 1996 onwards be submitted to them duly vetted by Audit within four months from the date of laying the Reports in Parliament.

The Ministry failed to submit ATNs on 40 paragraphs.

Review of outstanding ATNs on paragraphs included in the Report of the Comptroller and Auditor General of India, Union Government, Defence Services (Air Force and Navy) as of February 2001 revealed that the Ministry failed to submit ATNs on 40 paragraphs included in the Audit Reports up to and for the year ended March 1999 as per Appendix-I enclosed.

In eleven cases (Sl.No. 10, 21, 24, 28, 29, 31, 34, 35, 36, 37, 40 of Appendix-I), ATNs had not been received at all from the Ministry.

In 33 cases the Ministry failed to submit final ATNs upto three years.

Out of the total 40 cases, three cases (Sl.No. 1,2,3) are pending for more than five years, four cases (4,5,6,7) are pending for more than three years and 33 ATNs are pending up to three years.

---

[6] **Public Accounts Committee**
[7] **Action Taken Notes**

CHAPTER III : AIR FORCE

Reviews

6 Upgradation of MiG Bis aircraft

Highlights

- Evaluation of perceived threats in early eighties indicated inadequacies of MiG-21 Bis aircraft *vis-a-vis* other contemporary aircraft. Since a replacement was not expected to be available before 2005 due to considerable slippages in the LCA project, Government approved in January 1996 upgradation of 125 MiG Bis aircraft at a total cost of US $626 million, equivalent to Rs 2003[@] crore stipulating its induction to commence from 1998 -99 and completion by Sepember 2001. However, delay in indigenous development of certain avionic systems coupled with the delay in flight testing resulted in non-completion of even the design and development phase of upgradation as of September 2000.

- The MiG upgradation programme was now expected to be completed by 2004 after a delay of 36 months. Meanwhile, Air Force would neither have an upgraded aircraft nor the LCA. Obviously, the Air Force would be compelled to use the ageing MiG Bis aircraft.

- The delay in positioning of the project team, delay in obtaining the import licence by the manufacturer coupled with delays in development and production of key avionics systems like RWR by BEL and INCOM by HAL has delayed the design and development phase of the programme by 24 months.

- The contract concluded with a foreign manufacturer for series modification of MiG Bis aircraft in March 1996 provided for TOT to India without charging any fee/royalty for licenced production of new equipment fitted on the upgraded MiG Bis fleet. However, the manufacturer did not honour the contract provisions and TOT has

[@] 1 US $ = Rs 31.99

not been finalised as of July 2000. The TOT for avionic systems have also not been finalised with Western vendors. This would pose difficulty in repair/overhaul and maintenance of the upgraded aircraft and would adversely affect the operational potential of the Air Force. Delay in TOT would also lead to import of avionics systems for upgradation of 50 aircrafts under option.

- **Feasibility study for extension of total technical life of MiG Bis aircraft was not complete as of July 2000. Structural modifications, if any, needed for life extension after upgradation would require enormous avoidable expenditure. Considering the high rate of accidents of the ageing MiG Bis fleet, their upgradation without extending the TTL poses a question on the efficacy of the upgradation programme.**

- **The manufacturer violated the contractual provisions and supplied weapons valued at US $ 1.95 million, equivalent to Rs 7.06♠ crore which were 11 years old. The Ministry had to release the payment being contractually bound.**

6.1 Introduction

Government approved in January 1996 upgradation of 125 MiG Bis aircraft at a total cost of Rs 2003 crore. The upgradation was to be achieved by integrating advanced avionics and weapon systems either to be imported or developed indigenously. While the design and development phase of two prototype MiG Bis aircraft was to be completed by August 1998, the series modification of remaining aircraft indigenously by HAL[1] was to be completed by September 2001 The execution of the project was in progress.

6.2 Scope of Audit

The evaluation, selection, procurement of Western/indigenous avionic systems, their delivery and upgradation of the aircraft with reference to the projected schedule, transfer of technology and impact of delays in upgradation programme were reviewed in Audit.

---

[1] **Hindustan Aeronautics Limited**

♠ **1 US $ = Rs 31.99**

6.3 Need for upgradation

In early 1980s, Air Force carried out an evaluation of perceived threats and the likely battle scenario of the 1990s which highlighted the inadequacies of MiG Bis, the main stream aircraft of the Air Force. Consequently, the Ministry sanctioned in August 1983 the development of LCA class of aircraft to fill the gap in force level of the Air Force from 1995. The LCA was expected to enter into service in 1995 to replace MiG Bis that were scheduled to be phased out on the expiry of their life of 20 years/2400 hours. The LCA programme, however, suffered considerable slippages and the aircraft was not expected to be available for induction before the year 2005. In view of this, extension of total technical life of MiG Bis and its upgradation to enhance its operational capability to desired levels was considered necessary. The Ministry decided to upgrade the existing MiG Bis aircraft rather than outright purchase of a new aircraft keeping in view the high cost of modern fighters and the constraints on the defence budget.

In 1989, a foreign country indicated that they could upgrade the MiG Bis aircraft with some of the avionics and weapons of MiG-29 aircraft. The preliminary proposal of the foreign country was received in November 1990 and detailed proposal in August 1991. A joint techno-economic study was carried out in November 1992 and the proposal was found to be comprehensive and cost effective. An intention to nominate the foreign country as prime contractor was issued in March 1994.

6.3.1 In December 1995, a proposal was submitted to CCPA[2] for approval of the upgradation of 125 MiG Bis aircraft with an option to upgrade 50 more aircraft at a total cost of US$ 626 million, equivalent to Rs 2003♠ crore including weapons, spares, maintenance support and training. Apart from components from the foreign country, the upgrade package consisted of certain Western and indigenous avionic systems. CCPA approved the proposal in January 1996. The CCPA paper envisaged completion of design and development of two MiG Bis aircraft in the foreign country by 31 January 1998 and series modification of the remaining 123 aircraft indigenously by HAL by September 2001.

CCPA approved the MiG upgradation programme in January 1996 for completion by 2001.

Upgradation of the 50 aircraft under option was to be undertaken from 30 September 2001 onwards.

---

[2] **Cabinet Committee on Political Affairs**

♠ **1 US $ = Rs 31.99**

6.4 Programme Execution

The Ministry concluded six contracts in March 1996. Of these, three contracts, *viz* design and development of aircraft, series upgradation and armament were concluded with a manufacturer of the foreign country and three contracts for avionic systems like INS[3], CMDS[4] and VRS[5] were concluded with Western vendors. Subsequently, the Ministry also concluded contracts with HAL, NAL[6] and BEL[7]in 1997 for development of indigenous avionic systems and life extension study.

6.4.1 According to contract of March 1996 with the foreign manufacturer, design and development of the aircraft was to be completed by August 1998 at a total cost of US$ 20.43 million, equivalent to Rs 73.85** crore. The first two aircraft were to be upgraded in the foreign country during which HAL and other agencies of the Air Force were to participate. Consequently, HAL despatched two aircraft to the foreign country in May 1996 for modification. An Air Force team was also to be positioned in the foreign country by May 1996 in this connection. Air HQ submitted a case on 29 March 1996 for the formation of MiG Bis project team for approval of the Ministry. Only, in September 1996, sanction of Government was accorded for the formation of MiG Bis upgrade team and the team was positioned in the foreign country on 9 October 1996. Thus, the initial delay in the upgrade programme was caused due to delayed positioning of a project team which had a cascading effect.

Delay in positioning of the Air Force team delayed the project.

6.4.2 HAL was to undertake series production concurrently with modification kits to be supplied by the foreign manufacturer under one of the contract valued at US $ 286.65 million, equivalent to Rs 1036** crore concluded in March 1996. The supply of kits and sets for 123 aircraft was planned to commence from March 1998 in order that the first batch of six upgraded aircraft from HAL could be delivered to Air Force by August 1998. Thirty aircraft were planned to be upgraded during 1998-99 followed by 40 aircraft per year as indicated below:

The supply of kits and sets for modification of 123 aircraft was to commence from March 1998.

---

[3] Inertial Navigation System
[4] Counter Measures Dispensing System
[5] Video Recording System
[6]National Aerospace Laboratories
[7]Bharat Electronics Limited
**** 1 US $ = Rs 36.15**

Period	Number of aircraft to be modified
1.8.98-31.7.99	30
1.8.99-31.7.2000	40
1.8.2000-31.7.2001	40
1.8.2001-31.7.2002	13+27 under option
1.8.2002-31.3.2003	23 under option
Total	123+50(173)

The manufacturer did not supply the documents in time.

As per contract, the foreign manufacturer was to forward the documentation required for series production between 1 December 1996 and 1 June 1997. The manufacturer commenced the supply of documents only from June 1997 and the last consignment was received in September 1997 but HAL was not able to start the series production process due to inadequacy of documentation. HAL was also not in a position to confirm the correctness of the documents in the absence of Master list of documents and tooling.

Procurement of spares not provided earlier involved additional payment of Rs 55.25 crore.

The manufacturer submitted a draft supplement in June 1998 revising the composition of four appendices comprising the list of items/spares of the series upgradation contract of March 1996, necessitated as a result of design and development work on two aircraft. The manufacturer indicated that all the additional items are essential for upgrading, testing, maintaining and operating the aircraft. The manufacturer also added that further supplies of items under series upgradation contract would be made only if the proposed additional items were contracted. Procurement of these items involved an additional payment of US $12.85 million, equivalent to Rs 55.25* crore. Accordingly, two supplementary agreements were concluded in July 1999. This supplement included additions up to commencement of flight test.

The weapons integration and their flight testing was not included in the design and development phase.

6.4.3 While projecting the case to CCPA for approval of the upgradation programme, it was emphasised that without advanced and modern weapons, the operational capability of the MiG Bis aircraft would not be enhanced to the desired level. The combat capability of the upgraded aircraft was to be assessed during design and development phase of the programme applying the latest weapon systems imported from the foreign country.

* 1 US $ = Rs 42.99

However, the weapon integration and their flight testing was not included in the third phase of the design and development contract. Consequently, a supplementary agreement was concluded in October 1999 at a cost of US$ 1.89 million, equivalent to Rs 8.15[♠] crore to complete the flight testing and to confirm the satisfactory integration of the weapons on the aircraft for combat evaluation. This delayed the completion of the design and development phase. The flight testing and combat evaluation of the aircraft which was scheduled to be completed by April 1998 was now expected to be completed by September 2000 after a delay of 30 months. This is bound to have an impact on the overall upgradation programme.

The design and development phase delayed by 30 months.

An amount of Rs 7.66 crore was also sanctioned and paid to HAL in March 1997 as adhoc advance but the same could not be spent up to 1998 due to delay in upgradation programme.

Rs 7.66 crore paid to HAL remained unutilised for over a year.

6.4.4 Delay in obtaining import licence by the manufacturer

The manufacturer failed to obtain the import licence for kits and equipment of foreign suppliers as provided in the design and development contract of March 1996. Audit noticed that certain systems which arrived at the manufacturer's country were held up for five months each in two spells in December 1996 and again in December 1997 as these were not cleared by the custom authorities. The delay in obtaining the import licence had contributed delay of nearly 12 months in design and development phase. Even in a later case, similar delays in obtaining import licence for Indian and Western avionics of SU-30 aircraft was commented in paragraph No.2 of Report of the Comptroller and Auditor General of India, No.8 of 2000.

The manufacturer failed to obtain import licence in time.

6.4.5 The Defence Minister stated in Parliament in February 2000 that the design and development work on two MiG Bis aircraft was in final stage of completion while the upgradation of remaining 123 aircraft had commenced concurrently at HAL and was expected to be completed by 2004.

Meanwhile, Air Force would neither have upgraded MiG Bis aircraft nor the LCA. Obviously, the Air Force will have to either live with a depleted force level or will be compelled to use the ageing MiG Bis fleet. An expenditure of Rs 1053 crore had already been incurred on the programme as of April 2000.

The upgradation programme is expected to be completed by 2004. Till such time the Air Force is compelled to continue with the depleted fleet.

[♠] 1 US $ = Rs 43.12

6.5 Development and supply of indigenous avionics

The development of the RWR[8] system was entrusted to ASIEO[9] at a cost of Rs 10 crore with an objective to develop a compact Advanced Radar Warning Receiver system for fighter aircraft. Two systems were required to be supplied directly to the foreign manufacturer by June 1997 and the remaining 123 systems were to be supplied by BEL to HAL for upgrading the MiG Bis indigenously. A supply order on BEL for the supply of 123 systems including spares was placed in February 1997 at a cost of Rs 133.64 crore including FE of Rs 84.39 crore. As per supply order, the first six systems were to be supplied by March 1998 and the remaining by March 2001 in batches.

None of the RWR system has been supplied to HAL.

However, ASIEO despatched two systems to the foreign manufacturer only in April 1998 and August 1998 after a delay of 7 to 12 months. It was also noticed that none of the systems, had been supplied by BEL to HAL as of April 2000. This is likely to result in time overrun and cost increase.

The indigenous development of five other avionic systems including that of INCOM system was entrusted to HAL Hyderabad which had the competence in the field and a contract was concluded with HAL in March 1997 at a total cost of Rs 69.61 crore subsequently amended to Rs 70.97 crore in February 1999 for supply of 128 sets of each of the five avionic systems.

There has been delay in the development of INCOM system.

There had, however, been delays in development of INCOM system by HAL. The system which was to be supplied to the foreign manufacturer by July 1997 after carrying out the demonstration of ECCM functioning test, were supplied only by September/October 1998 after delay of 16 months that too without completing the required tests.

Air HQ stated, in August 1998, that delays in development of INCOM system was due to lack of proper prioritisation, project management and monitoring. As of July 1999, only three out of five sets of INCOM airworthy systems were made available to the foreign manufacturer. HAL indicated that full development of INCOM set would be completed by June 2000. Air HQ added that the delay in the indigenous development of RWR and INCOM system were the main factors for the delay of design and development phase of the project.

---

[8] **Radar Warning Receiver**
[9] **Advanced Systems Integration and Evaluation Organisation**

6.6 Procurement of Inertial Navigation System

The Ministry concluded three contracts in March 1996 for procurement of avionics systems with Western vendors. One of the three contracts, was concluded with foreign firm 'X' at a total cost of US$ 17.57 million, equivalent to Rs 63.51[▼] crore for supply of Inertial Navigation System. Under the contract, firm was to supply five sets of the system for design and development phase and 125 sets for production phase alongwith ground/test equipment by March 1998 and May 2001 respectively.

Due to delay in the design and development phase of upgradation programme, the delivery schedule of the Navigation system had to be revised and the supply of the system would now be completed by November 2002. A sum of US$ 5.8 million had been paid to the firm by April 2000. The delivery schedule of other two contracts concluded for procurement of Western avionics system was also revised.

6.7 Delay in transfer of technology

The TOT was to be provided free of cost.

As per the provisions of the contract relating to series upgradation programme concluded with the foreign manufacturer in March 1996, the manufacturer was supposed to transfer the technology to India without charging any fee/royalty for licenced production of new equipment being fitted on the upgraded aircraft which are uncommon to MiG Bis systems. The TOT was required for providing overhaul/maintenance and product support to 125 upgraded MiG Bis fleet and also for upgrading the other aircraft under option. The facilities for indigenous production of new equipment under TOT was to be set up at HAL As provided in the contract, the foreign manufacturer was to submit a draft Inter-Government Agreement (IGA) for TOT by September 1996. The IGA was to be followed by a joint techno-economic study by HAL and the foreign manufacturer. The draft IGA was received by HAL in March 1997 and was cleared by Air HQ/Ministry in June 1997 and sent back to the foreign manufacturer in July 1997 for finalisation/implementation. However, during discussion in October 1997, the manufacturer insisted on payment of the cost of licenced production, technical documentation to be transferred to HAL, which according to Air HQ was a clear violation of the contract provisions. Thereafter, the matter remained dormant mainly because the manufacturer did not agree to honour the contract provisions for TOT without payment.

The manufacturer violated the contract provisions and insisted for payment for TOT.

[▼] **1 US $ = Rs 36.15**

6.7.1 The TOT clause was also included in all the contracts signed with Western vendors for procurement of INGPS, CMDS and VRS required for MiG Bis upgradation programme. As such, the Depot level maintenance requirements of spares for Western systems and the systems of the foreign country fitted in the upgraded MiG Bis fleet was not included in the contracts as the requirement for repair/ overhaul and maintenance of the new systems was expected to be met through TOT. However, the TOT has not been finalised as of July 2000.

6.7.2 Air Force/ Ministry have provisioned avionics systems for upgradation of only 125 MiG Bis aircraft though approval of the Government exists for upgradation of 50 more MiG Bis under option. In the event of delay in TOT, the avionics systems for aircraft under option would have to be imported at increased cost.

The delay in TOT is bound to affect the maintenance and serviceability of upgraded MiG Bis.

6.7.3 The delay in finalisation of the agreement for TOT would also create difficulty for the Air Force to maintain the new equipment when these become due for repair/ overhaul and Air Force would have to depend solely on the foreign manufacturer for which they would charge heavily. This would have serious implications on the planned utilisation of the upgraded aircraft and would have a direct bearing on the operational potential of the Air Force in subsequent years. In view of the lead time involved in procurement of equipment and building up of the requisite infrastructure, a well defined overhaul and maintenance plan for upgraded MiG Bis fleet has to be evolved well in time to avoid the off loading of their repair abroad. However, the Air HQ/Ministry was yet to sanction the repair/ overhaul plan for the upgraded MiG Bis aircraft. This is bound to affect the operational efficiency of the aircraft fleet.

6.8 Extension of total technical life

The upgradation programme was linked with the life extension programme.

MiG Bis upgradation programme as approved by CCPA envisaged extension of TTL[10] of the MiG Bis fleet from 20 to 40 years for justifying the cost of upgradation.

TTL study was to be completed by October 1999.

For extending the TTL, a full scale fatigue test of the airframe of MiG Bis aircraft was required to evaluate feasibility of life extension and necessary modifications for safe operation. The Ministry concluded a contract in October 1997 with NAL, HAL and CEMILAC[11] at a cost of Rs 4.63 crore. As per the contract, the project was to be completed by October 1999.

---

[10] **Total Technical Life**
[11] **Centre for Military Airworthiness and Certification**

6.8.1 In July 1997 itself, Air HQ had cautioned that if the TTL of the aircraft was not extended, the entire upgradation programme with a stake of Rs 2003 crore would be infructuous. Air HQ added that HAL would undertake the updating task from January 1998 onwards and in the event of delay in life extension programme, requisite input for structural changes in the aircraft would not be available in time and the same job would have to be undertaken later at an enormous avoidable costs. Audit, however, noticed that the life extension studies have not been completed and are expected to be completed by March 2001. An amount of Rs 1.16 crore has been paid to NAL against the contract as of April 2000.

6.8.2 Mention was made in paragraph No. 7 of the Report of the Comptroller and Auditor General of India, No. 8 of 1998 regarding high attrition rate of MiG-21 variants during 1991-97. At the time of obtaining the approval of the Government in January 1996, there were certain number of MiG Bis aircraft in the inventory of the Air Force. Of these, 24 aircraft crashed in accidents during 1997-1999 and balance aircraft were available with the Air Force as of April 1999. In view of the high rate of accidents of the ageing MiG Bis fleet their upgradation without extending the TTL poses a question on the efficacy of the upgradation programme.

6.9 Procurement of armament

Of the three contracts, concluded in March 1996 with the foreign manufacturer relating to MiG upgradation programme, one was for supply of armament and associated equipment for US $ 153.15 million, equivalent to Rs 553.63* crore required for upgradation. The contract explicitly stipulated that equipment to be delivered by the manufacturer would be of new, unused and of current production. The terms of contract required supply to commence from 1998 and delivery of all the items, barring one item, to be completed by 2000. However, in view of the delay in the implementation of the design and development phase of upgradation programme, an additional agreement to the contract revising the delivery schedule of the armaments had to be signed in October 1999 without financial implication. According to which, supply of most of the items would be completed by second quarter of 2001.

* **1 US $ = Rs 36.15**

Manufacturer supplied the weapons valued Rs 7.06 crore with 11 years old propellant.

Contrary to contract provisions, the manufacturer supplied 2000 weapons worth US $ 1.95 million, equivalent to Rs 7.06* crore in December 1998 which were manufactured in May 1996 with propellant that was 11 years old. The matter was taken up by Air HQ with the manufacturer through the Indian mission in April 1999. The manufacturer, however, informed that even though the propellant was 11 years old, they were willing to assure stipulated storage life of 15 years beginning from November 1998. Efforts made by Air HQ/Ministry to get the items replaced with new items failed. The Ministry decided in September 1999 to refer the case to Legal Advisor for advice which was awaited as of June 2000. The supply of the other armaments was in progress.

Thus, upgradation of MiG Bis aircraft scheduled to commence from August 1998, was still in development stage despite an expenditure of Rs 1053 crore. Life extension studies remained incomplete. Indigenous development and production of two avionic systems was delayed. As a result, Air Force continued to use ageing MiG Bis in its present state having inherent high accident risk.

The matter was referred to the Ministry in September 2000; their reply was awaited as of February 2001.

7 Procurement and modification of Jaguar aircraft

Highlights

- **Air Force continues to possess 35 Jaguars equipped with outdated first generation navigation and attack system called NAVWASS for about two decades. Their retromodification with third generation DARIN INGPS sanctioned belatedly in November 1996 at a cost of Rs 158 crore for completion by 2000-01 was yet to take off and was not expected to be completed before 2006. The contracts for five sub-systems with foreign vendors for this programme were at a stand still due to non-finalisation of mission computer by HAL as the imported sub-systems were to be designed around this computer. In the meantime, 14 aircraft had to be grounded for periods ranging from 2 to 26 months due to prolonged unserviceability.**

* 1 US $ = 36.15

- **The Ministry concluded contract for procurement of maritime radar for the Jaguar aircraft, in replacement of the existing outdated agave radars, after four years of projection of requirement by Air Force resulting in an extra expenditure of US$ 1.12 million, which was avoidable. The Jaguar maritime fleet had to operate with old agave radars whose maintenance was becoming more and more difficult. Three out of five maritime Jaguars were lying unserviceable since March-June 1999.**

- **Apathy of Air HQ/ Ministry to speed up the acquisition of auto pilot system for Jaguar aircraft was operationally detrimental. The Air Force not only lost four Jaguar aircraft costing Rs 141.40 crore in serious flying accidents, three pilots also died in these accidents. The auto pilots are unlikely to be fitted on Jaguars at least till June 2002.**

- **Integration and flight trials of the laser designator pods procured at a cost of Rs 95 crore has been delayed by 20 months. This would, apart from delaying the fleet modification of Jaguars, also impose operational limitations to the aircraft fleet. In the mean time, warranty of three pods valuing Rs 15.33 crore had expired. The Jaguars would not be able to undertake missions with laser designator pods in the absence of auto pilots, a mandatory requirement which is not likely to be available before June 2002.**

- **The plan of the Air Force to equip the Jaguar fleet with self protection jammer, a critical electronic warfare equipment, has been jeopardised even after an expenditure of Rs 184 crore. An initial delay of 24 months in mock-up installation not only forced the Ministry to re-schedule the delivery of jammers from July 1999 to July 2001, a realistic time frame for fleet modification is yet to emerge affecting thereby, the operational capabilities of the Air Force.**

7.1 Introduction

The Ministry approved in October 1978 acquisition of 150 Jaguars and concluded two agreements with the aircraft manufacturer in April 1979. While 40 Jaguars were imported in a fly away condition, the remaining 110 aircraft were to be licenced manufactured by the HAL[12] during 1982-89 in a phased manner. The direct supply aircraft were equipped with first generation Marconi inertial

[12] **Hindustan Aeronautics Limited**

navigation and attack system named NAVWASS, which had low reliability and was grossly outdated. The Ministry, immediately after induction, had to sanction development of a second generation display attack ranging inertial navigation system named DARIN for its integration on HAL built Jaguars. The Ministry also sanctioned an ambitious retromodification programme to upgrade the NAVWASS equipped direct supply Jaguar aircraft. The Ministry curtailed in 1982 the indigenous manufacture programme from 110 to 76 aircraft on the grounds that the design philosophy of the Jaguar aircraft was of the sixties and the manufacturer of the aircraft had stopped production of the aircraft. However, the Ministry had to reverse its decision and it sanctioned procurement of 15 additional Jaguars from HAL in September 1988 after six years of curtailment of the indigenous manufacture programme. Mention of this was made in paragraph No. 35 of the Report of the Comptroller and Auditor General of India, Union Government (Defence Services) for the year 1985-86.

7.2 Scope of Audit

The Review traces the history of development and modification of Jaguars with second generation DARIN System, the status of retromodification of NAVWASS Jaguars to third generation DARIN INGPS standard and the execution of other avionic upgrade programmes.

7.3 Development of DARIN System

Air HQ issued ASR in April 1980 laying down the specifications of the DARIN system.

Government accepted in 1979 the necessity to update the navigation attack system in HAL built Jaguar aircraft with a more accurate and reliable system. Air HQ issued the Air Staff Requirements in April 1980 laying down the specifications for the DARIN system. The Ministry also sanctioned in April 1980 the formation of IIO[13] for a period of four years with an initial outlay of Rs 20 crore for development and integration of DARIN system on Jaguars. The IIO commenced functioning from August 1980.

7.3.1 The second generation DARIN system comprises of three key sub-systems namely the Inertial Navigation System, Head Up Display System and a Map and Electronic Display System. Three foreign vendors were chosen for development of DARIN sub-systems. Besides, a host of Indian agencies were also associated with the development programme. As per the milestones identified for achieving

[13] INAS Integration Organisation

the task of integration, the first flight of first trial aircraft was to be completed by March 1982 followed by IOC[14] July 1982 and FOC[15] by December 1982.

Air HQ allotted two Jaguar aircraft to HAL in November 1980 and June 1982 for modification and fitment of DARIN system. However, considerable delays occurred in the development stage of the system by the vendors and in the development of the avionic rig. The actual task of integration of the DARIN system in India commenced only in November 1982 after the arrival and commissioning of the avionic test rig at IIO. As a result, the first test flight of the DARIN modified aircraft could take place only in December 1982 and the second prototype aircraft was test flown in September 1983.

The time frame worked out by Air HQ while planning the DARIN development were over optimistic, as this was based on an estimated flying efforts of merely 200 sorties. On the contrary, from the time DARIN system was first flown in December 1982, a total flying effort of 840 sorties had to be resorted to during the flight development phase to evolve the DARIN system to its fully operational state.

FOC of DARIN system was delayed by over six years.

Consequently, the IOC, an intermediate stage stipulating minimum standards of production for the DARIN system, scheduled for July 1982, could be achieved only in June 1984. Cumulative delays in realising earlier milestones led to slippages and the FOC, initially planned for December 1982, could be achieved only in February 1989, after a delay of more than six years.

Delay in development of DARIN system caused an additional expenditure of Rs 17.40 crore.

Delay in development and integration of DARIN system necessitated not only extension of the tenure of the IIO from time to time, post FOC activities such as continued flight development and validation of software not catered for initially, had to be carried out by the IIO even after achieving FOC in February 1989 till it finally merged with Software Development Institute in December 1995. IIO incurred an expenditure of Rs 29.89 crore at the time of its closure in December 1995. Due to delay in selection, development and integration of DARIN system, six aircraft supplied by the HAL during first phase had to be equipped with imported NAVWASS system which besides being unreliable, necessitated an additional expenditure of Rs 17.40 crore.

7.4 Retromodification of NAVWASS Jaguars

Since there had been a quantum jump in the inertial navigation technology after the DARIN was developed, Air Force felt an urgency in March 1995 to upgrade

[14] **Initial Operational Clearance**
[15] **Final Operational Clearance**

The Ministry sanctioned retromodification of 35 Jaguars in November 1996 at a cost of Rs 158 crore.

35 NAVWASS Jaguars with a modern inertial navigation system. The Ministry accordingly, sanctioned in November 1996 retromodification of 35 NAVWASS equipped Jaguars to third generation DARIN INGPS[16]standard with an outlay of Rs 158 crore to be executed by the HAL, the prime contractor and overall project manager for the upgrade programme. The programme envisaged completion of prototype development and flight trials by mid 1997 followed by fleet modification of 35 Jaguars by 2000-01 as indicated below:

Year	Single Seat (Fighter)	Twin Seat (Trainer)	Total
1996-97	1	1	2
1997-98	8	2	10
1998-99	8	2	10
1999-2000	8	2	10
2000-2001	3	-	3
Total	**28**	**7**	**35**

Not a single Jaguar had been upgraded even at the end of May 2000.

As would be seen from the retromodification schedule, 32 Jaguars were to be modified by 1999-2000. The programme, however, ran into rough weather, as even at the end of May 2000, not a single Jaguar aircraft was modified as discussed below:

7.4.1 Procurement of customer furnished equipment

Air HQ felt a need to import the following state-of-art customer furnished equipment as early as in December 1996 for carrying out prototype development and integration activities on Jaguar aircraft:

(a) Inertial Global Positioning System

(b) Head Up Display

(c) Multi Function Display

(d) Digital Map Generator

(e) Digital Video Recording System

[16] **Inertial Global Positioning System**

Delay in conclusion of contracts for customer furnished equipment delayed the Jaguar upgrade programme.

The retromodification programme, however, suffered from delays due to delay in conclusion of contracts for the customer furnished equipment as indicated in Annexure 'A'. The Ministry finalised the contracts only by September 1999 by which time 32 out of 35 Jaguars should have been modified as per schedule. Not only did the Ministry delay the conclusion of contracts, non-finalisation of mission computer, a pre-requisite for Jaguar upgrade, severely hampered the delivery of the customer furnished equipment to India.

7.4.2 Procurement of mission computer

A mission computer forms the heart of the avionic systems of an aircraft. During the conceptual stage of the NAVWASS Jaguar upgrade itself, the head up display weapon aiming computer was planned to be installed in the NAVWASS Jaguar for carrying out the mission computer task. However, during execution of the project, a number of disadvantages were observed in the existing system such as obsolescence, high cost, no product support and saturated memory etc. Consequently, a need to install a state-of-art mission computer was felt in the NAVWASS Jaguar to perform the navigation and weapon aiming computation task. Air HQ, however, failed to decide the source of procurement of mission computer till May 1999. It was only in June 1999 that Air HQ nominated HAL as the designated agency for design, development and supply of the mission computer for the NAVWASS upgrade programme and directed them to finalise a suitable vendor for the mission computer by July 1999.

Non-finalisation of mission computer severely hampered the NAVWASS upgrade programme.

HAL, however, delayed the programme by more than six months, as it failed to decide on an appropriate vendor even till January 2000 and has not finalised the mission computer, critically required for the Jaguar upgrade as of May 2000. Consequently, the Air HQ/Ministry has not been able to sign a composite upgrade contract with HAL and the modification of NAVWASS Jaguar was yet to take off as of May 2000.

7.4.3 Impact of delay

Delay in finalisation of mission computer, a key requirement for the Jaguar upgrade programme, led to a number of adverse consequences. Not only did the accumulated delays blur the responsibilities of the various agencies involved in the programme, it also led to serious problems in the Air Force not meeting the contractual obligations with the foreign vendors. While the foreign vendors need to configure their respective sub-systems as per the mission computer design, none of the systems contracted by the Ministry as early as in March 1998 could be

despatched by the vendors to India till May 2000 for prototype development, solely due to non-finalisation of mission computer by the HAL.

Fourteen Jaguars had to be grounded due to unserviceability of NAVWASS specific items.

Apart from this, while projecting the case for retromodification of NAVWASS Jaguars, Air HQ in March 1995 unequivocally stated that if a retromod programme was not undertaken, it would necessitate phasing out of NAVWASS Jaguars from the Air Force inventory earlier than desired due to their poor operational reliability in the present configuration. Audit scrutiny disclosed that while the Jaguar squadrons were hard pressed for NAVWASS specific items which had depleted considerably, Air HQ had decided not to procure additional NAVWASS kits stating that an upgradation programme was on the anvil. The action of the Air HQ, however, proved abortive as lack of cohesive planning and foresight on its part led to grounding of 14 aircraft at a Jaguar operating base for a period ranging from 2 to 26 months as of June 2000 primarily due to deficiency and prolonged unserviceability of the NAVWASS specific items. These disturbing trends in the operating bases convey an unmistakable impression that until the retromodification programme is completed, the unreliability of the NAVWASS system fitted on older Jaguars would continue to erode the strike potential of the Air Force.

An expenditure of only Rs 48.76 crore has been incurred against the sanctioned cost of Rs 158 crore.

The Jaguar upgrade programme has already been delayed by 38 months as of May 2000 and the fleet modification of 35 Jaguars is not expected to be completed before 2005-06, even by any conservative estimates. An expenditure of only Rs 48.76 crore, including an advance payment of Rs 34.70 crore to HAL, had been incurred on the project as of May 2000 against the sanctioned cost of Rs 158 crore, which is indicative of the fact that the progress of the project is tardy. While the project cost moved upwards from Rs 158 crore sanctioned in November 1996 to Rs 190 crore in May 2000, a realistic estimate was yet to emerge due to many uncertainties in the programme. Incidentally, Air Force were left with only 33 NAVWASS Jaguars against 35 to be upgraded originally, as it lost two NAVWASS Jaguars during the interim period from 1996-2000 causing a loss of Rs 188 crore.

Delay in retromodification had affected the operational capability of the NAVWASS fleet.

Air HQ stated, in May 2000, that the NAVWASS Jaguar upgrade programme being the first of its kind, a few delays did occur due to unforeseen problems and a number of lessons have been learnt during the course of the programme. They added that delay in retromodification had definitely affected the operational capability of the NAVWASS fleet.

7.5 Other upgradation programmes of Jaguar fleet

Apart from retromodification of NAVWASS Jaguars, several independent upgrades are also currently under way on the Jaguar platform to make the fleet more viable and a potent weapon system. Audit scrutiny revealed that rampant delays in planning and contracting vital avionics and weapon systems restricted the Jaguar fleet to mature from an original deep strike aircraft to a state-of-art weapon platform. Some of the cases are discussed below:

7.5.1 Procurement of maritime radar

Mention was made in paragraph No. 35 of the Report of the Comptroller and Auditor General of India, Union Government (Defence Services) for the year 1985-86 regarding delay in fitment of agave radars imported at a cost of Rs 3.03 crore and delay in selection of a weapon system for maritime role. Agave modified Jaguar aircraft were inducted into operational service in March 1987. Till then, Jaguar aircraft did not have the maritime strike capability.

Agave radars presently fitted in the maritime Jaguars are of a vintage design.

Agave radars presently fitted in the maritime Jaguar is of a vintage design. The radar is now out of production and its maintenance/product support have become very difficult. To match the changed operational environment, Air Force in April 1995, felt the need for a modern maritime radar with better operational features.

The Ministry issued the request for proposals to three foreign vendors in September 1995. After technical evaluation, Air HQ short-listed two foreign vendors 'A' and 'B' as the radars offered by them met the qualitative requirements of the Air Force. On advice of the Ministry during price negotiations held in March 1996, a team of Air Force specialists visited the vendors in April-May 1996 for flight evaluation of radars. The results were studied and the Ministry recommenced price negotiations in September 1996 with both the vendors. After detailed deliberations and negotiations, the price negotiation committee recommended in September 1996 that the contract be awarded to firm 'A' for supply of 10 maritime radars for Jaguar aircraft at a total cost of US $ 14.88 million, equivalent to Rs 54* crore.

Since the project cost exceeded Rs 50 crore, Air HQ submitted a proposal to the Ministry in October 1996 for approval by the CCS[17]. The Ministry, however, failed to appreciate the operational urgency of the project and submitted the case only in January 1999, after a delay of 28 months. The CCS approved the proposal

---

* 1 US $ = Rs 36.30

[17] Cabinet Committee on Security

in February 1999. Finally, the Ministry concluded a contract with firm 'A' in February 1999 for supply of 10 maritime radars at a total cost of US $ 16 million and made an advance payment of US $ 4.80 million in May 1999. As per the contract, the modification and integration of the first prototype radar is to be completed by December 2000 followed by fleet modification by December 2001.

Delay in conclusion of contract caused an extra expenditure of US $ 1.12 million, which was avoidable.

Though, the Ministry knew that delay in conclusion of contract would entail an escalation, there was no evidence to suggest that the Ministry had accorded urgency in obtaining the CCS approval although prices were firmed up as early as in September 1996. This delay caused an additional expenditure of US $ 1.12 million, which was avoidable and also deprived the Air Force of modern radars for the maritime role.

Only two out of five maritime Jaguars are available for maritime role.

Air HQ admitted, in September 2000, that only 50 *per cent* maritime Jaguars were modified with agave radars. Of these, three agave radars were unserviceable since March-June 1999 for want of spares and only two maritime Jaguars are available for maritime role. They also stated that the maritime Jaguar fleet had to fly with old agave radar, whose maintenance was becoming more and more difficult.

7.5.2 Procurement of auto pilot

An auto pilot reduces pilot work load in the cockpit, enabling him to concentrate on navigation, target acquisition and weapon delivery. It also significantly reduces the chances of loss of an aircraft due to pilot disorientation. The Jaguar aircraft being the technology of the sixties, were not equipped with an auto pilot system.

Air Force submitted the proposal for procurement of auto pilots after a delay of 12 years.

Air Force emphasised the need for an auto pilot in April 1985 for incorporation into the Jaguar control system. However, it submitted the proposal for procurement of 108 auto pilots at an estimated cost of Rs 105 crore only in December 1997, after a delay of 12 years. Subsequently, due to shortage of funds, the proposal was pruned in March 1998 from 108 to 35 systems at a cost of Rs 50 crore, inclusive of the cost of modification by the HAL, so as to coincide with NAVWASS Jaguar retrofit. The Ministry approved the proposal in June 1998 and concluded a contract with foreign firm 'C' in August 1999 for supply of 35 auto pilot systems with associated spares at a total cost of Euro 6.27 million, equivalent to Rs. 28.14[◆] crore. As per contract, the auto pilots would be delivered to the Air Force between June 2000 and June 2002 and the retro-fitment of Jaguars with auto pilot would be taken up subsequently. The Ministry made a payment of Rs 5.63 crore to the firm till May 2000.

[◆] 1 Euro = Rs 44.84

Failure of the Air HQ/Ministry to seriously recognise the operational need of an auto pilot and speed up its acquisition led to loss of four Jaguar aircraft valuing Rs 141.40 crore and three pilots in serious flying accidents attributable to pilot disorientation between 1985 and 1999. Apart from this, in the absence of an auto pilot on the Jaguar fleet, the Air Force had been forced to avoid its utilisation on dark nights, which was operationally detrimental.

As the auto pilot would not be available to the Air Force at least upto June 2002, till then, the operational effectiveness and safety of the Jaguar fleet would remain a matter of concern.

7.5.3 Procurement of laser designator pod

Laser designator pods with thermal imagery provides an aircraft the capability to deliver laser guided bombs during day and night with very high accuracy. Non-availability of night vision and designation devices had restricted use of Jaguar aircraft to only day light hours.

The Ministry concluded a contract in November 1996 for procurement of 15 laser designator pods at a cost of Rs 95 crore.

The CCS approved a proposal of the Air Force in May 1996 for procurement of 15 laser designator pods with thermal imagery for fitment on 10 Jaguars and 5 Mirage-2000 aircraft and modification of 30 Jaguar aircraft for carrying the pods at a total cost of Rs 125 crore. The Ministry concluded a contract with foreign firm 'D' in November 1996 for procurement of 15 laser designator pods with thermal imagery at a total cost of US $ 27.11 million, equivalent to Rs 95♣ crore to be delivered between March 1998 and February 1999 in two phases.

Flight trails and certification of laser designator pods on Jaguar aircraft was delayed by 20 months.

However, there had been delay in delivery of pods due to delays in conclusion of flight tests and certification of pods on Jaguar and Mirage-2000 aircraft. The flight test and certification on Jaguar aircraft, which was planned to be conducted by March 1998, was completed by the ASTE[18], only in December 1999, after a delay of 20 months. The delays were attributable mainly to delay in software development and change in modification scheme of the aircraft by HAL owing to mechanical problems. Similarly, certification on Mirage-2000 aircraft was also delayed by nine months. As a result, the warranty of three pods valuing US $ 4.38 million, equivalent to Rs 15.33♣ crore, delivered till May 1999, had expired. The remaining 12 pods were delivered between 1999 and 2000.

---

[18] **Aircraft and Systems Testing Establishment**

♣ **1 US $ = Rs 35**

Only one twin seater Jaguar aircraft had been modified by HAL, Bangalore as of May 2000 and the fleet modification of 29 Jaguars was yet to commence. An expenditure of US $ 25 million had been incurred against the contract as of May 2000.

Delay in fleet modification would affect adversely the operational preparedness of the Air Force.

Fitment of an auto pilot on the Jaguars is mandatory for executing missions with laser designator pods. While the availability of auto pilots for Jaguar aircraft is unlikely at least before 2002, mismatch and inadequate planning have seriously undermined the fleet modification of Jaguars with laser designator pods. This would have a significant bearing on the operational preparedness of the Air Force.

7.5.4 Procurement of self protection jammer

Self protection jammer is a critical electronic warfare equipment of a strike aircraft that contributes to the survival and success of an operational mission. The Ministry concluded a contract with foreign firm 'A' in February 1996 for procurement of 92 self protection jammers, 82 for the Air Force and 10 for the Navy, at a total cost of US $ 84.84 million, equivalent to Rs 280[♠] crore. Of the 82 systems, 50 were contracted for upgraded MiG Bis aircraft and 32 for Jaguar aircraft. As per contract, 32 systems for the Jaguar aircraft were to be delivered between December 1997 and July 1999. The modification programme envisaged completion of mock-up installation[19] on Jaguar aircraft by the end of 1997 followed by prototype modification[20] and flight trials by July 1998.

Delay in mock-up installation forced the Ministry to re-schedule the delivery of SPJ systems.

The mock-up installation on Jaguar aircraft scheduled to be completed by end of 1997 was completed only in December 1999, after a delay of 24 months, due to non-finalisation of standard of preparation of the aircraft. This delayed the subsequent tasks of integration of SPJ[21] and flight tests. As a result, the Ministry was forced to re-schedule the delivery of SPJ system. As per the revised schedule, 32 systems for Jaguar aircraft would now be delivered by July 2001, against the original delivery schedule of July 1999. Consequently, the prototype modification on two Jaguar aircraft, which was scheduled to be completed by July

---

[19] Mock-up installation is carried out to finalise locations of line replaceable units on the aircraft using mock-ups.

[20] Prototype modification is an activity required to modify an aircraft on a trial basis for evaluation of the installed system

[21] Self Protection Jammer

[♠] 1 US $= Rs 33

1998, would now be accomplished by the end of 2000, after a delay of 29 months. This would lead to further uncertainties in the fleet modification of Jaguar aircraft. An expenditure of Rs 184 crore had been incurred against the contract as of January 2000.

Air HQ stated, in April 2000, that delay in equipping Jaguars with SPJ had affected the overall operational capability of the Air Force to some extent.

The matter was referred to the Ministry in October 2000; their reply was awaited as of February 2001.

Works Services

8 Delay in setting up of repair facilities for helicopter engines

Tardy execution of project for repair-and overhaul facilities for aero-engines of MI-17 helicopters resulted in repair of aero-engines abroad at Rs 86.36 crore so far.

MI-17 helicopters were imported during 1986-89.

MI-17 helicopter was inducted into squadron service in 1985 and a majority of the fleet was imported during 1986-89. Total technical life of the helicopter is 18 years or 7000 hours and for aero-engines is 3000 hours. The helicopter and its engine require periodic repair/overhaul. While the facilities for repair/overhaul of the airframe had been set up in 1994, there had been delays in setting up of repair facilities for aero-engines and equipment. The facilities for repair/overhaul of the aero-engines have not been set up as of October 2000.

The Ministry concluded a contract with a foreign firm in May 1989 for setting up of repair and overhaul facilities for the helicopters and its aero-engines. The Ministry also concluded a contract with the foreign firm in April 1990 for procurement of rigs, machines and equipment at a total cost of Rs 13.37 crore required for setting up the facilities for aero-engines/aggregates. The equipment were to be delivered by March 1992. A Base Repair Depot was designated as overhauling agency where these facilities were to be set up by December 1992.

Audit noticed that the process of convening the Board of Officers, finalising their recommendations and issue of administrative approval took 18 months. HQ Maintenance Command accorded administrative approval for the works services at a cost of Rs 49.72 lakh as amended in April 1992. The works for installation of rigs and machinery was sanctioned separately by Air HQ in February 1994 at a cost of Rs 93.80 lakh revised to Rs 98.75 lakh in February 1995. These works were to be completed by March 1995 and February 1996 respectively. HQ Maintenance Command sanctioned in July 1997 another item of work for accommodating special cooling equipment and additional rigs at a cost of Rs 48.49 lakh. Of the three works, two were completed during February 1998 at a cost of Rs 1.81 crore after a delay of over two years. The third work was completed in June 2000 at a cost of Rs 43 lakh.

The test rigs/machines procured for setting up of overhaul facilities for aero-engines have been received, installed and commissioned and a sum of US $ 12.95 million, equivalent to Rs 45.33 crore♣ had been incurred on setting up of repair/overhaul facilities for aero-engines as of October 2000. The repair/overhaul facilities are expected to be fully available only by end of 2001.

Repair of engines abroad involved an expenditure of Rs 86.36 crore.

The delay in setting up of the facilities forced the Ministry to conclude seven contracts between November 1993 and January 2000 for repair/overhaul of aero-engines abroad at a total cost of Rs 86.36 crore to maintain the desired level of serviceability of helicopter fleet because of the fact that out of the total aero-engines held by the Air Force, the availability of the serviceable engines were alarmingly low. During July 1999 to January 2000, 120 engines were got overhauled abroad after running 100 to 1246 hours. Some more engines might need to be sent abroad if production at Base Repair Depot does not cater to operational needs. Airframes of 30 helicopters were also got overhauled abroad after doing 1000 hours.

During June 1998 to May 2000 on an average 17 *per cent* helicopters held in the inventory of Air Force remained grounded for want of aero-engines. The state of serviceability of helicopter fleet also deteriorated during the same period. The Ministry attributed the delays in setting up of the facilities to the disintegration of erstwhile USSR as the foreign firm indicated their inability to supply the required rigs/technology contracted in April 1990 and the Ministry had to conclude contract for supplies of these items and technical assistance from alternate sources between December 1995 – July 1999 to restore the overhaul project.

The Ministry stated, in October 2000, that only 37 *per cent* of helicopters were got overhauled abroad after 1/7th of total technical life and facility would be used

♣ **1 US$ = Rs 35**

for 86 *per cent* of their life and for future inductions with suitable adaptations. The Ministry added that some engines might still need to be overhauled abroad. This contention is not tenable as the continuance of helicopters after 18 years of use would depend on the fitness and suitability of helicopters at that time. Further, facilities for engine overhaul were not yet operational.

Despite an expenditure of Rs 47.57 crore repair facilities were not yet set up.

Thus, despite an expenditure of Rs 47.57 crore, the facilities for repair/overhaul of aero-engines, scheduled for completion by 1992 were expected to be set up only by 2001, after 12-15 years of induction of the helicopters, by which time major portion of the total technical life of large number of helicopters would be over. In the meantime, an expenditure of Rs 86.36 crore had been incurred on repair/overhaul of engines abroad.

Provisioning

9 Procurement of unreliable cells

Failure to follow correct maintenance procedure of battery cells by operating unit resulted in an aircraft accident involving loss of Rs 53.37 crore.

The firm revived 60 out of 86 defective cells.

Air HQ procured 3349 cell volta from a firm against an order placed in August 1994. In January 1996 Air HQ reported failure of 86 cells at two operating units. During joint investigation the firm rectified 46 cells by balancing them at the unit itself and revived 14 at its premises and returned to the units. Remaining 26 defective cells could not be revived.

Fitment of sub-standard cells resulted in a flying accident causing a loss of Rs 53.37 crore.

A trainer aircraft met with a serious flying accident in February 1997 leading to loss of Rs 53.37 crore. A Court of Inquiry instituted to investigate into the causes noted that correct technical practices for servicing the battery cell was not followed at the unit level and the battery was cleared for use on the aircraft with less capacity than specified limit. The Court of Inquiry observed that there had been high rate of failure of battery cells supplied by above firm and about 340 cells failed over a period of three years and attributed the most probable cause of accident to total electrical failure due to sub-standard quality of cells supplied by the firm which had a catalytic effect on the thermal runaway caused by over heating of batteries. The Court of Inquiry also added that no specific instructions on the maintainability of the batteries had ever been issued to the unit since June 1995 apart from manufacturer's operating manuals.

Air HQ placed another order on the firm in April 1996.

Air HQ placed another order on the same firm in April 1996 for supply of 1370 cell volta. The supplies materialised in April 1997. Of these, 40 cells valuing Rs 1.01 lakh failed during warranty period due to manufacturing defect.

The Ministry attributed the failure of battery to inadequate maintenance practices.

The Ministry stated, in October 2000, that the defective cells that caused the flying accident in February 1997 were supplied by the firm under the order of August 1994. While it accepted that the cells supplied by the firm under orders of August 1994 and April 1996 suffered from a manufacturing defect, they also added that thermal runaway caused by over heating of the batteries is a gradual process that occurs only due to inadequate maintenance practices being followed at the operating units.

Thus, use of defective cells supplied by a firm and failure to ensure the correct maintenance procedures led to a serious flying accident of a trainer aircraft involving a loss of Rs 53.37 crore.

10 Procurement of a communication system

The Ministry procured communication systems valued Rs 7.15 crore not meeting qualitative requirements. Most of the helicopter fleet is operating without secure communication system.

Cheetah/Chetak helicopter fleet of the Air Force has been carrying out extensive flying operations throughout the country in remote hilly areas, desert, over the sea and often in inclement weather. However, the helicopters did not have suitable communication system to provide prompt communication to the concerned agencies from the remote areas at the time of emergency. In order to meet the operational necessity of conveying timely communication to appropriate agencies, Air HQ proposed in October 1995 procurement of 45 sets of communication system for installation on these helicopters.

The Ministry concluded a contract for procurement of 45 sets of communication system at a cost of Rs 7.15 crore in March 1996.

The Ministry approved the proposal in November 1995 subject to technical evaluation of the system to clearly establish the conformity with requisite QR[22] specially in terms of frequency, range etc. Price Negotiation Committee under the Chairmanship of Director (Air) negotiated the price with three foreign firms and recommended in March 1996 for conclusion of contract with one of the foreign firms for supply of 45 sets of the system at a total cost of US $1.98 million, equivalent to Rs.7.15[*] crore. Accordingly, the Ministry concluded a contract with the foreign firm in March 1996. Delivery of these systems were completed in August 1997.

Air HQ did not follow the procurement norms and accepted the sets despite known deficiencies.

The ASTE[23] flight evaluated the system which disclosed in November 1997 that the system did not meet the QRs in the areas of frequency range, speech secrecy and anti-jamming etc. and, therefore, cannot be recommended as secure communication system for induction in its present state. Air HQ waived the deficiencies and recommended in November 1998 for acceptance of the communication system despite known deficiencies.

Air HQ stated, in June 2000, that the parameters which did not meet the QRs were add-on features and were waived off. Air HQ's contention is not tenable as the Ministry had explicitly mentioned while sanctioning the procurement that system would be evaluated to establish their conformity with the QR. The aspect regarding waiving of vital parameters was not brought to the notice of the Ministry before conclusion of contract and were waived in January 1998 after delivery of the sets which goes to prove that acceptance was a *fait accompli.*

35 out of 45 sets were awaiting installation.

Only 10 out of 45 sets have been modified as of December 2000 and remaining 35 sets were awaiting installation and their warranty had expired in December 2000. Accepting the facts, the Ministry stated in January 2001, that the modification of the remaining sets would be completed during 2001- 2003.

Thus, the system procured did not meet the QR in the areas of frequency range, speech secrecy and anti-jamming considered to be the vital requirements. Further, majority of the Chetah/Chetak helicopter fleet was still operating without secure communication system despite an expenditure of Rs 7.15 crore.

---

[22] Qualitative Requirements
[23] Aircraft System and Testing Establishment
[*] 1 US $ = Rs 36.15

11 Avoidable expenditure due to delay in placing purchase order

Despite blanket approval accorded by Government, Air HQ/Ministry delayed the placement of purchase order for overhaul of an item of electronic warfare pod. The order was placed only in May 1999 although these were due for overhaul in 1997. Failure of the Ministry to conclude the overhaul contract timely, despite availability of a reasonable offer, resulted in an avoidable loss of Rs 2.24 crore.

Espadons[24] procured in 1987 were due for overhaul after 10 years or 350 hours whichever was earlier. Directorate of Ground Electronics, Air HQ in July 1996 invited a proposal from a foreign firm `A' for overhaul of 10 Espadons with a view to increasing their life by 10 years more. Government accorded blanket approval for repair of such items abroad. Air HQ were authorised to despatch the items abroad without formal approval of Government.

The firm cautioned Air HQ about an increase in price as the manufacturer was known to be facing recession.

Firm `A', the only source for Espadon, submitted their first quote in August 1996 for FF 1.72 million for overhaul of one Espadon which was subsequently revised to FF 1.68 million in September 1996 and FF 2.17 million in January 1998. While submitting their offers, the firm alerted Air HQ on every occasion that Espadons were no longer in mass production by the OEM[25] and consequently, many tools and benches would have to be manufactured or updated/calibrated. It also cautioned Air HQ that the prices could drastically increase in future as the OEM had to maintain specialised people especially for Espadon overhaul.

The firm offered an exceptional price of FF 1.65 million in July 1998.

Though Air HQ were authorised to despatch the items abroad without formal approval of Government, they referred the case to the Ministry for constituting PNC[26]. The Ministry commenced price negotiations only in February 1998 and offered a price of FF 1.14 million per Espadon, based on the inputs provided by the Air HQ. The firm, however, rejected the proposal and offered an exceptional price of FF 1.65 million on 8 July 1998 with a deadline of 13 July 1998 for conclusion of contract.

Air HQ provided wrong inputs to the Ministry.

The firm pointed out in July 1998 that the Ministry's offer of FF 1.14 million lacked justification as it had erred in arriving at the cost of overhaul. Air HQ in July 1998, also accepted that they had supplied wrong inputs to the Ministry on the basis of which the Ministry arrived at a figure of FF 1.14 million.

[24] Espadon is a power system for electronic warfare pod of a fighter aircraft
[25] Original Equipment Manufacturer
[26] Price Negotiation Committee

Nevertheless, it requested the Ministry to conclude the contract at a unit cost of FF 1.65 million as being reasonable.

The Vice Chief of Air Staff in August 1998, wrote strongly to the Defence Secretary to conclude the contract immediately to obviate non-operationalisation of the electronic warfare system of the fleet[27]. The Ministry, in a bid to finalise the issue, marginally increased their initial offer of FF 1.14 million to FF 1.25 million, which was also rejected by the firm.

The matter was further discussed in the PNC held in November 1998 and the firm reverted to their earlier offer of FF 2.17 million submitted in January 1998, reasoning that they would now need to regroup the overhaul facilities which had been disbanded during the interim period. In an attempt to retrieve the situation, an Indian mission abroad, at the instance of the Ministry, persuaded the firm in January 1999 to maintain the price at FF 1.65 million offered in July 1998. However, the firm responded with a final offer of FF 2 million. At this stage, sensing criticality of the situation, the Ministry in January 1999 belatedly realised the futility of holding further negotiations with the firm and approved the offer of FF 2 million. Finally, the Ministry placed a purchase order in May 1999 on firm 'A' for overhaul of 9 Espadons at a total cost of FF 18 million, equivalent to Rs 12.78 crore♥.

The Ministry accepted the final offer of FF 2 million.

Thus, failure of the Ministry in not accepting the offer of FF 1.65 million each for overhaul of nine Espadons resulted in excess expenditure of FF 3.15 million, equivalent to Rs 2.24♣ crore, which was avoidable.

Admitting the facts, the Ministry stated, in October 2000, that the requirement of overhauling of Espadons being inevitable on account of operational necessity on one hand and single vendor situation on the other, it had to conclude the contract at a much higher price at FF 2 million per unit.

The fact, however, was that though Air HQ was competent to despatch the items abroad without approval of Ministry, they referred the case to the Ministry for negotiations which lasted over a year and ultimately resulted in excess expenditure of Rs 2.24 crore instead of any savings.

---

[27] Mirage – 2000 fleet

♥ 1FF = Rs 7.10

♣ 1 FF = Rs 7.10

12 Extra expenditure due to negligence

Negligence of Air HQ in not intimating the Ministry to conclude the contract at the reduced rates agreed to by the firm led to extra expenditure of Rs 28 lakh.

In order to improve the serviceability of the optical laser system fitted on an aircraft, a team of foreign specialists suggested procurement of certain spares to bring the serviceability of the aircraft fleet to the desired level.

Based on the recommendations of the team of foreign specialists, Air HQ put up a proposal in August 1997 for approval of the Raksha Mantri for procurement of the spares at a total cost of Rs 14.74 crores based on the quote of a foreign firm submitted in June 1997 which was US $ 4.15 million. The Raksha Mantri approved the proposal in January 1998.

In April 1998, the firm revised their offer from US $ 4.15 million to US $ 4.19 million. In a Price Negotiation Committee meeting held in April 1998, the firm reduced the price to US $ 3.50 million and then to US $ 3.47 million. The Price Negotiation Committee gave a final indication to the firm to reduce the price to US $ 3.40 million for conclusion of the contract. However, the firm was reluctant to accept the price of US $ 3.40 million but promised to revert back after consulting their head office.

The firm agreed to reduce the price to US $ 3.40 million.

On 6 May 1998, Air HQ asked Air Attache abroad to liaise with the concerned authorities and prevail upon the firm to agree to the offer of US $ 3.40 million. Air Attache faxed a letter of 8 June 1998 to Air HQ stating that the firm had agreed to reduce the price to US $ 3.40 million for conclusion of the contract.

The Ministry concluded the contract at higher rate.

The Ministry, however, concluded a contract at US $ 3.47 million on 11 June 1998 without taking cognizance of Air Attache's letter of 8 June 1998 resulting in an extra expenditure of Rs 28[*] lakh.

The Ministry while accepting the facts stated, in October 2000, that an enquiry has been ordered to probe the lapse and fix the responsibility.

---

[*] 1 US $ = Rs 40

13 Avoidable expenditure due to delay in conclusion of contract

Delay in conclusion of contract despite the availability of funds and proprietary article certificate in favour of manufacturer resulted in extra expenditure of Rs 43 lakh which was avoidable.

System 'X' installed on an aircraft is a vital electronic warfare system. In order to replace the ageing system installed on the aircraft and to keep the electronic warfare system of the aircraft serviceable, Air HQ proposed in June 1994 to procure 11 items of electronic warfare spares from its manufacturer. All the items were of proprietary nature. Based on the quote of the manufacturer, procurement was estimated to cost Rs 5.36 crore including transportation cost. The cost, however, increased to Rs 5.71 crore in September 1994 due to exchange rate variation and was valid upto 31 December 1994. The proposal submitted by Air HQ was approved by the Defence Secretary in September 1994 and accordingly sanction was issued in November 1994 for the procurement of 11 items of electronic warfare spares at a total cost of Rs 5.71 crore on a single tender basis, the items being proprietary in nature.

The Ministry sanctioned in November 1994 procurement of spares at a cost of Rs 5.71 crore.

The indenting Directorate sent all the requisite papers alongwith indent and proprietary article certificate to Directorate of Purchase on 10 November 1994 for procuring the items before expiry of validity of the quote. The latter received the papers on 15 November 1994. Availability of funds was also confirmed.

However, the Directorate of Purchase instead of processing the indent with the original manufacturer in whose favour PAC[28] was given, floated a tender enquiry on 23 December 1994 to 12 other firms notwithstanding the fact that items were of proprietary nature. Only two firms viz. the manufacturer in whose favour the PAC was issued and another firm responded. Since the lowest quote of the other firm was exceptionally low as compared to the rates quoted by the original manufacturer and items being highly sensitive, it was decided to procure the items from the original manufacturer itself in whose favour the PAC had been issued by the indenting Directorate. In the meantime, the validity of offer expired on 31 December 1994 and the manufacturer enhanced the cost from Rs 5.71 crore to Rs 6.14 crore. Finally, the contract was concluded with the manufacturer in July 1995 at a total cost of Rs 6.14 crore. This resulted in extra expenditure of Rs 43 lakh. The Ministry accepted the facts in August 2000.

The contract was concluded after expiry of validity of the offer, resulting in extra expenditure of Rs 43 lakh.

[28] Proprietary Article Certificate

Thus, despite the availability of PAC in favour of the manufacturer, Directorate of Purchase invited limited tenders and conclusion of contract was delayed resulting in extra expenditure of Rs 43 lakh, which was avoidable.

Miscellaneous

14 Sub-optimal utilisation of a radar

The injudicious decision of Air HQ to install the radar close to the sea resulted in sub-optimal utilisation of the radar despite additional expenditure of Rs 1.89 crore.

The performance of a radar installed at a cost of Rs 15.39 crore continued to be sub-optimal despite incurring additional expenditure of Rs 1.89 crore on new software. Audit scrutiny of the relevant records revealed the following:

(i) Although the radar was received in March 1989, its installation was completed in June 1990 and was put into operation only in August 1992, after the warranty was over in March 1991;

(ii) Though the siting criterion of the radar clearly stipulated installation atleast 20 Km away from water bodies of area more than 100 Sq Km, the radar was installed at a distance of only 100 meters from the sea. This resulted in a delay in track initiation, particularly during May – June and October – November due to excessive sea clutter, thereby, severely restricting its operational capability;

(iii) Based on the recommendations of the manufacturer, an expenditure of Rs 1.89 crore was incurred in May 1997 to install a new software. However, this did not improve the performance of the radar during excessive sea clutter.

The matter was referred to the Ministry in July 2000; their reply was awaited as of February 2001.

15 Overpayment to Hindustan Aeronautics Limited

DCDA (DAD) HAL, Bangalore made payment for supply of Wing Drop Tanks at rate higher than the rate of the year of delivery stipulated in the order which led to an overpayment of Rs 5.94 crore to HAL.

Payment for the products supplied and services rendered by HAL to Air Force are made at fixed cost quotation rates proposed every year by them and approved by Ministry of Defence.

Air HQ placed an order on HAL Nasik Division for supply of 320 Wing Drop Tanks in 1990-91.

Air HQ placed an order on Nasik Division of HAL[29] in April 1988, for supply of 320 Wing Drop Tanks in 1990-91. The payment against the order was to be made as per fixed cost quotation rate for the year 1990-91.

HAL Nasik Division supplied 100 Wing Drop Tanks and cross mandated the order on HAL Bangalore for supply of balance quantity.

HAL, Nasik Division supplied only 100 Wing Drop Tanks during 1990-91 and AO[30] (DAD) HAL, Nasik made payment for these tanks at the fixed cost quotation rate of the year 1990-91 i.e., Rs 3.48 lakh each. The order for the remaining 220 Wing Drop Tanks was cross mandated to HAL Bangalore in February 1991. The supplies were completed during the period 1991-92 to 1993 - 94. Air HQ extended in January 1996 the delivery schedule upto 1993 - 94 without cost enhancement and subject to levy of liquidated damages for delayed delivery.

DCDA (HAL), Bangalore failed to regulate the bill correctly, which led to an overpayment of Rs 5.94 crore.

Scrutiny of the paid invoices disclosed that HAL Bangalore claimed the payment as per fixed cost quotations of the years in which Wing Drop Tanks were supplied which ranged from Rs 5.45 lakh to Rs 6.42 lakh per unit plus packing charges and 4 *per cent* CST. DCDA (HAL), Bangalore, however, failed to regulate the payment correctly and made payment of Rs 13.51 crore (after adjusting recovery of Rs 61 lakh on account of liquidated damages) against admissible amount of Rs 7.57 crore resulting in an overpayment of Rs 5.94 crore. The Ministry accepted the objection and stated that necessary instructions had been issued to CGDA[31] to recover the overpayment.

Thus, regulating the payment to HAL at the fixed cost quotation rates of the year in which Wing Drop Tanks were delivered instead of the rate applicable to the delivery schedule given in the order placed in 1988 led to overpayment of Rs 5.94 crore to HAL Bangalore Division.

---

[29] Hindustan Aeronautics Limited
[30] Accounts Officer (Defence Accounts Department)
[31] Controller General of Defence Accounts

16 Inadmissible payment to a Public Sector Undertaking

Centre for Air Borne Systems made payment of Rs 95 lakh to a Public Sector Undertaking towards foreign exchange rate variation although it was not payable as per supply order placed on the Undertaking.

Quotations included the provision for payment of foreign exchange rate variation.

In response to a letter of intent placed by Centre for Air Borne Systems in November 1994, a Public Sector Undertaking submitted in December 1994 five quotations for supply of five items of ground support and testing systems for testing and integration of a high power radar at a total cost of Rs 8.90 crore with a foreign exchange content of Rs 6.90 crore. The quotations also provided for payment on account of foreign exchange rate variation.

Undertaking agreed not to claim foreign exchange rate variation and submitted revised quotations.

In the meeting of Tender Purchase Committee held on 3 January 1995, the representatives of the Undertaking agreed to reduce the cost of the systems from Rs 8.90 crore to Rs 7.75 crore and deletion of the clause relating to payment of foreign exchange rate variation. Subsequently, the Undertaking submitted on 17 January 1995 the revised quotations indicating the total cost of the systems at Rs 7.75 crore as firm and fixed without a clause for exchange variation. Accordingly, Centre for Air Borne Systems placed in January 1995 five purchase orders on the Undertaking for supply of systems. The Undertaking supplied the systems in March 1996 and also claimed Rs 95 lakh on account of foreign exchange rate variation for which there was no provision in the purchase orders.

Centre for Air Borne Systems placed purchase orders in January 1995.

Centre for Air Borne Systems made inadmissible payment of Rs 95 lakh towards foreign exchange rate variation.

Director, Centre for Air Borne Systems sent the bills to CDA[32] (R&D), Bangalore in March 1996 to make payment of Rs 95 lakh to the Undertaking. Accordingly, CDA (R&D), Bangalore made the payment, which was not admissible. On this being pointed out in Audit, Director of the Centre for Air Borne Systems stated, in August 1997, that the payment of foreign exchange rate variation was made keeping in view the provisions of Ministry's letter of 16 August 1985 and urgency of taking delivery of the items. This contention is not tenable as the Ministry's letter referred to above did not form part of the revised quotation and purchase orders. In addition, the issue of payment of foreign exchange rate variation was also deliberated in the Review Tender Purchase Committee and it was decided to recover the amount from the Undertaking. Centre for Air Borne Systems approached the Undertaking to refund the amount in May 1999.

Accepting the facts, the Ministry stated, in July 2000, that the refund of Rs 95 lakh from the Undertaking was awaited.

[32] **Controller of Defence Accounts (Research and Development)**

17 Non-utilisation of specialist vehicles and missiles

New squadrons created for providing air defence cover to vital points carried unreliable missiles valued at Rs 26.50 crore and unsuitable specialist vehicles costing Rs 4.14 crore.

Government sanctioned in 1989 formation of certain missile squadrons in the Air Force for providing low-level air defence cover to designated vital points. Each squadron was to be equipped with required system, specialist vehicles, radar, simulator and missiles. Audit scrutiny of the relevant records revealed that seven specialist vehicles imported at a cost of Rs 4.14 crore for these squadrons could not be put to use. Similarly, eighty missiles imported at a cost of Rs 26.50 crore for these squadrons were unreliable and are lying in stock. Detailed findings are elucidated below:

Specialist Vehicles

- The specialist vehicle is used in the Army on the pattern of country of origin for air defence of motorized infantry or armoured divisions, intended to be a mobile-base during operations. By contrast, five of the aforesaid squadrons were assigned the role of providing air defence cover to air fields where Base Air Defence Centre Systems were already available for providing command and control inputs to combat vehicles. Therefore, the specialist vehicles could not be put to any use after their receipt in 1990.

- Army authorities regularly requested the Air Force to transfer these vehicles to them on the ground that the air fields protected by the squadrons were static in nature. Despite their inability to use these vehicles, the Air Force resisted the transfer for 10 years. The transfer approved in July 2000 is yet to be effected.

Missiles

- Even though 80 missiles Type 'A' were received in April 1994 against a contract of February 1993, live firing was not carried out till January 1999. Performance of only one of six missiles used in live firing was found to be satisfactory.

- The failure of missiles was brought to the notice of the supplier in February 1999. Negotiations for the visit of supplier's inspection team

continued for more than one year which was finally sanctioned in July 2000. The supplier categorically stated that he would not be liable if there was any violation of the maintenance procedure. Moreover, the cost of the visit estimated to be Rs 15 lakh would be met by the Indian side.

- Despite the failure of these missiles in live firing, their original operational life of six years was extended by two years up to December 2002.

In sum, the specialist vehicles imported at a cost of Rs 4.14 crore were retained by the Air Force for 10 years despite their apparent non-requirement and 80 missiles imported at a cost of Rs 26.50 crore were unreliable. The likelihood of the supplier accepting liability more than six years after supply of the missiles appears uncertain. This also raised serious concern about the operational effectiveness of the new squadrons which carried unnecessary vehicles and unreliable missiles.

18 Loss due to negligence of HAL

The loss amounting to Rs 1.19 crore sustained on account of damage to an aircraft and hanger door due to negligence of HAL technician would need to be recovered from HAL instead of regularising the same.

No formal agreement was concluded with HAL while entrusting the servicing of aircraft to them.

Government entrusted the first and second line servicing of the aircraft of a Flying Training Establishment to HAL[33] in November 1980 and the cost of servicing was to be paid by Air Force. Though the facilities to be provided to the HAL personnel had been specified in the letter, nothing was mentioned about HAL's responsibility and accountability either in the letter or through any separate formal agreement.

An aircraft was damaged due to negligence of HAL technician.

As a part of daily inspection schedule, an aircraft of the training establishment was given ground run by a HAL technician on 27 October 1997, when it met with an accident and hit the hanger door sustaining extensive damage. The Court of Inquiry in November 1997 held the HAL technician directly responsible for the mishap and the Deputy Manager incharge of the HAL Detachment indirectly responsible for his error of judgement in assessing the competency of the technician to carry out ground run safely as well as for his negligence in imparting

[33] Hindustan Aeronautics Limited

practical training in handling emergency situation. However, the Court of Inquiry recommended that the cost of damage to the aircraft and the hanger door may be regularised by the Competent Financial Authority. Air Officer Commanding-in - Chief, HQ Training Command did not agree and opined in December 1997 that the cost of damages as assessed by repair agency be compensated by HAL as the maintenance of the aircraft was being carried out by them on payment and the damage had occurred due to negligence of their technician. However, the Chief of the Air Staff while considering the case, upheld the recommendations of the Court of Inquiry and ordered in September 1998 that the entire cost of damage to the aircraft and that of hanger door as assessed be written off. The cost of repair to aircraft was assessed by HAL in May 1999 at Rs 1.17 crore inclusive of Rs 13 lakh towards their profit and the cost of damage to hanger door was assessed by Military Engineer Services at Rs 1.80 lakh.

The cost of repair to the aircraft and hanger door was assessed at Rs 1.19 crore

Since, HAL was responsible for servicing and maintenance of the aircraft and loss occurred due to negligence of its technician during routine maintenance check of aircraft, the amount of loss should be recovered from HAL instead of regularising it. Government should look into the matter and explore the possibility of concluding agreement with HAL clearly specifying the responsibilities and accountability.

Accepting the facts, the Ministry stated, in December 2000, that Air HQ have been advised to recover the amount from HAL instead of regularising it, as the loss has occurred due to negligence of HAL. They added that Air HQ have been advised to explore the possibility of concluding an agreement with HAL specifying their responsibilities and accountability.

19 Loss of stores collected by Air Force representative abroad

Three Trans receivers costing Rs 57.18 lakh collected by Air Force representative from a foreign supplier after their overhaul at a cost of Rs 18.40 lakh did not reach ultimate consignee and are missing.

Three Trans receivers costing Rs 57.18 lakh were sent abroad for overhaul.

Three Trans receivers costing US $ 181,235, equivalent to Rs 57.18 lakh* were sent to a foreign supplier in June 1996 for overhaul against a contract of

* 1 US $ = Rs 31.55

October 1995, which provided for delivery of the overhauled items on FOB[34] basis. The items were to be consigned to the Movement Control Unit at New Delhi. The Trans receivers were overhauled at a cost of US $ 54,371, equivalent to Rs 18.40 lakh.**

Trans receivers were collected by Air Force representative after overhaul.

Since the Air Force required the Trans receivers to meet AOG[35] priority, an Air Force Officer collected the Trans receivers alongwith other items from the foreign supplier and brought the stores to the Movement Control Unit in December 1996 in an Air Force aircraft, which was being ferried back to India after overhaul. The Movement Control Unit received the consignment in the same month for onward despatch to an Equipment Depot. Equipment Depot received the consignment in January 1997 and took the items on charge by preparing a certified receipt voucher. The invoice of December 1996 was received in the Depot in March 1997 and linked with the certified receipt voucher in August 1997, when it was noticed that the Trans receivers had not been received in the Depot. The Depot reported the matter to Air HQ in November 1997. Subsequently, Air HQ made efforts to locate the missing Trans receivers. However, the same could not be located.

Trans receivers did not reach the ultimate consignee and are missing.

Air HQ stated, in February 2001, that a Court of Inquiry has been ordered in December 2000 to investigate the matter. Thus, the collection of the items by Air Force representative from the foreign supplier led to a loss of Rs 75.58 lakh.

The matter was referred to the Ministry in July 2000; their reply was awaited as of February 2001.

---

[34] **Free on Board**
[35] **Aircraft on Ground**
** **1 US $ = Rs 33.85**

CHAPTER IV : NAVY

Provisioning

20 Delay in procurement of diesel generating sets

Naval HQ failed to procure mobile generating sets sanctioned for procurement in 1994. This led to operation of on board higher capacity diesel generating sets besides reducing their available hours for war time operations.

In order to conserve running hours of diesel generators installed on ships for war time operations, Naval Dockyards maintain mobile diesel generating sets for providing power during refit and maintenance of the ships. The Ministry sanctioned in December 1994 procurement of four mobile diesel generating sets at Rs 1.23 crore for Naval Dockyard Vizag to replace six sets declared beyond economical repairs in September 1993. However, no procurement had been made till date. Audit scrutiny of the relevant records revealed the following:

a) Even though the sanction was issued in December 1994, indent was raised by Director of Fleet Maintenance only in March 1995.

b) While inviting tenders the Director of Procurement failed to specify the make and the model. The resultant bids quoting different rates for different models rendered cost comparison impossible. This necessitated another round of biding delaying the finalisation of order to January 1996 at Rs 15.90 lakh per unit.

c) The end user noticed deviations in the specifications mentioned in the order. The supplier sought additional amount of Rs 10.18 lakh per unit for generating sets of the required specifications, which was found exorbitant and the order was cancelled.

d) Specifications were revised further and tenders invited in September 1999. Order had not been placed till date.

e) In the absence of the 220/230 KW generating sets, the end users were compelled to use on board higher capacity generating sets of 400 KW resulting in avoidable additional expenditure of Rs 18.05 lakh between April 1995 and November 2000 on running and maintenance of these sets besides adversely affecting the war time deployment of on board generating sets.

The matter was referred to the Ministry in July 2000; their reply was awaited as of February 2001.

21 Procurement of incorrect propeller shafts

Failure of Naval HQ to procure propeller shafts as per drawing/part number projected by indenting Naval ship led to receipt of incorrect propeller shafts costing US $ 104,000, which were lying unused.

Negligence of Naval HQ to indicate the correct drawing/part number of the propeller shafts in the contract concluded in July 1995 with a foreign firm led to procurement of unsuitable propeller shafts costing US$ 104,000, equivalent to Rs 32.81* lakh as discussed below:

- The Commanding Officer of a Naval ship raised a demand in April 1995 for propeller shaft (RH) and propeller shaft (LH) quoting Part No.266 A3.00.00.00.C6 for both the shafts for replacement of the existing old shafts of the ship during its refit.

- Naval HQ concluded a contract with a foreign firm in July 1995 for procurement of spares including 12 propeller shafts costing US $ 52,000 each. However, the drawing number of the propeller shafts indicated in the contract was 266 ME.30.00.01 (30.00.00C) which was different from the one projected by the Naval ship. The firm supplied in March 1997

* 1 US $ = Rs 31.55

only two propeller shafts and failed to supply the balance. The contract was short closed in March 1997.

- On issue to the Naval ship, these shafts were obviously found unsuitable. In order to meet the requirement of the ship, two propeller shafts of the correct drawing were procured from the same firm in September 1999 at US $ 420,000, equivalent to Rs 1.80♠ crore. Naval HQ stated that the shafts procured in March 1997 can be resleeved and epoxy coated at Naval Dockyard Mumbai, when required for use. The reply was silent on when such a requirement would arise since two shafts had been in stock for almost four years.

The matter was referred to the Ministry in June 2000; their reply was awaited as of February 2001.

22 Extra expenditure in procurement of spares

Failure of Naval HQ to procure the Base and Depot spares at cheaper rates within the validity period of offer led to an extra expenditure of Rs 71 lakh in their subsequent purchase.

Director of Systems (Engineering) did not finalise the list of B&D spares for four years.

Director of Procurement in Naval HQ procured Stern Gear for use in the propeller of Landing Ship Tank from a firm in 1991. In the operational role of Landing Ship Tank, the risk of damage to the propeller is high, yet Director of Systems (Engineering) did not project the requirement of Base and Depot spares for four years. He sent a list of 58 items of Base and Depot spares costing Rs 99 lakh in 1995 to Director of Logistics Support on the basis of quotation obtained in July 1995 from the same firm which was the Proprietary Article supplier for the Stern Gear. The quotation was valid up to 30 September 1995.

Director of Logistics Support sat over the indent for 18 months.

Director of Logistics Support after a delay of 18 months in December 1996 asked Director of Systems (Engineering) to review the requirement keeping in view their shelf life, if any. The later curtailed the requirement to 40 items in January 1997 indicating their cost at Rs 36.27 lakh as per quotation of 1995 without obtaining firm's willingness to keep the offer open. Subsequently, Director of Logistics Support asked Controller of Procurement, Mumbai in March 1997 to take the procurement action.

♠ **1 US $ = Rs 42.85**

Meanwhile, during an Operation in April 1997 propeller of one ship got damaged necessitating speedy procurement of spares. As per the revised quotation obtained from the same firm in December 1997, the procurement cost of these spares worked out to Rs 1.19 crore which was beyond the financial powers of the Controller who returned the indent to Naval HQ in December 1997. Director of Procurement initiated negotiation process in January 1998 in response to which the firm stated, in March 1998, that the offer submitted by them in July 1995 was based on the main equipment supply and had the advantage of project costing and importing of component in bulk quantity. Owing to the delay such benefits were lost and it was not possible to reduce the rates in view of overall price hike. Director of Procurement concluded the contract in October 1998 for procurement of 38 items of spares for Stern Gear at a cost of Rs 1.15 crore. Supplies against the contract have been completed except three items for which Naval HQ granted extension of time up to 15 December 2000 with levy of liquidated damages for delayed delivery.

Purchase of spares after three years entailed an extra expenditure of Rs 71 lakh.

Extra expenditure involved in procurement of spares with reference to the rates offered in July 1995 against those ordered in October 1998 amounted to Rs 71 lakh, which was attributable to failure of Director of Systems (Engineering) in finalising the list of spares in time as well as of Director of Logistics Support in not processing the initial offer of the firm within validity period.

The matter was referred to the Ministry in May 2000; their reply was awaited as of February 2001.

Miscellaneous

23 Unauthorised deployment of Naval tanker for overseas purchase of oil

Naval HQ kept the Ministry of Defence in the dark about the use of an oil tanker on goodwill visit for overseas purchase of oil proposed by Naval HQ earlier but not cleared till then.

Naval HQ proposal for overseas purchase of oil was under consideration in the Ministry.

Existing rules and procedures stipulate that the Navy obtains its supplies of petrol, oil and lubricants from the IOC[1] in India. In August 1997, Naval HQ initiated a proposal for import of oil, specifically low sulphur high speed diesel oil, directly from the international market, using an oil tanker of the Navy for the purpose. No final decision on the proposal was communicated by the Ministry of Defence,

[1] **Indian Oil Corporation**

who had in turn referred the matter to the Ministry of Petroleum and Natural Gas and the Ministry of Surface Transport.

Republic of Korea had extended an invitation to the Indian Navy to participate with one or two warships in an international fleet review scheduled for October 1998.

Naval HQ finalised a plan in early 1998 to depute three ships along with tanker for the fleet review. The tanker was planned ostensibly to save on the cost of fuel in free foreign exchange. The Ministry of Defence accorded permission in September 1998, but no mention was made while seeking such sanction about diversion of the tanker for purchase of oil ex-India.

Immediately on receipt of permission of the Ministry for deployment of three warships and tanker to Korea, Director of Logistics Support at Naval HQ, placed a purchase order on IOC, Mumbai for purchase of 16,640 tonnes of low sulphur high speed diesel oil at a cost of US $ 2.58 million, equivalent to Rs 11.03[♠] crore to be delivered at Singapore, even though prescribed rules and procedures stipulate that purchase orders for imports should be placed only by Director of Procurement at the Naval HQ after obtaining sanction of the Ministry of Defence.

An oil tanker on goodwill visit was used for obtaining supply of LSHSD.

En route to Korea, the Indian ships halted at Singapore, where in addition to normal re-fuelling, the tanker took delivery of 15,504 tonnes of oil against the purchase order mentioned in the previous paragraph. This clearly showed that the tanker had sailed from India without adequate fuel for the other warships.

CDA(Navy) made provisional payment in the absence of proper sanction.

Controller of Defence Accounts (Navy), Mumbai made a provisional payment of Rs 11.05 crore to Indian Oil Corporation in January 1999 under advice to Director of Logistics Support at Naval HQ as the purchase was not properly sanctioned.

Since oil tanker met with accident, it had to be towed and left over oil transported in hired tanker.

On the return journey from Korea, the tanker collided with a foreign ship in Malacca Straits resulting in extensive damage. The damaged ship reached Port Blair. Considering it unseaworthy, essential repair was carried out and the tanker was towed to Vizag. As the only other tanker with the Indian Navy was under refit, a ship had to be hired to off load the oil and transport it to Mumbai entailing an expenditure of Rs 1.13 crore. Furthermore, there was shortage and contamination of oil to the extent of 2763 tonnes costing US $552,600, equivalent to Rs 2.36[♠] crore.

[♠] 1 US $ = Rs 42.78

A Board of Inquiry assembled to investigate into the circumstances leading to collision attributed collision to lack of co-ordination among the ships going for fleet review and sudden change of course by the tanker *vis-a-vis* foreign ship.

Despite an expenditure of Rs 16.16 crore on repair of tanker, it was not available for use during an Operation.

While the damaged tanker was being repaired from April – October 1999 at an expenditure of Rs 16.16 crore, Navy had to charter another merchant vessel during June – July 1999 at an additional cost of Rs 79.00 lakh to meet the operational requirement.

Though the proposal to send the tanker was on the ground that carrying fuel to replenish during the entire cruise, would save foreign exchange, the Naval HQ had placed an indent to supply the fuel to all the four ships on 26 and 29 September 1998 at Singapore which meant outgo of free foreign exchange. Apart from this, the Flag Officer Commanding Eastern Fleet who was incharge of the visit was instructed before the Government sanction of 16 September 1998 about the arrangement for fuel at Singapore.

Thus, the Naval HQ had decided to procure fuel from abroad, without keeping the Ministry of Defence informed or getting its clearance.

The matter was referred to the Ministry in July 2000; their reply was awaited as of February 2001.

24 Recovery at the instance of Audit

HAL charged Rs 18 lakh extra for supply of 16 dinghies to Navy, which was recovered from them after being pointed out by Audit.

16 dinghies were procured from HAL in July 1998 at a cost of Rs 2.10 lakh each.

Sixteen dinghies type 'A' alongwith accessories costing Rs 2.10 lakh each were received at NSD[2] Kochi in July 1998 against a contract concluded by the Ministry with HAL[3] in March 1997. Subsequently, Naval HQ placed an order on a private firm 'X' in February 1999 for supply of 100 similar dinghies with complete accessories at a cost of Rs 69482 each. The firm supplied 60 dinghies in February – March 2000. It was noticed that 16 dinghies supplied by HAL in July 1998 were also manufactured by the same firm and the rate charged by HAL was higher by Rs 140518 per unit as compared to the rate for supply of 60 dinghies.

Rate charged by HAL was exorbitantly high.

[2] Naval Store Depot
[3] Hindustan Aeronautics Limited

On this being pointed out in Audit, in December 1999, Naval HQ referred the matter to HAL, who in turn stated, in January 2000, that they had quoted Rs 2.10 lakh per dinghie based on a budgetary quote of a foreign vendor. Subsequently, the source was changed and the dinghies were purchased from firm 'X' at a unit rate of Rs 84637 including sales tax for making supplies against the contract of March 1997. The change of source was not noticed by their Finance Department and the billing was made at the price indicated in the contract. The cost of 16 dinghies at the rate of Rs 84637 each plus 12.5 *per cent* profit and 2.4 *per cent* transit insurance worked out to Rs 15.60 lakh against Rs 33.60 lakh charged. The difference of Rs 18 lakh was recoverable from them.

Recovery of Rs 18 lakh was made from HAL.

The Ministry stated, in August 2000, that Rs 18 lakh had been adjusted against the payments due to HAL.

CHAPTER V: COAST GUARD

Miscellaneous

25 Repair/refit of boats of IOC out of Coast Guard funds

Failure of CDA (N), Mumbai to comply with Government orders led to non-recovery of Rs 1.05 crore from IOC towards cost of repair/refit of their boats in the private shipyards.

Two boats of IOC were under operation and maintenance of Coast Guard.

Coast Guard station, Vedinar was activated in May 1982 and formally commissioned in March 1983 for the security of submerged mooring buoys and the associated under water fitting and pipelines of IOC[1], which had based two Patrol Boats along with crew at the station for fulfillment of the task. As per Government orders of April 1982 as amended in July 1983 and February 1984, the operation, manning and maintenance of these boats was to be done by Coast Guard and recovery on that account was to be made from IOC at the rates stipulated in these orders. In case of repair/refit of the boats in private shipyards, CDA[2] (N), Mumbai was required to make payment of the cost of repair/refit to the shipyards out of Coast Guard funds and to recover the same from IOC subsequently.

Cost of repair/refit of boats was required to be recovered from IOC.

CDA(N), Mumbai failed to recover Rs 1.05 crore from IOC.

The repair/refit of these boats was carried out in private shipyards at a total cost of Rs 1.05 crore against four sanctions accorded by the Ministry between September 1991 and February 1997 and CDA (N), Mumbai made the payment of Rs 1.05 crore to the shipyards by debiting the same to the accounting head of Coast Guard. However, CDA (N), Mumbai failed to recover the amount from IOC.

[1] Indian Oil Corporation
[2] Controller of Defence Accounts (Navy)

On this being pointed out in Audit in August 1999, CDA (N), Mumbai stated, in March 2000, that the sanctions as well as work orders placed on the shipyards for the refit of the boats did not indicate that the expenditure was debitable to/recoverable from IOC. Reply of CDA (N), Mumbai was not tenable as the Government orders clearly stipulated that the cost of repair/refit of the IOC boats was to be recovered from IOC. The matter was subsequently referred to Coast Guard HQ/Ministry.

Accepting the facts, the Ministry stated, in July 2000, that CDA (N) Mumbai has been asked to recover Rs 1.05 crore from IOC.

(J.N.GUPTA)
Principal Director of Audit
Air Force and Navy

New Delhi
Dated 12 JUN 2001

Countersigned

(V.K.SHUNGLU)
Comptroller and Auditor General of India

New Delhi
Dated 25 JUN 2001

Appendix - I

(Referred to in Paragraph 5)

Position of ATNs outstanding as of February 2001

Sl. No.	Report No. and Year	Chapter of the Report	Para No.	Pertains to	Brief subject	Remarks
ATN pending for more than five years						
1.	9 of 95	II	3	MOD	Unauthorised funding of a project	Final ATN awaited
2.	9 of 95	IV	15	Navy	Naval Air Stations	Final ATN awaited
3.	9 of 95	IV	27	Navy	Extra payments on power consumption	Final ATN awaited
ATN pending for more than three years						
4.	9 of 96	IV	2	MOD	Non installation of an imported communication system	Final ATN awaited
5.	9 of 96	VI	39	R&D Org.	Delay in development-cum-production of a system	Final ATN awaited
6.	8 of 97	IV	23	Navy	Procurement of Articles TEM-3 without cables	Final ATN awaited
7.	8 of 97	V	29	Coast Guard	Wasteful investment on construction of jetty	Final ATN awaited
ATN pending upto three years						
8.	8 of 98	II	3	MOD	Delay in setting up of repair facilities	Final ATN awaited

9.	8 of 98	III	16	Air Force	Indecision on collection of scrap	Final ATN awaited
10.	8 of 98	III	21	Air Force	Delay in clearance of cargo	ATN not received
11.	8 of 98	IV	28	Navy	Extra expenditure due to delay in procurement of under water valves	Final ATN awaited
12.	8 of 98	IV	30	Navy	Purchase of sub-standard items	Final ATN awaited
13.	8 of 98	IV	33	Navy	Negligence in releasing a salvaged ship	Final ATN awaited
14.	8 of 98	V	34	Coast Guard	Recovery of over payment at the instance of Audit	Final ATN awaited
15.	8 of 99	II	2	MOD	Non-recovery of liquidated damages	Final ATN awaited
16.	8 of 99	II	3	MOD	Idling of funds and loss of interest	Final ATN awaited
17.	8 of 99	II	4	MOD	Non-recovery of airlift charges	Final ATN awaited
18.	8 of 99	III	9	Air Force	Non-functional electro optical tracking and computing equipment	Final ATN awaited
19.	8 of 99	III	14	Air Force	Overpayment to a foreign firm	Final ATN awaited
20.	8 of 99	III	15	Air Force	Failure to obtain supply of critical armament stores	Final ATN awaited
21.	8 of 99	III	17	Air Force	Recovery at the instance of audit	ATN not received
22.	8 of 99	IV	19	Navy	Misuse of Gymnasium	Final ATN awaited

23.	8 of 99	IV	20	Navy	Saving at the instance of audit	Final ATN awaited	2
24.	8 of 99	IV	21	Navy	Extra expenditure in procurement of cotton stockinette	ATN not received	0
25.	8 of 99	IV	23	Navy	Award of fabrication of torpedo carriers to a firm under liquidation	Final ATN awaited	2
26.	8 of 99	V	25	Coast Guard	Acquisition of advanced off shore patrol vessels	Final ATN awaited	3
27.	8 of 99	V	28	R&D Org.	Light Combat Aircraft	Final ATN awaited	1
28.	8 of 2000	II	3	MOD	Delay in procurement of maintenance equipment for helicopters	ATN not received	1
29.	8 of 2000	III	6	Air Force	Formation of Southern Air Command	ATN not received	1
30.	8 of 2000	III	7	Air Force	Delay in commissioning of airfield lighting system	Final ATN awaited	received Finalised ATN recd 2
31.	8 of 2000	III	8	Air Force	Inordinate delay in sanctioning and construction of safety equipment section	ATN not received	Final version received 2
32.	8 of 2000	III	9	Air Force	Injudicious procurement of helicopter rings	Final ATN awaited	1
33.	8 of 2000	III	10	Air Force	Avoidable expenditure due to negligence	Final ATN awaited	Finally vetted 2
34.	8 of 2000	III	11	Air Force	Compromised utilisation of communication equipment	ATN not received	1
35.	8 of 2000	III	12	Air Force	Continuation of a helicopter unit without review of establishment despite reduction in its tasks	ATN not received	0

36.	8 of 2000	III	13	Air Force	Loss due to delay in raising of discrepancy reports	ATN not received
37.	8 of 2000	III	15	Air Force	Wrongful appropriation of public revenues to non-public fund	ATN not received
38.	8 of 2000	IV	18	Navy	Avoidable expenditure due to failure in availing a cheaper offer	Final ATN awaited
39.	8 of 2000	IV	19	Navy	Provision of photo Interpretation Centre	Final ATN awaited
40.	8 of 2000	IV	21	Navy	Extra payment to the contractor	ATN not received

Annexure 'A'

Status of conclusion of contracts for customer furnished equipment for the Jaguar retromodification programme

(Paragraph 7.4.1 refers)

Sl. No.	Name of the system	Date of issue of request for proposal	Date of conclusion of contract	Qty contracted	Contract value	Delivery status	
						As per contract	Actual (as of May 2000)
1.	INGPS	20 March 1997	30 March 1999	35	US$1.01 million	To commence after finalisation of mission computer	Pending for want of mission computer
2.	HUD	Under option clause of SU-30 aircraft	06 July 1999	35	US$ 4.5 million	To commence in December 1999	Pending for want of mission computer
3.	MFD	13 January 1997	03 March 1998	42	FF 11.59 million	To commence from July 1998	Pending for want of mission computer
4.	DMG	13 January 1997	16 March 1998	35	US $3.98 million	To commence from July 1998	Two sets of lab models delivered in early 1999.
5.	Digital VRS	07 October 1998	29 September 1999	35	US $ 1.81 million	To commence in February 2000	Pending for want of mission computer