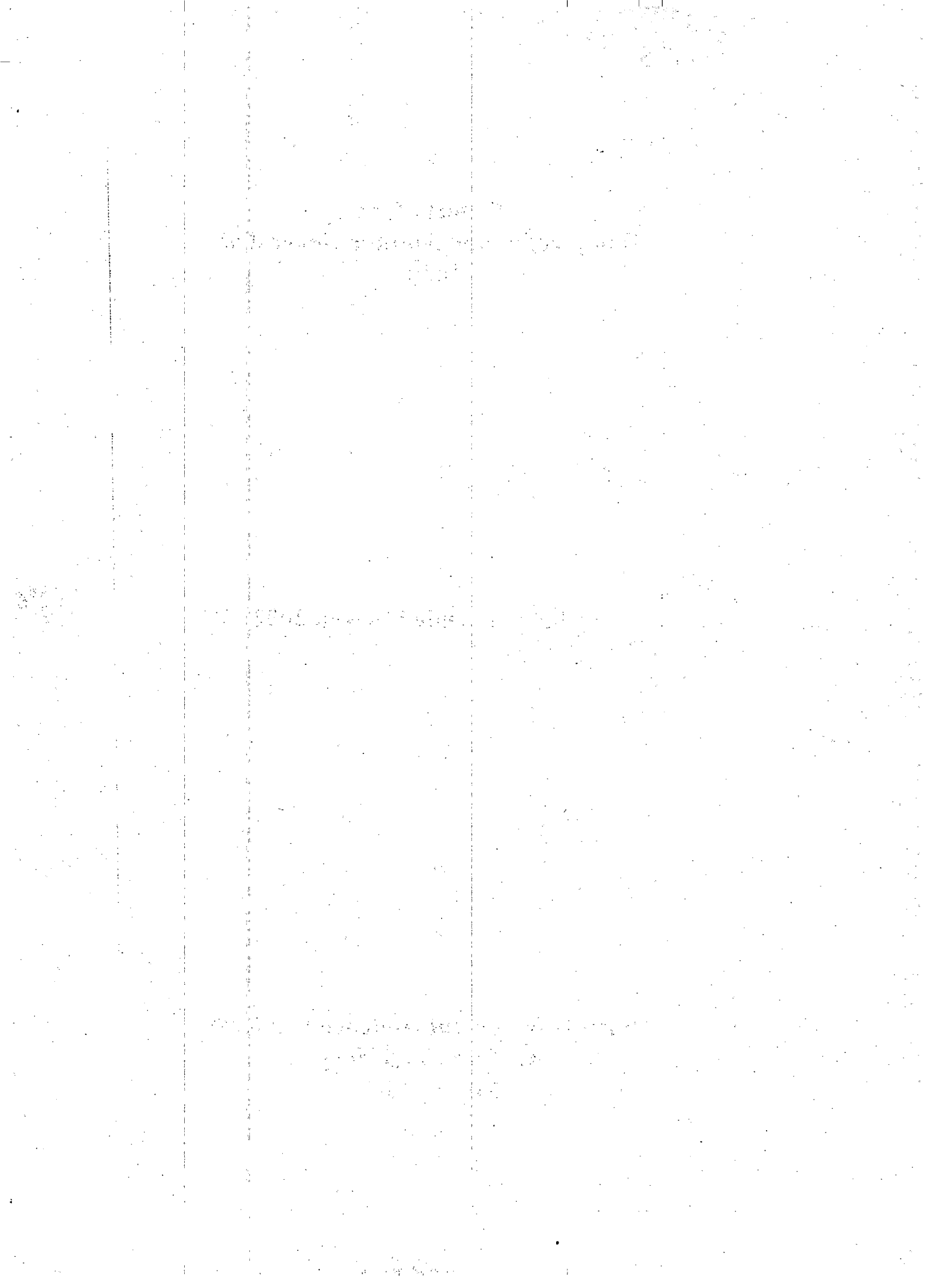


**Report of the
Comptroller and Auditor General of
India**

for the year ended March 2002

**Union Government (Defence Services)
Air Force and Navy
No.7 of 2003**



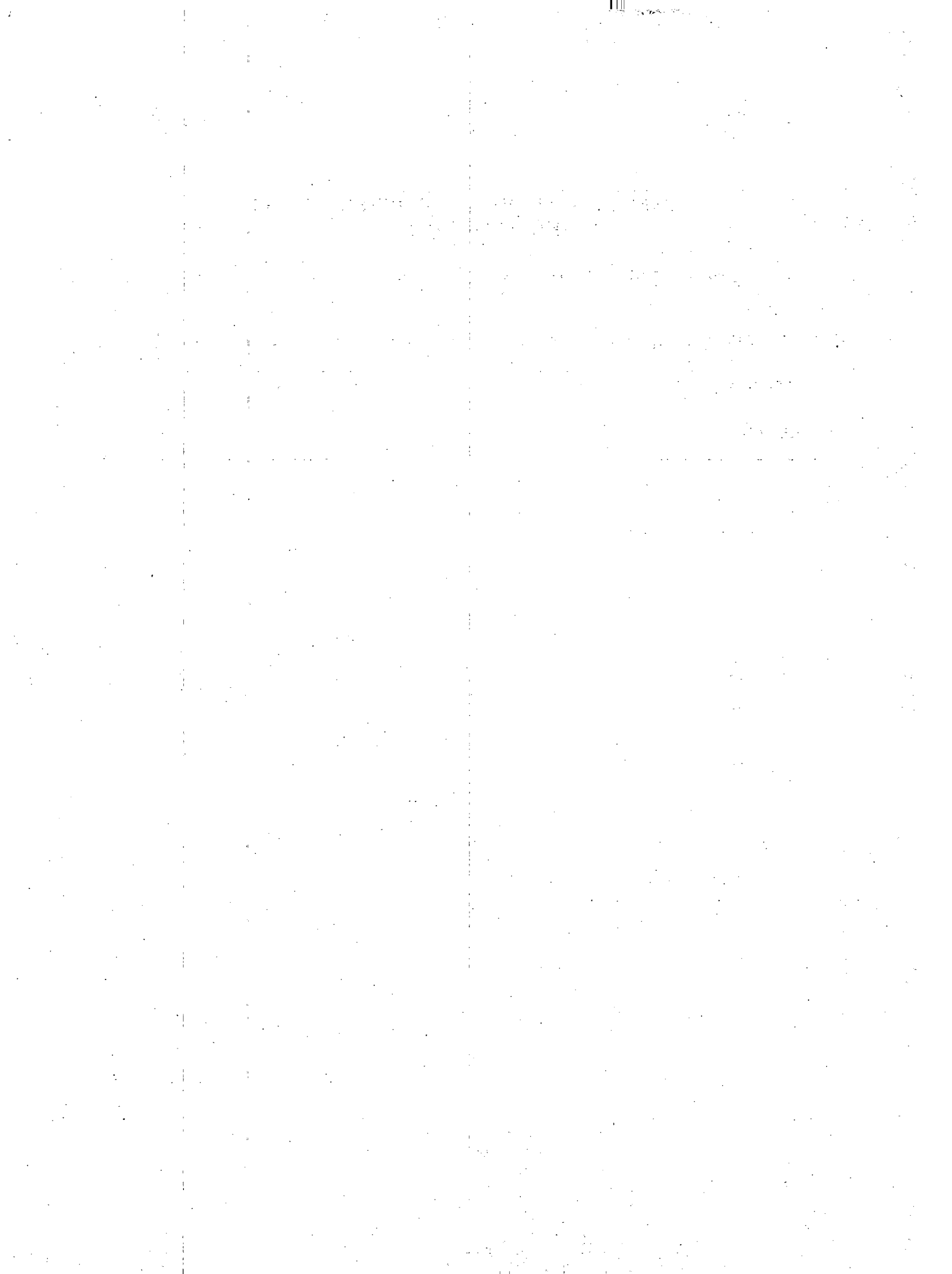
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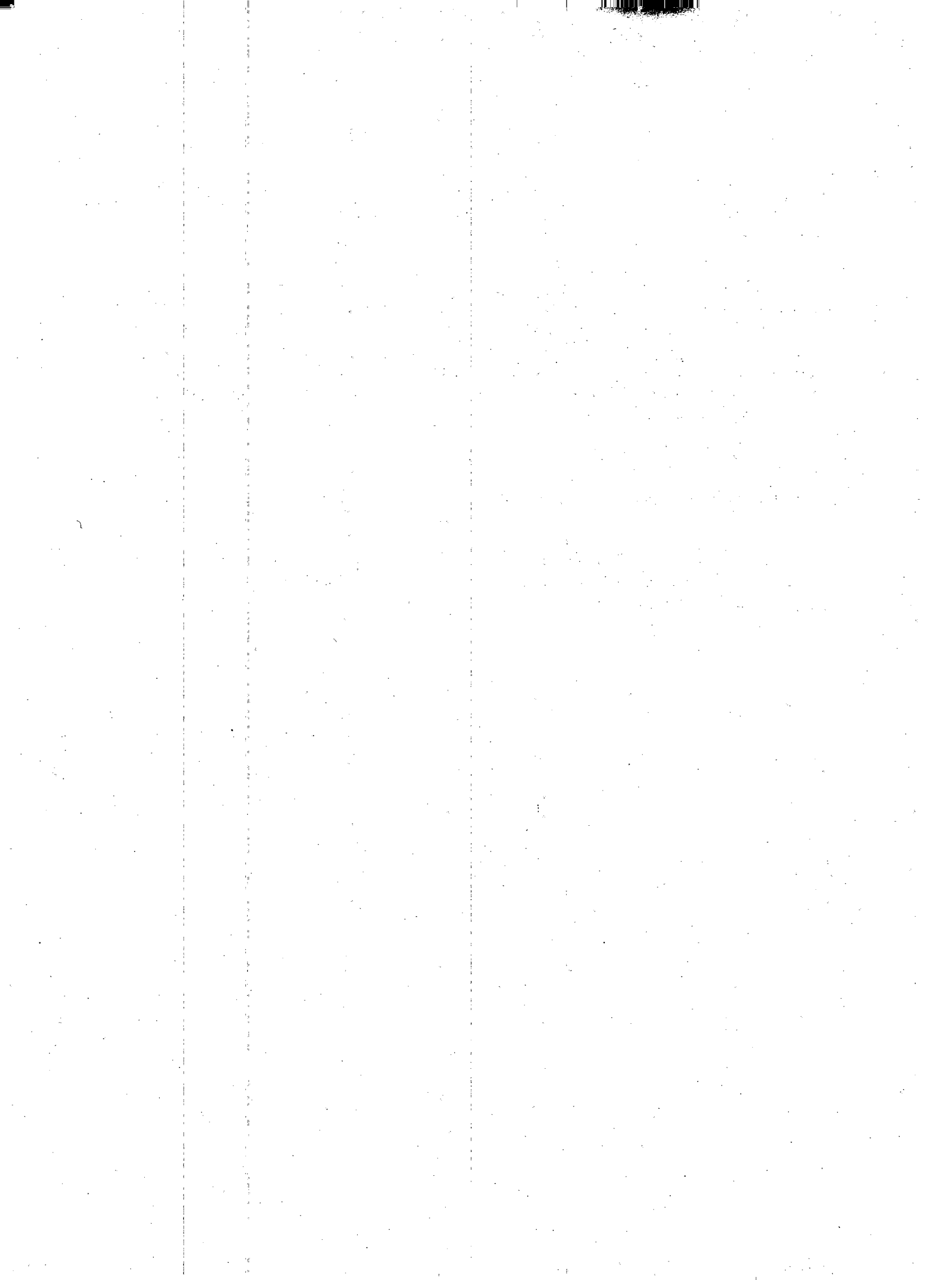


PREFATORY REMARKS

Report for the year ended March 2002 has been prepared for submission to the President under Article 151 of the Constitution. The Report 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 Organisations. Results of audit of Ministry of Defence, insofar 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.6 of 2003.

The Report includes 19 paragraphs

The cases mentioned in the Report are among those which came to notice in the course of audit during 2001-02 and early part of 2002-03 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 2001-02 was Rs 12,017 crore and Rs 8,449 crore respectively which together represents 36.33 per cent of expenditure of Rs 56,326 crore on Defence Services.

Some of the major findings arising from test audit of transactions of Air Force, Navy and associated Defence Research and Development Organisation included in the Report are mentioned below:

I Mismatch in procurement of bombs and components

Expenditure aggregating to Rs 117.28 crore incurred on the procurement of a particular type of bomb and its related tail units notwithstanding, the compatible and essential fuzes had not been made available even after the lapse of considerable time. Failure to synchronize the procurement of the bombs and its integral components so as to ensure availability of adequate stocks necessitated alternative interim arrangements that were relatively less effective and reliable.

(Paragraph 8)

II Award of contract in violation of CVC guidelines

In violation of the guidelines of the Central Vigilance Commission, a contract for supply of Rockets at a total cost of Rs 93.13 crore was concluded with a foreign vendor whose offer was not the lowest.

(Paragraph 3)

III Procurement of Laser Guidance Kits

On account of depletion of the War Wastage Reserve of Laser Guidance Kits, essential for effective bombing of targets, the Air Force had to resort to emergency purchases at higher prices from a single vendor involving an estimated additional expenditure of Rs 36.39 crore. Further, because of delay in the procurement of the related penetration bombs, the shelf life of these Kits would have reduced considerably by the time deliveries of the bombs are completed.

(Paragraph 2)

IV Procurement of Sonobuoy Processing and Control Systems

The efficacy and acceptability of a Sonobuoy Processing and Control System, indigenously developed at a cost of Rs 9.27 crore for processing of data relating to submarines were yet to be conclusively established to facilitate its approval and commencement of regular production to meet the Navy's operational requirements.

(Paragraph 17)

V Establishment of Torpedo Test Facilities

Benefits expected by the establishment of a facility for the testing of developmental torpedoes in sheltered waters by a Laboratory of the Defence Research and Development Organisation had not been realized even after more than 12 years and investments aggregating to Rs 7.96 crore and the Laboratory concerned continues to depend on the Navy and foreign ranges for its testing requirements.

(Paragraph 22)

VI Procurement of defective equipment

Equipment, essential for ensuring secrecy in communication, procured for the Air Force at a cost of Rs 4.47 crore remained unutilized for over four years because of several shortcomings noticed in the course of the evaluation trials that were conducted without reference to the Qualitative Requirements and had to be backloaded to the manufacturer.

(Paragraph 11)

VII Avoidable additional expenditure on procurement of Ground Power Units

Continued procurement, without inviting open tenders, of Ground Power Units for IAF aircraft from the vendor who had been supplying these Units earlier even after identifying and approving an alternative source of supply resulted in these Units being procured at higher prices, involving avoidable additional expenditure of Rs 3.30 crore.

(Paragraph 10)

VIII Procurement of unsuitable vehicles

Failure of the Air Force to properly evaluate the suitability of the vehicles procured for containerization of critical communication equipment necessitated additional purchases of alternative vehicles and transfer of the unsuitable ones costing Rs 2.70 crore to other units. This also had an adverse impact on the operational mobility of the communication equipment.

(Paragraph 12)

IX Avoidable expenditure on repairs attributable to negligence

Failure, attributable to negligence, of Air Force personnel to ensure that the correct Fuel Control Units were installed on aero-engines fitted on a particular type of aircraft resulted in two of these aircraft being damaged necessitating repairs at a cost of Rs 1.88 crore.

(Paragraph 14)

X Avoidable additional expenditure on refit of a Naval Ship

Award, in violation of established tendering procedures, of a contract relating to the refit of a Naval ship to a firm which was not the lowest tenderer and even when its offer was not complete in all respects was *prima facie* biased and resulted in an estimated additional expenditure of Rs 1.42 crore.

(Paragraph 18)

XI Unnecessary import of machines

Unnecessary import of two machines intended for repairs to aero-engines on grounds of urgency and based on a bulletin of the manufacturer that was not mandatory and subsequent delays in their commissioning rendered the investment of Rs 1.19 crore on their procurement unfruitful.

(Paragraph 13)

XII Delay in construction of Blast Pens

Planning deficiencies and lack of clarity in regard to operational requirements led to frequent changes in the concept and design of Blast Pens considered essential at a frontline operating base of the Air Force and their construction not being completed, thereby depriving the base of the essential facility for over a decade.

(Paragraph 15)

XIII Delay in installation of an underwater Optical Imaging System

An Underwater Optical Imaging System procured in the year 1992 for installation on board a Marine Acoustic Research Ship for the collection and study of data from the sea bed had not been installed and commissioned even after a decade, thereby defeating the objective of its procurement, besides rendering an investment of Rs 0.78 crore largely unproductive.

(Paragraph 21)

XIV Recoveries effected at the instance of Audit

Recoveries aggregating to Rs 12.85 crore, representing erroneous payments to two Shipyards and Hindustan Aeronautics Limited and overpayments to Defence civilians, were effected at the instance of Audit.

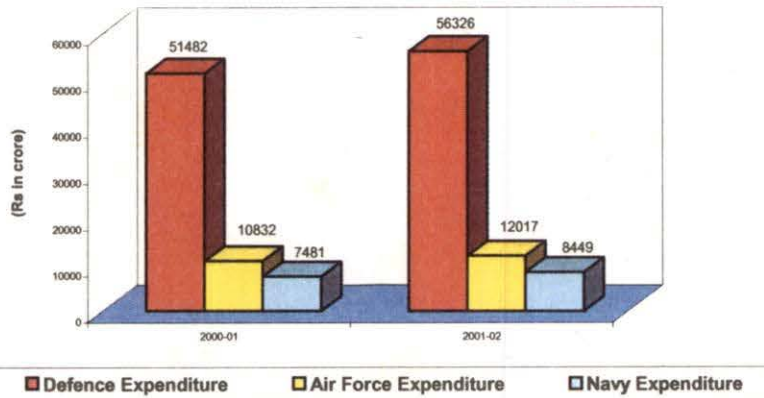
(Paragraph 16 & 19)

CHAPTER I : FINANCIAL ASPECTS

1 Financial Aspects

1.1 The total revenue and capital expenditure on Defence Services during 2001-02 was Rs 56,326 crore, which was 9.41 *per cent* higher than the expenditure of 2000-01. The share of the Air Force and Navy in the total expenditure on Defence Services in 2001-02 was Rs 12,017 crore

Share of Expenditure (Air Force and Navy)



and Rs 8,449 crore respectively, including that on capital acquisition. The expenditure on Air Force and Navy respectively was 10.94 *per cent* and 12.94 *per cent* higher than the expenditure during the preceding year.

1.2 Expenditure on the Air Force and Navy during 2001-02 under broad categories is analysed in the following table:

	AIR FORCE		NAVY	
	Rs in crore	Per cent of total	Rs in crore	Per cent of total
Pay and Allowances	2,024	16.84	1,210	14.32
Stores	4,170	34.70	1,312	15.53
Works	599	4.98	339	4.01
Other Expenses	276	2.30	789	9.34
Capital Acquisition	4,948	41.18	4,799	56.80
Total	12,017	100.00	8,449	100.00

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- 1.3 The summarised position of appropriation and expenditure during 2001-02 in respect of the Air Force and Navy is reflected in the table below:

(Rs in crore)

	Final Grant/ Appropriation	Actual Expenditure	Total unspent provision
AIR FORCE			
REVENUE			
Voted	7,921.94	7,068.25	853.69
Charged	1.98	0.65	1.33
CAPITAL			
Voted	4,946.48	4,943.13	3.35
Charged	5.14	4.85	0.29
Total	12,875.54	12,016.88	858.66
NAVY			
REVENUE			
Voted	4,330.10	3,648.95	681.15
Charged	1.41	0.13	1.28
CAPITAL			
Voted	4,829.29	4,797.38	31.91
Charged	3.32	2.33	0.99
Total	9,164.12	8,448.79	715.33

Unspent provisions constituted 6.67 per cent of final grant/appropriation of the Air Force, and 7.80 per cent for the Navy.

The total capital expenditure on Defence Services for the year 2001-02 was Rs 16,207 crore. Air Force and Navy together accounted for 60.15 per cent of this expenditure.

- 1.4 An analysis of the Appropriation Accounts, Defence Services, has been included in the Report of the Comptroller and Auditor General of India for the year ended March 2002: Union Government – Accounts of the Union Government (Report No.1 of 2003).
- 1.5 An amount of Rs 12.85 crore was recovered at the instance of Audit during the year.

CHAPTER II : MINISTRY OF DEFENCE

2 Procurement of Laser Guidance Kits

Depletion of the War Wastage Reserve of Laser Guidance Kits, essential for effective bombing of targets, below the prescribed levels necessitated emergency purchases from a single vendor at a price higher than what would have been payable in normal times, involving an estimated additional expenditure of Rs 36.39 crore. Besides, on account of the mismatch between their procurement and that of penetration bombs with which the Kits were proposed to be used, the designated shelf life of the Kits would have reduced considerably by the time the deliveries of the bombs are completed.

Conventional bombs without any guidance system do not always succeed in providing the desired terminal effect because of limitations of the weapon aiming system, drift due to prevailing winds in the target area, weapon dispersion, etc. This necessitates the dropping of a large number of bombs over a target. However, the same terminal effect can be produced by a much smaller number of bombs if they are provided terminal homing capability by adapting Laser Guidance Kits on them. This would appreciably improve the effectiveness of the bombs and can play a decisive role in operations. The utility of these Kits is therefore well-recognised.

The Armed Forces are also required to maintain at all times at least a minimum War Wastage Reserve of arms and ammunition. However, at the commencement of OP *Vijay*, the stocks of Laser Guidance Kits with the Air Force were sufficient for only 12 days' requirements as against then applicable War Wastage Reserve of 30 days' requirements. The Air Force therefore projected, in June 1999, an urgent requirement of 663 Guidance Kits to make good the deficiency in the Reserve.

On account of the urgency, the Ministry had no option other than to negotiate, on 'single vendor' basis, only with a foreign firm that had supplied these Kits previously. A contract for the supply of these 663 Kits at a total cost of

US\$ 26.32 million, equivalent to Rs 113.18 crore* was accordingly concluded with this firm in August 1999. Apart from 100 Kits that were to be delivered urgently by February 2000, the remaining 563 Kits were to be delivered in batches by April 2001. The first batch of 100 Kits was delivered only between March and May 2000, the delay being attributable both to the supplier in making available the necessary documentation and the Ministry deciding to make its own arrangements for transportation of the Kits through a vessel of the Shipping Corporation of India Limited so as to safeguard against the possibility of their being impounded en-route if transshipment was involved in transportation by the other vessels. Supplies of the remaining Kits were, however, completed as scheduled.

Audit scrutiny revealed that the Ministry had procured 200 of these Kits from the same firm earlier in January 1995 at the unit price of US\$ 19,975. Based on this price and an annual escalation of 5 *per cent*, which is normally taken into account for the purpose of evaluating offers and in estimating prices to form the basis for negotiations, the unit price of the Kits in respect of the order placed in August 1999 should not have exceeded US\$ 24,280. The unit price agreed upon on this occasion was, however, US\$ 39,700, resulting in an estimated additional expenditure of US\$ 10.22 million or Rs 43.96 crore.

Further, the intention initially was to use these Laser Guidance Kits only with indigenously manufactured general purpose bombs. However, considering that the penetration capability of these bombs against hardened targets was very limited, the Ministry decided in February 2001 to use these expensive Kits instead with penetration bombs for maximum effectiveness against hardened targets.

Accordingly, in December 2001, the Ministry concluded a contract with another foreign firm for the supply of 1,100 penetration bombs at a total cost of Rs 194.13 crore, to be made available progressively from February 2003 onwards and completed by the year 2005. While the deliveries were consequently yet to commence, examination by Audit revealed that 36 of the 100 Laser Guidance Kits procured on an emergent basis, which were of 1997 vintage, would have completed 62 *per cent* of their designated shelf life by February 2003 and that about 30 *per cent* of the shelf life of the remaining 627 Kits would have also expired by the time deliveries of all the penetration bombs are completed as stipulated. In the circumstances, the extent to which the penetration bombs could, in fact, be used with the Kits to maximise effectiveness could be open to question.

* US\$ 1=Rs 43

The Ministry stated (November 2002) that the price differential between the Kits procured in 1995 and those contracted for in August 1999 was attributable to the procurement of certain additional stores that were not included in the contract of January 1995. They added that (a) the firm had also agreed subsequently to the advancement of the delivery schedule in respect of the penetration bombs and 100 of these bombs were therefore likely to be available by October 2002; and (b) since the Laser Guidance Kits could be used with the penetration bombs as well as the general purpose bombs and decisions in regard to the type of bomb to be deployed are arrived at before launching an operation depending on the scenario at the relevant time, optimum utilization of both types of bombs with the Laser Guidance Kits could be ensured.

Even after taking into account the additional Kits contracted for in August 1999 and the annual escalation of 5 *per cent* in prices, the additional expenditure involved in the emergency purchase of the Laser Guidance Kits that had to be resorted to make good the deficiency in the War Wastage Reserve would work out to US \$ 8.46 million or Rs 36.39 crore, instead of Rs 43.96 crore estimated by Audit earlier. Besides, verification by Audit also revealed that the delivery of the initial consignment of 100 penetration bombs had not been effected even as of December 2002. There may not therefore be any perceptible improvement in their deliveries in relation to the schedule stipulated initially. Further, though it has been contended that it would be possible to optimise the utilisation of both types of bombs with the Laser Guidance Kits, the decision to procure the penetration bombs having been arrived at *inter alia* in consideration of the admittedly high cost of the Laser Guidance Kits (Rs 17 lakh per Kit), it may not perhaps be financially prudent, or even logical, to utilise these with the comparatively cheaper general purpose bombs (Rs 1.77 lakh per bomb based on the cost of production of these bombs by the Directorate General of Ordnance Factories), which are also admittedly less effective in penetrating hardened targets.

That emergency purchases of the Laser Guidance Kits were necessary and the obvious mismatch between their procurement and that of the penetration bombs also point to the imperative need to streamline procurement procedures, particularly with reference to the replenishment of the War Wastage Reserve, and to synchronize, to the extent possible, procurement of different items of related stores to be used in conjunction with each other.

3 Award of contract in violation of CVC guidelines

Contrary to the guidelines of the Central Vigilance Commission prohibiting negotiations with tenderers other than the lowest, a contract for supply of rockets at a total cost of Rs 93.14 crore was concluded after negotiations with a foreign vendor whose offer was not the lowest, which was *prime facie* unjustified.

Based on a proposal of the Air Headquarters for procurement of 82,491 57-mm Rockets with fuzes to make up the deficiencies in War Wastage Reserves, the Ministry had requested proposals from three foreign vendors (ROSVO of Russia, Kintex of Bulgaria and Omnipol of the Czech Republic). While the Russian vendor expressed inability to supply the Rockets, the proposal of the Czech vendor offered supplies ex-stock, which was not recommended for procurement by the Air Headquarters. On the other hand, the Bulgarian vendor offered to supply the Rockets at the unit price of US \$ 325 FOB Bulgarian port. Simultaneously, an unsolicited offer to supply the Rockets at the lower unit price of US \$ 315 FOB Russian port was also received from another Russian vendor (Promexport).

In December 1999, the Ministry, in consultation with the Air Headquarters, invited technical and commercial proposals from Kintex as well as Promexport. On opening the commercial bids in February 2000, the unit price of US \$ 244.20 quoted by the latter was lower than that of US \$ 250 quoted by the former.

In the context of the marginal difference in price and having regard to operational urgency, the Finance Division of the Ministry suggested in March 2000 that a counter-offer might be made to both the firms, the requirements being distributed between them. However, the Ministry made a counter-offer of US \$ 210 in April 2000 to the Bulgarian firm alone. This was accepted by Kintex and a contract for supply of 100,000 Rockets at a total cost of US \$ 21 million, equivalent to Rs 93.14 crore[^], was concluded with the firm in October 2000. These were to be supplied by December 2001 in five lots of 20,000 each. The deliveries were, however, completed only in March 2002.

In November 1998, the Central Vigilance Commission had prescribed guidelines in regard to procurement procedures that were to be followed henceforth in the Ministry of Defence, which were also circulated to all

[^] US\$ 1=Rs 44.35

concerned in December 1998. In terms of these guidelines, post-tender negotiations were banned with immediate effect except with the lowest tenderer. The decision to restrict the negotiations only to the Bulgarian firm, which was not the lowest tenderer, was therefore violative of these guidelines and resulted in the element of competition being removed and in lack of transparency.

The matter was referred to the Ministry in July 2002. While their reply was awaited as of February 2003, the Air Headquarters stated (August 2002) that "the path of approaching a known and proven agency" (Kintex), which had supplied these stores in the past was adopted in view of the urgency to replenish the War Wastage Reserves, the marginal difference in price which was later negotiated, and "avoidance of inherent delays in trials with supplies from a new vendor". The Air Headquarters added that though Promexport had always mentioned that their offer related to new manufacture only, the vintage of production had not, however, been amplified by the firm and it could not therefore be ascertained whether the expression "new" referred to manufacture during the current year or last manufactured (which could be a few years earlier).

The following will, however, be of relevance in this context:

- Though urgency to replenish the War Wastage Reserves has been cited as one of the reasons for confining the negotiations only with Kintex, the proposal, which was first initiated in June 1999, would not appear to have been processed and finalised with any sense of urgency. Whereas these Rockets held in stock in June 1999 were only one-third of the prescribed War Wastage Reserves, the stocks had decreased to one-sixth of the Reserves in June 2000. The contract with Kintex itself was concluded only in October 2000, eight months after the commercial bids from both the firms were opened in February 2000 and nearly 16 months after the necessity to replenish the Reserves was recognised.
- In August 1999 itself, Promexport had confirmed their willingness to supply the Rockets from current production. On enquiry by the Air Attache in Moscow, the firm had also asserted that the rockets would be supplied only from fresh manufacture. The firm had also confirmed, in February 2000, that (i) the Rockets were manufactured in accordance with the prescribed technical conditions; (ii) the manufacturer had the licence for their manufacture conforming fully to the requirements of Russian legislation; and (iii) they were used on all variants of the aircraft for which they were intended. In the

circumstances, the reply that the vintage of the rockets proposed to be supplied could not be ascertained would not appear to be borne out by facts and this can at best be considered only to be an after-thought.

- If, as stated, the intention indeed was to avoid delays inherent in obtaining supplies from a new vendor, and to obtain these only from a "known and proven agency", it is not very clear why the Air Headquarters acquiesced, in the first instance to invite technical and commercial bids from Promexport as well. In fact, the proposals from Promexport were invited by the Ministry only after the Air Headquarters had evaluated and confirmed the technical acceptability of its offer and its *bonafides*.
- Invitation, initially, of proposals only from three vendors, which was apparently not based on an exhaustive list of suppliers, could also be open to question since it would tantamount to the invitation of limited tenders and also restricted the options available.

4 Loss of interest due to belated adjustment of advance

Failure to adjust the amount owing to Government by a foreign engine manufacturer on final settlement of two agreements for the purchase of aero-engines against the payments made subsequently to the manufacturer resulted in an estimated loss of interest of Rs 49.31 lakh.

Under the programme for the acquisition of the Mirage-2000 aircraft for the Indian Air Force, aero-engines were to be supplied by a French engine manufacturer (SNECMA) in terms of two agreements concluded in October 1982 and March 1986. The agreements provided that the buyer shall place at the disposal of the vendor the specified amount as Reserve Provision in advance, orders for the aero-engines being placed from time to time against such provision. Necessary adjustments were to be made on completion of deliveries. In case the total amount due to the manufacturer in respect of the firm orders placed utilising the Reserve Provision was less than the provision and upon effecting the necessary adjustments, the manufacturer was to reimburse forthwith to the buyer the amount actually received in excess as advance payment, along with interest calculated at the rate of 9.5 per cent per

annum in respect of the first agreement and at 13 *per cent per annum* in respect of the second up to the date of reimbursement.

The accounts between the Ministry of Defence and SNECMA were finalised in December 1995 and it was mutually agreed that a net amount of French Francs 12,959,422 was payable by the latter to the Government of India after 31 March 1996. It was also decided that this amount would be deducted from the amount due for subsequent deliveries or advance payments to be made for orders placed beyond the contract.

The Ministry of Defence accordingly directed the Air Headquarters to ensure adjustment of the amount due from SNECMA. However, though further payments aggregating to French Francs 13,117,462 were due to the manufacturer and these were also paid between April and July 1996, the necessary deductions were not made from such payments in settlement of the amount due to Government against the contracts of October 1982 and March 1986. The adjustment was made only subsequently in December 1996.

Failure to effect the necessary adjustments against the subsequent payments made to the manufacturer between April and July 1996 resulted in an estimated loss of interest of French Francs 680,195 equivalent to Rs 49.31 lakh approximately computed at the rate of exchange of 1 French Franc = Rs 7.25 as applicable in March 1996.

The matter was referred to the Ministry in July 2002; their reply was awaited as of February 2003.

5 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.

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 2002, No.7 of 2003, were forwarded to the Secretary, Ministry of Defence between May 2002 and November 2002 through demi-official letters drawing his attention to the Audit findings and requesting Ministry to send their response within the stipulated six weeks. It was brought to the personal notice of the Defence

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Secretary 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 Ministry's comments in the matter.

Despite above instructions of the Ministry of Finance issued at the instance of the Public Accounts Committee, the Ministry of Defence did not send replies to 10 Draft Paragraphs out of 19 Paragraphs included in this Report. Thus, the response of the Ministry could not be included in respect of these 10 paragraphs.

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	19	10	3,4,10,11,12, 13,14,15,18 and 19 (b)

6 Follow up on Audit Reports

Despite repeated instructions and recommendations of the Public Accounts Committee, Ministry of Defence did not submit remedial Action Taken Notes on 77 Audit Paragraphs.

With a view to ensuring enforcement of accountability of the Executive in respect of all issues dealt with in various Audit Reports of the Comptroller and Auditor General of India, the Public Accounts Committee decided in 1982 that Ministries and Departments should furnish remedial Action Taken Notes on all Audit Paragraphs.

Review of outstanding Action Taken Notes on Paragraphs included in the Audit Reports of the Comptroller and Auditor General of India, Union Government, Defence Services (Air Force and Navy), placed before the Parliament during 1993 to 2002, revealed that, as of December 2002, 77 Audit Paragraphs (as per Appendix-I) awaited finalisation. Of these, in eleven cases Ministry had not furnished any Action Taken Notes at all.

Admitting the facts, Ministry stated in December 2002, that delay in preparation of the Action Taken Notes occurs due to time involved in

collection of information and material to prepare the Action Taken Notes from various agencies in the field areas spread all over the India. Ministry added that, the concerned Directorates under the Ministry have been directed to make all-out efforts to achieve maximum clearance of Action Taken Notes.

7 Non-production of documents

As of January 2002, 32 files in respect of Air Force, and 28 files in respect of Navy, requisitioned for audit, during the period between October 1995 and March 2002 were not made available to Audit. This includes 21 cases (Appendix-II) where expenditure involved in each case is Rs 5 crore or more as detailed below:

Year	Air Force	Navy
1995-96	2	-
1996-97	-	-
1997-98	-	2
1998-99	1	-
1999-2000	1	4
2000-2001	-	2
2001-2002	5	4
Total	9	12

CHAPTER III : AIR FORCE

Procurement

8 Mismatch in procurement of bombs and components

Operational preparedness of the Air Force would appear to have been adversely affected on account of inadequate reserves of bombs and the related tail units and fuzes. Non-availability of the fuzes even after the lapse of considerable time had rendered bombs and tail units that were also procured belatedly at an aggregate cost of Rs 117.28 crore relatively less effective.

Type 'A' bombs used by the Air Force consist of the main bomb, ballistic tail units and fuzes for their effective functioning and performance. Each bomb has one tail unit that facilitates its safe separation and allows it to follow a pre-determined ballistic trajectory, while the fuze, which can be located either in the tail or the nose of the bomb, helps in initiating its explosive composition.

The Type 'A' bombs and their tail units held by the mother depot for armament stores at the commencement of OP *Vijay* constituted 23 per cent and 2.2 per cent respectively of the mandatory minimum reserves, while no fuzes were held in stock by the depot. In order to make good the deficiencies, the Air Headquarters placed two indents in June 1999 and February 2000 on the Directorate General of Ordnance Factories for supply of 5,519 Type 'A' bombs at a total cost of Rs 97.69 crore. The indent for the required tail units was, however, not placed concurrently on the Directorate General of Ordnance Factories. An order for an identical number of tail units at a cost of Rs 19.59 crore was instead placed only in April 2000.

The Directorate General of Ordnance Factories supplied the bombs between February 2000 and February 2002, and the matching tail units by January 2003. However, though as many as 8 indents for the supply of 6,136 fuzes at a total cost of Rs 3.57 crore had also been placed on the Directorate General of

Ordnance Factories between November 1993 and August 2001, none of these had been supplied even as of January 2003.

Expenditure aggregating to Rs 117.28 crore incurred on the procurement of the bombs and tail units notwithstanding, the compatible and essential fuzes had not been made available even after the lapse of considerable time. Failure to concurrently ensure the availability of adequate stocks of bombs and its integral components, which would appear to be indicative of deficiencies in planning for procurement, could have had an adverse impact on the preparedness of the Air Force and its operational efficiency during OP *Vijay*, as well as on the effectiveness and reliability of the bombs.

While admitting that there was a mismatch between the procurement of the bombs and their tail units, the Ministry stated (January 2003) that the effectiveness of the bombs in destroying targets during the Operation could not be ascertained on account of the inhospitable terrain of operations. The Ministry added that while the fuzes had not yet been supplied, the available bombs were operationalised by using an alternative combination of tail pistol and detonator which was an accepted methodology and was not less reliable; and that procurement of other fuzes and components was resorted to keeping in view development of advanced fuzes and with a view to having an alternative fuzing component for the bombs.

The fuzes are admittedly an integral part of the bombs and the orders placed on the Directorate General of Ordnance Factories also related only to those compatible with the Type 'A' bombs. In the circumstances, the contention that their procurement was resorted to only as an alternative is not very clear. Besides, though it has been argued that the alternative combination of tail pistol and detonator, which was obviously necessitated only on account of non-availability of the compatible fuzes, was not less reliable, the Directorate of Operations, at Air Headquarters had, in fact, expressed the view in June 1999 that the pistol-detonator combination was "relatively less reliable". The fact also remains that procurement of different components had not been properly synchronized, which would underscore the need for appropriate remedial measures and streamlining of the processes so that the need to adopt alternatives that impinge upon operational effectiveness is minimised, if not altogether eliminated.

9 Procurement of Ammunition Links

Failure to initiate timely action to replenish stocks of the Links essential for firing a specified type of ammunition from a front-line fighter aircraft, which was indicative of deficiencies in planning, resulted in the stocks becoming completely depleted for nearly three years necessitating the recycling of used Links thereby compromising armament training requirements and reducing the capability of the aircraft.

Ammunition Links are used for firing specified types of ammunition from fighter aircraft. Apart from requirements of Links in operations, these are also necessary for maintaining War Wastage Reserves and for Armament training of the aircrew.

In May 1994, only 925 Links for a particular type of ammunition (Ammunition 'A') used in the weaponry of a front-line fighter aircraft of the Air Force were available in stock, which represented barely 0.04 *per cent* of the minimum mandatory War Wastage Reserves. In order to replenish the depleted War Wastage Reserves and to cater to the armament training requirements, the Department of Defence Production and Supplies of the Ministry of Defence placed an order on an Indian firm in March 1996 for the development, manufacture and supply of 1.10 lakh Links by May 1998 at a total cost of Rs 39.33 lakh.

The stipulated delivery schedule could not, however, be adhered to by the firm on account of failure of prototypes in ground firing trials, necessitating changes in the dimensions and drawings based on imported samples, which slowed down the process of development of these Links. Though the stocks of Links had been further depleted during the intervening period and not even a single Link was available in stock by the end of April 1997, a proposal initiated by the Air Headquarters in October 1998 for importing one lakh Links was not agreed to by the Director General of Aeronautical Quality Assurance (Armament) on the ground that sufficient progress had already been made by the Indian firm in the development of the Links and that it was expected that these may be made available within a reasonable period.

The Ammunition Links ordered on the Indian firm not having been delivered even during 1999, the Ministry had to resort to emergency import. An order

was, therefore, placed on a foreign firm in June 1999 for supply, ex-stock, of 1.07 lakh Links at a total cost of US \$ 0.134 million, equivalent to Rs 57.62 lakh*. The Links, which were to be supplied by 1999, were received only in April 2000. The Indian firm also supplied 80,000 Links between May 2001 and July 2002. The remaining 30,000 Links were under inspection as of October 2002. An amount of Rs 36.69 lakh had been paid to the firm till then.

Because of the depleted stocks, just one *per cent* of the armament training requirements could be met between May 1994 and April 1997 using the Links available in stock and no training could be conducted thereafter till March 2000. Apart from the training requirements being compromised, this could have also had an adverse impact on the operational preparedness of the Air Force.

The Ministry stated (January 2003) that between May 1994 and April 1997, and during OP *Vijay*, ammunition was utilized with the serviceable Links segregated from the already used Links, and the operational preparedness of the Air Force was not affected because it has a vast range of weapons to choose from.

The necessity to employ used Links, which obviously was not a desirable alternative, could have been avoided had timely action been initiated to replenish the stocks, including the War Wastage Reserve, when it was known in May 1994 itself that these had reached abnormally low levels. Having regard to the problems encountered in the indigenous development of the Links, imports could at least have been resorted to during 1998 based on the proposal of the Air Headquarters instead of taking the somewhat optimistic view that these may be made available within a reasonable period, which would not appear to have been based on a realistic assessment. Besides, while it is no doubt true that a variety of armaments are available in the fighter aircraft, the weapon for which the ammunition and Links were intended would, in any case, not have been available for operations, thereby reducing the capabilities of the aircraft. It would therefore appear, *prima facie*, that planning for procurement of the Links was deficient and that the issue was not pursued with a sense of urgency.

* USS 1 = Rs 43

10 Avoidable additional expenditure on procurement of Ground Power Units

Procurement of Ground Power Units without inviting open tenders after having identified and approved an alternative source of supply resulted in purchase at higher prices, involving avoidable additional expenditure of Rs 3.30 crore.

Guidelines issued by the Ministry in March 1990 require that, wherever practicable and advantageous, contracts should be concluded only after inviting open tenders or sending limited tender enquiry.

Ground Power Units (GPUs) used in Air Force aircraft were being supplied by Hindustan Aeronautics Limited since 1984. In an endeavour to identify cheaper alternative sources, the Director General of Aeronautical Quality Assurance in association with the Air Headquarters, conducted successful user trials on GPUs manufactured by MAK Controls and Systems (P) Limited, Coimbatore and issued Bulk Production Clearance to the firm in June 1998.

Despite their having been associated with the successful user trials, the Air Headquarters, however, placed four orders on Hindustan Aeronautics Limited between September 1998 and July 1999 for the supply of 59 GPUs at prices varying from Rs 17.56 lakh to Rs 17.58 lakh per unit without inviting quotations also from the Coimbatore firm, which had been identified and approved as an alternate source. It was only in August 1999 that tenders were invited from Hindustan Aeronautics Limited as well as the Coimbatore firm. The unit price of Rs 12.90 lakh quoted by the latter being lower than Rs 13.40 lakh quoted by the former, an order was placed on the firm in December 1999 for supply of 25 GPUs. Subsequently in March 2000, another order was also placed on the Coimbatore firm for supply of 25 more GPUs at the unit price of Rs 11.97 lakh. The firm also completed deliveries of all 50 GPUs within the stipulated period.

Having identified and approved an alternative source of supply, continued procurement of the GPUs from Hindustan Aeronautics Limited without exploring the possibility of procurement at competitive prices was not financially prudent. This was also violative of the Ministry's guidelines.

Computed with reference to the latest and lowest unit price of Rs 11.97 lakh as per the latest supply order placed on the Coimbatore firm, failure to invite competitive bids from both the identified sources resulted in avoidable additional expenditure of Rs 3.30 crore in respect of the GPUs procured between September 1998 and July 1999.

The case was referred to Ministry in June 2002; their reply was awaited as of February 2003.

11 Procurement of defective equipment

Acceptance by the Air Force of a speech secrecy equipment notwithstanding several shortcomings noticed in the performance of the equipment in the course of the evaluation trials that were also conducted without reference to the Qualitative Requirements resulted in 233 sets of the equipment procured at a cost of Rs 4.47 crore remaining unutilised. Should the efforts initiated to obtain refund of the cost prove unsuccessful, the entire investment may be rendered infructuous in the final analysis.

In November 1992 and December 1994, the Air Force evaluated the "Analogue Coded Message Encryption (Multi-dimensional) Equipment" developed by the Electronics and Radar Research and Development Establishment, Bangalore, and to be produced by the Panchkula unit of Bharat Electronics Limited. The equipment was intended to ensure speech secrecy in communication.

Several shortcomings in the performance of the equipment had been noticed in the course of the evaluation trials. The Air Force nevertheless accepted the equipment and placed an order on Bharat Electronics Limited in October 1995 for the manufacture and supply of 233 sets at an aggregate cost of Rs 4.47 crore. These were delivered during December 1996 – January 1997.

Soon after induction of the equipment in the Air Force in February 1997, Air Headquarters received complaints about its poor performance from all the user units. Though certain modifications were carried out by the Electronics and Radar Research and Development Establishment and Bharat Electronics Limited, a satisfactory level of performance could not be achieved. Since the

equipment did not meet the operational requirements of the Air Force, it perforce had to be retained, unutilised, in stock.

The Electronics and Radar Research and Development Establishment did not also foresee any possibility of further improvement in the performance of the equipment. The Ministry therefore directed the Air Headquarters in August 2000 to back load the equipment to Bharat Electronics Limited and to recover the payment made on this account to the Company along with interest. Accordingly, all the 233 sets of the equipment were back loaded in February 2001. Bharat Electronics Limited had not, however, refunded any amount to the Air Force as of April 2002.

Audit scrutiny revealed the following:

- The Army had purchased earlier during 1986-87 the Analogue Coded Message Encryption Equipment from Bharat Electronics Limited. The equipment had certain inherent defects that could not be rectified even after retro-modification. The Analogue Coded Message Encryption (Multi-dimensional) Equipment procured during 1996-97 was claimed to be an improvement over the earlier version.
- In pursuance of the recommendations contained in the 187th Report of the Public Accounts Committee (Eighth Lok Sabha), the Ministry had issued comprehensive guidelines in February 1992 providing *inter alia* that trial evaluations for procurement of indigenous defence equipment in future should be conducted strictly in accordance with Qualitative Requirements. The trial evaluations were, however, conducted in this case in November 1992 and December 1994 without reference to the Qualitative Requirements.
- The Air Force had not examined the circumstances in which the equipment, the performance of which was admittedly unsatisfactory, was accepted with a view to fixing responsibility even after all the sets supplied by Bharat Electronics Limited had failed.

The contract with Bharat Electronics Limited does not provide for refund of the cost in the event of defective supply. In the circumstances, and having regard to the fact that the equipment had also been inducted in the Air Force only after their acceptance, it is unlikely that the Air Force will in fact be in a position to secure refund of the amount of Rs 4.47 crore already paid. Besides, all attempts made to improve the performance of the equipment

having been unsuccessful and the Electronics and Radar Research and Development Establishment also having expressed its inability, the possibility of the equipment being replaced is also remote. The entire expenditure of Rs 4.47 crore may consequently be rendered infructuous in the final analysis.

The matter was referred to the Ministry in May 2002; their reply was awaited as of February 2003.

12 Procurement of unsuitable vehicles

Failure of the Air Force to ensure, based on proper evaluation of available options, the suitability of the vehicles proposed to be procured for containerisation of critical communication equipment necessitated additional purchases of alternative vehicles and transfer of the unsuitable ones costing Rs 2.70 crore to other units, where they were held in excess of authorisation. In the process, the timely containerisation of the critical communication equipment to ensure their operational mobility also suffered.

In order to facilitate the containerisation of three types of communication equipment ('A', 'B' and 'C') of the Air Force aimed at ensuring operational mobility, the Ministry sanctioned, in December 1995, the procurement of 120 Mechanical Transport Vehicles of one-ton capacity at a cost not exceeding Rs 5.40 crore. Of these, 50 vehicles were intended for containerisation of equipment 'A', 40 vehicles for equipment 'B' and the remaining 30 vehicles for equipment 'C'. In arriving at decisions in regard to the procurement of these vehicles, the Wings concerned in the Air Headquarters had recommended that the one - ton vehicles should be capable of operation in field conditions, in plain as well as in desert/sandy terrain.

Orders were accordingly placed in February 1996 on two vehicle manufacturers (Mahindra & Mahindra and Telco) for supply of 50 and 70 one-ton vehicles respectively at the unit price of Rs 2.14 lakh and Rs 4.61 lakh. The former were meant for containerisation of equipment 'A' and the latter for equipment 'B' and 'C'. All the vehicles were received in an Air Force Depot in October 1996 and were duly accepted after inspection.

Following containerisation of the first two units of equipment 'A' on the Mahindra & Mahindra vehicles, operation trials were conducted in August

1998. It was then found that while the total laden weight of the vehicles was 2,435 kilograms, the load carrying capacity of the vehicles was only 2,220 kilograms. The laden weight was, therefore, reduced by 350 kilograms and fresh trials were conducted during March-May 1999. Even then, it was found that these vehicles were unsuitable for the intended purpose because they did not meet the rigors of mobility.

It was, therefore, decided to use instead the one-ton vehicles procured from Telco for containerisation of equipment 'B' and 'C' for equipment 'A'. Accordingly, 48 of the 70 vehicles initially intended for equipment 'B' and 'C' were diverted for containerisation of equipment 'A'. Of the 48 Mahindra & Mahindra vehicles available in the Depot, excluding the two vehicles that had already been utilized on trials with equipment 'A', 38 vehicles were transferred to other Air Force units for possible use, the remaining 10 being retained as support vehicles for equipment 'B'.

In order to meet the deficiency in the availability of vehicles for containerisation of equipment 'B' and 'C', the Air Headquarters procured 38 additional TATA-407 vehicles from Telco in March 2001 at the unit price of Rs 4.85 lakh. These vehicles were also found to be unsuitable, in June 2001, for containerisation of the two types of communication equipment and were, therefore, transferred to other Air Force units. Air Headquarters thereafter procured 38 TATA-1212 one-ton vehicles at the unit price of Rs 6.22 lakh in January 2002.

According to the Procurement Plan of the Air Force for the year 2001-02, they were authorized to hold, in all, only 347 one-ton vehicles, as against which the number of vehicles available as of December 2001 was 431. Following the transfer of the 38 TATA-407 vehicles procured in March 2001, the number of vehicles held in excess of the authorized strength increased to 122 vehicles. These included 40 Mahindra & Mahindra and 38 TATA-407 vehicles costing Rs 2.70 crore procured specifically for containerisation of the communication equipment but which could not be utilised for the intended purpose.

The expenditure of Rs 2.70 crore incurred on procurement of these vehicles could have been avoided had greater care been exercised *ab initio* in determining their suitability for the intended purpose based on proper evaluation of the available options. Instead, the entire approach would appear to have been only *ad hoc*. In the process, the timely containerisation of the critical communication equipment to ensure their operational mobility also suffered.

The matter was referred to the Ministry in July 2002; their reply was awaited as of February 2003.

13 Unnecessary import of machines

Import of a Broaching Machine and a Grinding Machine in fulfilment of an engine manufacturer's bulletin governing repairs to aero-engines that was not mandatory would appear to have been unnecessary. Besides, on account of delays at various stages, the machines procured on the basis of an urgent indent had not been commissioned for over two years rendering unfruitful an investment of Rs 1.19 crore.

Based on a special review carried out by a Base Repair Depot and its associated Equipment Depot, the former projected the requirement in August 1996 for a Broaching Machine and a Grinding Machine intended for implementation of a manufacturer's bulletin covering overhaul of R-29 aero-engines. However, it was only in February 1999, after the lapse of two and a half years, that the Director of Engineering, Air Headquarters, placed an urgent indent for their procurement on the Director of Purchase. After a further delay of a year, the latter concluded a contract with a foreign firm in February 2000 for supply of these machines at a cost of US \$ 271,921 equivalent to Rs 1.19 crore.

The two machines, received in the Equipment Depot during November – December 2000, were issued to the Base Repair Depot only in June 2001, after a delay of six months. Further, though the purchase contract was concluded in February 2000 itself and action for the provision of the related civil and electrical works (works services) necessary for the installation and commissioning of the machines should normally have been taken immediately thereafter so as to synchronise completion of these with the receipt of the machines, the Base Repair Depot initiated a proposal in this regard only in April 2001. On sanction of the work services in August 2001 and their completion in October 2001, involving expenditure of Rs 0.08 lakh, the machines were installed in February 2002 and were awaiting commissioning. Meanwhile, the warranty of the machines had expired in August 2001.

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The Base Repair Depot informed Audit in June 2002 that the bulletin forming the basis of procurement of the two machines was not a mandatory one during repair/overhaul and was to be incorporated as per requirement on inspection after dismantling of aero-engines. The Depot added that the bulletin, which provides for certain repairs during inspection of the aero-engines, was, however, being incorporated by Hindustan Aeronautics Limited at the time of their scheduled overhaul and that the commissioning of the machines was awaiting the arrival of a team from Hindustan Aeronautics Limited and the procurement of a lifting drive and mobil oil.

If, as stated, the bulletin was not mandatory and the requirements envisaged therein were being fulfilled during scheduled overhaul of the engines by Hindustan Aeronautics Limited, the justification for the procurement of the two machines itself would be open to question. This also raises doubts about the need for placing an urgent indent more than two years after the requirements were projected on the basis of a special review. In any event, on account of the delays that had occurred at various stages which would not appear to have been unavoidable, the machines have not been commissioned for over two years rendering unfruitful the investment of Rs 1.19 crore on their import.

The matter was referred to the Ministry in July 2002; their reply was awaited as of February 2003.

14 Avoidable expenditure on repairs attributable to negligence

Installation of incorrect Reheat Fuel Control Units in two aero-engines on account of negligence on the part of an Operating Wing of the Air Force resulted in their being damaged and consequential avoidable expenditure of Rs 1.88 crore on their repairs.

Two variants of the Adour aero-engines (MK 811 and MK 804E) are installed in the Jaguar aircraft of the Air Force. Each of these engines have different Reheat Fuel Control Units with distinct part numbers and different fuel schedules and calibration values. These units are not inter-changeable.

One of the Operating Wings of the Air Force had been provided with Jaguar aircraft fitted only with the MK 811 variant of the Adour engines. In August 2000, the MK 811 variant of the engine installed in one of these aircraft overheated and had to be withdrawn. Its strip examination by Hindustan Aeronautics Limited revealed that the overheating was attributable to the Operating Wing erroneously installing the Reheat Fuel Control Unit of the MK 804E variant in this engine. Hindustan Aeronautics Limited brought this mistake to the notice of the Operating Wing on 13 September 2000.

Though the Wing had been specifically notified of the mistake, another MK 811 variant of the engine installed in another of its aircraft also had to be withdrawn on 3 October 2000 because of extensive damage. Investigation by Hindustan Aeronautics Limited in November 2000 revealed that the Reheat Fuel Control Unit of the MK 804E variant had been wrongly installed in this engine as well.

Both the engines were repaired and overhauled by Hindustan Aeronautics Limited at a total cost of Rs. 1.88 crore.

A Court of Inquiry convened to inquire into the second incident of 3 October 2000 had noted in its proceedings that the Junior Warrant Officer in charge of the Engine Bay had, in fact, confirmed on 27 September 2000 that the appropriate Reheat Fuel Control Units had been installed in all the engines. Based on the findings of this Court of Inquiry, the Chief of Air Staff ordered disciplinary action against three Service personnel held by the Court to have been responsible for the lapse.

The following will be of relevance in this context:

- Following the August 2000 incident of engine damage, the Air Headquarters had instructed the Central Air Command and the Operating Wing concerned in November 2000 to convene a Court of Inquiry into this incident. Though a reminder was also issued in October 2001, the Court of Inquiry was not conducted.
- The Air Force Liaison Establishment which was responsible for issuing the Reheat Fuel Control Unit was also aware that the Operating Wing concerned had been provided with Jaguar aircraft fitted only

with the MK 811 variant of the Adour engines. In the circumstances, it should not have issued the Reheat Fuel Control Units of the MK 804E variant against the demand raised by the Wing.

- The Court of Inquiry into the October 2000 incident had also established that the part number of the Reheat Fuel Control Unit correctly mentioned initially in the relevant demand was subsequently amended to correspond to the part number of the Reheat Fuel Control Unit relating to the MK 804E variant and that this amendment was not authenticated by the competent authority. The Air Force Liaison Establishment, however, failed to notice the discrepancy between the part number of the Reheat Fuel Control Unit and the Rotable installed in the aircraft and the fact that the amendment to the demand had not been authenticated, as prescribed.
- Notwithstanding the fact that the Air Force Liaison Establishment had also been *prima facie* negligent, the Court of Inquiry did not appear to have examined this aspect with a view to determining responsibility for the lapses on its part.
- The Operating Wing should have also immediately returned the wrong Reheat Fuel Control Units made available by the Air Force Liaison Establishment. This was not done.

Apart from the avoidable expenditure of Rs 1.88 crore incurred on repairs to and overhaul of the damaged engines, the lapses that occurred in these cases could have had more serious and grave consequences on the safety of the aircraft and crew.

The matter was referred to the Ministry in June 2002; their reply was awaited as of February 2003.

Works Services

15 Delay in construction of Blast Pens

On account of changes in concept and scope from time to time, which were *prima facie* indicative of deficiencies in planning and lack of clarity in regard to operational requirements, Blast Pens for housing frontline aircraft in a forward operational base were yet to be constructed even after more than a decade, resulting in the base being deprived of an essential operational facility and the frontline aircraft being parked only in the open, exposed to vagaries of weather, apart from their safety being severely compromised. Besides, stores valued at Rs 49.20 lakh procured for the purpose also continued to be held in stock unutilised.

As early as in 1987, an essential and inescapable necessity was felt by the Air Force for construction of seven over the ground Blast Pens at a forward operating base at Station 'A' to house modern aircraft that were to be stationed at the base to meet operational and peace time training requirements. The Ministry sanctioned the construction of these Blast Pens in July 1992 at an estimated cost of Rs 4.81 crore.

The related contract was concluded in February 1994 and construction of the Blast Pens was scheduled to be completed by December 1995. However, in July 1994, the Air Officer Commanding-in-Chief, Western Air Command, directed the engineers to construct the Blast Pens semi-underground instead of those to be constructed over the ground in terms of the Ministry's sanction. A Board of Officers convened for the purpose in December 1994 recommended construction of four semi-underground Blast Pens at an estimated cost of Rs 3.43 crore. In view of the fact that this involved a major change in scope and design and the revision of the earlier estimates, the contract for the construction of the over the ground Blast Pens was foreclosed and cancelled in March 1995. Expenditure amounting to Rs 58.38 lakh had been incurred till then on soil testing procurement of stores, establishment charges, etc., of which expenditure of Rs 49.20 lakh represented the value of stores procured, which could not be incorporated in the work.

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While the recommendations of the Board of Officers were sent for approval of the Air Headquarters in April 1997 and the necessary approval to the proposed change in the scope of the work was yet to be approved, the Western Air Command Headquarters directed the Air Force Station, in May 1998, to convene yet another Board of Officers to consider the provision of two double-entry over the ground Blast Pens in lieu of the seven over the ground ones sanctioned by the Ministry in July 1992 and the four semi-underground ones proposed subsequently in April 1997 to accommodate a newly-inducted frontline aircraft. The proceedings of the Board of Officers, assembled in May 2000, had not, however, been completed even as of June 2002 because of the non-availability of sufficient Defence land in the vicinity of the taxi track. In the circumstances, the revised design to provide for double-entry Blast Pens had also not been finalised.

The substantial changes in scope and the concept itself notwithstanding, the Ministry did not appear to have been kept informed of various developments since the construction of the over the ground Blast Pens was sanctioned initially in July 1992.

That the Blast Pens considered an essential and inescapable necessity as early as in 1987 are yet to be constructed even after more than a decade and that the concept itself was changed from time to time necessitating changes in scope and revision of the design and estimates are *prima facie* indicative of deficiencies in the planning process and lack of clarity in regard to operational requirements. This has resulted in a forward base being deprived of an essential operational facility. In the absence of Blast Pens, the frontline aircraft, the contract for the acquisition of which was concluded in November 1996 itself and which have already been inducted in the Air Force, continue to be parked at the base only in the open, exposed to vagaries of weather, apart from their safety being severely compromised in the event of raids by enemy aircraft. Besides, the stores valued at Rs 49.20 lakh procured in connection with the construction of the seven over the ground Blast Pens also continued to be held in stock unutilised.

The matter was referred to the Ministry in July 2002; their reply was awaited as of February 2003.

Miscellaneous

16 Erroneous payment attributable to inadequate scrutiny

Inadequate scrutiny of claims preferred by Hindustan Aeronautics Limited resulted in over-payment of Rs 3.07 crore, which was recovered, along with interest of Rs 0.81 crore, at the instance of Audit.

The Deputy Controller of Defence Accounts, Hindustan Aeronautics Limited, Bangalore, is responsible for making payments to the Company after verification of the bills submitted by it in respect of services rendered to the Air Force.

In September 1999, the Company submitted invoices for an aggregate amount of Rs 3.07 crore on account of expenditure incurred on the development of the Advanced Light Helicopter during the period from July to September 1999. This was adjusted by the Deputy Controller in December 1999 against the advance already paid for the project.

In December 1999, the Company submitted another set of invoices for Rs 2.06 crore relating to the Helicopter project. Though these invoices also pertained to the period from July to September 1999, claims in respect of which had been settled by adjustment, they were nevertheless accepted and adjusted against the advance in February 2000.

Scrutiny by Audit in July 2001 revealed that the second set of invoices for Rs 2.06 crores had, in fact, been presented by Hindustan Aeronautics Limited in substitution of the earlier set of invoices for Rs 3.07 crore after adjusting a credit of Rs 1.01 crore which had not been taken into account earlier. This resulted in an amount of Rs 3.07 crore being erroneously adjusted in excess against the advance, attributable primarily to the inadequate scrutiny of the claims.

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On the mistake being pointed out in audit, the Deputy Controller recovered Rs 2.06 crore in December 2001 and the balance amount of Rs 1.01 crore, along with interest of Rs 0.81 crore, in June 2002.

Accepting the facts, the Ministry stated (December 2002) that the matter was being examined and that action would be taken thereafter to fix responsibility for the lapse.

CHAPTER IV : NAVY

Procurement

17 Procurement of Sonobuoy Processing and Control Systems

Investments aggregating to Rs 9.27 crore notwithstanding and even after more than a decade since a Sonobuoy Processing and Control System considered essential for the processing of data relating to submarines was indigenously developed in June 1989, its efficacy and acceptability for the intended purpose was yet to be conclusively established to facilitate issue of the Bulk Production Clearance and commencement of regular production to meet the Navy's projected operational requirements.

In March 1984, the Ministry of Defence sanctioned a project for the indigenous development of a Sonobuoy Processing and Control System considered essential for the processing of data relating to submarines detected by the sonobuoys dropped from aircraft. The development was entrusted to the Naval Physical and Oceanographic Laboratory, Kochi. The Electronics Corporation of India Limited (ECIL), Hyderabad, was designated as the agency for production of the system on successful completion of the development effort.

The Naval Laboratory successfully completed the development of the system in June 1989 at a cost of Rs.1.98 crore. Though the System was intended to be designed for installation in the Dornier-228 aircraft and KA-28 helicopters in the Air Arm of the Navy, the development by the Laboratory was primarily based on the sonic sensor system installed in the MK 42B variant of the Seaking helicopters in the Navy. The system was also then tested only on the other variants of this helicopter that did not have the sensors. The compatibility of the System with the avionics installed in the Dornier-228 aircraft and KA-28 helicopters was, however, not tested and established then.

Following subsequent trials on the Dornier-228 aircraft which, according to the Naval Headquarters were successfully completed during 1994, a proposal for procurement of the Systems was initiated by them thereafter.

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In December 1995, the Ministry accorded sanction for procurement of eight of the Systems developed by the Naval Laboratory, along with five multi-channel data recorders, and their integration on board three Dornier-228 aircraft and five KA-28 helicopters from ECIL at a total cost of Rs 10.11 crore. The order placed on the Company, also in December 1995, envisaged the delivery of the first two Systems by March 1997 for evaluation and trials, supply of the remaining Systems being completed within a period of two years of issue of the Bulk Production Clearance at the rate of three Systems per year.

Pending delivery of the two prototypes by ECIL, the Ministry also sanctioned, in June 1996, installation of the System on board five Dornier-228 aircraft by Hindustan Aeronautics Limited. Though a formal contract for the purpose had not been concluded by then, and this was done only in July 1998, an advance of Rs 42 lakh was paid to the Company in December 1996 itself.

Further, the five multi-channel data recorders required for use in conjunction with the System were also procured in November 1997 from a firm in the United Kingdom (Accutrol) at a cost of Rs 67 lakh.

The Navy projected the requirement of modification kits necessary to ensure compatibility between the System and the avionics installed in the aircraft and helicopters only in April 1998 and the related order was placed on ECIL nearly a year later in March 1999.

ECIL delivered the two prototypes only in July 1998 and March 1999. However, the System installed initially on board the Dornier-228 aircraft was found to have shortcomings during successive flight trials conducted between May 2000 and November 2001. Payments aggregating to Rs 6.20 crore had been made to the Company till then.

Pending satisfactory resolution of the problems that had arisen during the flight trials of the Dornier-228 aircraft and completion of similar trials after installation of the System on board the KA-28 helicopters, and on account of the delays that had occurred at various stages, the efficacy and acceptability of the System for the intended purpose was yet to be conclusively established even as of July 2002 to facilitate issue of the Bulk Production Clearance and commencement of manufacture of the remaining six Systems by ECIL to meet the Navy's projected operational requirements notwithstanding investments

aggregating to Rs 9.27 crore¹. The anticipated submarine detection capability had also not been realised. Besides, the five data recorders, the capabilities of which were to be proved in the final phase of the flight trials were held in stock, unutilised, in a Depot.

The Ministry stated (November 2002) that the shortcomings in the System had been progressively resolved, that its performance had since been proved on board the KA-28 helicopters and that final trials on the Dornier-228 aircraft were also scheduled in the near future. The Ministry added that the data recorders were procured because these were required for proving the System during trials.

Repair and Refit

18 Avoidable additional expenditure on refit of a Naval Ship

In violation of accepted tendering procedures, the Naval Dockyard at Mumbai awarded a contract relating to the refit of a Naval ship to a firm which was evidently not the lowest tenderer and even when its offer was not complete in all respects, which was *prima facie* indicative of a bias in its favour. In the result and in relation to the lowest offer, the Dockyard also incurred an estimated additional expenditure of Rs 1.42 crore which was avoidable.

A Naval ship (INS Udaygiri) was due for refit in June 2000. Because of the age of the ship, it was anticipated that the quantum of work involved would be more than normal. After taking into account the excess refit load on its own facilities, the Naval Dockyard, Mumbai, decided to partially offload works relating to the refit of the ship (renewal of the hull, replacement of pipes, refitting of valves, etc.) to an outside agency. It was also estimated that these works, comprising the hull work package, would necessitate dry-docking of the ship for 80 days, which constituted an integral part of underwater hull repairs.

In April 2000, the Dockyard invited budgetary quotations from three shipyards (Mazagon Dock Limited, Mumbai; ABG Shipyard Limited, Mumbai; and

¹ Development expenditure: Rs 1.98 crore; Payments to ECIL: Rs 6.20 crore; procurement of data records: Rs 0.67 crore; and advance payment to Hindustan Aeronautics Limited: Rs 0.42 crore.

Cochin Shipyard Limited, Kochi) and a Mumbai firm of engineers, ship repairers and marine contractors (Homa Engineering Works). Apart from mentioning that dry docking for 80 days will be required for executing the hull-work package, the Notice Inviting Quotations also stipulated that the quotations should (i) include charges for all services that will be provided to the ship during its stay in the shipyard; and (ii) clearly indicate the dry docks slot that would be provided.

In response to the Notice, Cochin Shipyard Limited declined to submit their offer on account of other prior commitments. The quotations submitted by the other three agencies were as follows:

Agency	Details of Offer
ABG Shipyard Limited	Rs 1.19 crore (Composite rate, inclusive of Dry docking charges for refit at Surat)
Mazagon Dock Limited	Rs 1.94 crore (Hull-work package : Rs 1.77 crore; Dry docking charges for 80 days : Rs 0.17 crore)
Homa Engineering Works	Rs 1.69 crore (Offer related only to the hull-work package and charges for dry docking not indicated)

Homa Engineering Works had also mentioned that they did not have a slot reserved in the dry docking facilities of Mumbai Port Trust and they could carry out the work only in the dry dock of Mazagon Dock Limited or of the Naval Dockyard.

Though the composite, all-inclusive offer of ABG Shipyard Limited was the lowest, it was rejected on the ground that the refit could only be carried out at Mumbai and not at its yard at Surat as proposed by the Shipyard. Notwithstanding the fact the offer of Homa engineering Works did not conform to the Notice Inviting Quotations in as much as the firm did not indicate the charges for dry docking of the ship, negotiations were held with the firm, leading to the Dockyard awarding the contract for the hull-work package to it in August 2000 at a cost of Rs 1.43 crore.

Homa Engineering Works not having made arrangements for dry docking the ship, and though the Dockyard themselves had estimated that the ship will need to be dry docked for 80 days for carrying out the underwater works, the

Dockyard entered into a contract with Mumbai Port Trust in June 2000 initially only for a period of 21 days for the use of its dry docking facilities. The ship was, however, dry docked for a period of 86 days from 2 August to 26 October 2000. In January 2001, the Dockyard paid to the Port Trust Rs 90.51 lakh as dry docking charges, which included an amount of Rs 40.96 lakh as penalty for extension beyond the initial period of 21 days.

Homa Engineering Works was also paid a total amount of Rs 1.77 crore between August 2000 and March 2001, after taking into account certain additional hull work entrusted to the firm in February 2001 at a cost of Rs 0.35 crore.

Examination of the case by Audit revealed that the award of the contract to Homa Engineering works was questionable in view of the following:

- If the intention was to have the hull work carried out only at Mumbai, based on which the lowest all-inclusive offer of ABG Shipyard Limited was rejected, it was not necessary to have issued the Notice Inviting Quotations to Cochin Shipyard Limited which has its facilities only at Kochi. The Dockyard would also presumably have been aware that, though ABG Shipyard had its offices in Mumbai, its yard was located in Surat.
- The Dockyard should also have been aware that being only a firm of engineers, ship repairers and marine contractors, Homa Engineering Works did not have its own dockyard facilities. In fact, the firm itself had clearly indicated that it could carry out the work only in the dry dock of Mazagon Dock Limited or of the Naval Dockyard.
- The decision to offload the hull-work package to an outside agency itself was arrived at only because the Dockyard's own refit facilities were overloaded. Besides, it is doubtful if the firm's intention to carry out the work in the dry dock of Mazagon Dock Limited, one of the competitors, would, in fact, have materialised. In the circumstances, the Dockyard ought not to have taken cognisance of what was, in effect, only a conditional offer.
- Since the firm had not indicated the dry docking charges payable and its offer consequently did not conform to the stipulations in the Notice Inviting Quotations, its tender should have been rejected outright, treating it as an invalid one, in accordance with well-recognised tendering procedures.

- The decision to hold negotiations with the firm also violated the guidelines of the Central Vigilance Commission issued in November 1998 prohibiting negotiations with other than the lowest tenderers.
- Even assuming that rejection of the lowest offer of ABG Shipyard Limited was justified, the logical course would have been to consider the next higher offer of Mazagon Dock Limited, which was also in conformity with the tender stipulations. Instead of doing so, the incomplete offer of Homa Engineering Works was treated as being lower by comparing only the charges in respect of the hull-work package without loading the incidence of the dockyard charges, as it ought to have been done to facilitate a proper evaluation of the two offers.

By awarding the contract, in violation of accepted procedures, to Homa Engineering Works which was evidently not the lowest tenderer, the Dockyard incurred an aggregate expenditure of Rs 2.68 crore on partially offloading the refit, inclusive of the amount of Rs 0.35 crore in respect of the additional works entrusted to the firm in February 2001. On the other hand, its liability would have been only Rs 1.26 crore had the lowest offer of ABG Shipyard Limited been accepted, assuming that it would also have executed the additional works at the same cost and after taking into account the estimated expenditure of Rs 0.07 crore in respect of an item for which it had not quoted. This resultant saving would have been Rs 1.42 crore. However, had the second lowest offer of Mazagon Dock Limited been accepted, the liability of the Dockyard would have been restricted to Rs 2.29 crore only, based on a similar assumption and after taking into account the estimated expenditure of Rs 1.23 lakh in respect of two items for which the Company had not quoted.

The matter was referred to the Ministry in July 2002. While their reply was awaited as of February 2003, the Naval Dockyard stated (September 2002) as follows:

- Quotations were also invited from the two out-station firms (ABG Shipyards Limited and Cochin Shipyard Limited) with the aim of securing more competitive offers. Though the former was asked to undertake the work at Mumbai, it expressed its inability to do so within the prescribed time-frame. It was only thereafter that negotiations were held with Homa Engineering Works.

- ▣ It was not uncommon for non-Mumbai firms to undertake refit work at the Naval Dockyard.
- ▣ The decision to de-link the dry docking from the scope of the offloaded work was taken considering the availability of a slot in the Naval Dockyard itself at the time of negotiations. The dry docking charges were therefore omitted and the quotations in respect of the repairs to the hull alone were compared and the quotation of Homa Engineering Works was considered to obtain the best price advantage.
- ▣ It was decided to dock the ship in Mumbai Port Trust only for 21 days in order to undertake essential repairs so that further repairs and the routine engineering and electrical package of the refit could be commenced by the Dockyard while the ship was docked in the Dockyard's own dry dock to complete the balance repairs to the hull. However, no slot was available in the Dockyard because of the emergency docking of operational ships during the period in question, as a result of which there was no option but to continue with the work on the ship in the Mumbai Port Trust only and the operational requirements could not be foreseen.
- ▣ The payment to the Mumbai Port Trust was necessary and unavoidable in the circumstances.

The following will, however, be of relevance with reference to the reply of the Dockyard:

- ❖ The argument that quotations were invited from the two out-station firms with the objective of securing more competitive offers would not appear to be rational because the cost of refit at different locations will obviously vary rendering difficult any meaningful comparison.
- ❖ If the intention was to obtain competitive offers while getting the work carried out only at Mumbai, this requirement ought to have been specifically stipulated in the Notice Inviting Quotations. This was, however, not done.

- ❖ The correct course of action in the circumstances would have been to provide an equal opportunity to all the tenderers to reconsider their offers instead of rejecting the lowest offer on the somewhat tenuous ground that the firm proposed to carry out the work at Surat. In any case, Mazagon Dock Limited, the second lowest tenderer that had complied with the stipulations in the Notice Inviting Quotations, would have executed the work only at Mumbai, and there would have been no necessity to utilise the facilities of Mumbai Port Trust, involving considerable additional expenditure.
- ❖ The contention that the decision to de-link the dry docking from the scope of the offloaded work was taken considering the availability of a slot in the Naval Dockyard itself at the time of negotiations would not also appear to be borne out by facts. Even as early as in May 2000, the Dockyard was aware that as against its capacity of 340 matrix units¹, the already committed refit load (which in fact was the primary reason for entrusting the hull-work package to an outside agency) was 570 matrix units. Besides, being a functional dock of the Navy, unforeseen operational requirements would always arise placing further pressure on the docking facilities. If as stated, this factor influenced the decision, there would have been no need to approach the Mumbai Port Trust for the use of its dry docking facilities.
- ❖ In any case, after having specifically stipulated that the dry docking would have to be provided by the bidders, the Dockyard arranging this with the Port Trust and accepting additional liabilities on this account would appear *prime facie* to have been unjustified.

It will be fairly evident from the foregoing that the tender process itself had been vitiated in this case. The *prima facie* conclusion that emerges is that the entire process was biased *ab initio* in favour of Homa Engineering Works, undue favours had been shown to the firm to the detriment of Government's financial interests and that the additional expenditure incurred in the process was entirely avoidable.

¹ 1 matrix unit equals 3,000 man days

Miscellaneous

19 Recoveries effected at the instance of Audit

On acceptance of audit observations, erroneous payments aggregating to Rs 8.97 crore in three cases were either recovered or were in the process of being recovered.

(a) The Naval Headquarters concluded a contract with Goa Ship Yard Limited in January 1996 for the construction of two hydrographic survey vessels at a fixed price of Rs 197.66 crore. According to the contract, the shipyard was to be paid in five stages.

In January/March 1998, the shipyard claimed an amount of Rs 11.08 crore on account of the interest lost because of the stage payments being delayed by the Navy. While the claim was still to be settled, Audit pointed out in December 1998 that the contract did not contain any provision for payment of interest. Nevertheless, the Naval Headquarters informed the Controller of Defence Accounts (Navy), that the Ministry of Defence had accepted the admissibility of interest at 14 per cent per annum on bills pending with the CDA (Navy), payments of which had been delayed beyond 30 days. Accordingly, the Controller of Defence Accounts provisionally released Rs 8.32 crore to the shipyard towards interest in March 1999.

DP-33/AFN
202-02

On further pursuance by Audit, and in the absence of a formal sanction for the payment from the Ministry, the Controller of Defence Accounts recovered the amount from the shipyard in March 2002.

The Ministry accepted the facts in February 2003.

(b) Mazagon Dock Limited, Mumbai, had built three frigates under a contract concluded in November 1992. In addition to payments due on this account, the Shipyard also preferred claims aggregating to Rs 31.62 lakh on account of food supplied to Naval personnel on board the first frigate during sea trials conducted between August 1997 and March 1998. The Controller of Defence Accounts (Navy), Mumbai, made payments against these claims between October 1997 and March 1998.

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02-03

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There was, however, no provision in the relevant contract for any payment on this account. Further, the Naval personnel were also entitled to free rations which had already been received by them. On this being pointed out in audit in October 1998, the Controller of Defence Accounts (Navy) recovered the erroneous payments of Rs 31.62 lakh from the shipyard in January 2002.

The Naval Headquarters also disallowed further payments on this account in respect of the remaining two frigates delivered by the Shipyard.

The matter was referred to the Ministry in June 2002; their reply was awaited as of February 2003.

Dr-23/AFN/02-13
(c) In September 1995, the Ministry issued orders revising the pay scales of those Draughtsmen in Defence Establishments whose recruitment conditions and qualifications were similar to Draughtsmen in the Central Public Works Department. Based on these orders, the Naval Hydrographic Office, Dehradun, revised, in November 1995, the pay scales of its Draughtsmen retrospectively from May 1982 and authorised payment of arrears.

Audit scrutiny of the pay fixation cases revealed that the revised pay scales were not applicable to the Draughtsmen of the Naval Hydrographic Office, because, they did not fulfill the conditions stipulated in the Ministry's orders of September 1995. Though the Office was requested by Audit in August 1997 to recover the overpayments on this account, this was not done. Instead, the office continued to pay the Draughtsmen on the basis of the revised scales.

On a specific reference from Audit, the Ministry clarified in December 2001 that the orders of September 1995 were not applicable to the Draughtsmen of the Naval Hydrographic Office, following which overpayments aggregating to Rs 33 lakh were being recovered in installments by the Controller of Defence Accounts (Navy).

A case filed by the aggrieved Draughtsmen before the Central Administrative Tribunal for reversal of the recovery order, was also dismissed by the Tribunal in November 2002.

20 Saving effected at the instance of Audit

A proposal for fabrication of pontoons was shelved on Audit pointing out that the necessity therefor had ceased to exist, resulting in saving of Rs 46.90 lakh.

In June 2000, Western Naval Command Headquarters sanctioned construction of an alternative landing/boarding point for ships, boats and ferry craft at the Naval Dockyard, Mumbai, at an estimated cost of Rs 72.33 lakh in connection with the International Fleet Review scheduled in February 2001. The sanction, *inter alia*, included fabrication of two pontoons at a cost of Rs 46.90 lakh.

Though the major civil works, the contract in respect of which was concluded in November 2000, were completed in time for the Fleet Review, the fabrication of the pontoons was delayed in the absence of the necessary drawings. The Director General Naval Projects, therefore, decided to execute the work after the Review. The necessity for fabrication of the pontoons even after the completion of the Review was questioned in audit in April 2001, when the opening of price bids for pontoons was scheduled. Consequently, the Director General issued a reduction statement in January 2002 omitting the work relating to pontoons earlier sanctioned at a cost of Rs 46.90 lakh. Saving of Rs 46.90 lakh was thus effected at the instance of Audit.

The Ministry accepted the facts in December 2002.

**CHAPTER V :RESEARCH AND DEVELOPMENT
ORGANISATION**

21 Delay in installation of an underwater Optical Imaging System

An underwater Optical Imaging System procured in the year 1992 for installation on board a Marine Acoustic Research Ship so as to enhance the capabilities of the Naval Physical and Oceanographic Laboratory for the collection and study of data from the sea bed had not been installed and commissioned even after a decade, though the ship itself was commissioned in July 1994, thereby defeating the objective of its procurement and compromising the Laboratory's research activities, besides rendering an investment of Rs 0.78 crore largely unproductive.

The Naval Physical and Oceanographic Laboratory, Kochi, a unit of the Defence Research and Development Organisation, is engaged, *inter alia*, in the collection and study of data from the sea bed. It had been doing so using the acoustic imaging method with the help of equipment such as Side Scan Sonar, Echo Sounders, Magnetometers, Sub-bottom Profilers, etc. In order to strengthen the ocean data base, the Laboratory concluded an agreement with Garden Reach Shipbuilders and Engineers Limited (GRSE) in March 1988 for building a Marine Acoustic Research Ship (christened 'INS Sagardhwani') at a cost of Rs 80 crore. In consideration of the fact that the acoustic imaging method was not a complete alternative to the generation of optical images using underwater cameras linked to a closed-circuit television system and that the acoustic imaging catered only marginally to the requirements of the Laboratory's research programmes, the agreement with GRSE also included provision for installation of an underwater imaging system with accessories based on the optical imaging method, which was to be procured and installed outside the ambit of the main shipbuilding contract.

Accordingly, GRSE placed a purchase order, in March 1991, for the supply of an underwater optical imaging system, along with accessories, spares and documentation, on a Danish Firm (McCartney A/S, Denmark) at a cost of

Danish Kroners (DKK) 1,600,000 equivalent to Rs 0.84 crore. The firm was also to provide the necessary training and commissioning services.

The supplier firm despatched the System in July 1992. Though INS Sagardhwani was commissioned in July 1994 and the Imaging System was also installed on board the ship concurrently, the mandatory Harbour and Sea Acceptance Trials were carried out only in April 1995. During the trials, the Power Control Unit of the Imaging System failed and was found to be defective. The defective sub-system was returned to the supplier for rectification in November 1995 under insurance cover.

The sub-system suffered damages in transit and the insurers concerned agreed to reimburse the cost of the repairs necessitated by the transit damage only partially. The supplier firm therefore desired that GRSE should reimburse the difference in the cost of these repairs (DKK 90,000 equivalent to Rs 5.33 lakh). Since GRSE declined to accept the liability on this account, the Laboratory agreed, in December 1997, to accept this liability and to reimburse the amount to GRSE.

The defective Power Control Unit was dispatched by the supplier, after rectification, in December 1999. The System could not, however, be installed on board the ship even thereafter, because, the supplier demanded an amount of Rs 3.32 lakh as installation charges, representing the expenditure on deputing one of its service engineers for the purpose. Though the agreement with GRSE also included provision for installation, the Indian shipbuilders refused to accept responsibility for the payment on the ground that the Danish supplier was not agreeable to install the System, free of cost. The Laboratory, therefore, agreed to pay this amount as well, in the interest of the project. However, the Danish Supplier subsequently demanded a further payment of Rs 1.93 lakh on this account. This was not acceptable to the Laboratory, which decided to install the System utilising its own resources without the assistance of the supplier's service engineer. INS Sagardhwani was commissioned in July 1994.

The System had not, however, been re-installed on board the ship even as of September 2002 to enable its testing at sea and commissioning though INS Sagardhwani was commissioned more than eight years earlier in July 1994. Payments aggregating to Rs 0.78 crore had also been reimbursed to GRSE till then towards the cost of its procurement and installation, which had not served the intended purpose. The Laboratory's research activities relating to the collection and study of data from the sea bed had also been compromised in the process.

The Ministry of Defence (Defence Research and Development Organisation) stated (October 2002) that the System was made available, after repairs, only in January 2002 and that the non-availability of the Optical Imaging System had not affected data collection because several other equipment, such as Side Scan Sonar, Echo Sounders, Magnetometers, Sub-bottom Profilers, etc. were being used for exploration of the ocean.

The reply does not explain the circumstances in which the System was made available, after repairs, only in January 2002 when the defective Power Control Unit had been dispatched by the Danish supplier in December 1999 itself and the reasons for its non-installation even after its receipt. More importantly, though it has been contended that the absence of the System has not affected data collection, the equipment stated to be used for the purpose have the capability only for acoustic imaging of the sea bed, whereas the objective of procuring the System was to facilitate optical imaging. The Laboratory had also informed Audit earlier in January 2002 that (i) it was difficult to identify and demarcate many of the features of the sea bed and the objects lying therein without proper equipment; (ii) acoustic imaging was carried out with the Side Scan Sonar on board in a few priority areas; and (iii) the acoustic imaging method was not a complete alternative to an optical image obtained by using an underwater camera. It will, therefore, be evident that the intended objective has not been realised and the investment of Rs 0.78 crore has remained largely unproductive.

22 Establishment of Torpedo Test Facilities

The benefits expected by the establishment of a facility for the testing of torpedoes in sheltered waters had not accrued even after more than 12 years and investments aggregating to Rs 7.96 crore. Its utility had consequently been very limited and the Laboratory concerned continues to be dependent on the Navy and foreign ranges for the testing requirements, which would involve larger financial outlays.

Mention was made in paragraph 41 of the Report of the Comptroller and Auditor General of India for the year ended 31 March 1990, Union Government (Defence Services – Air Force and Navy¹) about the delay in establishing a Lake Test Facility for the testing of torpedoes in sheltered

¹ Report No.9 of 1991

waters, approved in February 1982, by the Naval Science and Technological Laboratory of the Defence Research and Development Organisation. In their Action Taken Note, the Ministry had stated *inter alia* that the project would be completed by December 1992.

Review in audit of the subsequent developments revealed the following:

- Though the civil works component of the project was completed during 1991, all the facilities other than a Boat Repair Shed and jetty were handed over to another Centre of the Defence Research and Development Organisation immediately on completion.
- Construction of a Catamaran Torpedo Launch and Recovery Vessel (CTLRV), considered essential for the launching and recovery of the torpedoes continued to get delayed because of the inability of the contractor entrusted with the work to execute the contract. It was therefore cancelled and the construction of the Vessel was stated to have been completed departmentally.
- Such facilities as were retained with the Laboratory were also not fully utilised because of several constraints that hampered successful testing, such as lack of adequate depth in the lake, limitations of range resulting from non-availability of adequate Water area, hilly terrain, etc. A prototype torpedo of the Laboratory was also lost during the trials undertaken in the lake.
- Consequently, 20 initial trials of torpedoes were conducted in a range abroad, involving expenditure of Rs 2.88 crore. Testing of the Advanced Experimental Torpedo (AET) and the Wire Guided Torpedo (WGT) under development in the Laboratory were also conducted at Chennai, Mumbai and Visakhapatnam, when two AETs and two WGTs totally costing Rs 7 crore were lost.
- The project could be completed only in June 1999 at a cost of Rs 7.96 crore.
- In the absence of the necessary and essential infrastructure facilities, such as torpedo preparation shop, accommodation for their storage and other technical buildings, the Laboratory conducted only 16 trials for proving certain sub-systems of torpedoes during September-October 2000, after hiring accommodation from the Andhra Pradesh Tourism

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Development Corporation and mustering support from the parent Laboratory at Visakhapatnam.

- No trials could be conducted during 2001 because of inadequate water level in the lake.

The primary objective of establishing the torpedo test facility at a lake was to carry out launch and recovery of torpedoes in sheltered waters in a cost-effective manner, without dependence on the Navy except for user trials and lethality examination studies. When the project was conceived and approved, it was envisaged that the facility, expected to be established by 1987, would result in a saving of Rs 7 crore in seven years to cater to an estimated minimum 1,100 torpedo launches.

It will, however, be evident that the anticipations have been belied and the expected benefits have not accrued even after the lapse of more than 12 years and notwithstanding investments aggregating to Rs 7.96 crore. On account of inadequate infrastructure and location constraints, the test facility had been only of very limited utility, necessitating more expensive trials at sea and continued dependence on the Navy and foreign ranges.

The Ministry (Defence Research and Development Organisation) stated (October 2002) as follows :

- On completion of the civil works in 1991, almost all the civil works were handed over to another Centre for higher priority works of the Ministry. Their requirement for the Laboratory still existed during the trials and alternative arrangements were made from external sources.
- The depth of the lake was a constraint only for a particular trial and cannot be generalised. As many as 16 proving trials of the sub-systems of the Advanced Experimental Torpedo and 8 trials of Processor-based Moored Mines were successfully carried out in the lake at a depth of 40 metres, thereby establishing that the lake was suitable for proving of the systems of underwater weapons, which was the main aim of the project.

- ▣ While the Lake Test Facility was equipped to support proving trials of sub-systems in the development phase, on integration of these sub-systems in a torpedo after development, it was advantageous to prove the system in a test range having additional features such as underwater tracking instrumentation and positive recovery aids to facilitate recovery of a lost torpedo, which was available only in a foreign country. The 20 essential trials were therefore conducted in that range, which was an inescapable requirement.
- ▣ Loss of torpedoes during trials was not an uncommon phenomenon in the development phase which should not be a deterrent for research activities.
- ▣ The precariously low level of the lake during 2001 was attributable to the general failure of the monsoon, which was a natural phenomenon that could not be predicted.
- ▣ The facility had not been abandoned and was being fully utilised for trials for proving sub-systems as and when required and the aim of the project had consequently been fulfilled though it was delayed due to certain factors beyond the control of the Laboratory.

As mentioned earlier, the primary objective of establishing the facility was to carry out launch and recovery of torpedoes in sheltered waters in a cost-effective manner, without dependence on the Navy. It was precisely with this objective in view that the approval accorded in February 1982 envisaged *inter alia* the provision of facilities for launch and recovery of torpedoes, underwater ranging, diving, etc. Admittedly, however, the underwater tracking instrumentation and recovery aids were not available necessitating testing in foreign ranges. It will be pertinent to mention in this context that the original proposal envisaged that, apart from preventing the loss of developmental torpedoes during sea trials, the lake facility would also prevent the serious impingement on security that would arise if indigenously developed weapon systems were to be tested in foreign ranges. The loss of torpedoes had also been considered a serious setback to the development process.

Apart from the testing of sub-systems, which had been resorted to only in a very restricted manner, the facility was also to be used for the testing of major assemblies and production models of torpedoes. This was not achieved.

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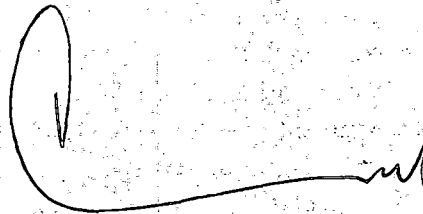
Besides, testing of Processor-based Moored Mines was not one of the purposes for which the facility was created. As against 1,100 torpedo launches envisaged at the facility in a time-frame of seven years, only 16 trials for proving certain sub-systems were undertaken by the Laboratory during 2000. The infrastructure available at the facility can also be considered only skeletal and inadequate for realising the objectives envisaged.

New Delhi
Dated: 31 March 2003

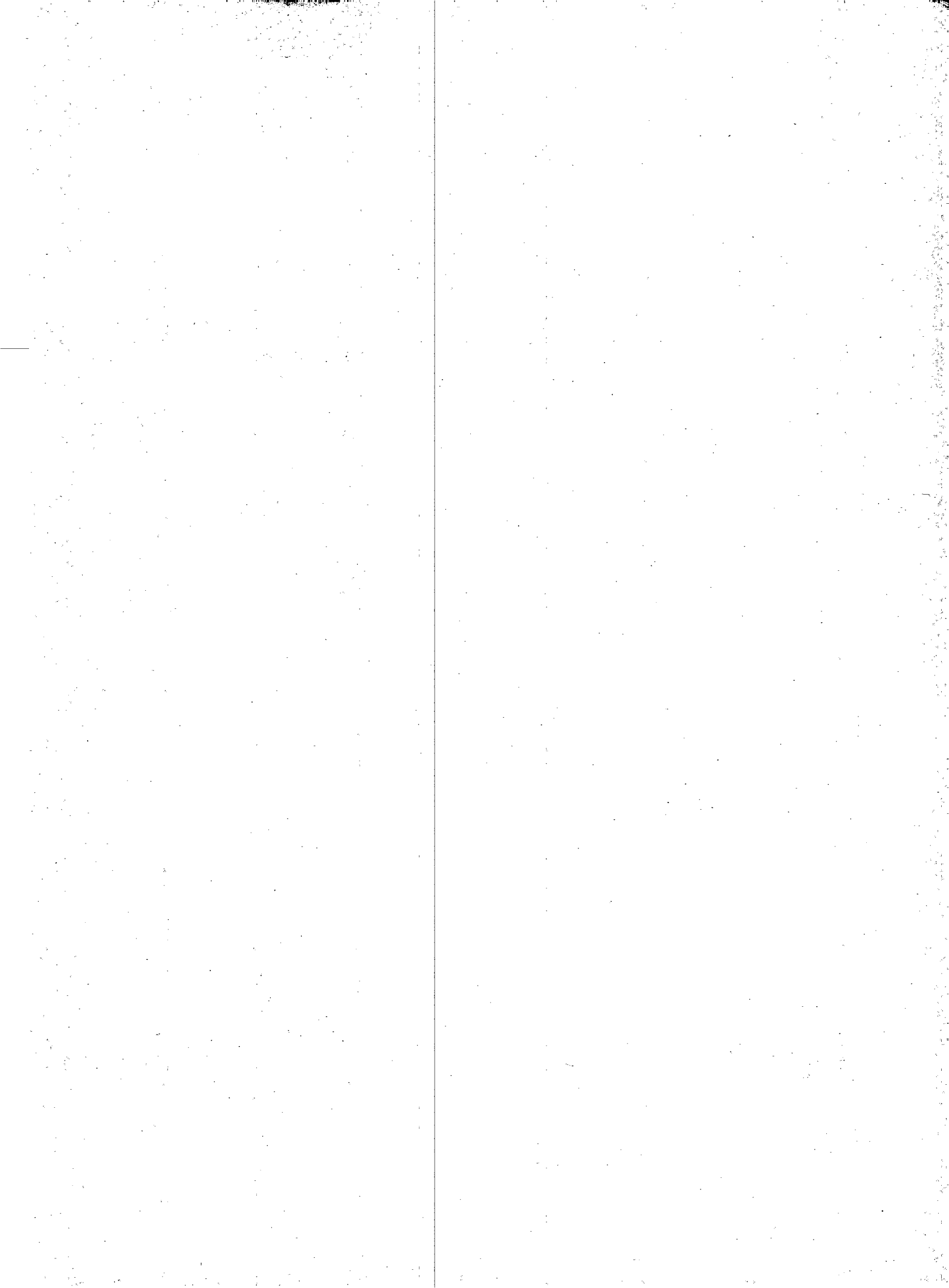


(V.RAVINDRAN)
Principal Director of Audit
Air Force and Navy

Countersigned



New Delhi
Dated: 31 March 2003 (VIJAYENDRA N. KAUL)
Comptroller and Auditor General of India





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APPENDIX I
(Refers to in Paragraph 6)

Position of Action Taken Notes outstanding as of December 2002

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 93	IV	38	Navy	Unauthorised provision of residential telephone	Final ATN awaited
2.	9 of 95	II	3	MOD	Unauthorised funding of a project	Final ATN awaited
3.	9 of 95	IV	27	Navy	Extra payments on power consumption	Final ATN awaited
4.	9 of 96	IV	2	MOD	Non installation of an imported communication system	Final ATN awaited
5.	9 of 96	IV	21	Navy	Delay in operational deployment of imported system	Final ATN awaited
6.	9 of 96	VI	39	DRDO	Delay in development-cum-production of a system	ATN not received
7.	8 of 97	IV	16	Navy	Submarine Fleet	Final ATN awaited
8.	8 of 97	IV	23	Navy	Procurement of Articles TEM-3 without cables	Final ATN awaited
9.	8 of 97	V	29	Coast Guard	Wasteful investment on construction of jetty	Final ATN awaited
ATN pending for more than three years						
10.	8 of 98	II	2	MOD	Air transport facilities for VVIPs and OEPs	Final ATN awaited
11.	8 of 98	II	3	MOD	Delay in setting up of repair facilities	Final ATN awaited

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Sl. No.	Report No. and Year	Chapter of the Report	Para No.	Pertains to	Brief subject	Remarks
12.	8 of 98	III	7	Air Force	Aircraft accidents in IAF	Final ATN awaited
13.	8 of 98	III	21	Air Force	Delay in clearance of cargo	ATN not received
14.	8 of 98	IV	22	Navy	Construction of Frigates	Final ATN awaited
15.	8 of 98	IV	24	Navy	Non utilization of imported sonars	Final ATN awaited
16.	8 of 98	IV	28	Navy	Extra expenditure due to delay in procurement of under water valves	Final ATN awaited
17.	8 of 98	IV	30	Navy	Purchase of sub-standard items	Final ATN awaited
18.	8 of 98	IV	33	Navy	Negligence in releasing a salvaged ship	Final ATN awaited
19.	8 of 98	V	34	Coast Guard	Recovery of overpayment at the instance of Audit	Final ATN awaited
20.	8 of 99	II	4	MOD	Non-recovery of airlift charges	Final ATN awaited
21.	8 of 99	III	10	Air Force	Delay in sanctioning additional Bulk Petroleum Installation	ATN not received
22.	8 of 99	III	15	Air Force	Failure to obtain supply of critical armament stores	Final ATN awaited
23.	8 of 99	III	17	Air Force	Recovery at the instance of audit	Final ATN awaited

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Sl. No.	Report No. and Year	Chapter of the Report	Para No.	Pertains to	Brief subject	Remarks
24.	8 of 99	IV	18	Navy	Review on Naval Dockyard, Mumbai	Final ATN awaited
25.	8 of 99	IV	19	Navy	Misuse of Gymnasium	Final ATN awaited
26.	8 of 99	IV	20	Navy	Savings at the instance of Audit	Final ATN awaited
27.	8 of 99	IV	23	Navy	Award of fabrication of Torpedo Carriers to a firm under liquidation	Final ATN awaited
28.	8 of 99	VI	27	DRDO	Development of an airborne system	Final ATN awaited
29.	8 of 99	V	28	DRDO	Review on Light Combat Aircraft	Final ATN awaited
ATN pending for upto three years						
30.	8 of 2000	II	2	MOD	Acquisition of SU-30 aircraft	Final ATN awaited
31.	8 of 2000	III	6	Air Force	Formation of Southern Air Command	Final ATN awaited
32.	8 of 2000	III	9	Air Force	Injudicious procurement of helicopter rings	Final ATN awaited
33.	8 of 2000	III	12	Air Force	Continuation of a helicopter unit without review of establishment despite reduction in its tasks	ATN not received

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Sl. No.	Report No. and Year	Chapter of the Report	Para No.	Pertains to	Brief subject	Remarks
34.	8 of 2000	III	13	Air Force	Loss due to delay in raising of discrepancy reports	Final ATN awaited
35.	8 of 2000	III	15	Air Force	Wrongful appropriation of public revenues to non-public fund	Final ATN awaited
36.	8 of 2000	IV	17	Navy	Review on Project Seabird	Final ATN awaited
37.	8 of 2000	IV	18	Navy	Avoidable expenditure due to failure in availing a cheaper offer	Final ATN awaited
38.	8 of 2000	IV	19	Navy	Provision of Photo Interpretation Centre	Final ATN awaited
39.	8 of 2000	IV	21	Navy	Extra payment to contractor	Final ATN awaited
40.	8 of 2001	II	2	MOD	Delay in induction of a surveillance system	Final ATN awaited
41.	8 of 2001	II	3	MOD	Delay in development of a system	Final ATN awaited
42.	8 of 2001	III	6	Air Force	Upgradation of MiG Bis aircraft	Final ATN awaited
43.	8 of 2001	III	7	Air Force	Procurement and modification of Jaguar aircraft	Final ATN awaited
44.	8 of 2001	III	8	Air Force	Delay in setting up of repair facilities for helicopter engines	Final ATN awaited
45.	8 of 2001	III	10	Air Force	Procurement of a communication system	Final ATN awaited

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Sl. No.	Report No. and Year	Chapter of the Report	Para No.	Pertains to	Brief subject	Remarks
46.	8 of 2001	III	11	Air Force	Avoidable expenditure due to delay in placing purchase order	Final ATN awaited
47.	8 of 2001	III	12	Air Force	Extra expenditure due to negligence	Final ATN awaited
48.	8 of 2001	III	14	Air Force	Sub-optimal utilisation of a radar	Final ATN awaited
49.	8 of 2001	III	16	Air Force	Inadmissible payment to a Public Sector Undertaking	ATN not received
50.	8 of 2001	III	17	Air Force	Non-utilisation of specialist vehicles and missiles	Final ATN awaited
51.	8 of 2001	III	18	Air Force	Loss due to negligence of HAL	ATN not received
52.	8 of 2001	III	19	Air Force	Loss of stores collected by Air Force representative abroad	ATN not received
53.	8 of 2001	IV	20	Navy	Delay in procurement of diesel generating sets	Final ATN awaited
54.	8 of 2001	IV	21	Navy	Procurement of incorrect propeller shafts	Final ATN awaited
55.	8 of 2001	IV	22	Navy	Extra expenditure in procurement of spares	Final ATN awaited
56.	8 of 2001	IV	23	Navy	Unauthorised deployment of Naval tanker for overseas purchase of oil	ATN not received

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Sl. No.	Report No. and Year	Chapter of the Report	Para No.	Pertains to	Brief subject	Remarks
57.	8 of 2001	IV	24	Navy	Recovery at the instance of Audit	Final ATN awaited
58.	8 of 2001	V	25	Coast Guard	Repair/refit of boats of IOC out of funds of Coast Guard	Final ATN awaited
59.	8 of 2002	II	2	MOD	Acquisition of Special Purpose Helicopter	Final ATN awaited
60.	8 of 2002	II	4	MOD	Non-production of document	ATN not received
61.	8 of 2002	III	6	Air Force	Non supply of a rig by a foreign supplier	ATN not received
62.	8 of 2002	III	7	Air Force	Development of a Golf Course in an area reserved for storage of explosives	ATN not received
63.	8 of 2002	III	8	Air Force	Procurement of unreliable fuses	Final ATN awaited
64.	8 of 2002	III	9	Air Force	Procurement of a defective system	Final ATN awaited
65.	8 of 2002	III	10	Air Force	Defective contract leading to fraudulent payment	Final ATN awaited
66.	8 of 2002	III	11	Air Force	Extra expenditure in procurement of stores	Final ATN awaited
67.	8 of 2002	III	12	Air Force	Unnecessary import of explosive cartridges	Final ATN awaited
68.	8 of 2002	III	13	Air Force	Delay in repair of an Aircraft	Final ATN awaited
69.	8 of 2002	III	14	Air Force	Avoidable inventory carrying cost of aircraft surplus stores	Final ATN awaited

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Sl. No.	Report No. and Year	Chapter of the Report	Para No.	Pertains to	Brief subject	Remarks
70.	8 of 2002	III	15	Air Force	Recovery at the instance of Audit	Final ATN awaited
71.	8 of 2002	IV	16	Navy	Procurement of missile	Final ATN awaited
72.	8 of 2002	IV	17	Navy	Delay in procurement of Air targets	Final ATN awaited
73.	8 of 2002	IV	18	Navy	Non-commissioning of imported equipment	Final ATN awaited
74.	8 of 2002	IV	19	Navy	Recovery at the instance of Audit	Final ATN awaited
75.	8 of 2002	V	20	DRDO	Foreclosure of a critical project	Final ATN awaited
76.	8 of 2002	V	21	DRDO	Extra expenditure due to premature conclusion of contract	Final ATN awaited
77.	8 of 2002	V	22	DRDO	Delay in development and production of indigenous mines	Final ATN awaited

APPENDIX II
(Refers to in Paragraph 7)

Details of files not produced to Audit

AIR FORCE					
Sl. No.	Sanction number and date	Subject	Amount (Rs in crore)	Letter number and dated of initial requisition	Last reminder sent on
1.	DRDO/Adv/S/511/270/S/D(R&D) 30 Sep 93	Project Hiran	120.50	162/DR&D/1/95/ASIEO dated 31.10.95	28.12.01
2.	Air HQ/82308/325/006-95/Eng D2(Q)/10/DOI/D(Air-I) dated 02.1.96	Payment against contract No. 325/006/95 dated 3/11/95 for supply of spares	11.60	126/D/S/14/72/ Vol-XI dated 02.2.96	19.12.02
3.	14(20)/1/92/D(HAL) Vol-II dated 25.3.98	Adhoc approval for ALH	66.95	30/D/S/3/98/AFA dated 03.7.98	19.12.02
4.	Adv-DRDO/108 A/637/S/D(R&D) dated 01.1.91	Project Tempest and Project Stefew Project	146.41	280/D/R&D/2/96/AFA dated 24.2.2000	19.12.02
5.	Air HQ/S.96016/16/6/1/ASR/ 516/US/D(Air-I)/01 dated 21.3.2001	Setting up of facilities for Depot Level Maintenance/ manufacture of head up display(HUD) and Digital Map Generator(DMG) at HAL, Avionics Division, Korwa under TOT agreement	7.40	10/D/S/12/99/AFA/Vol-III dated 23.4.2001	19.12.02
6.	Air HQ/72176/1/MODN/SGE/(T)/947/USD(Air-IV) dated 19.4.01	Procurement of workshop machinery for BRDs, under modernisation scheme (Phase-II)	5.8	28/D/S/12/99/AFA/III dated 29.5.01	19.12.02
7.	Air HQ/82309/356/0757/160/31761/ Eng D1(Q)/944/US/(GS)/D(Air-I) dated 24 April 01	Letter of authorisation for opening of letter of credit against contract No. 356/0757/160/31761 dated 27 Nov 2000 between the President of India and M/s Avazapchaste PLC Moscow	9.45	27/D/S/3/85/AFA/Vol-XI dated 29.5.2001	19.12.02
8.	Air HQ/82280/36/PC-276/Eng D(Q)/US(GS)/D(Air-I) dated 08 Nov 2000	Opening of letter of credit against contract No. PP-1323/658/E00-064-IN-356 dated 29 Jan 2000 with M/s motor sich enterprises JSC. Ukraine	23.60	73/D/S/17/76/AFA/Vol-X dated 09/3/01	19.12.02
9.	Air HQ/82309/76-070/35603/Eng D1(Q)/481/US/(GS) D(Air-I) dated 22.2.01	Letter of authorisation for opening of letter of credit against contract No. 76-70/35603 dated 25 Feb 2000 between The President of India and M/s Aviaexport PLC, Moscow	11.35	75/D/S/3/85/AFA/Vol-X dated 27.3.01	19.12.02

NAVY					
Sl. No.	Sanction No. & Date	Subject	Amount	This office letter number and date of initial requisition	Date of Last Reminder
1.	AV/0840/TEH/CG/414/DO(N-II) dated 28/3/97	Supply of two advance light helicopter to Coast Guard during 1998-99	Rs 49.50 crore	94/D/N/15/97 dt. 27/5/97	23/11/2001
2.	10(1)/97/3434/D(N-III) dated 26/11/97	Maintenance dredging at Mumbai for the post monsoon period of 1997	Rs 12 crore	493/D/N/30/85/II dt. 10/2/98	23/11/2001
3.	10(1)/99/1300A/D(N-III) /99 dated 26/4/99	Maintenance dredging at Kochi for pre monsoon period of 1999	Rs 11.27 crore	463/D/N/30/85/II dt. 29/9/99	23/11/2001
4.	10(12)/99/D(N-I) dated 14/6/99	Design and construction of indigenous Ship	Rs 1551.64 crore	646/D/N/12/99 dt. 28/12/99	23/11/2001
5.	MF/PL/1299/II/531/S/D (N-I) dated 20/7/99	Revision in the cost of eight ships	Rs 1447.10 crore	165/D/N/4/85/II dt 31/12/99	23/11/2001
6.	F.MF/PL/3102/99/1/524 /S/D(N-I) dated 15/7/99	Procurement of stores under SA 935612141009 dt. 2/7/99 to Contract No. 80/312508431 of February 4, 1993	Rs 15,88,27,939.50	159/D/N/25/94 dt. 31/12/99	23/11/2001
7.	AH/0251/ESM/I dated 2/6/2000	Supply of Eagle equipment	Rs 3830.135 lakh	310/D/N/40/94/III dt. 16/10/2000	23/11/2001
8.	NHQ/1100/4/WL/ (906/2000)/D(N-III) dated 15/3/2000	Payment of rentals of Western Railway land	Rs 8,42,55,256	479/D/N/26/87/VI dt. 23/1/2001	23/11/2001
9.	FM/5761/S/Ratna/NHQ/119/D(N-IV) dt.12/1/2000	Offloading of refit cum modernization of INS Sindhuratna	Rs 335.75 crore	40/D/N/4/2000 dt. 8/6/2001	10/1/2003
10.	AV/0840/TEH/CG/163/US(CG)/D(N-II) dt. 14/2/2001	Acquisition of two advance light helicopter for CG	Rs 84.78 crore	116/D/N/15/97 dt. 21/6/2001	10/1/2003
11.	EE/09/2348/1113/D(N-I) dt. 14/3/2001	Procurement of Radar frigate with target simulator for INS Valsura, Jamnagar	Rs 19.27 crore	154/D/N/7/93 dt. 24/7/2001	10/1/2003
12.	1/W/004/00/FCS/ATVP /B&C/306/S/D (R&D) dt. 12/9/2001	Sanction for placement of order on M/s BE Bangalore for design, development, fabrication, testing and commissioning of station control system (SCS) Project SHARANG	Rs 16.44 crore	353/D/R&D/3/98/I II dt. 8/1/02	10/1/2003

