Report of the Comptroller and Auditor General of India

for the year ended March 2003

Union Government (Defence Services)

Army and Ordnance Factories

No. 6 of 2004

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Presented in Lok Sabha on 13 JUL 2004
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PREFACE

This Report for the year ended March 2003 has been prepared for submission to the President under Article 151 of the Constitution. It relates to matters arising from the test audit of the financial transactions of Ministry of Defence, Army and Ordnance Factories including Defence Research and Development Organisation, Border Roads Organisation and Military Engineer Services. The matters arising from the Appropriation Accounts of the Defence Services for 2002-2003 have been included in Audit Report No. 1 of 2004.

The Report includes 32 Paragraphs and 3 Reviews on (i) Procurement and utilisation of plant and equipment in DRDO (ii) Working of Metal and Steel Factory, Ishapore (iii) Functioning of CNC machines in Ordnance Factories.

The cases mentioned in this Report are among those which came to notice in the course of audit during 2002-2003 and 2003-2004 as well as those which came to notice in earlier years but could not be included in the previous Reports.

OVERVIEW

Procurement and utilisation of plant and equipment in DRDO

Defence Research and Development Organisation (DRDO) provides scientific and technical support to the Armed Forces through design and development of new and sophisticated equipment to meet operational requirements. DRDO spends 45 per cent of its budget on purchase of stores, plant and equipment.

A review on procurement and utilisation of plant and equipment in DRDO revealed that:

- There were abnormal delays in installation of six machines valuing Rs 13.78 crore in four Laboratories/Establishments.
- There was under-utilisation of four equipments valuing Rs 5.60 crore in four Laboratories.
- In two Laboratories, there were four equipments valuing Rs 3.21 crore lying unutilised.
- Eight machines valuing Rs 1.75 crore required for specific projects were received in five Laboratories either after closure or at the fag end of the project.
- A Laboratory procured equipment costing Rs 1.60 crore which was not envisaged in the project proposal.
- Non-realisation of cost of Rs 4.89 crore for the assets installed at Mishra Dhatu Nigam for over 11 years.

(Paragraph 5.1)

Holding of defective ammunition

Due to use of wrong propellant 17879 rounds of ammunition for Tanks valued at Rs 47.34 crore became unserviceable and had to be diverted for training purposes.

(Paragraph 3.1)

Injudicious authorisation of winter clothing leading to their non-utilisation

Reduction in authorisation of Shirts and Trousers from 100 per cent in 1998 to 15 per cent in 2003 of enrolled NCC cadets rendered these items valued at Rs 12.36 crore

surplus in NCC Directorates of Rajasthan and Punjab. The prospect of their utilisation in future was remote since the scales of other NCC Directorates also stood reduced.

(Paragraph 2.1)

Avoidable extra expenditure on procurement of Jeeps

Injudicious price negotiation resulted in purchase of 3423 jeeps at a higher price resulting in avoidable expenditure of Rs 3.07 crore.

(Paragraph 3.3)

Irregular payment of Field Area Allowance

In violation of Ministry's instructions issued in January 1994 that Field Area Allowance would not be admissible to static formations/units, officers, Junior Commissioned Officers and Other Ranks posted in five static units, who had not actually moved out of their existing stations were paid a sum of Rs 2.96 crore on account of Field Area Allowance.

(Paragraph 3.4)

Recurring loss on account of payment of electrical charges at commercial rate for supply meant for domestic consumption

Delay in initiation of proposal by MES and according sanction for works services by HQ Eastern Air Command for segregating the domestic and commercial take-off points led to the accumulated loss of Rs 1.76 crore on account of payment of electrical charges for domestic consumption at commercial rates.

(Paragraph 4.1)

Delay in construction of approaches to a bridge due to departmental lapses

Even after spending Rs 1.66 crore and a delay of more than three years, the approaches to the bridge remain incomplete due to non-acquisition of land for construction of approaches before commencement of work.

(Paragraph 6.1)

Sanction of unauthorised swimming pool

Construction of a separate swimming pool for Army at Mumbai in excess of authorisation and despite existence of four swimming pools in the station resulted in avoidable expenditure of Rs 1.36 crore.

(Paragraph 4.2)

Unauthorised payment of compensation in lieu of quarters to the tune of Rs. 1.33 crore

Pay and Accounts Officer (Other Ranks) 39 Gorkha Training Centre Varanasi, paid housing allowance at 'A1' city rate to 198 Personnel Below Officers Rank of 5th battalion of 9th Gorkha Rifles in violation of regulations resulting in overpayment of Rs. 1.33 crore during the period August 1997 to April 2000.

(Paragraph 3.5)

Avoidable expenditure on construction of married accommodation

Construction of married accommodation far in excess of demand resulted in infructuous expenditure of Rs 1.17 crore.

(Paragraph 4.3)

Non availing of Rebate on Electricity consumption

Garrison Engineer (Air Force) Bamrauli and Garrison Engineer Fatehgarh did not avail of rebate from Uttar Pradesh Power Corporation Ltd. amounting to Rs 1.03 crore till it was pointed out by Audit.

(Case-IV, Paragraph 3.2)

Non-recovery of training charges by Defence Services Staff College

Training charges amounting to Rs 93.62 lakh were not recovered from Coast Guard and Civilian Officers by Defence Services Staff College, Wellington.

(Paragraph 3.6)

Abnormal delay in detection of encroachment of Defence Land

Delay of over 16 years in detection of encroachment of defence land resulted in non-recovery of Rs 79 lakh towards rent and premium.

(Paragraph 2.2)

Recovery of installation charges for electricity

Two Garrison Engineers agreed to recover fixed charges of Rs 73.85 lakh from the paying consumers at the instance of Audit.

(Case-II, Paragraph 3.2)

Incorrect payment of transport allowance

In violation of Government orders transport allowance amounting to Rs 69.73 lakh was paid to service personnel of Indian Military Academy Dehradun (IMA), Equine Breeding Stud (EBS) Hissar, Gorkha Training Centre, PAO (ORs) Sabathu and Officers Training Academy, Chennai who were provided with Government accommodation within the campus housing both their place of work and residence.

(Paragraph 3.7)

Avoidable expenditure of Rs 61.11 lakh on execution of works

Despite the cancellation of the Presidential Fleet Review at Air Force Station Chandigarh scheduled on 17 October 2001, seven works related to the event were executed resulting in avoidable expenditure of Rs 61.11 lakh.

(Paragraph 4.4)

ORDNANCE FACTORY ORGANISATION

Performance of Ordnance Factory Organisation

The Ordnance Factory Organisation comprising of 39 Ordnance Factories with a manpower of 1.27 lakh is engaged in production of arms, ammunition, equipment, clothing etc. primarily for the Armed Forces of the country. The value of production aggregated to Rs 7908.69 crore in 2002-03 which was 3.89 per cent higher than the value of production of Rs 7612.07 crore in 2001-02.

The total expenditure of Ordnance Factory Organisation increased steadily from Rs 4461.72 crore to Rs 6464.80 crore during 1998-99 to 2002-03.

During 2002-03, production of 76 items (out of 431 items for which demands existed and targets were fixed) was behind schedule.

Audit noticed that in respect of 15 major items, the production spilled over beyond the financial year 2002-03. Although the full production and issues according to target was reported by March 2003, the production and actual issues were expected to be completed by October 2003 only and the total value of these spill over items amounted to Rs 347.21 crore approximately. This had affected the accuracy, reliability and completeness of Annual Accounts of Ordnance Factory Organisation for the year 2002-03.

(Paragraph 7.1)

Working of Metal and Steel Factory, Ishapore

Review by Audit of the performance of the Metal and Steel Factory, Ishapore during 1997-2003 revealed the following:

- The underutilisation of capacity in five shops ranged between 11 and 100 per cent which was attributed to non-availability of adequate orders from sister factories.

- Two costly plants costing Rs 28.86 crore remained grossly underutilised in the range between 55 and 85 per cent.

- Though the available man-hours were not fully utilised, the factory deployed personnel on overtime involving payment of Rs 25.50 crore, out of which Rs 12.11 crore was avoidable.

- No benefit could be derived from an investment of Rs 2.70 crore towards procurement of two cooling pits, one mechanical press, one furnace and one

face milling machine due to their non-commissioning/delayed commissioning even after a lapse of two to five years of their receipt.

- Overhead charges to the value of production ranged between 62 and 73 per cent as against the range of 29 to 37 per cent for the Ordnance Factory Organisation as a whole.

- There was unfruitful expenditure of Rs 3.03 crore towards creation of facilities for shell forge plant at the factory due to change in product profile and inordinate delays due to indecision in procurement of the plant.

- Injudicious manufacture of steel blooms and billets worth Rs 22.66 crore in anticipation of orders had rendered the items obsolete and unusable.

- Against the normal life of six months, 53 manufacturing warrants valuing Rs 7.71 crore were outstanding for more than one to four years.

(Paragraph 7.2)

Functioning of CNC machines in Ordnance Factories

Review by Audit of the performance of the functioning of CNC machines in Ordnance Factories during 1997-2002 revealed the following:

- There was abnormal rejection amounting to Rs 21.94 crore in manufacture of components at two factories due to the management's failure to contain the rejection percentage within the specified limits.

- In the absence of proper documentation particularly, machine-wise cycle time, annual rated capacity etc. and non-assessment of achievements of benefits accrued vis-à-vis that envisaged at the time of procurement of CNC(*) machines, the factory managements were not able to effectively evaluate, monitor and control the utilisation of CNC machines.

- Procurement of 49 CNC machines costing Rs 8.50 crore in six ordnance factories between March 1993 and November 2001 lacked justification in view of either no workload or decrease in workload at the concerned factories.

- The management of seven factories could not derive any value for money out of investment of Rs 15.56 crore on 16 machines due to various types of quality problems leading to their non-commissioning, remaining under continuous break-down or their ultimate rejection etc.

- There was gross underutilisation to the extent of 70 per cent and above in respect of 60 to 100 CNC machines in a year. Besides, the underutilisation of 82 to 154 other machines ranged between 40 and 69 per cent in a year out of 349 machines selected for test check at 13 factories.

(*) **Computerised Numerically Controlled**

- At eleven ordnance factories, 41 to 94 machines remained under break-down for more than one month's duration in a year, 16 machines remained under break-down for more than six months in 2001-02. Besides, nine machines costing Rs 5.99 crore were under continuous break-down for periods ranging from 20 months to eight and a half years as of April 2002 at six factories.

- Despite production capacity available through the CNC route at two factories, manufacture of components of 5.56 mm rifle and 9 mm pistol through the conventional route led to an extra expenditure of Rs 9.71 crore due to higher cost of production.

- The management of three factories offloaded jobs amounting to Rs 5.32 crore to trade despite having CNC capacity.

- In two instances, the management of two ordnance factories paid Rs 1.14 crore to the suppliers of CNC machines, who did not fulfill the contractual obligations.

(Paragraph 7.3)

Blocked inventory due to abrupt withdrawal of demand by user

Three Ordnance Factories were forced to hold blocked inventories worth Rs 9.21 crore owing to abrupt decision of the Army in withdrawing their requirement of High Explosive Extended Range version of 155 mm Bofors Ammunition in 1999-2000, for which there is no possibility of alternate use.

(Paragraph 7.4)

Loss due to failure of cartridge cases in proof

Ordnance Factory, Varangaon suffered an abnormal rejection loss of 46 lakh cartridge cases of 5.56 mm ammunition valuing Rs 32.20 lakh owing to production of cases in bulk in the new plants before the production process was stabilised through pilot manufacture of cases.

(Paragraph 7.5)

Receipt of defective stores due to incorrect specification in the supply order

Incorrect incorporation of specification in the supply order by Heavy Vehicles Factory, Avadi foreclosed the possibility of obtaining free replacement of Track assembly wraps imported at a cost of Rs 3.60 crore from a foreign firm.

(Paragraph 7.6)

Injudicious procurement of spares

Failure of Heavy Vehicles Factory, Avadi to adhere to the list of spares processed by Controller of Quality Assurance (Heavy Vehicles), Avadi led to unnecessary procurement of hood glass and shatter proof glass worth Rs 79.37 lakh.

(Paragraph 7.7)

Loss due to non-replacement of defective instruments

Heavy Vehicles Factory, Avadi could not obtain free replacement of rejected periscopes worth Rs 1.22 crore from a foreign firm owing to absence of specific testing criteria in the contract as well as liquidation of the firm.

(Paragraph 7.8)

Uneconomical procurement of machines

Trade procurement of higher capacity and costly Trimming machines by Ordnance Factory, Ambernath despite Machine Tool Prototype Factory, Ambernath manufacturing Trimming machines at cheaper rates had forced the State to bear an extra cash outgo of Rs 85.75 lakh.

(Paragraph 7.9)

Failure to develop a propellant

Failure of High Energy Material Research Laboratory, Hyderabad to indigenously develop Artus block propellants of Milan Missile in association with Ordnance Factory, Itarsi had resulted in nugatory expenditure of Rs 4.75 crore.

(Paragraph 7.10)

Non-recovery of inspection charges

Senior Quality Assurance Establishment (Armaments), Trichy failed to levy inspection charges on armaments supplied by Ordnance Factory, Trichy to State Police Organisation had resulted in non-recovery of Rs 1.28 crore towards inspection charges.

(Paragraph 7.11)

Recovery at the instance of Audit

Heavy Vehicles Factory, Avadi recovered Rs 8.70 crore from a public sector undertaking towards supply of product support in August 2003 only at the instance of Audit.

(Paragraph 7.12)

Suppression of excess consumption of components

By working out rejection allowance based on total value of each warrant in assembling of 5.56 mm rifle and 9 mm pistol instead of calculating it with reference to ordered quantity provided in the estimate, the Rifle Factory, Ishapore suppressed excess consumption of components / sub-assemblies worth Rs 3.19 crore.

(Paragraph 7.13)

Deterioration of forgings due to long storage

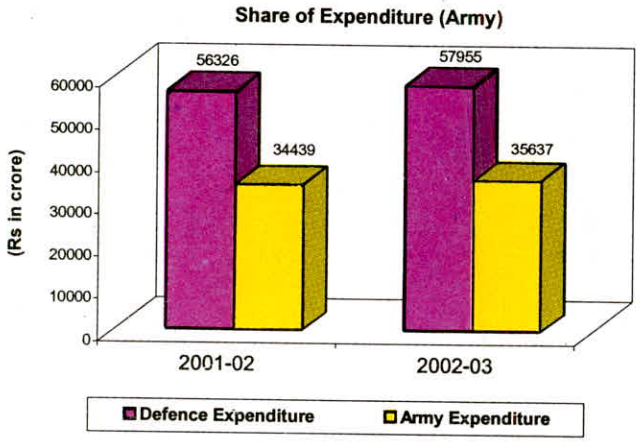
Forgings worth Rs 1.41 crore could not be utilised by Gun and Shell Factory, Cossipore owing to long storage resulting in its deterioration.

(Paragraph 7.14)

CHAPTER I : FINANCIAL ASPECTS

1. Financial Aspects

1.1 The total revenue and capital expenditure on Defence Services during 2002-03 was Rs 57955 crore, which was 2.89 per cent higher than the expenditure of 2001-02. The share of the Army in the total expenditure on Defence Services in 2002-03 was Rs 35637 crore, including that on capital acquisitions. This was 3.48 per cent higher than the expenditure during the preceding year.



1.2 Expenditure on the Army during 2002-03 under broad categories is analysed in the following table:

(Rupees in crore)

	Expenditure during 2002-03	Expenditure during 2001-02	Percentage in relation to total expenditure of 2002-03
Pay and Allowances	12733.97	12018.79	35.73
Stores	9466.48	9282.29	26.56
Works	2240.43	2051.92	6.29
Other Expenses	5905.49	5512.10	16.57
Capital Acquisition	5290.57	5574.32	14.85
Total	**35636.94**	**34439.42**	**100.00**

1.3 The summarised position of appropriation and expenditure during 2002-03 in respect of the Army is reflected in the table below:

(Rupees in crore)

	Final Grant/ Appropriation	Actual Expenditure	Total unspent Provision (-)/ Excess (+)
REVENUE			
Voted	31425.35	30336.77	(-)1088.58
Charged	11.00	9.60	(-) 1.40
CAPITAL			
Voted	5235.88	5288.41	(+) 52.53
Charged	4.80	2.16	(-) 2.64
Total	**36677.03**	**35636.94**	**(-) 1040.09**

The overall unspent provision of the Army constituted 2.84 per cent of the final grant/appropriation. The total unspent provision of Rs 9264.91 crore in all the grants of Defence Services was the highest ever.

The total Capital expenditure on Defence Services for the year 2002-03 was Rs 14952.85 crore. The Army accounted for 35.38 per cent of this expenditure. An amount to the tune of 30 per cent of the Budget Estimates could not be utilised as estimated and planned in the grant relating to Capital Outlay on Defence Services.

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 2003: Union Government – Accounts of the Union Government (Report No.1 of 2004).

CHAPTER II : MINISTRY OF DEFENCE

2.1 Injudicious authorisation of winter clothing leading to their non-utilisation

Injudicious authorisation of Shirt Angola Drab and Trouser Serge Khaki at the scale of 100 percent in 1998 and subsequent reduction to 15 per cent in 2003 rendered these items valued at Rs 12.36 crore surplus in two NCC Directorates.

The Director General, National Cadet Corps, (DG NCC) in April 1998 authorised winter clothing items Shirt Angola Drab and Trouser Serge Khaki to NCC cadets on 100 per cent scale for the Directorates in cold regions and at the limited scale of 15 per cent of enrolled cadet strength for states in other regions. The provisioning of the items was done from the year 1998-99 with the approval of the Ministry. Amendment to Peace Equipment Table was to be made after study of the pattern of use.

A quantity of 42463 Shirt Angola and 40461 pairs of Trouser Serge Khaki, valued at Rs 4.06 crore was issued to four NCC Groups under NCC Directorate, Rajasthan, from June 1999 to June 2001 considering it to be a cold region. After three years, NCC Directorate, Rajasthan, decided in May 2002 that winter clothing was not required in Rajasthan and to return the same to DG NCC for distribution to other Directorates. In response to Audit, DG NCC intimated in May 2003 that surpluses held by NCC Directorate, Rajasthan, would be transferred to other Directorates where shortages existed. But this could not be done since all Directorates already had sufficient quantities.

In June 2003, DG NCC further reduced the scale of winter clothing of five NCC Directorates (including NCC Directorate Rajasthan) with effect from April 2003, from 100 to 15 per cent, in respect of four NCC Directorates from 15 to 5 per cent and in respect of two NCC Directorates from 100 to 70 per cent. DG NCC also fixed the life of these clothing items as 5 years.

Audit scrutiny of two NCC Directorates in Rajasthan and Punjab in May/August 2003 revealed that due to reduction in scale from 100 per cent to 15 per cent, 1,29,043 nos. of Shirt Angola Drab and 1,23,464 pairs of Trouser Serge Khaki, valued at Rs 12.36 crore were rendered surplus.

NCC Directorate, Rajasthan, stated in July 2003 that Rajasthan was a cold region state earlier and 100 per cent woollen clothing was issued to cadets. The fact remains that the Directorate did not feel the requirement of winter clothing in Rajasthan since May 2002 and the authorisation of winter clothing for Rajasthan was reduced from 100 to 15 per cent with effect from April 2003. For study of usage pattern, bulk procurement was not justified.

The case reveals that the initial fixation of 100 per cent authorisation of winter clothing items to NCC cadets in cold region was injudicious and was borne out by

non-issue of available stock over the next five years. The authorisation had, therefore, to be revised downwards to 15 per cent according to expected requirements and led to wasteful accumulation of winter clothing worth Rs 12.36 crore in the two NCC Directorates. The prospect of its utilisation in future was also remote since the scales of other NCC Directorates were also reduced.

The matter was referred to the Ministry in September 2003; their reply was awaited as of February 2004.

2.2 Abnormal delay in detection of encroachment of Defence land

Encroachment of defence land remained unnoticed for 16 years by a Defence Estates Office resulting in non-recovery of Rs 79 lakh towards rent and premium.

The Ministry of Defence sanctioned in 1965 the lease of 12,800 square feet of defence land at Secunderabad Cantonment to the Indian Oil Corporation Limited (IOC), to run a petrol-filling station for a period of 10 years i.e. till 1975. Out of this 11,650 square feet of land was taken back from IOC between 1975 (3840 Square Feet) and 1982 (7810 Square Feet) and licensed to the Municipal Corporation of Hyderabad for widening of a road. Thus, only 1150 square feet of land remained with IOC as of September 1982.

Although the lease expired on 28 February 1975 ex-post-facto sanction was issued in February 1995 extending the period of lease from 1975 to 1990. This sanction however did not reflect the actual position as mentioned below:

Period of lease	Sanctioned area (Square feet)	Area in occupation of IOC (Square feet)
March 1975 to February 1980	2070	8960
March 1980 to 5 September 1982	10870	8960
6 September 1982 to February 1990	1150	9320

During an inspection by the Defence Estates Officer (DEO) in August 1998, it was found that IOC had encroached upon 8170 square feet of adjoining land since September 1982. When pointed out, IOC declined to accept the occupation of land as unauthorised and expressed willingness to enter into a lease agreement for 20 years and to pay the accumulated rent and premium. DEO initiated a revised proposal for sanctioning lease of actual land mentioned in above table in July 2001. The Ministry's sanction was yet to be accorded.

The following audit observations are made:

1. No rent and premium was recovered for 1150 square feet of land for the period beyond February 1990 consequent on the expiry of the lease.

2. Unauthorised occupation of 8170 square feet of land by IOC since September 1982 was not regularised through a lease. This resulted in non-recovery of revenue of Rs 79 lakh approximately based on the rent proposed by DEO on account of rent and premium for 1150 square feet of land since February 1990 and 8170 square feet of land since September 1982 till October 2003.

3. It was the duty of the DEO to inspect the land under him annually and to take necessary action either for removal of encroachments or to bring it to the notice of the higher authorities and get it regularised. The DEO renders an annual certificate to this effect to the Ministry of Defence. Hence the failure of DEO, Secunderabad to detect the encroachment for over 16 years and to take timely action for renewal of lease resulted in non-recovery of revenue of Rs 79 lakh based on the rents proposed by the DEO.

The case was referred to the Ministry in May 2003; their reply was awaited as of February 2004.

2.3 Response of the Ministry/Departments to Draft Audit Paragraphs

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

The Draft Paragraphs are always forwarded by the respective Audit Offices to the Secretaries of the concerned Ministry/departments through Demi Official letters drawing their attention to the audit findings and requesting them to send their response within six weeks. It was brought to their personal notice that since the issues were likely to be included in the Audit Report of the Comptroller and Auditor General of India, which are placed before Parliament, it would be desirable to include their comments in the matter.

Draft paragraphs proposed for inclusion in the Report of the Comptroller and Auditor General of India for the year ended March 2003: Union Government (Defence Services), Army and Ordnance Factories: No. 6 of 2004 were forwarded to the Secretary, Ministry of Defence between April 2003 and December 2003 through Demi Official letters.

The Secretary of the Ministry of Defence did not send replies to 9 Draft Paragraphs (excluding paragraph No. 1 of Chapter I and paragraph No.4) out of 19 Paragraphs in compliance to above instructions of the Ministry of Finance issued at the instance of the Public Accounts Committee. Thus, the response of the Secretary of the Ministry could not be included in them.

2.4 Follow up on Audit Reports

Despite repeated instructions/recommendations of the Public Accounts Committee, the Ministry did not submit initial Action Taken Notes on 34 Audit Paragraphs.

With a view to ensuring enforcement of accountability of the executive in respect of all issues dealt with in various Audit Reports, the Public Accounts Committee desired that Action Taken Notes (ATNs) on all paragraphs pertaining to the Audit Reports for the year ended 31 March 1996 onwards be submitted to them duly vetted by Audit within 4 months from the laying of the Reports in Parliament. Secretary, Defence Finance had also, in a meeting held in March 2003 directed all concerned wings in Ministry of Defence to make all-out efforts to achieve maximum clearance of Audit Paragraphs in a time bound manner.

However, review of outstanding Action Taken Notes relating to Army as of 08 January 2004 revealed that the Ministry had not submitted even the initial ATNs in respect of 34 paragraphs out of 156 paras included in Audit Reports up to and for the year ended March 2002 (No. 6 of 2003) as per Annex-I.

The matter was referred to the Ministry on 27 November 2003; their reply was awaited as of February 2004.

CHAPTER III : ARMY

3.1 Holding of defective ammunition

17879 rounds of ammunition 125 mm High Explosive/High Explosive Anti Tank valued at Rs 47.34 crore became unserviceable due to use of wrong propellant.

Ammunition rounds 125 mm High Explosive (HE) and High Explosive Anti Tank (HEAT) are fired from 125 mm Tank gun.

In the light of a number of accidents, proof firing of the 125 mm HE/HEAT ammunition manufactured by Ordnance Factories (OF) was carried out. Eighteen lots (Vintage: March 1996 to November 1999) comprising 15476 rounds of HE valued at Rs 36.89 crore and eight lots (Vintage: June 1996 to August 1999) comprising 2403 rounds of HEAT valued at Rs 10.45 crore were declared unserviceable up to November 2002 due to debris and density of combustible cartridge case being higher than that stipulated in almost all cases. The shelf life of ammunition 125 mm HE and HEAT is 20 years and 7 years respectively. In November 2002, DGOS[1], Army HQ requested OF Board to instruct OF Chanda to accept defective quantity for rectification/free replacement. No ammunition has been rectified/replaced by OF Chanda (October 2003) for want of directives from OF Board.

While Master General of Ordnance Branch stated in October 2003 that ammunition was sentenced as unserviceable based on proof conducted by Director General Quality Assurance and decisions arrived at various meetings, the Ministry stated in November 2003 that the defect of debris remaining after firing was attributed to use of Triple Base Propellant in lieu of Single Base Propellant as stipulated in Transfer of Technology. The Ministry added that combustible cartridge cases having triple base propellant would be used for training purposes.

Thus, due to use of wrong propellant, ammunition worth Rs 47.34 crore had to be diverted for training purposes.

[1] DGOS : Director General Ordnance Services

3.2 Recoveries/savings at the instance of Audit

Recoveries

Case-I: ***Recovery towards personal entitlements, retirement benefits, liquidated damages, overpayments, penalty from Canteen Stores Department suppliers.***

On audit pointing out certain errors in regulation of personal entitlements, retirement benefits and recovery towards liquidated damages/overpayments/penalty from Canteen Stores Department suppliers, an amount of Rs 3.88 crore was recovered.

Audit scrutiny of the Pay accounts of Army officers maintained by the Controller of Defence Accounts (Officers) Pune (CDA (O)), thirteen Pay and Accounts Offices (Other Ranks) (PAO (ORs)) and units/formations of the Army/Director General Quality Assurance (DGQA)/Defence Research and Development Organisation (DRDO)/Military Engineer Services (MES) revealed instances of various types of overpayments/short recoveries. The recoveries pointed out in Audit were to the tune of Rs 3.93 crore as detailed below:

Recoveries at the instance of Audit

(Rs in lakh)

Sl. No.	Unit/ Formation	Nature of mistake/irregularity	Amount involved
1.	CDA (O) PAOs (ORs)[2]	Irregular payments of pay and allowances viz; field allowance, city compensatory allowance, outfit allowance, transport allowance and irregular issue of Railway warrants, overpayments of death cum retirement gratuity, leave encashment, transfer grant etc.	93.53
2.	Army/ DRDO/ DGQA/ MES[3]	Excess payments in local purchase, over payment to contractors, transportation charges, excess payment of sales tax, non-recovery of departmental charges, transport allowance, excess issue of Railway warrants/form 'D', short/non-recovery of Central Government Health Scheme contribution, rent and allied charges, payment issue of ration/fuel oil and lubricant and hire charges of service vehicle for school going children etc.	50.90
3.	Canteen Stores Depart-ment HQ, Mumbai	Non-recovery on account of debit notes, profession tax, liquidated damages for delayed deliveries, imposition of penalties on delayed supplies from Canteen Stores Department suppliers and payment of double house rent allowance to the Canteen Stores Department employees of North-Eastern region.	248.18
Total			**Rs 392.61 lakh Say Rs 3.93 crore**

[2] Pay and Accounts Officers (Other Ranks) – Bombay Engineering Group Kirkee, AOC Secunderabad, EME Secunderabad, Maratha Light Infantry Belgaum, ACR Ahmednagar, GREF Pune, Artillery Nasik Intelligence and Army Physical Training Centre Pune, MEG&C Bangalore, CMP Bangalore, Para Regiment Bangalore, ASC(MT) Bangalore, PCTC Bangalore

[3] Garrison Engineer – (Air Force) Trivandrum, (South) Bangalore, (MES) Kochi, (North) Bangalore, (Independent) Kochi, (ASTE) Bangalore, CWE(P) AF, Bangalore, AGE(I) R&D Avadi, AGE(I) Suryalanka, BSO(R) (P) AF Yelahanka

On these instances being pointed out, the units/offices concerned accepted the audit observations and recovered an amount of Rs 3.88 crore; confirmation for the recovery of the balance amount was awaited (February 2004).

Case-II: Recovery of installation charges for electricity

Two Garrison Engineers (GEs) agreed to recover fixed charges of Rs 73.85 lakh from the paying consumers at the instance of Audit.

According to orders issued by the Ministry of Defence (December 1998) electrical charges are to be recovered from paying consumers in Military areas at the rate at which the general public is charged.

The tariff of the Karnataka State Electricity Board included an element of fixed charges at Rs 13 per KW or part thereof subject to a minimum of Rs 40 per month per installation till January 2001. The fixed charge for the period from February 2001 to June 2002 was revised to Rs 20 per KW subject to a minimum of Rs 60 per month per installation and at Rs 20 for first KW or part thereof per month and Rs 30 per KW for additional KW or part thereof per month from July 2002 onwards.

GE(I) R&D (East) and GE(I) R&D (West), Bangalore, were responsible for the supply of electricity to 2641 units of accommodation of DRDO residential complex at the Station.

Audit scrutiny revealed that both the GEs, while recovering electrical charges, failed to recover the fixed charges from the occupants of the quarters. The non-recovery by the GEs on this account worked out to Rs 73.85 lakh (Rs 23.51 lakh for GE(I)R&D East and Rs 50.34 lakh for GE(I) R&D West) for the period from December 1998 to March 2003. While accepting the facts, Ministry stated (January 2004) that fixed charges were being levied on the consumers from March 2003 and the recoveries being effected accordingly. Ministry added that recovery bills for the arrears for the period from December 1998 to February 2003 were being sent to concerned laboratories/establishments for effecting recovery from concerned individuals. The arrear of fixed charges was yet to be recovered as of February 2004.

Case-III: Recovery of fuel escalation charges at the instance of Audit

GE (North), Bangalore agreed to recover Fuel Escalation Charges of Rs 18.92 lakh for the period December 1998 to June 2002 at the instance of Audit.

Garrison Engineer (GE) (North), Bangalore receives electricity through Karnataka Power Transmission Corporation Limited (KPTCL) at bulk purchase rates and recovers the charges from the consumers as per the respective tariff of the State Electricity Board for domestic consumers in adjoining areas.

The rates prescribed include an element of Fuel Escalation Charges (FEC) at the rate of Rs 0.25 per unit consumed and domestic consumers are liable to make this payment. However, it was noticed from the revenue records of GE that the recovery towards FEC was not effected from the paying consumers.

There were 2879 paying consumers consisting of service officers, other ranks and civilian personnel within the maintenance jurisdiction of the GE and they had consumed, 75,64,077 units of electricity during the period between December 1998 and June 2002 and a sum of Rs 18.92 lakh had not been recovered towards FEC.

While accepting the facts, the Ministry stated in September 2003 that necessary recovery statement from December 1998 to June 2002 was made for Rs 18.92 lakh and forwarded to the concerned authority for effecting recovery.

Case-IV: Non-availing of Rebate on Electricity consumption

GE(AF) Bamrauli and GE Fatehgarh did not avail of rebate from UPPCL amounting to Rs 1.03 crore till it was pointed out by Audit.

The Uttar Pradesh State Electricity Board (now Uttar Pradesh Power Corporation Limited) revised the electricity tariff vide its notification No. 1622 dated 15 April 1994. The notification provided for a 5 per cent rebate to bulk consumers for supply of electricity above 400 Volts. This provision was later revised in September, 2001. Consequently, if the supply was provided at voltage above 400 Volts or above 11 KV, a rebate of 5 per cent or 7.5 per cent, respectively, would be given on the rate of charge.

The rebate relating to the period from April 1994 to July/August 2002 amounting to Rs 1.03 crore was not availed of by Garrison Engineer (Air Force) Bamrauli and Garrison Engineer (GE) Fatehgarh.

Audit scrutiny revealed that:-

(i) Bulk supply of electricity for use at Air Force Station, Bamrauli, was being obtained through three service connections of 11 KV each. Despite the existing provisions for rebate as also instructions from Command Chief Engineer, Lucknow, for availing of the rebate, the GE(Air Force), Bamrauli, did not do so. The amount of rebate for the period from April 1994 to August 2002 worked out to Rs 77.21 lakh.

(ii) On this being pointed out in Audit in May 2002 the GE claimed the rebate from September, 2002.

(iii) Similarly, GE, Fatehgarh, also received bulk supply of electricity from UPPCL through two service connections of 11 KV. The GE, however, did not avail of the rebate from January 1996 to July 2002, amounting to Rs 25.73 lakh. This was pointed out in Audit in September 2002.

Thus, the two GEs failed to avail of the rebate provided by UPPCL, Lucknow, amounting to Rs 1.03 crore.

The Ministry in its reply (September 2003/October 2003), while accepting the facts, stated that in respect of GE (AF), Bamrauli, out of Rs 77.21 lakh, Rs 22.50 lakh had already been recovered and UPPCL had agreed to refund the remaining amount. They

added that the overpayment would be fully recovered by June 2005. In respect of GE, Fatehgarh, the Ministry stated that Rs 25.73 lakh had since been adjusted in the tariff bill for the month of May 2003.

Savings

Savings of Rs 58 lakh at the instance of Audit

Irregular Administrative Approvals/Technical sanctions were cancelled or revised at the instance of Audit and Rs 58 lakh was saved.

Consequent upon test check of records of various units/formations, a few cases of irregular issue of Administrative Approvals (AA)/Technical sanctions were noticed. On these being pointed out, either the AA/concerned works were cancelled or revised approvals issued subsequently, resulting in savings of the order of Rs 58 lakh as per following details:

Savings at the instance of Audit

(Rs in lakh)

Sl. No.	Unit/formation concerned	Remedial measures for regulation of irregularity	Amount involved
1.	AFMC Pune	Cancellation of AA for carrying out additions/alterations to a building while the re-appropriation for use as a Shopping Complex was objected to by audit	9.30
2.	CWE, Deolali	Cancellation of three works for provision of cement godowns with reference to audit objections	5.66
3.	HQ 12 Corps	Revision of AA on being pointed out	0.55
4.	HQ Western Command	Cancellation of AA for provision of living accommodation for admn Party	20.89
5.	HQ 15 Inf. Div.	Cancellation of AA for provision of false ceiling in TR huts	8.78
6.	HQ 81 Sub Area	Cancellation of AA for special repairs to a training and sports complex	5.08
7.	Station HQ Jodhpur	Cancellation of AA for provision of compound wall around a shopping complex	4.87
8.	HQ 91 Sub Area	Cancellation of AA for provision of special repairs to VIP Guest Room and toilets in Officers Mess	2.97
		Total	**Rs 58.10 lakh Say Rs 58 lakh**

The case was referred to the Ministry in August 2003; their reply was awaited as of February 2004.

3.3 Avoidable extra expenditure on procurement of Jeeps

Failure to extend the price negotiated to other purchases during the same period led to avoidable extra expenditure amounting to Rs 3.07 crore.

The Director General of Ordnance Services (DGOS) placed a supply order in March 1999 on a firm for the procurement of 475 Jeeps, Mahindra & Mahindra (M&M)

550XD at a unit price of Rs 2.45 lakh plus excise duty, CST[4] and MST[5]. The Jeeps were to be fitted with mud and snow tyres. A Price Negotiation Committee (PNC) meeting was held in March 1999. It was decided that the Army could exercise the option to replace the fitted "mud and snow tyre" with "sand – cum – highway" (SCH) tyre. The differential cost between the selected tyre/rim and the mud and snow tyre/rim was to be negotiated by a PNC. A comparative trial evaluation was carried out and the Army Headquarters accorded approval for the fitment of SCH tyre on 9 August 1999.

It was decided on 11 June 1999 to procure another 1173 Jeeps M&M 550XD. A PNC meeting held on 6 August 1999 fixed a unit price of Rs 2,58,823 after taking into account the additional cost for the SCH tyres. The PNC negotiated the cost of Jeeps at Rs 2,45,313 with mud and snow tyres and at Rs 2,58,823 with SCH tyres. The breakup of additional cost of Rs 13,510 for fitment of SCH tyres i.e. cost of rim and tyre was not obtained during negotiations. The Supply order for procurement of 1173 vehicles was placed in October 1999. Another PNC was held in December 1999 for procurement of a further 2250 vehicles at the cost fixed in the August 1999 PNC and a supply order was placed in January 2000.

A PNC meeting was held in March 2000 with the firm to negotiate the price of Sand-cum-Highway tyres to be fitted in all the 475 Jeeps procured in March 1999. The firm offered a price of Rs 20,393.10 for Sand-cum-Highway tyres (alongwith rims) per set of five and Rs 7,980 for Mud and Snow tyres (with a cost difference of Rs 12,413.10). However, the DGQA[6] representative opined that the cost of rims i.e. Rs 1780 intimated by the firm while working out the differential cost was high and that it should be Rs 1200. Accordingly, the cost of replacement of SCH tyres worked out to Rs 9513.10 inclusive of excise duty, sales tax and other applicable levies, which was accepted by the firm.

The cost difference per vehicle allowed for the supply orders of October 1999 and January 2000 was Rs 13510, exclusive of excise duty and taxes. However, in the PNC meeting of March 2000, the price difference per vehicle using SCH tyres was Rs 9513.10 inclusive of excise duty and taxes. The reasonableness of rate of the rim of the SCH tyres was not examined while placing orders for 3423 Jeeps in October 1999 and January 2000 resulting in payment of higher cost differential for fitment of SCH tyres instead of mud and snow tyres.

The supply orders of October 1999 and January 2000 for a total of 3423 vehicles specified the fitment of Sand-cum-Highway tyres. However, since the reasonableness of rates for the rims was not examined, extra expenditure amounting to Rs 3.07 crore was incurred (including excise duties and taxes of Rs 1.71 crore).

The matter was referred to the Ministry in May 2003; their reply was awaited as of February 2004.

[4]CST- Central Sales Tax
[5] MST- Maharashtra Sales Tax
[6] DGQA-Director General Quality Assurance

3.4 Irregular payment of Field Area Allowance

A sum of Rs 2.96 crore was irregularly paid on account of field area allowances to the Officers, JCOs and ORs in violation of Ministry of Defence orders.

The Ministry of Defence issued instructions in January 1994 for grant of Compensatory Field Area Allowance and Compensatory Modified Field Area Allowance to the Officers and Personnel Below Officers Rank (PBOR) of the Army serving in Field Areas and modified Field Areas, respectively. It was made clear in January 1994 that these allowances would not be admissible to static formations/units like Military Farms, Military Engineer Services, Recruiting Office, Training Centres and Establishment.

The Ministry accorded sanction to the grant of Field Area Allowance in December 2001 with effect from 19 December 2001 to the Armed Forces Officers and PBOR, who were deployed/mobilised on OP PARAKRAM at the rates prescribed by it in February 2000 for a period of three months and further extended it from time to time and last extended in June 2003 up to 18 September 2003 or termination of operation whichever was earlier.

Army Headquarters clarified in February 2003 that Field Area Allowance was admissible only to those persons who were/are physically moved out of their existing stations.

A test check in audit of documents in five static units[7] between January 2003 and June 2003 revealed that contrary to the provisions, Officers, Junior Commissioned Officers and Other Ranks posted in these units, who had not actually moved out of their existing stations, were paid Field Area Allowance amounting to Rs 2.96 crore for the period from December 2001 to May 2003.

Ministry stated in January 2004 that payment of Field Area Allowance could not be restricted only to troops who moved out of their permanent location as there was no stipulation in Ministry's sanction of December 2001 that Field Area Allowance is admissible only to personnel who moved out of their permanent location. This contention of Ministry is contrary to instructions issued by Army HQ in February 2003 for admissibility of allowance only to those who "were/are actually deployed and moved out of their permanent locations". Ministry added that orders have been issued authorizing payment of allowance only upto 18 December 2002. Audit noticed that three units issued cancellation orders of Field Area Allowance from 19 December 2002 onwards amounting to Rs 64.73 lakh and one unit issued recovery orders of amount authorized by it from 19 December 2001 onwards amounting to Rs 31.34 lakh. The remaining irregular payment was Rs 1.99 crore.

[7] 11 Field Ordnance Depot, 17 Field Ammunition Depot, 23 Field Ammunition Depot, 24 Field Ammunition Depot and Ammunition Depot, Bathinda

3.5 Unauthorised payment of compensation in lieu of quarters to the tune of Rs 1.33 crore

Contrary to the Regulations unauthorised payment of CILQ to the tune of Rs 1.33 crore was made to PBORs.

Army Regulations provide that Compensation in lieu of Quarters (CILQ) at duty station rate would be admissible to Personnel Below Officers Rank (PBOR) who are:-

(a) Married and within the authorised percentage of married establishment.
(b) Permitted to live out with their families.
(c) On posting to field.

When families of PBORs reside at a station other than the duty station due to non-availability of married accommodation at the duty station, they are entitled to CILQ at 'other town' rates.

To ensure the compliance of the above provisions, the Regulations further provide that:

i) CILQ would be notified in DO Part-II Order initially and thereafter half yearly on 1 January and 1 July every year by the unit.

ii) The initial grant of CILQ Part-II Order should be supported by sanction of the Station Commander for peace areas and sanction of Officer Commanding unit for field areas in original authorising the PBORs to make private arrangement for accommodation due to Government accommodation not being available.

iii) Part-II Order would indicate whether the individual was married and living with family or not.

Audit scrutiny disclosed the following:-

(i) Violating all the above provisions and prerequisites for payment of CILQ at A1 city rate, i.e., duty station rate, Pay and Accounts Officer (PAO) Other Ranks (ORs) 39 Gorkha Training Centre (GTC), Varanasi, paid CILQ at A1 city rate to the PBORs of 5th battalion of 9th Gorkha Rifles in respect of 198 Junior Commissioned Officers/Other Ranks (51 retired and 147 serving) amounting to Rs. 1.33 crore during the period from August 1997 to April 2000, being the posting period of the battalion at Barrackpore (near Kolkata).

(ii) The payment at duty station rate i.e. Kolkata rate was allowed merely on the ground of a certificate obtained from the Commanding Officer of the unit to the effect that the unit was serving in class A1 City and was hence entitled for CILQ at Class A1 City rate without verifying the availability of certificate of the Station Commander that the individuals were permitted to live out with their families and were not provided single/married accommodation.

(iii) This irregular grant of CILQ in violation of the rule position resulted in unauthorised payment of Rs 1.33 crore as CILQ during August 1997 to April

2000. The PAO(ORs), Varanasi, failed to check the admission of the incorrect claims.

On this being pointed out in Audit (11 June 2002) PAO (ORs) 39 GTC agreed to recover the overpayment and intimated in June 2003, recovery of Rs 42 lakh in respect of overpayment and added that the recovery action was under process and likely to be completed shortly.

The matter was referred to the Ministry in April 2003; their reply was awaited as of February 2004.

3.6 Non-recovery of training charges by Defence Services Staff College

Non-recovery of training charges from Coast Guards/Civilian Officers amounting to Rs 93.62 lakh.

Defence Services Staff College, Wellington (DSSC) trains officers for middle level staff appointments in the three services. Officers are also nominated for training from the Indian Coast Guards, Military Engineer Services, Border Security Force and the Civil Services. According to the instructions of the Ministry (May 2001), the training charges in respect of these officers are to be recovered by the DSSC from the respective cadre-controlling authorities. The training charges applicable to the officers from Coast Guards are at the rates applicable to the foreign trainees in India. In respect of Civilian Officers undergoing the Staff Course at DSSC, the per capita cost of training was fixed at Rs 5400 per week with effect from December 1996.

However, DSSC had not initiated any recovery statements in respect of the Coast Guards/Civilian Officers who had undergone the Staff Course (53rd to 57th Course) during the period from 1997-98 to 2001-02. This has resulted in non-recovery of training charges amounting to Rs 93.62 lakh (Rs 54.41 lakh in respect of Coast Guard Officers and Rs 39.21 lakh in respect of Civilian Officers) for the above period. After it was pointed out in Audit, DSSC replied in October 2003 that it had since initiated the recovery process.

3.7 Incorrect payment of transport allowance

Incorrect implementation of orders for the grant of transport allowance to service personnel led to overpayment of Rs 69.93 lakh.

The Ministry sanctioned in February 1998 payment of transport allowance with effect from August 1997 to service personnel at varying rates based on their rank and place of posting. Transport allowance is not admissible to those service personnel who are provided with Government accommodation within a distance of one kilometre from the place of duty or within a campus housing the place of work and residence.

Audit scrutiny at the Indian Military Academy Dehradun (IMA) revealed that in violation of the above orders, transport allowance was paid to service personnel who were provided with Government accommodation within the campus housing both their place of work and residence. The allowance was not being drawn/admitted in respect of civilian employees residing within the campus of IMA. In reply to Audit, the IMA authorities stated (July 2000) that the allowance was authorised to service personnel as the distance between their place of duty and residence was more than one kilometer. In February 2001, Army Headquarters (HQ) intimated to all Command HQ that the Ministry of Defence had taken up the case with the Ministry of Finance for deleting the phrase "or within a campus housing the place of work and residence" appearing in the Government orders of February 1998.

After examination of the matter, the Ministry of Finance reiterated (March 2002) their earlier decision that transport allowance was not admissible to those employees who were provided with Government accommodation within the campus housing the place of work and residence. The transport allowance to service personnel of IMA was stopped with effect from 1 September 2002. The incorrect payment of transport allowance to service personnel of IMA from August 1997 to September 2002 resulted in overpayment of Rs 67.52 lakh.

Similarly audit scrutiny at Equine Breeding Stud (EBS) Hissar, Gorkha Training Centre PAO (ORs), Sabathu and Officers Training Academy, Chennai revealed that in violation of the above Government orders, transport allowance amounting to Rs. 2.41 lakh was paid to service personnel who were provided with Government accommodation within the campus housing both their place of work and residence.

Thus, incorrect implementation of Government orders resulted in overpayment of Transport Allowance of Rs 69.93 lakh to service personnel upto September 2002/October 2003.

The Ministry of Defence stated in December 2003 that:

- IMA was spread over approximately 1500 acres of land with no enclosed boundary.
- Government accommodation for Junior Commissioned Officers/Other Ranks was situated more than 1.5 km away.
- The schedule of IMA was such that most personnel had to commute between their residence and place of work thre : or four times a day.
- Merely being a 'Training Institution' did not make IMA a 'campus' for the purpose of the said Government orders.

The contention of the Ministry is not tenable since:

- Under the same orders civilian employees are not granted transport allowance.
- IMA in their reply of July 2000 had only stated that JCOs/ORs residing in and around IMA were authorised to draw transport allowance as their place of duty

was more than one kilometre from residence. IMA had not raised the issue of 'campus' at that time.

- The distance limit does not apply to campus as per Government orders.

- The Ministry of Defence have now stated in reply that in March 2002 the Ministry of Finance stated that they were not able to delete the word 'campus' for defence personnel as the orders had general applicability. This indicates that the case was all along being processed treating IMA as a 'campus' and the issue of its not being a 'campus' has been raised only now.

CHAPTER IV : WORKS AND MILITARY ENGINEER SERVICES

4.1 Recurring loss on account of payment of electrical charges at commercial rate for supply meant for domestic consumption

Delay in according sanction by HQ Eastern Air Command to the proposal for bifurcation of domestic and commercial feeder lines led to the accumulated loss of Rs 1.76 crore.

Though Garrison Engineer Air Force requested MSEB[1] in February 1996 to segregate the domestic and commercial take-off points so that domestic and commercial rate could be charged at their respective rate; the proposal for creation of infrastructure was initiated in October/November 1998 and sanction accorded in September 2002 by Headquarters (HQ) Eastern Air Command. The delay in creation of infrastructure for bifurcation resulted in recurring extra expenditure.

The audit scrutiny of the case revealed as under:-

(i) The electricity supply for domestic and commercial consumption at Air Force Station, Shillong, was being taken at one take-off point at two places ('E' Falls Camp and 'L' Peak). The total supply received being more than 50 KW, the State Electricity Board charged commercial rate for the entire supply due to non-bifurcation of consumption.

(ii) To avoid recurring loss due to payment at commercial rate at the two points, G.E. requested MSEB in February 1996 to segregate the domestic and commercial take-off points. The MSEB stated that it would take up the bifurcation only if the G.E. creates the required infrastructure.

(iii) The Garrison Engineer initiated a proposal in October/November 1998 for sanctioning of work services at E.Fall[2] and L.Peak[3] for Rs 9.50 lakh and Rs 29.04 lakh respectively. The cost-benefit analysis of the proposal indicated that one-time investment of Rs 38.54 lakh would prevent recurring loss due to payment at commercial rate.

(iv) HQrs. Eastern Air Command accorded two sanctions in September 2002 for Rs 26.23 lakh and Rs 18.92 lakh for L.Peak and E.Fall respectively, for execution of work services for bifurcation of domestic and commercial H.T.feeders. The works were released for execution in December 2002. The execution was yet to commence (February 2003).

[1] MSEB - Meghalaya State Electricity Board
[2] E. Fall - Elephant Fall
[3] L.Peak - Leitoker Peak

Thus delay in initiation of proposal for work services for segregating the mixed load by GE and also delay in according sanction by HQrs. Eastern Air Command to the proposal led to avoidable extra expenditure of Rs 1.76 crore as of March 2003.

Ministry stated in December 2003 that the works services for bifurcation of commercial and domestic supply have been completed in December 2003 and joint inspection with State Electricity Board was being planned.

4.2 Sanction of unauthorised swimming pool

Headquarters, Southern Command, sanctioned in March 2002, construction of a separate swimming pool at Mumbai for the Army at an estimated cost of Rs 1.36 crore, despite the existence of the maximum authorised swimming pools in the station.

The Scales of Accommodation (SA) for the Defence Services, 1983 govern authorisation of swimming pools. Paragraph 8.8 read with Paragraph 1.2 thereof stipulates that swimming pools be provided based on the total troop strength in a station. There is no provision for construction of separate swimming pool for each of the Services as these are provided on the basis of the station.

In Mumbai, there are four swimming pools, operated by the Navy. Of these three are at Colaba. The construction of more than three swimming pools in a station is not authorised. Despite the existence of four swimming pools, the General Officer Commanding-in-Chief of Headquarters (HQ), Southern Command, issued a sanction (March 2002) for the construction of a swimming pool at Colaba in Mumbai at an estimated cost of Rs 1.36 crore to be completed by March 2004. Construction of the swimming pool was in progress (October 2003) under a contract concluded (December 2002) by the Chief Engineer.

When the sanction for provision of a new swimming pool at the station contrary to scales was referred to the Ministry in September 2003, Ministry stated in January 2004 that Brihan Mumbai District has separate Station HQ for each of the services with three different geographical areas which were not overlapping. They also stated that there being no swimming pool in Mumbai to cater to the requirement of the Army at Mumbai Station (Army). The same was projected for inclusion in Major works programme and approved by the Ministry.

The contention of the Ministry is not tenable as only three swimming pools are authorised for the Services as a whole in a station. The introduction of the phrase Mumbai Station (Army) by the Ministry to segregate the requirements of the Army is not consistent with the spirit behind the Scales of Accommodation for the Defence Services.

4.3 Avoidable expenditure on construction of married accommodation

Married Accommodation for ORs was constructed at a station despite the low demand for such accommodation, resulting in infructuous expenditure of Rs 1.17 crore.

A Board of Officers recommended in July 2000 sanction of married accommodation for 42 Other Ranks (ORs) at a station on the ground that the total married accommodation available for ORs (446) was short of the authorisation (816) and that its requirement was urgent.

Based on this, General Officer Commanding-in-Chief, Southern Command issued Go-ahead sanction in August 2000 for the execution of the work under 'Fast Track Procedure'. In March 2001, Administrative Approval to the work was issued at an estimated cost of Rs. 1.40 crore for completion by December 2002. Chief Engineer, Jaipur Zone, under a contract concluded in March 2001 got the accommodation constructed by July 2002 at a cost of Rs 1.17 crore and handed over to the users in September 2002.

Audit observed in February 2003 that the construction of the accommodation was not based on the need as reflected by the occupancy of existing accommodation. The position of vacant quarters of the existing accommodation between February 2000 and March 2003 was as under:

February 2000 to October 2001	-	52 quarters (average)
November 2001 to November 2002	-	147 quarters
December 2002 to March 2003	-	141 quarters

The above showed that there was no demand even for the existing married accommodation in the station. As of August 2003, 149 quarters including 13 newly constructed accommodation were vacant. Of these 102 were vacant due to permanent move of units.

According to the provisions of the 'Scales of Accommodation' Defence Services, the existence of a scale neither constitutes evidence of need nor is an authority for construction of new accommodation. The need for a work service and its scope must be properly examined and justified before sanction is accorded by the Competent Financial Authority.

Ministry stated in January 2004 that the Board recommended construction of married accommodation for 42 ORs in July 2000 considering the deficiency of married accommodation and at that point of time it was not known that OP PARAKRAM was likely soon and hence a number of ORs would leave their families at their home station.

Ministry's contention is not tenable because even after adjustment of 102 accommodation lying vacant due to permanent move of units 47 accommodation were still lying vacant as of August 2003.

4.4 Avoidable expenditure of Rs 61.11 lakh on execution of works

Avoidable expenditure of Rs 61.11 lakh was incurred on execution of seven works after the cancellation of the exercise for which these were required.

Headquarters Western Air Command (Air Force) (HQ WAC AF) and Air Officer Commanding (AOC), Air Force Station (AFS), Chandigarh, proposed 40 works costing Rs 3.47 crore for the Presidential Fleet Review (PFR) to be held at Air Force Station (AFS), Chandigarh on 17 October 2001. Of these, 38 works costing Rs 3.27 crore were sanctioned between March 2001 and September 2001. However, on 26 September 2001, weeks before the event, Air Headquarters (HQ) intimated that the Fleet Review had been cancelled and issued instructions that no fresh project/purchase/order/commitment of funds with respect to these events was to be undertaken.

In contravention of the Air HQ instructions, AOC, AFS Chandigarh sanctioned two more works costing Rs 19.91 lakh in November 2001 for the event. These works commenced on 7 June 2002 and were completed on 23 April 2003 at a cost of Rs 19.43 lakh. Out of the 38 works sanctioned during March to September 2001, 5 of the works commenced from 3 December 2001 onwards well after the Air HQ instructions regarding cancellation of the PFR. These works were completed between February 2002 and April 2003, at a total cost of Rs 41.68 lakh.

Audit scrutiny revealed that out of the seven works executed, after the cancellation of PFR, four works pertained to provision of roads/path, parking area (Rs 37.85 lakh), two related to provision of air conditioners/special furniture (Rs 12.75 lakh) and one for the station briefing hall (Rs 10.51 lakh) totalling Rs 61.11 lakh. Sanctioning and commencement of these works even after 17 October 2001 which was the originally scheduled date for the PFR, was not justified.

Thus sanctioning of two works by AOC and commencement of seven works (including these two) by Garrison Engineer (Air Force) in contravention of Air HQ instructions resulted in avoidable expenditure of Rs 61.11 lakh.

The matter was referred to the Ministry in August 2003; their reply was awaited as of February 2004.

4.5 Avoidable payment to Delhi Vidyut Board

Failure to deposit the estimated project cost in time for enhancing the electric load resulted in avoidable payment of Rs 20.30 lakh to DVB as price escalation charges.

The electricity sub-station of Solid State Physics Laboratory (SSPL), Timarpur, Delhi, was sanctioned and connected with an electric load of 2139.46 KW. To meet the additional requirement of electricity for commissioning of the "Mask Making Facility Lab" in SSPL, the Delhi Vidyut Board (DVB) was approached for enhancement of

the existing load by 750 KW, thereby raising the total load to 2889.46 KW. DVB submitted its estimate for the above work on 8 January 2001.
The Chief Construction Engineer (R&D), Delhi forwarded his proposal to the Directorate of Civil Works & Estates/RD-28, New Delhi on 30 January 2001, based on DVB's estimate. The Ministry of Defence, Department of Defence Research & Development, accorded its administrative approval on 10 May 2001. An amount of Rs 1.69 crore, the estimated cost of the work was to be deposited to DVB by 7 July 2001. In addition, consumption deposit of Rs 57.80 lakh was also payable.

The Garrison Engineer (GE) (R&D), Timarpur, Delhi, forwarded the claim for the amount of Rs 2.27 crore to the Principal Controller of Defence Accounts (PCDA), Chandigarh on 23 June 2001. PCDA, Chandigarh, passed the claim only on 9 August 2001 and GE (R&D) deposited the amount with DVB on 18 August 2001, i.e. after the stipulated date.

Due to failure of GE (R&D) to deposit the amount in time, DVB demanded an additional payment of Rs 20.30 lakh towards price escalation charges (at the rate of 12 per cent of Rs1.69 crore, i.e. project estimated cost) on 8 November 2001 which was paid in June 2002.

The Ministry, while accepting the facts, stated in August 2003 that hand receipts for original as well as for additional escalation charges were forwarded well in time by GE but these were not cleared by PCDA, Chandigarh, in time leading to payment of additional charges.

The Ministry's reply is not tenable because MES authorities had taken more than one month in processing and forwarding the hand receipt and sent it to PCDA, Chandigarh, only 15 days prior to the due date.

Failure to deposit the estimated project cost within the prescribed time led to avoidable payment of Rs 20.30 lakh to DVB towards price escalation charges.

CHAPTER V : RESEARCH AND DEVELOPMENT ORGANISATION

5.1 Procurement and utilisation of plant and equipment in DRDO

5.1.1 Introduction

The Defence Research and Development Organisation (DRDO) provides scientific and technical support to the Armed Forces through design and development of new and sophisticated equipment to meet operational requirements. A significant objective is the establishment of capability for indigenous production of equipment which, hitherto, were imported i.e. self-reliance in defence requirements. The mandate of DRDO is accomplished through a network of 50 laboratories/establishments. The activities of DRDO are organised through specific projects of the following types.

(i) Staff projects taken up at the instance of the Services against specific qualitative requirements.

(ii) Competence building projects undertaken for building up expertise in specific disciplines.

5.1.2 Scope of Audit

A review was conducted on the procurement and utilisation of imported and indigenous plant and equipment, procured during the period from 1997-98 to 2001-02. All cases of equipment costing Rs 5 lakh and above were studied in audit.

Fifteen R&D laboratories/establishments out of 50 were selected for review as detailed in Annex-II. The functions of the fifteen laboratories and establishments are given in Annex-III.

5.1.3 Audit Objectives:

The specific objectives of the review were:

(a) to examine whether the procurement of plant and equipment by DRDO establishments was justified;

(b) to analyse the process of procurement and see whether it was conducted effectively and efficiently with respect to cost and time, and

(c) to assess the efficiency of utilisation of plant and equipment procured.

5.1.4 Highlights

- **There were abnormal delays ranging upto 13 years in installation of six machines valuing Rs 13.78 crore in four Laboratories/Establishments.**

(Paragraph 5.1.7)

- **There was under-utilisation of four equipments valuing Rs 5.60 crore in four Laboratories.**

(Paragraph 5.1.8)

- **In two Laboratories, there were four equipments valuing Rs 3.21 crore lying unutilised.**

(Paragraph 5.1.8)

- **Eight machines valuing Rs 1.75 crore required for specific projects were received in five Laboratories either after closure/at the fag end of the project.**

(Paragraph 5.1.6)

- **A Laboratory procured equipment costing Rs 1.60 crore which were not envisaged in the project proposal.**

(Paragraph 5.1.6)

- **Non-realisation of cost of Rs 4.89 crore for the assets installed at Mishra Dhatu Nigam for over 11 years.**

(Paragraph 5.1.9)

5.1.5 Budget and Expenditure:

The following table depicts the budget allotment and actual expenditure of DRDO:

(Rs in crore)

Year	Total budget allocation	Total expenditure	Budget allocation for purchase of material* only	Actual expenditure on purchase of material* only
1997-98	1683.00	1958.22	486.83	561.81
1998-99	2476.80	2299.61	1000.32	994.17
1999-00	2780.00	2833.47	1190.00	1254.04
2000-01	3101.75	3355.81	1304.24	1548.06
2001-02	3518.34	3127.97	1607.33	1395.53

(*) Material includes stores, plant and equipment.

Though stores are revenue items, DRDO was accounting for stores, plant and equipment together as revenue expenditure. Only civil works were treated as capital items. DRDO stated (December 2003) that a Study Group on Budgetary Reforms

had suggested in 2002 that the capital purchases of plant/equipment were to be classified distinctly as 'capital' and that the recommendations would be implemented from the financial year 2004-05.

Budgetary allocations and actual expenditure on material in respect of the fifteen Laboratories and establishments selected for review for the five years from 1997-98 to 2001-02 were as under:

(Rs in crore)

Sl. No.	Name of Laboratories/Establishments	Total budget allotment	Budget allotment for purchase of material	Expenditure on purchase of material
1.	Defence Research and Development Laboratory, Hyderabad (DRDL)	200.95	70.22	70.04
2.	Research Centre Imarat, Hyderabad (RCI)	145.46	84.55	84.32
3.	High Energy Materials Research Laboratory, Pune (HEMRL)	123.01	34.75	20.52
4.	Armament Research and Development Establishment, Pune (ARDE)	174.18	84.82	76.43
5.	Terminal Ballistic Research Laboratory, Chandigarh (TBRL)	82.02	38.40	38.23
6.	Combat Vehicle Research and Development Establishment, Avadi (CVRDE)	171.65	67.51	65.18
7.	Defence Electronics and Research Laboratory, Hyderabad (DLRL)	318.02	199.35	188.78
8.	Defence Metallurgical Research Laboratory, Hyderabad (DMRL)	146.00	57.43	56.63
9.	Research and Development Establishment (Engineers), Pune (RDE(E))	96.73	44.20	41.53
10.	Vehicle Research Development Establishment, Ahmednagar (VRDE)	81.21	34.63	34.22
11.	Solid State Physics Laboratory, Delhi (SSPL)	101.94	47.75	44.41
12.	Institute of Nuclear Medicine and Allied Sciences, Delhi (INMAS)	40.70	19.79	19.20
13.	Laser Science and Technology Center, Delhi (LASTEC)	103.93	70.03	60.49
14.	Integrated Test Range, Balasore (ITR)	120.62	81.01	79.49
15.	Proof and Experimental Establishment, Balasore (PXE)	71.85	17.48	19.46
	Total	**1978.27**	**951.92**	**898.93**

The details of yearwise budget allotment and actual expenditure on material of the fifteen laboratories and establishments are given below:

(Rs in crore)

Year	Total budget allotment	Budget allocation for purchase of material	Actual expenditure on purchase of material	Savings
1997-1998	302.66	150.91	143.08	7.83
1998-1999	348.91	158.59	139.75	18.84
1999-2000	405.03	187.11	179.87	7.24
2000-2001	447.12	214.81	207.38	7.43
2001-2002	474.55	240.50	228.85	11.65
Total	**1978.27**	**951.92**	**898.93**	**52.99**

The DRDO establishments spent 45.44 per cent of their budget on purchase of stores, plant and equipment.

5.1.6 Procurement Planning

Procurement/receipt of equipment after the closure or at the fag end of the project

Eight equipment costing Rs 1.75 crore required for specific projects were received either after the closure of the project or at the fag end of the project as illustrated below:

Sl. No.	Name of Lab/Estt.	Equipment	Cost	Closure of Project	Equipment installed on	Remarks
1.	ARDE	Piezo d33, dhgh measuring system	Rs 14.65 lakh	December 2001	December 2001	-
2.	DMRL	High temperature Air Furnace	Rs 12 lakh	December 1999	August 1999	-
3.	DMRL	Electric Shell Pre-heating Furnace	Rs 10 lakh	December 2002	June 2002	PDC(*) extended to 2004. Not used up to February 2003.
4.	DMRL	Plate leveling machine	Rs 9.33 lakh	November 2002	July 2002	Used only for 7½ hours since its installation.
5.	VRDE	Data Acquisition Products	Rs 6.80 lakh	December 1998	December 1999	-
6.	HEMRL	HOT compaction machine	Rs 15.50 lakh	September 2002	September 2002	Used only for 18½ hours.
7.	DMRL	Optical Microscope	Rs 6.04 lakh	January 2000	June 1999	Used only for 7 hours 15 minutes.
8.	SSPL	Plasma Enhanced Chemical Vapour Deposition System	Rs 1.11 crore	September 2002	August 2002	Used for only 1month in the project.

(*) PDC - Probable date of completion.

The delay in receipt of the equipment was due to delay on the part of DRDO in placement of orders, delay in inspection, delay in completion of civil works by Military Engineer Services, etc.

Hence equipment worth Rs 1.75 crore could not be used for intended project/purpose. DRDO stated (December 2003) that they were being used for ongoing projects.

Procurement of equipment not envisaged in the project proposals costing Rs 1.60 crore

The project proposal in respect of SSPL Project titled "Development of IR sensor module for MBT" envisaged procurement of the following equipment (costing more than Rs 5 lakh each).

Sl. No.	Name of the Equipment	Cost (Rs in crore)
1.	Turbo Molecular Pump	0.10
2.	ION Milling	1.00
3.	Mask Alignment	0.70
4.	Bonder Programmable	0.50
5.	Test Dewar & Dewar	0.18
	Total	**2.48**

Scrutiny of project expenditure revealed that some equipment, not proposed in the sanctioned project, were procured after incurring a total expenditure of Rs 1.60 crore mostly through imports.

DRDO stated in December 2003 that at the time of sanction of the project, all major equipment envisaged were included in the budget. As the project progressed, a need was felt for additional equipment not budgeted in the original sanction. SSPL indicated that procurement and re-appropriation of funds under different heads had already been approved by the Ministry.

The procurement of additional equipment costing Rs 1.60 crore which works out to 39 per cent of the total cost was reflective of incorrect project estimation.

The cases discussed above reflect the need to strengthen procurement planning since in many instances, equipment was received either towards the end or after the closure of the projects. In some cases, project estimation underwent frequent changes pointing to the need for more realistic project planning.

5.1.7 Procurement Process

Failure to adopt open tendering

The Purchase Management Procedure of DRDO issued in July 2000 stipulated that in general, open/global tenders should be invited to generate as much competition as possible. However, if warranted by the situation, other modes of tendering viz. limited, single and proprietary could also be used in accordance with the prescribed procedure. Audit observed that out of 30 cases in five laboratories involving purchase of equipment costing Rs 10.17 crore, there were only four open tenders. In 17 cases purchase was made on the grounds of urgency of requirement. Out of 5 cases processed as urgent in the years 2001 and 2002 i.e. after issue of Purchase Management Procedure by DRDO only two orders were placed within 12 months and three were placed after 13 to 21 months of raising of demands. In 12 other cases considered urgent, for which orders were placed upto the year 2000, the time gap between the raising of demand and actual ordering ranged from 5 to 11 months in 8 cases and over 12 months in four cases. The grounds of urgency to justify limited tendering thus become questionable in such cases.

Long Internal Lead Time

The Purchase Management Procedure [Para 4.4.2 (g)] prescribed a normal time limit of 12 months for different activities involved in purchase, i.e. from the date of demand from the user department to the date of placement of supply order. A test check of 50 cases in 4 laboratories revealed that in 22 cases supply orders were placed after 12 months from the date of demand from the users. In reply these delays were attributed to reasons like complex specifications, non-availability of competent vendors, custom-made equipment, etc.

Long External Lead Time

Audit analysed the extent to which the suppliers were able to adhere to the time schedule for delivery. A test check of 118 cases in 8 laboratories revealed that in only 43 cases were supplies made in time. In 65 cases, items were received after delays upto one year. In 9 cases, items were received with delays of more than one year and ranging upto three years. One case was outstanding beyond five years. Liquidated damages were required to be recovered for all demonstrable losses on account of delays. The total amount to be recovered by way of liquidated damages in 36 cases was Rs 67.58 lakh. However liquidated damages amounting to Rs 0.46 lakh was recovered in only one case. In the remaining 35 cases, an amount of Rs 67.12 lakh leviable was waived by the Directors of the laboratories/establishments. DRDO stated (December 2003) that most of the equipment procured by it was not available off the shelf. There were often unavoidable delays in supplying custom-built equipment. The liquidated damages clause was put just as a deterrent and that imposing it in exceptional circumstances would be injudicious.

Delay in installation of equipments

Delay in installation of equipment after receipt contributes to delay in execution of time-bound projects. In 20 cases reviewed by audit, there had been delays ranging from 1 to 13 years in installation of equipment costing Rs 18.55 crore. The details of six cases involving equipment costing Rs 13.78 crore, where there were abnormal delays, are given in the table below:

Sl. No.	Name of Lab/Estt	Equipment	Cost	Date of receipt	Status as of March 2003
1.	DMRL	Vacuum Induction Melting and Casting Furnace	Rs 1.36 crore	April 2000	Installed in April 2002
2.	DMRL	High Temperature High vacuum Furnace	Rs 1.08 crore	August 2000	Installed in February 2002
3.	CVRDE	200 KW Dynamometer	Rs 36.75 lakh	June 1989	Installed in August 2002
4.	DMRL	Electric Furnace Chamber	Rs 13.70 lakh	January 2002	Not installed
5.	DRDL	3D CNC co-ordinate measuring machine	Rs 4.63 crore	September 2002	Not installed
6.	TBRL	Warm Isostatic Press	Rs 6.20 crore	October 2002	Installed in January 2003, yet to be commissioned

In all these cases, the supplier was responsible for the delays. The time-frame for installation of the equipment by the suppliers had not been laid down in the contracts.

Other reasons for non-installation/commissioning of the equipment were: delay in calibration, equipment received in damaged condition, delay in repair or replacement

of the damaged parts by the supplier and delay in completion of civil works before the receipt of the equipment. DRDO stated in December 2003 that the delay was abnormal in the case of Dynamometer but in other cases it might not be treated as abnormal since majority of purchases were not off the shelf. They added that out of a total procurement of Rs 900 crore approximately the delay in installation took place only for 1.5 per cent of total expenditure. However, the cases discussed relate to a test check in only six[@] laboratories.

5.1.8 Under utilisation of equipment

Under utilisation due to delay in repairs/servicing/upgradation

Test check revealed that equipment costing Rs 5.60 crore were under-utilised or remained unutilised due to delay in repair and upgradation.

Equipment costing Rs 1.67 crore lying under repair for more than 1 year

SSPL procured a Flip Chip Alignor Bonder (machine) at a cost of Rs 1.67 crore in August 1998. The machine was commissioned in August 1998 for the purpose of integration of two chips in the Focal Plane Array Project. The expected life of the machine was 10 years. Since its installation, the machine was put to use for 551 hours only till October 2001 and was thereafter lying under repairs. The machine was yet to be repaired (November 2003). DRDO stated (December 2003) that an order had been placed on 28 November 2003 for its repair and Annual maintenance.

Equipment remaining unutilized for more than 2 years for want of repairs

RCI imported a Frequency Response Analyser at a cost of Rs 15.64 lakh in October 2000. It remained non-functional till March 2003. When pointed out by Audit in March 2003, RCI got the equipment rectified in April 2003. Thus the equipment received in October 2000 remained unutilised for 30 months. DRDO accepted the facts in December 2003 but had no comments to offer on the case.

Equipment valuing Rs 3.50 crore remained unserviceable for want of parts

PXE procured a Tracking Doppler Radar System DR-6700 at a cost of Rs 3.50 crore in July 1997. The equipment was commissioned in October 1999. The radar was not functioning after 26 September 2001 because of defects in its accessories. The defective parts were sent to the supplier firm in July 2002 for warranty repair/replacement free of cost. DRDO stated (December 2003) that the radar had been repaired by the firm and received on 19 December 2003.

Voltas OMEGA Crane 25 Tonne remained unutilized for more than four years due to repair

A Voltas Omega Crane (25 tonne) was purchased in December 1987 by CVRDE at a cost of Rs. 27.80 lakh with a service life of 15 years. The crane, the only one of its kind, is essentially required for lifting hull and turret of armoured fighting vehicles. The crane remained out of order from October 1993 to April 1996 and again since

[@] DMRL, CVRDE, DRDL, TBRL, RCI, HEMRL

January 2002. Thus, during the last 15 years, the crane was non-functional for more than 4 years due to delay in repair. DRDO replied (December 2003) that future use of the crane would be decided by a Board of Officers.

Equipment lying unutilised

The following four equipment valued at Rs 3.21 crore were lying unused/unserviceable/surplus in two laboratories.

Cryogenic Gas Charging Plant

DMRL in April 1992 purchased a Cryogenic Gas Charging Plant at a cost of Rs 25 lakh for conversion of liquid argon into gas. The cryogenic plant could not generate the required purity of argon without a complementary purification plant expected to cost Rs 60 lakh, even though the equipment procured was custom-designed. The equipment was lying unutilised with DMRL as of February 2003 and was awaiting disposal, having been declared surplus.

Weighing and sorting machine

DMRL procured a weighing and sorting machine valuing Rs 25 lakh in June 1994. The machine could not be utilised due to inaccuracies. Thereby, weighing and sorting of the warhead pre-fragment continued to be done manually. DMRL stated in February 2003 that the machine was unserviceable and action for its disposal would be taken.

Automatic weather and picture transmission systems

ITR procured two systems viz. Automatic Weather System and Automatic Picture Transmission System at a cost of Rs 34.16 lakh (90 per cent payment) from a private firm in June 1988 and February 1989 respectively. The firm failed to instal the systems and the equipment remained idle. ITR filed two cases with the National Consumer Forum, New Delhi, in January 1995 against the supplier. The Forum, in its final verdict given on 22 October 2002 directed the supplier to supply new systems of latest specification within 6 months from the date of issue of the order. The firm had not supplied the new equipment till date (November 2003).

Plessy Radar System

A surveillance radar system was procured against a contract concluded with Plessy Radar Ltd., UK, in October 1987, at a cost of £ 9,47,200.00 (Rs 2.37 crore). The radar was commissioned in March 1989.

After rendering service upto February 1995, a few of its sub-systems became unserviceable and it became non-functional. Initially the supplier firm did not agree to repair the system but later agreed to repair it. The firm, however, demanded more than 50 per cent of the cost of the system and the repair was not found economically viable. Owing to technological advancements in surveillance systems, ITR did not require this radar any more. DRDO stated in December 2003 that Board of Officers

was convened for declaring the radar as unserviceable and initiating action for disposal.

5.1.9 Other points of interest

Loss due to delay in disposal of surplus/obsolete equipment

There were delays in disposal of surplus equipment at CVRDE. Two machines costing Rs 13.13 lakh became obsolete/beyond economical repair in 1990/1992 but were yet to be disposed of (January 2003). At DRDL, nine cases of delay in disposal of unwanted equipment, each with book value of Rs 5 lakh and above, were noticed. The laboratory took more than 3 to 8 years for their disposal. At DMRL, there were 8 such equipment costing Rs 2.5 crore. The Laboratory was yet to dispose off 5 equipment (March 2003) with book value of Rs 2.03 crore which were declared surplus during the years 1998-2001.

Non-realisation of Rs 4.89 crore for the plant and machinery installed at Mishra Dhatu Nigam (MIDHANI) for over 11 years.

Although the role of DRDO is primarily development of technology and its transfer to a production agency, DMRL entered into a joint venture in June 1988 with Mishra Dhatu Nigam (MIDHANI), a Public Sector Undertaking for development of a viable technology for manufacture of welded titanium tubes. Under the agreement, DMRL would procure and instal all imported and indigenous equipment and provide all technical and R&D support to MIDHANI to set up the infrastructure in their premises. MIDHANI after using the facility for two years for commercial production, would exercise the option to take over the infrastructure at the depreciated value payable to DMRL.

As against the sanctioned amount of Rs 4.76 crore, actual expenditure on import of equipment was Rs 10.60 crore. In April 1991, MIDHANI agreed to finance the expenditure over and above the amount sanctioned by the Government.

In June 1996, the agreement with MIDHANI was amended whereby the latter was to exercise its option within two years of trial production and establishment of technology to take over the facilities and compensate DMRL to the extent of Rs 4.89 crore in 12 equal annual instalments. MIDHANI, while expressing its willingness in April 1997 and again in March 1998, to take over the facility, requested DMRL to consider deferment of the payment schedule for another five years from the date of taking over and also to consider the depreciation for an additional five years. MIDHANI had neither taken over the plant nor paid Rs 4.89 crore to DMRL as of June 2003.

Absence of an effective computer based Information Management System (IMS)

The material management policy of DRDO envisages implementation of a computer-based information management system to ensure cost effective R&D. DRDO was yet to adopt an integrated material management information system. In its absence,

the laboratories adopt their own information systems which would make their integration a difficult task at a later date.

DRDO stated in December 2003 that development of integrated material management system-software was in progress.

5.1.10 Conclusion and recommendations

(i) Since about 45 per cent of the DRDO's budget is spent on purchase of material, more effective procurement planning and efficient utilisation of plant and equipment, needs to be ensured to derive value for money. Since availability of equipment is critical for the completion of projects, this would also ensure timely completion of projects within the projected costs.

(ii) Creation of a central database of prospective suppliers that is accessible to all the labs/estts, needs to be made a prioritised task for avoiding delays in location of reliable suppliers.

(iii) Identification of surplus items and their disposal has to be made a regular and time-bound exercise to realise optimum sale value.

(iv) Machines remaining idle for want of repairs need to be reviewed on a regular basis and immediate action taken for their early repairs.
DRDO agreed with these recommendations in December 2003.

CHAPTER VI : BORDER ROADS ORGANISATION

6.1 Delay in construction of approaches to a bridge due to departmental lapses

A major permanent bridge remained unutilised for more than three years due to non-acquisition of land for construction of approach road before commencement of work after spending Rs 1.66 crore.

The Director General, Border Roads (DGBR) issued (June 1992) instructions to Chief Engineers of all projects that the availability of land for bridges and their approaches must be clear at the estimate stage itself to avoid delay in construction and consequent increase in costs.

In November 1995, DGBR accorded sanction for construction of a 50 metre span permanent bridge and approach road at Km 22.91 on Rajouri - Surankot Road at an estimated cost of Rs 1.65 crore. The Chief Engineer (CE) (Project) Sampark, in January 1996, confirmed the feasibility of construction of the bridge after ascertaining the availability of land. He, however, stated (February 1996) that land for the bridge and approaches had not been acquired which was expected to be done before completion of the bridge. The bridge was planned to be constructed during the year 1995-96 through a contract and its approaches were to be executed departmentally.

CE(P) in August 1997 concluded a contract for construction of the bridge for Rs 75.99 lakh with date of commencement of work in September 1997 and completion in March 2000. Work on the bridge alongwith the approach road commenced in September 1997 and the bridge was physically completed in February 2000 at a cost of Rs 82.63 lakh. However, the construction of the approaches could not be completed since land acquisition for the approaches was pending in court.

As of January 2003, Rs 83.34 lakh had been spent on the construction of the approaches which is now targeted to be completed by March 2004.

Thus, even after spending Rs 1.66 crore and after a delay of more than three years, the approaches to the bridge remain incomplete and the bridge had not been opened to traffic. This was due to the fault of the Chief Engineer in taking up construction of the bridge and approaches, before acquisition of land, in violation of DGBR instruction.

In reply to audit, DGBR stated (January 2003) that the process for land acquisition was started with the commencement of work on bridge construction and a

compensation of Rs 6.08 lakh had also been deposited with the revenue authorities in March 2000. Land acquisition had been partly done when one of the landowners obtained a stay order in May 2000 to stop further construction on the approach road. The next date of hearing of the case was 08 December 2003.

The matter was referred to the Ministry in April 2003; their reply was awaited as of February 2004.

CHAPTER VII : ORDNANCE FACTORY ORGANISATION

7.1 Performance of Ordnance Factory Organisation

7.1.1 Introduction

The Ordnance Factory Board (OFB) functions under the administrative control of the Department of Defence Production and Supplies of the Ministry of Defence and is headed by the Director General, Ordnance Factories.

There are 39 Factories divided into 5 product based Operating Groups/Divisions, as given below:

Sl.No.	Name of Group	No. of factories
i)	Ammunition & Explosives	10
ii)	Weapons , Vehicles and Equipment	10
iii)	Materials and Components	9
iv)	Armoured Vehicles	5
v)	Ordnance Equipment (Clothing & General Stores)	5

On a functional basis, the factories are also classified as shown below:

Sl. No.	Group	No. of factories
1.	Metallurgical	6
2.	Engineering	18
3.	Filling	5
4.	Chemical	4
5.	Equipment and clothing	6

A new propellant factory at Rajgir in Nalanda District of Bihar has been sanctioned at a total project cost of Rs. 941.13 crore, work for which is in progress. Presently 916 principal items are produced in these 39 ordnance factories which have a man-power of 1.27 lakh employees.

7.1.2 Analysis of performance of OFB

Revenue expenditure

The expenditure under revenue head during 1998-99 to 2002-2003 is given in the table below :

(Rupees in crore)

Year	Total expenditure incurred by ordnance factories	Receipts against products supplied to Armed Forces	Other receipts and recoveries	Total receipts	Net expenditure of ordnance factories
1998-1999	4461.72	3854.92	598.59	4453.51	(+) 8.21
1999-2000	4994.88	5124.43	700.61	5825.04	(-) 830.16
2000-2001	6016.94	5209.17	839.54	6048.71	(-) 31.77
2001-2002	6025.11	5493.15	1102.79	6595.94	(-) 570.83
2002-2003	6464.80	5796.10	1199.21♦	6995.31	(-) 530.51

Though the total expenditure during 2002-2003 marginally increased by 7.30 per cent as compared to the previous year, the increase in total receipts was 6.05 per cent as compared to the previous year.

Value of production

The following table indicates the group-wise/ element-wise break up of expenditure incurred during the year to arrive at the value of production for 2002-03 and percentage of various elements to the value of production:

(Rupees in crore)

Sl. No.	Name of the Group	Value of production	Direct Store and % to value of production	Value added and % to value of production	DL and % to value of production	Overhead charges			
						IDL and % to value of production	IDS and % to value of production	Other expenditure♣ % to value of production	Total Over heads & % to Value of production
1	Material & Component Group	1155.50	514.68 (44.54)	640.82 (55.46)	103.79 (8.98)	127.34 (11.02)	86.93 (7.52)	322.76 (27.93)	537.03 (46.48)
2	Weapon, Vehicle and Equipment Group	2168.29	1158.70 (53.44)	1009.59 (46.56)	241.03 (11.12)	206.43 (9.52)	116.19 (5.36)	445.94 (20.57)	768.56 (35.45)
3	Ammunition and Explosive Group	3159.82	2445.29 (77.39)	714.53 (22.61)	137.02 (4.34)	175.64 (5.56)	116.92 (3.68)	284.95 (9.02)	577.51 (18.28)
4	Armourd Vehicle Group	840.49	542.41 (64.53)	298.08 (35.47)	36.74 (4.37)	54.56 (6.49)	38.51 (4.58)	168.27 (20.02)	261.34 (31.09)
5	Ordnance Equip-ment Group	584.59	326.05 (55.77)	258.54 (44.23)	113.87 (19.48)	51.86 (8.87)	16.48 (2.82)	76.33 (13.06)	144.67 (24.75)
	Total	7908.69	4987.13 (63.06)	2921.56 (36.94)	632.45 (8.00)	615.83 (7.79)	375.03 (4.79)	1298.25 (16.42)	2289.11 (28.94)

♦ *Other receipts and recoveries include receipt on account of transfer from RR funds, sale of surplus/obsolete stores, issues to MHA including Police, Central and State Governments, Civil trade including Public Sector Undertakings, export and other miscellaneous receipts.*

♣ *Other expenditure includes supervision charges, contingent charges, superannuation charges, depreciation charges, transportation charges, and cost of DGOF, cost of DAD charges and other miscellaneous charges.*

During 2002-03, the total value of production was Rs. 7908.69 crore with 63.06 per cent direct material, 8.00 per cent direct labour and 28.94 per cent overheads. Ammunition & Explosive group of factories registered the highest value of production of Rs. 3159.82 crore while OEF Group of factories registered the lowest value of production of Rs.584.59 crore. The average overhead charges of the Organisation were 28.94 per cent while Material & Component Group registered the highest at 46.48 per cent. Ammunition & Explosives Group registered the lowest average overheads at 18.28 per cent. The direct labour and indirect labour percentage to the value of overall production was eight per cent and 7.79 per cent respectively.

Production programme

Production programmes for Ammunition, Weapon &Vehicle, Material & Component and Armoured Vehicle items are fixed for one year, while a four-yearly production programme is fixed for Equipment items. Production of several items, for which targets had been fixed by the Ordnance Factory Board, was behind schedule. Details showing the items for which demands existed, target fixed and the number of items in respect of which production of items was behind schedule during the last five years are given below:

Year	No of items for which demands existed	No of items for which target fixed	No. of items manufactured as per target	No. of items for which target fixed but production was behind schedule
1998-1999	353	288	222	66
1999-2000	364	307	238	69
2000-2001	375	284	196	88
2001-2002	423	344	265	79
2002-2003	431	354	278	76

Spill-over production

It was noticed that during the financial year 2002-2003, although the full production and issues according to the target was reported in respect of 15 major items, the production spilled over beyond March 2003. The production and actual issues in respect of these 15 items were yet to be completed till July 2003. The value of spill-over items for the year 2002-2003 worked out to Rs 347.21 crore out of the total value of production amounting to Rs 7908.69 crore as against Rs 698.10 crore spill-over reported for the year 2001-02 out of total value of production Rs7612.07 crore.

Issue to users

The indentor-wise value of issues during the last five years was as under:

(Rupees in crore)

Name of Indentors	1998-99	1999-2000	2000-01	2001-02	2002-03
Army	3339.46	4637.33	4544.74	4870.67	5215.53
Navy	62.49	85.24	86.93	84.81	71.27
Air Force	89.42	105.80	170.63	193.17	226.29
MES, Research and Development (Other Defence Department)	79.61	126.41	124.83	162.89	150.38
Total Defence	3570.98	4954.78	4927.13	5311.54	5663.47
Civil Trade and Export	441.08	498.96	603.07	719.35	840.20
Total issues	4012.06	5453.74	5530.20	6030.89	6503.67

7.1.3 Civil Trade and Export

Civil Trade

The ordnance factories have undertaken Civil Trade as a corporate policy in July 1986 for optimal utilisation of capacities and to lessen dependence upon budgetary support.

The turnover from civil trade other than supplies to the Ministry of Home Affairs and State Police Departments during 1998-99 to 2002-03 was as under:

(Rupees in crore)

Year	Number of factories involved	Target	Achievement	Percentage of achievement
1998-1999	38	185.00	178.74	96.67
1999-2000	38	206.49	206.38	99.95
2000-2001	38	220.22	235.72	107.04
2001-2002	38	245.00	272.56	111.25
2002-2003	38	298.00	274.19	92.01

Non- realisation of amounts due from civil trade

According to the directives issued by the Ordnance Factory Board in June 1985, all civil indentors are required to pay the entire amount involved, in advance, with their orders,in cash or through demand draft or an irrevocable letter of credit. However, Rs 7.28 crore were outstanding against civil indentors for supply of different items to them as on 31 March 2003.

Export

The following table shows the achievement with reference to export target from 1998-99 to 2002-2003:

		(Rupees in crore)		
Year	**Factories involved**	**Target**	**Achievement**	**Percentage of achievement**
1998-1999	13	25.00	13.46	53.84
1999-2000	11	8.50	6.19	72.82
2000-2001	15	10.00	11.79	117.90
2001-2002	15	35.00	35.32	100.91
2002-2003	17	60.00	59.52	99.20

7.1.4 Inventory management

Stock-holdings

According to the existing provisioning policy, the ordnance factories are authorised to hold stock of different types of stores as under:

Sl.No.	**Types of stores**	**Months requirement to be held in stock**
1.	Imported items	12 months
2.	Difficult indigenous items	9 months
3.	Other indigenous items	6 months

Status of inventory holding

(i) The position of **total inventory holdings** during 1998-99 to 2002-2003 was as under:

(Rupees in crore)						
Sl. No.	**Particulars**	**1998-99**	**1999-00**	**2000-01**	**2001-02**	**2002-03**
1.	Working stock					
a.	Active	1433.41	1590.70	1640.35	1747.65	1497.63
b.	Non-moving	146.25	139.26	157.50	146.91	220.02
c.	Slow moving	149.45	105.78	129.11	169.04	232.99
	Total Working Stock	1729.11	1835.74	1926.96	2063.60	1950.64
2	Waste & Obsolete	10.94	31.57	9.36	4.99	13.80
3.	Surplus/ Scrap	36.14	38.59	59.29	73.33	34.51
4.	Maintenance stores	92.80	80.63	87.37	75.60	75.49
	Total	1868.99	1986.53	2082.98	2217.52	2074.44
5.	Average holdings in terms of number of days' consumption	200	158	162	155	144
6.	Percentage of total slow-moving and non-moving stock to total working stock	17	13.34	14.87	15.31	23.22

Average holding in terms of number of days' consumption was within normal limits during 2002-2003. The non-moving and slow-moving stock, however, showed an increasing trend.

(ii) The position of **Finished stock holding** (completed articles and components) during the last five years was as under:

(Rupees in crore)					
Particulars	**1998-99**	**1999-2000**	**2000-01**	**2001-02**	**2002-03**
Holding of Finished articles	72.78	89.33	90.75	131.62	93.52
Total value of production	5441.13	7086.49	7224.11	7612.07	7908.69
Holding of finished stock in terms of no. of days issue	5	4	4	6	4
Holding in terms of per centage of total value of production	1.34	1.26	1.17	1.72	1.18
Finished component holding	486.36	483.79	519.63	471.28	390.73
Holding of finished components in terms of no.of days consumption	150	124	143	100	32

As on 31 March 2003 the value of finished stock holding decreased and the value of finished component holding also decreased by 68 days consumption compared to the position as on 31 March 2002.

Work- in- progress

	(Rupees in crore)
As on 31 March	**Value of work in progress**
1999	1214.00
2000	1049.00
2001	1052.00
2002	1065.33
2003	1032.87

The total value of work-in-progress as on 31 March 2003 decreased slightly as compared to the previous year. As on 31 March 2003, 8504 warrants costing Rupees 481.46 crore were outstanding for more than 1 to 13 years against their normal life of 6 months. Old warrants would need to be reviewed at regular intervals so that the items under production do not become obsolete by the time they are completed.

7.1.5 Losses written off

The table below depicts losses written off by competent financial authorities.

(Rupees in lakh)

Sl. No.	Particulars	1998-99	1999-00	2000-01	2001-02	2002-03
1	Over-issue of pay & allowances and claims abandoned	3.20	3.20	6.83	27.00	0.00
2	Losses due to theft, fraud or neglect	2.57	5.77	0.79	13.12	32.32
3	Losses due to deficiencies in actual balance not caused by theft, fraud or neglect	0.17	0.27	6.51	5.26	25.14
4	Losses in transit	8.41	44.97	39.07	5.33	14.74
5	Other causes (e.g conditioning of stores not caused by defective storage, stores scrapped due to obsolescence, etc.)	9.12	54.86	119.70	8.28	31.60
6	Defective storage loss	0.74	0.68	0.58	20.42	2.21
7	Manufacturing Losses	399.37	595.93	603.19	775.57	1061.85
8	Total	423.58	705.68	776.67	854.98	1167.86

Manufacturing losses increased from Rs 3.99 crore in 1998-99 to Rs 10.62 crore in 2002-03 registering an increase of 166.17 per cent.

7.1.6 Manpower

Employees of the Ordnance Factory Organisation are classified as (i) "Officers", who man senior supervisory levels,(ii) "Non-Gazetted" (NGO) or "Non-Industrial" employees (NIEs) who man junior supervisory levels and the clerical establishment and (iii) "Industrial Employees" (IEs),who are engaged in production and maintenance operations. The number of employees of various categories during the last five years is given in the table below.

(In number)

Category of employees	1998-99	1999-00	2000-01	2001-02	2002-03
Officers	4140	4043	3853	3863	4119
Percentage of officers to total manpower	2.76	2.77	2.77	2.90	3.24
NGO/NIEs	42483	42334	40792	38883	36893
Percentage of NGOs/ INEs to total manpower	28.31	28.98	29.29	29.21	28.97
IEs	103444	99693	94611	90347	86303
Percentage of IEs to total manpower	68.93	68.25	67.94	67.88	67.79
Total	150067	146070	139256	133093	127315

7.1.7 Capacity utilisation

The capacity utilisation in terms of Machine Hours during the last five years was as under:

Capacity utilisation in terms of Machine Hours(in lakh hours)

Year	Machine hours available	Machine hours utilised
1998-1999	1266	959
1999-2000	1875	1368
2000-2001	2144	1715
2001-2002	1923	1427
2002-2003	1824	1356

Utilisation of machine hours over the years was less than the available machine hours. This would indicate that the machines in the ordnance factories are not fully exploited.

7.1.8 *Analysis of value of Production:*

Overhead Charges:

The details of overheads in relation to value of production in respect of various ordnance factories during the last five years from 1998-99 to 2002-2003 are shown below:

(Rupees in crore)

Division	Year	FOH	VOH	Total OH Charges[1]	Value of production	Percentage of OH to Value of production
Materials and Components	1998-1999	220.19	192.89	413.08	743.46	55.56
	1999-2000	242.06	235.17	477.23	941.57	50.68
	2000-2001	252.18	250.67	502.85	1008.91	49.84
	2001-2002	265.31	255.09	520.40	1064.54	48.88
	2002-2003	269.63	267.39	537.02	1155.50	46.48
Weapons, Vehicles and Equipment	1998-1999	365.41	230.34	595.75	1410.06	42.24
	1999-2000	444.70	271.40	716.10	1765.37	40.56
	2000-2001	471.77	292.39	764.16	1926.40	39.67
	2001-2002	460.31	284.89	745.20	1960.94	38.00
	2002-2003	444.99	323.56	768.55	2168.29	35.45
Ammunitions and Explosives	1998-1999	280.71	141.55	422.26	1716.19	24.60
	1999-2000	322.90	193.86	516.76	2686.98	19.23
	2000-2001	374.22	211.81	586.03	2976.20	19.69
	2001-2002	361.50	208.19	569.69	3217.14	17.70
	2002-2003	317.12	260.39	577.51	3159.82	18.28
Armoured Vehicles	1998-1999	192.32	87.38	279.70	1100.03	25.43
	1999-2000	226.03	115.16	341.19	1185.59	28.78
	2000-2001	196.20	97.07	293.27	768.00	38.18
	2001-2002	205.31	93.29	298.60	803.12	37.18
	2002-2003	178.63	82.71	261.34	840.49	31.09
Ordnance Equipment Factories	1998-1999	86.03	55.39	141.42	471.38	30.00
	1999-2000	83.53	61.44	144.97	506.99	28.59
	2000-2001	94.93	58.66	153.59	544.58	28.20
	2001-2002	88.12	54.44	142.56	566.33	25.17
	2002-2003	91.30	53.37	144.67	584.59	24.75
Grand total - Ordnance Factories as a whole	1998-1999	1144.66	707.55	1852.21	5441.12	34.04
	1999-2000	1319.22	877.03	2196.25	7086.50	31.00
	2000-2001	1389.31	910.60	2299.91	7224.11	31.84
	2001-2002	1380.57	895.91	2276.48	7612.07	29.90
	2002-2003	1301.67	987.42	2289.09	7908.69	28.94

[1] *OH means Overhead Charges.*

The percentage of overheads to the value of production was more in respect of Ordnance factories classified under Material and Components Group where overheads formed more than 40 per cent of the value of production.

Manpower:

The details of direct labour, indirect labour, total wages, supervision charges, ratio of supervision charges to total wages and the ratio of supervision charges to direct labour in respect of various ordnance factories (Division -wise) as well as for ordnance factories as a whole during the last five years from 1998-99 to 2002-2003 are shown below:

(Rupees in crore)

Division	Year	Direct Labour	Indirect Labour	Total wages	Super-vision charges	Ratio of Super-vision charges to total wages	Ratio of Super-vision charges to direct labour
Materials and Components	1998-99	56.96	139.31	196.27	107.40	0.54:1	1.88:1
	1999-00	74.89	130.36	205.25	105.59	0.51:1	1.41:1
	2000-01	92.98	133.57	226.55	116.64	0.51:1	1.25:1
	2001-02	99.12	127.52	226.64	117.63	0.51:1	1.18:1
	2002-03	105.68	127.33	233.01	120.18	0.51:1	1.13:1
Weapons, Vehicles and Equipment.	1998-99	110.89	242.52	353.41	179.78	0.50:1	1.62:1
	1999-00	124.67	215.95	340.62	197.63	0.58:1	1.58:1
	2000-01	157.18	223.22	380.40	210.64	0.55 :1	1.34:1
	2001-02	166.41	212.94	379.35	202.19	0.53:1	1.21:1
	2002-03	167.95	206.43	374.38	207.93	0.55:1	1.23:1
Ammunitions and Explosives	1998-99	82.85	161.97	244.82	160.03	0.65:1	1.93:1
	1999-00	107.91	155.27	263.18	181.20	0.68:1	1.68:1
	2000-01	140.16	161.72	301.88	195.83	0.65:1	1.39:1
	2001-02	152.73	160.68	313.41	201.66	0.64:1	1.32:1
	2002-03	156.39	175.64	332.03	203.76	0.61:1	1.30:1
Armoured Vehicles	1998-99	31.48	50.29	81.77	64.73	0.79:1	2.05:1
	1999-00	41.33	45.75	87.08	69.14	0.79:1	1.67:1
	2000-01	43.81	50.71	94.52	72.11	0.76:1	1.64:1
	2001-02	43.67	48.59	92.26	73.07	0.79:1	1.67:1
	2002-03	45.15	54.56	99.71	80.02	0.80:1	1.77:1
Ordnance Equipment Factories	1998-99	63.68	81.52	145.20	44.23	0.30:1	0.69:1
	1999-00	76.20	57.00	133.20	43.91	0.32:1	0.57:1
	2000-01	91.67	55.60	147.27	52.16	0.35 :1	0.57:1
	2001-02	93.15	48.66	141.81	45.68	0.32:1	0.49:1
	2002-03	97.29	51.85	149.14	46.22	0.31:1	0.47:1
Grand total - Ordnance Factories as a whole	1998-99	345.86	675.61	1021.47	556.17	0.54:1	1.60:1
	1999-00	425.00	604.33	1029.33	597.47	0.58:1	1.40:1
	2000-01	525.80	624.82	1150.62	647.38	0.56:1	1.23:1
	2001-02	555.08	598.39	1153.47	640.24	0.55:1	1.15:1
	2002-03	572.46	615.81	1188.27	658.11	0.55:1	1.15:1

NOTE : The figures incorporated in this paragraph are mainly based on Annual Accounts of Ordnance and Ordnance Equipment Factories in India finalised by the Principal Controller of Accounts (Fys) Kolkata, documents maintained by the Ordnance Factory Board, Kolkata and information supplied by the Ordnance Factory Board.

7.2 Working of Metal and Steel Factory, Ishapore

7.2.1 Highlights

- **Capacity underutilisation in five shops of the Metal and Steel Factory, Ishapore, ranged between 11 and 100 per cent during 1997-98 to 2001-02 which was attributed to non-availability of adequate orders from sister factories.**

(Paragraph 7.2.4)

- **Two plants viz. Ladle Furnace Vacuum Degassing and Electro Slag Re-melting plant costing Rs 28.86 crore were underutilised during 1997-98 to 2002-03. Underutilisation ranged between 59 and 85 per cent and between 55 and 81 per cent respectively.**

(Paragraph 7.2.4)

- **Despite availability of 29.06 lakh unutilised standard man-hours during 1997-98 to 2002-03, the factory resorted to work on overtime basis for 56.77 lakh hours and made overtime payments of Rs 25.50 crore, out of which Rs 12.11 crore was avoidable.**

(Paragraph 7.2.6)

- **The factory could not derive any benefit from an investment of Rs 2.70 crore towards procurement of two cooling pits, one mechanical press, one furnace and one face milling machine due to their non-commissioning/delayed commissioning even after a lapse of two to five years of their receipt.**

(Paragraph 7.2.7)

- **The factory sustained a loss of Rs 68.09 lakh in three cases during 1996-2001 due to inadequate and faulty inspection by its quality control wing, which eventually led to rejection of the passed items at the consignee's end.**

(Paragraph 7.2.9)

- **The proportion of overheads to the value of production ranged between 62 and 73 per cent during 1997-98 to 2002-03, as against the range of 29-37 per cent for the Ordnance Factory Organisation as a whole.**

(Paragraph 7.2.10)

- **There was unfruitful expenditure of Rs 3.03 crore towards creation of facilities for shell forge plant at the factory due to change in product profile, inordinate delays and indecision in procurement of the plant.**

(Paragraph 7.2.11)

- **Unjustified manufacture of steel blooms and billets worth Rs 22.66 crore in anticipation of orders had rendered the items obsolete and unusable over a period of time.**

(Paragraph 7.2.12 (a))

- **Against the normal life of six months, 53 manufacturing warrants valuing Rs 7.71 crore were outstanding for more than one to four years as of October 2003.**

(Paragraph 7.2.12 (b))

7.2.2 Introduction

The Metal and Steel Factory, Ishapore, a metallurgical unit, manufactures ferrous and non-ferrous products like gun barrels for T-72 tank, 155 mm Field Howitzers and 30 mm Sarath Infantry Combat Vehicle, blanks and cartridge cases for 125 mm, 30 mm and 23 mm ammunition and various kinds of rolled alloy-steel bars, billets and rods for supply to sister factories. The main production processes involved are melting, casting, forging, rolling, machining and heat treatment.

7.2.3 Scope of Audit

Audit conducted a performance review on the working of the factory for the period from 1997-98 to 2002-03 during December 2002 to May 2003. The results of the review are discussed in the succeeding paragraphs.

7.2.4 Underutilisation of capacity

Utilisation of production facilities

The major production facilities at the factory are steel melting, press forging, rolling, upset forging, drop stamping, heat treatment, brass melting and extrusion.

The shop-wise details of annual installed capacity, production achieved and percentage of capacity utilisation during 1997-98 to 2002-03 are given below:

			Production (in tonne)					
Sl. No.	Name of the Shop/facility	Installed capacity	(Percentage of capacity utilisation)					
			1997-98	1998-99	1999-2K	2000-01	2001-02	2002-03
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1.	Steel melting	7000 tonne	5000 **(71)**	5300 **(76)**	5300 **(76)**	5500 **(79)**	5700 **(81)**	5900 **(84)**
2.	Press forging	2650 tonne	1200 **(45)**	1000 **(38)**	1200 **(45)**	1100 **(42)**	1500 **(57)**	720 **(27)**
3.	Upset forging	2000 bars	Nil **(0)**	1400 **(70)**	500 **(25)**	400 **(20)**	400 **(20)**	420 **(21)**
4.	Drop stamping	30 tonne	8 **(27)**	10 **(33)**	10 **(33)**	10 **(33)**	20 **(66)**	21 **(70)**

Sl. No.	Name of the Shop/facility	Installed capacity	Production (in tonne) (Percentage of capacity utilisation)					
			1997-98	1998-99	1999-2K	2000-01	2001-02	2002-03
5.	Heat treatment	7000 tonne	4700 **(67)**	5000 **(71)**	5000 **(71)**	5100 **(73)**	5300 **(76)**	5550 **(79)**
6.	Brass melting	1800 tonne (3000 tonne for 2002-03)	800 **(44)**	600 **(33)**	650 **(36)**	1000 **(56)**	1300 **(72)**	3126 **(104)**
7.	Extrusion	900 tonne	300 **(33)**	250 **(28)**	250 **(28)**	500 **(56)**	800 **(89)**	800 **(89)**

Underutilisation of capacity was more pronounced especially in upset forging and press forging shops. It ranged between 75 and 100 per cent except during 1998-99 and between 43 and 73 per cent respectively. The factory management stated in July 2003 that the underutilisation of capacity was due to non-availability of adequate orders from sister factories.

The Ordnance Factory Board (OFB) stated in November 2003 that plant capacity was created taking into account futuristic load also whereas yearly production was commensurate with annual targets. It added that due to ageing of plants, capacity diminished considerably and derating was being done.

Underutilisation of plant and machinery

(a) Ladle Furnace Vacuum Degassing Plant (LFVD)

The LFVD plant is meant for production of high quality homogeneous steel by reducing dissolved gases to the minimum. In order to augment the existing capacity and to modernise the steel melting shop, the factory placed an order in March 1991 on Larsen and Toubro Limited, Kolkata, for supply, erection and commissioning of an LFVD plant at a cost of Rs 6.64 crore excluding duties and taxes, with scheduled completion by March 1993. The plant was, however, commissioned in September 1998 and the total expenditure incurred was Rs 8.92 crore. The steel making capacity of the LFVD plant coupled with the existing 15-ton arc furnace was assessed at 26250 tonne per annum.

The details of production of steel from the plant coupled with the arc furnace and percentage of utilisation with reference to its annual rated capacity during 1997-98 to 2002-03 are as under:

Year	Production (in tonne)	Percentage of utilisation
(1)	(2)	(3)
1997-98	3968	15
1998-99	5516	21
1999-2K	5720	22
2000-01	8289	32
2001-02	10719	41
2002-03	5817	22

The utilisation of the plant ranged only between 15 and 41 per cent during the last six years ending 2002-03. The OFB stated in November 2003 that steel production for service use was time intensive and average manufacturing came to three heats per day against seven heats based on which capacity was computed. This contention is not tenable as the factory had recommended the procurement of plant on the ground that it would be used for 6-7 heats per day yielding improved quality barrel steel. The Board added that the production was restricted to the annual target. The fact, however, remains that the low utilisation of the plant was due to non-availability of adequate orders from sister factories as mentioned earlier.

(b) Electro Slag Re-melting (ESR) plant

The ESR plant is required for manufacture of refined steel for 81 mm gun barrel, 84 mm ventury, 120 mm Arjun barrel, 125 mm T-72 barrel, casing, breech ring and breech block, 130/155 mm upgunning barrel, 155 mm FH barrel and small arms barrels and components. The factory placed an order in June 1991 on M N Dastur and Company Limited, Kolkata, leader and a member of a consortium, for manufacture, supply and commissioning of an ESR plant by July 1993 at a total cost of Rs 16.77 crore excluding duties and taxes. The plant was ultimately commissioned in October 1998 and the total expenditure incurred was Rs 19.94 crore. The rated manufacturing capacity of the plant was 2500 tonne of steel per annum. The details of production achieved and the percentage of capacity utilised with reference to the installed capacity in the plant during 1998-99 to 2002-03 are as under :

Year	Production (in tonne)	Percentage of utilisation
(1)	(2)	(3)
1998-99 (October 1998 to March 1999)	562	45
1999-2K	766	31
2000-01	487	19
2001-02	634	25
2002-03	678	27

The ESR plant remained grossly underutilised and the percentage of utilisation ranged between 19 and 45 during 1998-99 to 2002-03. This clearly indicates that the factory had gone in for a plant of much higher capacity without realistic assessment of its requirement. As regards underutilisation, the Board stated in November 2003 that the achievable capacity was 1500 tonne with a lower size of mould and production of T-72 barrel. However, the factory manufactures other items apart from T-72 barrels.

7.2.5 Underutilisation of machine-hours

The available capacity of the plant and machinery in the maintenance, production and tool room sections of the factory, machine-hours utilised and percentage of utilisation for the years from 1998-99 to 2002-2003 were as under:

Year	Total number of machines as of 31 March	Machine-hours available (in lakh)	Machine-hours utilised (in lakh)	Percentage of utilisation
(1)	(2)	(3)	(4)	(5)
1998-99	3717	200.17	128.84	64
1999-2K	3720	197.51	125.70	64
2000-01	3857	194.02	114.18	59
2001-02	3711	201.29	98.18	49
2002-03	3974	210.39	101.23	48

There was an increasing trend of underutilisation of machine-hours. The Board attributed the underutilisation to the fact that around 75 per cent machines were more than 20 years old and did not give the desired accuracy and output due to frequent break-down.

7.2.6 Underutilisation of standard man-hours (SMH)

Details of standard man-hours (SMH) of direct industrial employees (IEs) available, those utilised, percentage of utilisation and overtime paid during 1997-98 to 2002-03 are presented in the following table :

Year	SMH available (in lakh hours)	SMH utilised (in lakh hours)	Percentage of utilisation	SMH unutilised (in lakh hours)	O.T. hours allowed (in lakh hours)	O.T.payment made (Rs in lakh)	Avoidable O.T. hours (in lakh hours)	Avoidable O.T. payment (Rs in lakh)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1997-98	62.38	51.44	82	10.94	14.68	413.22	10.94	307.94
1998-99	56.38	49.35	88	7.03	12.31	767.53	7.03	438.32
1999-2K	52.34	45.47	87	6.87	9.48	377.16	6.87	273.32
2000-01	47.99	43.77	91	4.22	8.79	398.47	4.22	191.30
2001-02	46.15	47.73	103	Nil	8.88	445.42	Nil	Nil
2002-03	44.70	50.01	112	Nil	2.63	148.45	Nil	Nil
Total	**309.94**	**287.77**		**29.06**	**56.77**	**2550.25**	**29.06**	**1210.88**

Despite availability of 29.06 lakh unutilised SMH, the factory management resorted to work on overtime basis and paid an amount of Rs 25.50 crore during 1997-98 to 2002-03. Out of this, payment of Rs 12.11 crore paid till 2000-01 was clearly avoidable in view of the unutilised SMH of 29.06 lakh.

The OFB stated in November 2003 that high production targets in particular areas and continuous operation of furnace to avoid subsequent production loss necessitated payment of overtime.

7.2.7 Delayed commissioning/non-commissioning of machines

The factory management procured five machines/furnace costing Rs 2.70 crore between May 1998 and November 2001. Out of these, four machines could not be commissioned even after a lapse of two to three and a half years of their receipt. One furnace was commissioned after a delay of five years. The cases are discussed below:

(a) Cooling Pits

The factory placed an order on Wellman Incandescent India Limited, Howrah, in September 1998 for design, manufacture, supply and commissioning of two cooling pits including civil works at a cost of Rs 1.32 crore with the planned date of commissioning by June 2000. The pits were required to avoid damage during forging of the electro-slag re-melted ingot and stress relieving after casting of the ingot.

The firm commenced civil works required for commissioning of the pits in May 1999 and completed delivery of the pits by April 2000. But they could not complete the connected civil works due to profuse water leakage in the wall and bottom raft. Meanwhile, a sum of Rs 96.89 lakh was paid to the firm towards cost of the cooling pits. The Ordnance Factory Board stated in November 2003 that one pit had already been commissioned and the other one was under final commissioning trial. However, the factory management subsequently intimated to Audit in November 2003 that the commissioning of the pits could not be done due to closure of the supplier firm and that action was on hand to commission the pits departmentally.

(b) Mechanical Press

The factory placed an order in July 1995 on Ameteep Machine Tools Private Limited, New Delhi, for supply of an 800 ton mechanical press at a cost of Rs 1.40 crore (excluding duties and taxes) to be commissioned by March 1997. The press was required to perform upsetting operations to the correct size, of deep draw quality steel components.

The machine was received in November 2001 against the scheduled delivery by March 1997 as stipulated in the supply order. But the firm could not commission the press since the factory could not make the site available for its erection and commissioning. The management informed the firm only in June 2002 regarding readiness of the site and requested them to depute their engineers. Though the firm deputed their service team on three different occasions, they could not commission the press as of April 2003 as the handling facilities such as crane, labour etc. were not made available to the firm by the factory. Meanwhile, an amount of Rs 1.40 crore had been paid to the firm and the requirement of jobs was met with difficulty by deploying more men on old and outdated machines. The Board stated in November 2003 that the firm to which civil works were entrusted, went into liquidation and alternative action had been taken to erect and commission the press which was likely to take a couple of months.

(c) Electrically heated grooved hearth furnace

The factory placed an order on Caltherm Engineers and Consultants, Kolkata, in November 1994 for supply, erection and commissioning of an electrically heated grooved hearth furnace at a cost of Rs 14.02 lakh, for use in manufacture of 30 mm steel cartridge cases. The factory received the furnace in May 1998 and installed it in January 1999. An amount of Rs 10.67 lakh was paid to the firm in June 1998. During

trial runs, the firm failed to prove the specified performance i.e. to run the furnace to the desired temperature of 1000 degree celcius. The firm repaired various parts like circulating fan, shafts, channel programme controller etc. in phases. The furnace was finally commissioned only in August 2003 by the firm.

(d) Face milling machine

The factory received a face milling machine costing Rs 22.02 lakh in November 1999 from the Machine Tool Prototype Factory, Ambernath, for machining of 30 mm steel blanks. The machine was erected and commissioned in the Vehicle Assembly (VA) section in March 2000. But the VA section informed the management in January 2002 that the machine was lying unutilised since long as there was insufficient workload and requested for transfer of the machine to the Tool Room (TR) shop for its proper utilisation. However, the machine had not been commissioned as of October 2003.

Thus, the factory could not derive any benefit from the investment of Rs 2.70 crore made towards procurement of two cooling pits, one mechanical press, one furnace and one face-milling machine since they were unable to commission these machines as envisaged.

7.2.8 Production activities

The factory fixes production targets for various items in a particular year on the basis of outstanding orders at the beginning of the year, orders received subsequently from the sister factories and availability of machine-hours and standard man-hours. During test check of records relating to production activities, Audit noticed shortfalls in production in respect of certain ordnance, ammunition and miscellaneous steel items with reference to the orders received as detailed below:

Year	Gun Barrels (T-72(PYT), 84 mm RCL, 30 mm, 155 mm) (in numbers)				Blanks and cartridge case of ammunition (106 mm, 30 mm, 23 mm, 125 mm SCCC, 76.2 mm) (in numbers)				Miscellaneous steel items Alloy steel bar, billets, rods etc. (in tonne)			
	Outstanding orders and orders received during the year	Targets fixed for production	Production	Shortfall w.r.t. order (percentage)	Outstanding orders and orders received during the year	Targets fixed for production	Production	Shortfall w.r.t.order (percentage)	Outstanding orders and orders received during the year	Targets fixed for production	Production	Shortfall w.r.t.order (percentage)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
1997-98	842	115	108	734 (87)	6,22,393	2,47,300	2,07,300	4,15,093 (67)	1,567	1,649	938	629 (40)
1998-99	793	75	124	669 (84)	9,34,113	5,32,500	6,20,679	3,13,434 (34)	2,156	1,191	890	1,266 (59)
1999-2K	219	303	214	5 (2)	20,24,800	12,85,502	8,61,042	11,63,758 (57)	2,477	1,859	724	1,753 (71)
2000-01	109	83	97	12 (11)	25,22,153	13,01,500	12,96,670	12,25,483 (49)	1,863	1,347	922	941 (51)
2001-02	1,217	617	604	613 (50)	22,24,691	13,95,000	13,93,893	8,30,798 (37	1,093	666	373	720 (66)
2002-03	1359	876	875	484 (36)	12,04,399	10,82,731	10,18,976	1,85,423 (15)	448	208	116	332 (74)

While there were sufficient orders in hand, the targets fixed were much lower, finally leading to shortfalls in production vis-a-vis orders. This has to be viewed against the fact that there was considerable capacity underutilisation. The Ordnance Factory Board stated in November 2003 that the annual targets were fixed depending upon the

requirements projected by indentors for the year, which could be also provisional and liable to be revised due to constraints on the indentor's offtake capacity. The fact, however, remains that the indentors had not cancelled their demands.

7.2.9 Rejections

Abnormal rejection in manufacture

Normal rejections inherent in the manufacture of an article are always to be included in the estimate for the manufacture. All rejections beyond the percentage provided for in the estimate are to be regarded as avoidable and written off, after necessary investigation.

The factory issued a manufacturing warrant in November 1997 for manufacture of 50,000 steel cartridge cases of 30 mm BMP-II ammunition. Against this warrant, the factory processed 66,270 cartridge cases during December 1997 to February 1998, out of which 39,563 cases were accepted and the balance 26,707 rejected due to inherent defects in basic material, longitudinal cracks, internal unsoundness and low thickness of flat revealed by ultrasonic test done on the strip. The normal rejection provided for in the estimate was 25 per cent.

In order to ensure uniformity in the computation of unavoidable rejection, the Ordnance Factory Board had instructed all General Managers in September 1990 that rejection was to be calculated only with reference to the ordered quantity. Extra allowance required on account of unavoidable rejection was also to be calculated only with reference to the ordered quantity. In contravention of this instruction, the factory management calculated the percentage of rejection in this case as 40.30 on the processed quantity instead of on the ordered quantity, based on which the actual rejection would be 53.41 per cent. Although the management prepared a loss statement for Rs 49.20 lakh in October 2002 to regularise the abnormal rejection, the quantum of loss was understated to the extent of Rs 19.75 lakh due to the wrong method followed in the calculation of rejection as shown below:

Ordered quantity	Processed quantity	Actual rejection	Unavoidable rejection (Number)		Quantity of abnormal rejection (Number)		Value of abnormal rejection		Difference
(Number)			With reference to ordered quantity	With reference to processed quantity	As shown in loss statement	As per OFB's order	As shown in loss statement	As per OFB's order	
							(Rs in lakh)		
50,000	66,270	26,707	12,500	16,568	10,139	14,207	49.20	68.95	19.75

Apart from this, the management referred the loss statement showing rejection at 40.3 per cent to the Board in October 2002 for regularisation under their delegated powers as against the actual rejection of 53.41 per cent, which ought to have been referred to the Ministry of Defence for regularisation in terms of the Ministry's instruction of July 2000. The Board stated in November 2003 that in terms of the latest instructions of January 2003, a revised method for calculation of abnormal rejection percentage had been adopted. These instructions are not applicable in the instant case as the loss pertains to the period 1997-98, for which the loss ought to have been worked out

based on the instructions prevalent then. Even if the revised method was adopted there was still an uncovered loss of 3380 items worth Rs 16.40 lakh.

Rejections at consignee's end

A quality control section inspects and clears all stores manufactured by the factory before their issue to sister factories. During test check of records, Audit noticed three instances where the stores manufactured and cleared by the Metal and Steel Factory were ultimately rejected at the consignee factories. The three cases are discussed below:

a) Against a demand of the Ordnance Factory, Ambajhari, of March 1995, the Metal and Steel Factory manufactured and supplied 10354 top screws required for fitment in shell 155 mm 77B, between January 1996 and July 1997. The Ordnance Factory, Ambajhari, rejected 2650 top screws valuing Rs 26.10 lakh in July 1997 due to dimensional deviations and formation of rust and backloaded 2533 top screws in October 1997 to the supplier factory for rectification. Out of the remaining 117 top screws, 75 were rectified and 42 top screws were rejected and lying at the Ordnance Factory, Ambajhari. The dimensional defects were due to difference of gauges used for inspection at the Metal and Steel Factory and Ordnance Factory, Ambajhari and the prospects of rectification of the rejected top screws were also remote. Thus, 2575 rejected top screws valuing Rs 25.36 lakh were lying at the Metal and Steel Factory and Ordnance Factory, Ambajhari. The Board stated in November 2003 that a Board of Enquiry had been constituted to investigate the matter and to regularise the loss, if any.

b) The factory manufactured and supplied two alloy steel forged rolls valuing Rs 20.70 lakh in November 1997 to the Ordnance Factory, Ambernath. But the latter rejected both the rolls in January 1998 due to dimensional deviations from approved designs, non-provision of wobble key and low hardness of the rolls. Although the Ordnance Factory, Ambernath, requested the Machine Tool Prototype Factory to rectify the forged rolls, the latter was unable to rectify the defects as the material supplied by the Metal and Steel Factory was not fit for use. The Ordnance Factory Board while accepting the aforesaid facts stated in November 2003 that it was decided to carry out retification through trade sources to utilise the alloy steel rolls at the Ordnance Factory, Ambernath.

Thus, manufacture of two forged rolls by the Metal and Steel Factory, not conforming to the approved design/drawing and non-detection of the deviation by its inspectorate, led to a loss of Rs 20.70 lakh due to its rejection at the consignee's end.

c) Against a demand of August 2000 placed by the Field Gun Factory, Kanpur, for supply of nine 155 mm barrel (PYT), the Metal and Steel Factory manufactured and supplied eight barrels between September 2000 and June 2001. Out of these barrels, the Field Gun Factory rejected one barrel costing Rs 22.03 lakh due to ultrasonic flaw of more than 150 per cent. It requested the Metal and Steel Factory in September 2001 to replace the barrel but the latter did not replace the same on the plea that the

barrel was issued to the Field Gun Factory after due inspection by the competent authority. However, the barrel had neither been replaced, nor rectified as of November 2003. According to the Board, the matter was being sorted out and the discrepancy would be regularised.

7.2.10 Analysis of value of production

Value of production mainly includes direct material, direct labour and overheads. Overheads incurred in the ordnance factory are broadly classified into variable and fixed according to the nature of expenses. Variable overheads are expenses which generally vary in tune with the load on the factory including cost such as repair/maintenance of machinery, indirect labour, indirect stores etc. Fixed overheads do not depend on the volume of manufacture, but generally remain constant irrespective of the load involved e.g. pay and allowances of officers, staff of the factory establishment and Accounts Office, superannuation charges, repair/maintenance of building and railway siding, depreciation of building/machinery etc. An analysis of overheads in respect of the Metal and Steel Factory, Ishapore, brought out the following:

High overheads

The element-wise value of production at the factory during the years 1997-98 to 2002-03 indicating direct material, direct labour and overhead is shown below:

Year	Direct material	Direct labour	Overhead	Total value of production	Overhead as percentage to value of production	Overhead as percentage of total value of production in OF Organisation as a whole
	(Rs in crore)					
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1997-98	27.93	5.82	69.65	103.40	67	37
1998-99	38.26	6.72	73.54	118.52	62	34
1999-2K	40.21	8.44	90.57	139.22	65	31
2000-01	34.05	11.55	105.43	151.03	70	32
2001-02	23.22	13.31	98.88	135.41	73	30
2002-03	26.76	12.47	102.19	141.42	72	29

The percentage of overheads to the value of production at the factory ranged between 62 and 73 during the years 1997-98 to 2002-03 whereas the same for the Ordnance Factory Organisation as a whole ranged between 29 and 37 during the same period. Efforts are therefore needed to reduce the overheads. Besides, though the value of material consumption in 2001-02 decreased by 32 per cent from that of 2000-01, the direct labour went up by 15 per cent during the same period, which was incongruent. The Board stated in November 2003 that the factory used scraps and virgin metals as raw material resulting in low direct material component of cost in comparison to overheads. It added that efforts had been taken to reduce the overheads.

High supervision and indirect labour charges

Trends in direct labour charges, indirect labour charges, ratios of supervision charges to total wages and to direct labour during 1997-98 to 2002-03 are shown below:

Year	Direct labour charges	Indirect labour charges	Total wages	Supervision charges	Ratio of supervision charges to		Ratio of indirect labour to direct labour
	Rs in crore				Total wages	Direct labour	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1997-98	5.82	31.88	37.68	22.21	0.59 :1	3.81 :1	5.47 :1
1998-99	6.72	38.24	44.96	23.75	0.53 :1	3.53 :1	5.69 :1
1999-2K	8.44	32.76	41.20	24.26	0.59 :1	2.87 :1	3.88 :1
2000-01	11.55	31.58	43.13	24.41	0.57 :1	2.11 :1	2.73 :1
2001-02	13.31	29.54	42.85	23.23	0.54 :1	1.75 :1	2.22 :1
2002-03	12.47	28.26	40.73	25.26	0.62 :1	2.03 :1	2.27 :1

Supervision charges ranged from Rs 53 to Rs 62 against Rs100 spent on total wages. Further, for Rs 100 spent on direct labour for conversion of raw material to finished articles/components, the supervision charges incurred by the factory were abnormally high and ranged between Rs 175 and Rs 381 during 1997-98 to 2002-03.

Expenditure on indirect labour against Rs 100 spent on direct labour was abnormally high and ranged from Rs 222 to Rs 569. Thus, the factory management failed to control the major portion of overhead charges involved in supervision charges and indirect labour year after year. This trend could have been avoided, had the manpower profile been realistically assessed and surplus manpower identified and suitably redeployed/retrained for other works. The Board stated in November 2003 that steps were being taken by the factory to reduce the indirect expenditure.

7.2.11 Unfruitful expenditure on a project

The Ministry of Defence sanctioned in July 1983 the replacement of the old shell forge lines at the Metal and Steel Factory, Ishapore and Ordnance Factory, Kanpur, at a total estimated cost of Rs 20 crore. The annual capacity to be created was for 2.403 lakh forgings for 75/24 pack Howitzer, 106 mm RCL ogives, 105 mm smoke/illuminating ammunition at the Metal and Steel Factory and 2.083 lakh forgings for 120 mm mortar bomb, 105 mm IFG HESH ammunition at Ordnance Factory, Kanpur. The sanctioned amount was subsequently revised to Rs 28.54 crore in September 1987. The project was to be completed by September 1990. The sanctioned amount earmarked for the Metal and Steel Factory was Rs 13.39 crore.

Although an order for the shell forge plant for the Metal and Steel Factory was placed on Hindustan Machine Tools Limited (HMT) in April 1988, the same could not materialise as the foreign collaborator could not obtain the export licence. The indent was withdrawn in November 1989. Subsequently in February 1990, the Ordnance Factory Board floated limited tender enquiries for two plants and the offer of HMT was accepted. As their offer of Rs 40.79 crore for a single plant exceeded the total sanctioned amount of Rs 28.54 crore, the Board decided in March 1991 to go in for one plant for the Metal and Steel Factory and drop the proposal of the plant meant for the Ordnance Factory, Kanpur. By then, the Metal and Steel Factory had incurred an expenditure of Rs 3.03 crore towards procurement of plant and machinery and connected civil works. However, in December 1991, the annual workload of the factory was reduced to 1.20 lakh heavy calibre shells in view of the changed scenario and the capacity available in trade.

In February 1993, the Ministry decided to create an annual capacity for one lakh 155 mm shells of various types and advised the Board in June 1993 to submit a revised proposal on the project, keeping in view the capacity required. Accordingly, the Board submitted detailed proposals to the Ministry in February 1994 for a decision on the following:

(a) Whether the Board should go ahead with implementation of the project by procuring a new shell forge plant for which additional funds were required.

(b) Whether the Board should go in for a secondhand shell forge plant.

(c) Whether the project was to be closed at the present level of expenditure incurred.

In response, the Ministry, in March 1994, asked the Board to decide upon the best out of the three alternatives. The Board proposed to the Ministry in October 1994, not to go ahead with the procurement of shell forge line and also added that the expenditure incurred at the factory towards creation of facilities would be rendered infructuous. After assessing the requirement of 155 mm ammunition, the Ministry desired in August 1997 that the Board should ascertain the source and tentative cost of a new shell forge line for 155 mm shells of capacity 20,000 to 30,000 numbers per annum.

Accordingly, the factory floated a tender enquiry in December 1997 for the shell forge plant for 155 mm ammunition. However, the user's requirement again changed to 155 mm Naschem design from the earlier 155 mm Bofor's design in June 1998. As the responsibility for production of Naschem design shells was entrusted to the Ordnance Factory, Ambajhari and the Ordnance Factory, Kanpur, the Board decided to shift the shell forge plant to the Ordnance Factory, Kanpur. Three members consisting of the Controller of Finance (Defence), the Controller of Finance and Accounts (Bengal Group of Factories) and the General Manager, Metal and Steel Factory, visited the project site and opined in September 2000 that the facilities created at the factory were not being utilised for the intended purpose and that the expenditure incurred thereon would be treated as infructuous, which was to be regularised according to existing orders. The Ministry also advised the Board in September 2001 to close the project as the present proposal of the shell forge line was for 155 mm ammunition which was not covered in the original project. The Board, however, constituted a Committee in July 2002 to examine whether shell forge capacity could be created at the factory to meet the requirements over and above the capacity of the Ordnance Factory, Ambajhari and Ordnance Factory, Kanpur for 155 mm Naschem shell within the available funds of the project. The Committee recommended in October 2002 that a shell forge plant for the factory might be procured within the available funds of the project in addition to the plants meant for the Ordnance Factory, Ambajhari and Kanpur. The Board was yet to take a decision on the recommendations of the Committee as of November 2003.

Thus, a project scheduled for completion in September 1990, could not be completed mainly due to change in workload pattern and user requirements apart from indecision on the part of the Ministry and the Board to finalise the actual requirement. Even after

20 years from the date of sanction of the project, it is not certain as to whether the project would be completed or abandoned. The Board also admitted in November 2003 that the expenditure incurred on the project would not have been infructuous, had the product profile not been changed. No benefit therefore, has accrued from an investment of Rs 3.03 crore all these years.

7.2.12 Other points of interest

a) Injudicious manufacture of steel blooms and billets

The Metal and Steel Factory, Ishapore, is a feeder factory for supply of ferrous raw materials viz. blooms, billets, bars and rods to other ordnance factories. The Bar Mill section of the factory had produced 9638 tonne of different types of steel blooms and billets at a total cost of Rs 22.66 crore over a period of time. The materials were manufactured under open warrants based on the trend of orders with the expectation that the items would be consumed in due course. But the items could not be utilised due to mismatch between the stock and the outturn orders and also due to gradual shortage of load. These items were stored in the open and exposed to the vagaries of nature over the years due to which they became rusted and lost their identity. These items were also shown as work-in-progress since 1999-2000.

The factory management stated in October 2002 that the stores had accumulated over the years and the demand pattern of steel quality had changed in regard to physical and chemical properties of the steel, thereby posing problems in their utilisation.

Thus, the manufacture of different types of steel blooms and billets valuing Rs 22.66 crore in anticipation of orders and their non-utilisation was not justified. The failure of the factory management to appropriately store these items led to their deterioration due to which the stores became unusable. The Ordnance Factory Board stated in November 2003 that a Board of Enquiry and a Study Committee had been constituted to examine the stock and feasibility of utilisation of the items in production.

b) Outstanding manufacturing warrants

The General Manager of an ordnance factory authorises a production shop to manufacture an item in the given quantity by issue of a manufacturing warrant which is valid for six months. Unfinished items pertaining to different warrants lying at the shop floors constitute work-in-progress.

The details of warrants outstanding for more than one year as of November 2003 are as under:

Year	Number of warrants outstanding	Value (Rs in lakh)
1998-99	15	308.30
1999-2K	12	164.25
2000-01	9	196.37
2001-02	17	101.90
Total	**53**	**770.82**
		Say, Rs 7.71 crore

53 warrants valuing Rs 7.71crore were more than one to four years old against the normal life of six months. There was no progress with regard to manufacture of items covered in 15 warrants valuing Rs 3.08 crore relating to the year 1998-99 during the last three years.

The factory should review old warrants at regular intervals so that the items under production do not become obsolete by the time they are completed and the expenditure rendered infructuous. The Board stated that old outstanding warrants were being reviewed at regular intervals and necessary instructions had been issued for timely closure of the warrants.

These findings were reported to the Ministry in July 2003; its reply was awaited as of February 2004.

7.3 Functioning of CNC machines in Ordnance Factories

7.3.1 Highlights

- **There was abnormal rejection amounting to Rs 21.94 crore in manufacture of components at two factories during 1998-99 to 2001-02 due to the management's failure to contain the rejection percentage within the specified limits.**

(Paragraph 7.3.4)

- **In the absence of proper documentation particularly, machine-wise cycle time, annual rated capacity etc. and non-assessment of achievements of benefits accrued vis-à-vis that envisaged at the time of procurement of CNC(*) machines, the factory managements were not able to effectively evaluate, monitor and control the utilisation of CNC machines.**

(Paragraph 7.3.5)

- **Procurement of 49 CNC machines costing Rs 8.50 crore in six ordnance factories between March 1993 and November 2001 was found to be unjustified in view of either no workload or decrease in workload at the concerned factories.**

(Paragraph 7.3.6)

- **The management of seven factories could not derive any value for money out of investment of Rs 15.56 crore on 16 machines due to various types of quality problems leading to their non-commissioning, continuous break-down or ultimate rejection etc.**

(Paragraph 7.3.7)

- **There was gross underutilisation to the extent of 70 per cent and above in respect of 60 to 100 CNC machines in a year during 1997-98 to 2001-02. Besides, the underutilisation in respect of 82 to 154 other machines ranged between 40 and 69 per cent in a year during the same period out of 349 machines selected for test check at 13 factories.**

(Paragraph 7.3.8)

- **At eleven ordnance factories, 41 to 94 machines remained under break-down for more than one month's duration in a year during 1997-98 to 2001-02. 16 machines remained under break-down for more than six months in 2001-02. Besides, nine machines costing Rs 5.99 crore were under continuous break-down for periods ranging from 20 months to eight and a half years as of April 2002 at six factories.**

(Paragraph 7.3.9)

(*) CNC ⊗ Computerised Numerically Controlled

- **Despite production capacity available through the CNC route at two factories, manufacture of components of 5.56 mm rifle and 9 mm pistol through the conventional route led to an extra expenditure of Rs 9.71 crore due to higher cost of production.**

(Paragraph 7.3.10)

- **The management of four factories offloaded jobs amounting to Rs 5.36 crore to trade despite having CNC capacity.**

(Paragraph 7.3.11)

- **In two instances, the management of two ordnance factories paid Rs 1.14 crore to the suppliers of CNC machines, who did not fulfil the contractual obligations.**

(Paragraph 7.3.13)

7.3.2 Introduction

Ordnance Factories inducted Computerised Numerically Controlled (CNC) machines in a phased manner from 1980 as a part of their modernisation programme. CNC machines are designed and built to give superior performance and accuracy in operations such as machining, turning, grinding, milling, boring, gauging, drilling, gear making etc. in comparison to conventional machines. Depending upon the nature of operations/jobs required, CNC machines are designed with multi axes mode.

Twenty eight Ordnance Factories hold 1311 CNC machines costing Rs 1021.12 crore as on 31 March 2002 against a total holding of plant and machinery worth Rs 1915.23 crore in 39 factories as of March 2002. The CNC machines are broadly categorised into 14 types depending upon the nature of operations.

7.3.3 Scope of Audit

Audit conducted a general review of the functioning of CNC machines through a test check of records of 28 Ordnance Factories during December 2002 to May 2003. The results of the review are discussed in the succeeding paragraphs. In respect of some cases discussed in the review, their status could not be updated to indicate the position for 2002-03 due to non-receipt of requisite information from the factory management/Ordnance Factory Board.

7.3.4 Non- revision of estimates

With the progressive induction of CNC machines in ordnance factories, both the labour and material estimates are required to be revised downwards in respect of the existing products, which were earlier manufactured by conventional machines in order to achieve the primary goal of cost reduction. Rejection percentages need to be

lowered for manufacture of components through CNC machines. Although CNC machines were introduced in the factories since the early eighties, Audit observed that the cost estimates had not been revised to the extent of projected savings.

Material/Labour estimates

Cases of non-revision of material/labour estimates are illustrated below:

i) The management of the Ordnance Factory, Khamaria, stated in March 2003 that material and labour estimates had not been revised so far in respect of operations involved in two vertical milling machines, one turning centre and one wire cut EDM machine which were commisioned in 1992-93.

ii) While the estimated cost of labour for 10 components of 5.56 mm rifle was revised, the cost of material for these components remained the same for both the conventional and CNC route at the Ordnance Factory, Trichi during 1999-2000 to 2001-02. No action had been taken by the management to revise the material estimates.

iii) The Ordnance Factory, Ambajhari did not revise labour estimates in respect of eight components of 68 mm arrow rocket during 1999-2001 even after switchover to CNC route production. The factory had revised only material estimates.

iv) The unit cost of material for body and slide of 9 mm pistol and for block rear and barrel extension of 5.56 mm rifle and also the unit cost of labour for block rear through the CNC route were higher than that in the conventional route in 2000-01 at the Rifle Factory, Ishapore. Even during 2001-02, unit cost of material for body, slide and block rear produced through CNC route was higher against that of conventional route. This indicates that the material and labour estimates were not revised properly.

Revision of unavoidable rejection percentage

Audit noticed cases of failure to contain the rejections within the specified limit at three factories, which are discussed below:

a) Ordnance Factory, Ambajhari

Abnormal rejections amounting to Rs 21.67 crore occurred in manufacture of four items due to the management's failure to contain the rejection percentage within the limits specified in the estimates as shown below:

Items	Year	Quantity accepted (Number)	Quantity rejected (Number)	Percent-age of actual rejection	Percentage of Unavoidable Rejection Number	Abnormal rejection (Number)	Unit cost (Rs)	Total value (Rs in lakh)
	Warrant Number							
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Metallic base of 125 mm Semi combustible cartridge case	1998-99	81,000	20, 300	25.06	10% 8,100	12,200	1961	239.24
	1999-2K	1,30,000	29,300	22.54	13,000	16,300	1916	312.31
	2000-01	1,56,000	27,000	17.31	15,600	11,400	1788	203.83
	2001-02	1,65,000	25,000	15.15	16,500	8,500	1772	150.62
84 mm cartridge case	1998-99	1,38,250	51,850	37.50	15% 20,738	31,112	731	227.43
	1999-2K	2,31,650	86,870	37.50	34,748	52,122	651	339.31
	2000-01	1,86,600	70,000	37.51	27,990	42,010	690	289.87
	2001-02	2,14,000	81,000	37.85	32,100	48,900	710	347.19
30 mm cartridge case	21/00052/0/00	25,000	6155	24.62	16.57% 4142	2013	544.90	10.97
	21/00048/0/00	29,993	11,055	36.86	4970	6085	720.98	43.87
155 mm Extended Range Full Bore Shell	21/000170/00	82	40	48.78	13.70% 11	29	7441.77	2.16
								Total Rs. 2166.80 lakh Say, Rs 21.67 crore.

b) Ordnance Factory, Trichi

Ordnance Factory, Trichi, commenced production of 5.56 mm rifle components in 1999-2000. A similar trend of abnormal rejections amounting to Rs 27.44 lakh during 1999-2000 to 2001-02 was also noticed, based on the illustrative instances brought out below:

Items	Year	Quantity accepted (Number)	Quantity rejected (Number)	Percentage of actual rejection	Unavoidable rejection allowed Percentage Number	Abnormal rejection (Number)	Unit cost (Rs.)	Total value (Rs. in lakh)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Barrel Extension	1999-2K	877	105	11.97	(7%) 61	44	600.49	0.26
	2000-01	10383	938	9.03	727	211	984.53	2.08
	2001-02	11224	910	8.11	786	124	967.48	1.20
Piston Extension	1999-2K	931	112	12.03	(5%) 47	65	916.15	0.60
	2000-01	11514	1278	11.09	576	702	1059.66	7.44
	2001-02	12694	1255	9.88	635	620	1312.44	8.14
Block Rear	1999-2K	1525	183	12.00	(8%) 122	61	1290.78	0.79
	2000-01	5680	568	10.00	454	114	985.81	1.12
Bracket	1999-2K	738	89	12.06	(7%) 52	37	519.19	0.19
	2000-01	10800	1080	10.00	756	324	519.19	1.68
	2001-02	19970	1598	8.00	1398	200	458.47	0.92
Hammer	2000-01	13951	1406	10.07	(5%) 698	708	264.25	1.87
	2001-02	16567	1247	7.53	828	419	273.30	1.15
							Total	**Rs 27.44 lakh**

c) Heavy Alloy Penetrator Factory, Trichi

In respect of this factory, the actual percentage of rejection in manufacture was found to exceed the percentage of UAR provided in the estimate. Two cases noticed during test check are indicated below:

Item	Year	Quantity accepted (Number)	Quantity rejected (Number)	Percentage of actual rejection	UAR allowed Number (Percentage)	Abnormal rejection (Number)	Money Value
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
125 mm Fin Stabilised Armoured Piercing Discarding Sabot Tail	1997-98 1998-99	30511 27894	2514 2332	8.23 8.36	2441 (8%) 1674 (6%)	73 658	Money value of abnormal rejection could not be quantified due to non-availability of unit cost of the items produced.
Penetrator	1997-98 1998-99 1999-2K	27580 29610 73532	2393 2842 4743	8.67 9.60 6.45	1379 (5%) 1480 (5%) 3677 (5%)	1014 1362 1066	

Thus, the managements of the three factories failed to contain the rejection within the percentage of unavoidable rejection envisaged at the time of procurement of CNC machines or fixed in the estimates subsequently.

A detailed review, by all the factories is required in order to bring down the rejection in manufacture of items through CNC machines to fulfil the intended objectives.

7.3.5 Documentation of CNC machines

Even though CNC machines were progressively inducted in various Ordnance Factories from the early eighties, some of the factory managements had not carried out any analysis or could not produce documentation to Audit to indicate the details of actual benefits accrued vis-à-vis those anticipated at the time of procurement of CNC machines. A few illustrative replies furnished by the factory managements are cited below:

Sl. No.	Name of the factory	Management's reply
1	Gun Carriage Factory, Jabalpur	Management stated in December 2002 that no assessment for envisaged labour saving/ tools savings/ cost savings was done at the time of procurement.
2	Ordnance Factory, Dehradun	Management stated in January 2003 that no study regarding cost savings had been carried out.
3	Ordnance Factory, Khamaria	Management stated in December 2002 that it might take some more time to work out the details of tools savings/ cost savings and added that this would be done once the production was stabilised.

The management of the following factories could not furnish details regarding cycle time/ annual rated capacity in respect of CNC machines held by them.

Sl. No.	Name of the factory	Management's reply
1	Ordnance Factory, Medak	Management stated in August 2003 that no records of cycle time and rated capacity were available.
2	Opto Electronic Factory, Dehradun	Management stated in July 2003 that annual capacity of the CNC machines was not assessed.
3	Ordnance Factory, Dehradun	Management stated in July 2003 that it was not possible to assess the annual capacity of CNC machines as they were not manufacturing only one component/product. They added that one CNC machine was equivalent to four conventional machines.
4	Gun and Shell Factory, Cossipore	Management stated in March 2002 that no procedures were prescribed to maintain identity of components manufactured through CNC and other routes.
5	Machine Tools Prototype Factory, Ambernath	Management stated in June 2002 that it was not feasible to assess the machine utilisation on cycle time basis.
6	Ammunition Factory, Kirkee	Management stated in January 2003 that components or cycle time and capacity could not be measured in view of large variety of items produced on CNC machines.

In order to ensure gainful utilisation of CNC machines and fulfil the basic objectives of modernisation, a suitable mechanism for proper documentation of activities of CNC machines needs to be devised and implemented at the earliest.

7.3.6 Unjustified procurement of CNC machines

The Ministry of Defence had issued detailed guidelines in November 1999 regarding procurement of plant and machinery according to which all investment decisions should necessarily be based on a realistic assessment of production load vis-a-vis known demand from the user Services at least on a medium term (5 to 10 years time scale). The guidelines also envisage the necessity and capacity criteria as under:

- Details of components/end products required to be manufactured along with annual quantity.
- Basis of computing the annual requirement/load vis-a-vis production plan
- Scrutiny of the production load with reference to the projected demands placed by the Services.
- Detailed calculation of number of machines needed based on cycle time and annual outturn.

Audit noticed that the following factories procured CNC machines either without valid justification or created excess capacity with reference to the existing pattern of workload. Details of such cases are tabulated and discussed below:

Sl. No.	Name of the factory	Number of machines procured without justification	Value (Rs in crore)	Remarks
1	Ordnance Parachute Factory, Kanpur	31	2.43	Excess capacity created
2	Field Gun Factory, Kanpur	5	2.26	Decrease in workload
3	Vehicle Factory, Jabalpur	1	1.97	No workload
4	Ordnance Clothing Factory, Shahjahanpur	10	1.28	Excess capacity created with reference to existing workload.
5	Ordnance Factory, DumDum	1	0.34	No workload in view of discontinuance of production
6	Metal and Steel Factory, Ishapore	1	0.22	No workload
	Total	**49**	**8.50**	

i) Ordnance Parachute Factory, Kanpur: The management procured 40 computerised automatic socks knitting machines alongwith 8 dial linking machines, 3 turning machines and 3 pneumatic ironing machines at a total cost of Rs 4.12 crore between August and November 2001. Although the planned capacity was to manufacture 7 lakh pairs of socks per annum, the machines procured had a much higher capacity of 18.43 lakh pairs per annum. Thus, excess manufacturing capacity was created with reference to workload by way of procurement of 31 additional machines costing Rs 2.43 crore. There was no regular production from these machines during 2001-02. During 2002-03, the factory produced 6.10 lakh pairs of socks.

ii) Field Gun Factory, Kanpur: Five CNC machines costing Rs 2.26 crore were procured between February 2000 and April 2001 for manufacture of T-72 tank gun components before the clearance of factory's proposal for augmentation of production of T-72 ordnance from 60 to 100 numbers per annum. As the proposal for augmentation was dropped as of July 2000, the premature procurement of these machines without approval of augmentation was unjustified with reference to existing workload for T-72 ordnance.

iii) Vehicle Factory, Jabalpur: Mention was made in paragraph 57 of Audit Report No.7 of 2000 of the Comptroller and Auditor General of India regarding non-commissioning of one imported butler crank pin grinding CNC machine costing Rs 1.97 crore. This was received in March 1993 for manufacture of crank shafts of Shaktiman and Nissan vehicle but could not be commissioned due to non-achievement of angular variation and surface finish for Nissan crank shafts. However, it was never put to use as there was no workload for machining of the crank shafts.

iv) Ordnance Clothing Factory, Shahjahanpur: The management procured 35 computerised automatic power socks knitting machines at a total cost of Rs 4.49 crore against two orders placed in March 2000 and February 2001 on Solomon Engineers Private Limited, Delhi, against the workload of 10.54 lakh pairs of socks per annum.

But the firm had intimated in March 1999 that only 25 such machines were adequate to manufacture 12 lakh pairs of socks per annum. The production of socks during 2001-02 was 6.69 lakh pairs. Hence, 10 machines costing Rs 1.28 crore were procured in excess with reference to the workload, which lacked justification.

v) Ordnance Factory, Dum Dum: The factory received one CNC lathe machine costing Rs 33.78 lakh in November 1999 for manufacture of nozzle for 73 mm HEAT stabiliser assembly. After its commissioning in October 2000, the production of the item was discontinued due to reduction in requirement. Since then the machine was not put to any use during 2001-02 and 2002-03. It is evident that the factory failed to visualise user requirements over a reasonable time-frame.

vi) Metal and Steel Factory, Ishapore : One CNC face milling machine costing Rs 22.02 lakh was procured in November 1999 for machining of 30 mm steel blanks. Though the machine was commissioned in Vehicle Assembly section in March 2000, the section informed the management in January 2002 that the machine was lying unutilised since long as there was insufficient workload. The machine was shifted to Tool Room section for machining of certain tools but could not be put to any use as it required certain modifications which were still to be carried out as of April 2003.

7.3.7 Value for money not realised

During test check of records Audit came across instances where the factory management could not derive any value for money from the investment of Rs 15.56 crore on 16 CNC machines for various reasons as discussed overleaf.

Name of the factory	Description of the machines	Quantity	Amount paid (Rs in crore)	Date of Receipt	Remarks
(1)	(2)	(3)	(4)	(5)	(6)
Vehicle Factory, Jabalpur	Cooper horizontal machining centre	2	2.31	April 2001	Not commissioned so far due to non-functioning of the spindles.
	High precision coordinate boring and milling machine	1	2.43	June 2002	Not commissioned as of March 2003 due to short supply of spares and tools. The supplier became bankrupt in July 2002.
Gun and Shell Factory, Cossipore	Twin spindle twin turret chucker machine	1	0.50	March 2001	Commissioned in January 2002. Production is held up badly due to non-commissioning of the bar feeder arrangement.
	Horizontal machining centre	1	0.89	April 2001	Not commissioned as of April 2003 due to non-proving of tooling for machining the components.
	GDM 65/4 Axis CNC machine	1	1.58	June 2001	Lying uncommissioned as of May 2003.
Ordnance Factory, Medak	Robotic welding system	1	2.61	December 1996	Lying unutilised as of August 2003 due to defects in the robotic system.
	Tool cutter grinder	1	0.42	March 1990	Out of order since June 1993.
	Pipe bending machine	1	0.36	May 1989	Never utilised since commissioning in January 1990.

Name of the factory	Description of the machines	Quantity	Amount paid (Rs in crore)	Date of Receipt	Remarks
(1)	(2)	(3)	(4)	(5)	(6)
Ordnance Clothing Factory, Shahjahan pur	Computer controlled auto flat bed knitting machine	1	0.57	March 2001	Lying in rejected condition as of June 2003 due to very low output.
	CAD/CAM spreading unit and automatic CNC cutting machine	1	1.16	March 2002	Lying in rejected condition as the standard of performance of the machine was not as per the terms of the order.
Ordnance Factory, Dehradun	Jig boring machine	1	1.32	May 2001	Commissioned in September 2001 but remained under break-down after four days of its commissioning.
Ordnance Factory, Dum Dum	CNC lathe machine	1	0.26	Commissioned in July 2001	Performance was inconsistent since its commissioning due to repeated problems in X and Z axes resulting in production loss.
	CNC vertical milling machine	2	0.62	December 2001	Commissioned in April 2002 but not functioning satisfactorily due to various techinical defects resulting in production loss.
Field Gun Factory, Kanpur	CNC tool cutter and grinding machine	1	0.53	Commissioned in April 1993	Declared surplus and not put to any use since its commissioning.
Total	**16 machines**		**Rs 15.56 crore**		

a) The Vehicle Factory, Jabalpur, received two Cooper horizontal machining centres in March-April 2001 for Rs 2.31 crore. The machine is required for machining gearbox and auxiliary gearbox and covers of stallion and LPTA vehicles. Although the machines were erected in May 2001, they could not be commissioned satisfactorily as they could not prove the intended components due to non-functioning of the spindles. The spindles were repaired by the firm in June-September 2002. During trial runs in December 2002, actual cycle time observed was 130 minutes against contractual cycle time of 97.8 minutes for 6 components. Besides, the spindle of one machine broke down again in December 2002. Both the machines were lying uncommissioned as of January 2003.

b) The Vehicle Factory, Jabalpur, placed an order on SIP Societe, Switzerland, in July 2001 for one high precision coordinate boring and milling machine at a cost of CHF 9,24,384 equivalent to Rs 2.51 crore to be supplied by February 2002. The factory management carried out pre-despatch inspection of the machine in February 2002. However, the firm could not make available the full quantity of tool and spares for inspection. Only the basic machine was accepted subject to final acceptance at the factory's premises during commissioning. The factory received the machine in June 2002 with short supply of certain items. In the meantime, the management paid an advance amount of Rs 2.43 crore to the firm. The management requested the firm in September 2002 to depute their team for final commissioning of the machine and also to supply the short-supplied spares/ tools. Meanwhile, the firm went bankrupt in July 2002. Although the management made efforts in November 2002 to procure the requisite spares and tools from alternative sources, they could not succeed. Hence, the machine was still lying uncommissioned as of March 2003.

c) The Gun and Shell Factory, Cossipore, placed an order in August 2000 on Hindustan Machine Tools Limited, Bangalore, for supply of nine numbers twin spindle twin turret chucker at a total cost of Rs 4.47 crore, by December 2000. Of the nine machines, one machine costing Rs 49.66 lakh was received in March 2001 and commissioned in January 2002. However, the bar feeder arrangement provided with the machine was not commissioned as of July 2002. In terms of the order, the bar feeder arrangement should be compatible to produce 30 mm calibre shells. But the item supplied by the firm was not compatible for production of 30 mm shells.

The factory also placed an order in September 2000 on the same supplier for one horizontal machining centre costing Rs 89.44 lakh, to be supplied by February 2001. Although the machine was received in April 2001, the same was yet to be commissioned even as of April 2003. The machine was lying idle for want of satisfactory commissioning by proving of tooling for machining the component for which it was intended. Besides, another CNC machine costing Rs 1.58 crore was received from Hindustan Machine Tools Limited, in June 2001 against the factory's order of January 2001. But the same was still lying uncommissioned even as of May 2003.

Thus, the investment of Rs 2.97 crore on three machines has not yielded any returns to the management.

d) Mention was made in paragraph 63 of Audit Report No. 7 of 2002 of the Comptroller and Auditor General of India regarding non-utilisation of a robotic welding system costing Rs 2.61 crore since December 1996 at the Ordnance Factory, Medak. The Ministry, in its Action Taken Note of February 2003, stated that it had decided to approach a DRDO organisation, IRIS Bangalore, to modify the robotic system. Though the organisation inspected the machine in November 2003 to study the mechanical aspects, the Ministry had opined that it would take some more time to complete the repairs.

The factory also received one pipe bending machine costing Rs 36.09 lakh and one tool cutter grinder machine costing Rs 41.66 lakh in May 1989 and March 1990 respectively. The first machine was never put to use since its commissioning in January 1990 due to drastic reduction in workload of BMP vehicles from 500 to 125 per annum and the existing workload was met by the available CNC machine. The second machine was out of order since June 1993.

e) The Ordnance Clothing Factory, Shahjahanpur, placed an order on Tech Knit Overseas Limited, Ludhiana in August 2000 for supply of one set computer controlled automatic flat bed knitting machine for jerseys along with accessories at a total cost of Rs 63.55 lakh. The machine was received in the factory in March 2001. During inspection, the Works Manager of the factory certified that the machine was working satisfactorily but its rated capacity could not be ascertained. An amount of Rs 57.19 lakh, being 90 per cent of the contract value, was paid to the supplier in March 2001 in terms of the contract. Subsequently, it was found in July 2001 that the output of the

machine was only 44 numbers in one shift against 100 numbers as stipulated in the order. The supplier had also not imparted the complete training to the personnel of the factory for operating the machine. In view of the very low output of the machine, the management rejected it and asked the supplier in July 2001 to refund the amount of Rs 57.19 lakh paid as advance. But the supplier had not responded and the machine was lying rejected as of June 2003. The case was under arbitration.

The factory also placed an order on Lectra System, France, in January 2001 for supply of a complete set of CAD/CAM spreading unit and automatic CNC cutting machine at a total cost of US$ 3.10 lakh. In terms of the order, the management paid 80 per cent of the contracted amount i.e. US$ 2.44 lakh equivalent to Rs 1.16 crore to the firm after pre-despatch inspection. The machine was installed in March 2002. However, the performance of the machine did not adhere to the specifications of the supply order. As the firm did not respond to prove the machine satisfactorily, the management rejected the machine in December 2002 and requested the firm to refund the advance payment. There was no progress thereafter and the machine was lying unutilised as of July 2003 due to expiry of software licence.

f) The Ordnance Factory, Dehradun, placed an import order in November 2000 on SIP Societe, Switzerland, for supply of one jig boring machine at a cost of Rs 1.58 crore by March 2001. The machine was received in May 2001 and commissioned in September 2001 with certain deficiencies. Within four days after its commissioning, the machine broke down. Meanwhile, the management had paid an amount of Rs1.32 crore to the firm towards 80 per cent payment against shipment documents. Though the defects were reported to the firm, the matter was yet to be resolved as of April 2002. Subsequently, the firm was declared bankrupt in July 2002. In view of this, the prospect of getting the machine rectified was bleak. Thus, the management had not derived any benefit from an investment of Rs 1.32 crore towards procurement of the jig boring machine.

g) The Ordnance Factory, Dum Dum, placed an order in November 2000 on Hindustan Machine Tools Limited, Kerala, for supply of two CNC lathe machines at a total cost of Rs 51.81 lakh by March 2001. The machines were commissioned in July 2001. However, the performance of one machine was not found to be consistent as of May 2003 since its commissioning due to repeated problems in X and Z axes for which the matter was referred to the supplier in May 2003 for rectification. This resulted in production losses during the last two years.

The factory also received two CNC vertical milling machines costing Rs 62.05 lakh in December 2001 from Bharat Fritz Werner Limited, Bangalore. The machines, though commissioned in April 2002, were not functioning satisfactorily due to reduction in feed rate, profuse leaking of coolant tanks, defective pallet locking and clamping mechanism, problems in opening/ closing of machine doors etc. Besides, the machines broke down frequently right from their commissioning and even as of May 2003. Though the defects were reported to the firm, they were yet to be rectified as of May 2003, which also resulted in production loss. Thus, the management failed to derive any value for money out of the investment of Rs 87.95 lakh towards procurement of three machines.

h) The Field Gun Factory, Kanpur, procured one CNC tool cutter and grinding machine at a cost of Rs 53.46 lakh from WIDIA India Limited, Bangalore, in February 1992 for 125 mm smooth bore gun project. After its commissioning in April 1993, the factory management declared the machine surplus in November 1995 due to change in the product mix. In December 1995, two cards of the control unit of the machine were removed and loaned to the Rifle Factory, Ishapore. The machine, however, remained in the factory. The Ordnance Factory Board stated in January 2003 that the cards were received back from the Rifle Factory, Ishapore and the machine would be put to use as and when the requirement of regrinding of complex tools arose. However, the fact is that the machine remained under break-down since April 1997 as of July 2003 and it was never put to any effective use since its commissioning in April 1993.

7.3.8 Underutilisation of capacity

The rated capacity of a CNC machine is indicated in terms of number of components manufactured per hour based on cycle time needed to manufacture those components on each machine. The annual capacity of the machine is assessed taking into account 3840 machine-hours actually available in a year excluding 20 per cent time for downtime, absenteeism, set-up time and non-availability of tools.

During a test check of records relating to capacity utilisation in respect of 740 machines at 14 factories, Audit noticed instances where 349 machines at 13 factories remained underutilised during 1997-98 to 2001-02. Details of such cases are indicated in Annex-IV.

The year-wise details showing the range of percentage of utilisation of the CNC machines in respect of these 13 factories are summarised as under:

Year	Number of machines involved	Range of percentage of utilisation		
		0 to 30	31 to 60	Above 60
		Number of Machines		
1997-98	199	60	119	20
1998-99	209	64	106	39
1999-2K	273	78	82	113
2000-01	342	100	121	121
2001-02	349	96	154	99

It would be seen that 60 to 100 machines were utilised up to 30 per cent only and 82 to 154 machines utilised in the range of 31 to 60 per cent in a particular year during 1997-98 to 2001-02. This indicates that there was gross underutilisation of a sizeable number of CNC machines in these 13 factories. The underutilisation was mainly due to reduced workload.

The extent of utilisation of 608 CNC machines could not be assessed by Audit due to non-furnishing of machine-wise and year-wise production data, cycle time involved or due to non-assessment of rated capacity of the machines by the factory management. Particularly, the management of 14 factories did not furnish the relevant

information/ data in respect of any of the 276 machines costing Rs 146.53 crore held by them as detailed below.

Sl. No.	Name of the factory	Number of machines held	Value (Rs in crore)
1	Ordnance Factory, Kanpur	76	57.97
2	Ordnance Parachute Factory, Kanpur	40	3.75
3	Gun Carriage Factory, Jabalpur	44	23.76
4	Machine Tools Prototype Factory, Ambernath	30	26.99
5	Opto Electronic Factory, Dehradun	24	6.51
6	Ordnance Factory, Khamaria	14	5.19
7	Ammunition Factory, Kirkee	11	1.96
8	Ordnance Factory, Ambernath	9	3.98
9	Ordnance Clothing Factory, Shahjahanpur	8	5.93
10	Ordnance Equipment Factory, Kanpur	7	3.50
11	Ordnance Factory, Katni	4	2.35
12	Ordnance Factory, Bhushawal	2	0.32
13	Ordnance Factory, Dehradun	6	4.30
14	Ordnance Factory, Varangaon	1	0.02
	Total	**276**	**146.53**

A few illustrative cases indicating management's response are cited below :

Sl. No.	Name of the Factory	Number of machines for which data not furnished	Remarks
1	Engine Factory, Avadi	34	The management furnished data of 12 machines. However, they stated in April 2003 that no records were available to indicate details of operations, components manufactured etc.
2	Gun Carraige Factory, Jabalpur	44	Machine-wise production record was not made available by the management.
3	Gun and Shell Factory, Cossipore	52	Production data of 58 machines were furnished for 2000-01 to 2002-03.
4	Opto Electronic Factory, Dehradun	24	Management stated in July 2003 that the annual capacity of the machine was not assessed. Although they stated that all machines were utilised 100 per cent during 1997-98 to 2001-02, it could not be verified since rated capacity and production data of these machines were not furnished.
5	Ordnance Factory, Dehradun	6	Management stated that it was not possible to assess the annual capacity of CNC machine.
6	Ordnance Factory, Kanpur	76	Machine-wise/year-wise production data were not furnished by the management.
7	Field Gun Factory, Kanpur	27	Cycle time details and production data were not furnished by the management.

7.3.9 Major break-down of CNC machines

The main objective of maintenance of CNC machines is to maximize dependable uptime, minimize break-down/repair time and to increase equipment's service life with a view to achieving economic advantages of CNC technology. In order to achieve this objective, the maintenance programme is to be planned well. However, a test check of records revealed that many CNC machines were under major break-down for more than 1 month and even up to 12 months in a particular year. Instances of such major break-down in respect of 11 factories during 1997-98 to 2001-02 are furnished below:

Year	Period of break-down	HVF	RFI	EFA	OFPM	SAF	GSF	OFK	OFC	FGF	OFAJ	AFK	Total
1997-98	31 to 90 days	N.F(*)	13	7	4	Nil	Nil	Nil	N.F	Nil	Nil	Nil	24
	91 to 180 days	N.F	Nil	4	Nil	Nil	1	1	N.F	Nil	Nil	Nil	6
	Above 180 days	N.F	Nil	5	1	1	Nil	1	N.F	3	Nil	Nil	11
	Total	**N.F**	**13**	**16**	**5**	**1**	**1**	**2**	**N.F**	**3**	**Nil**	**Nil**	**41**
1998-99	31 to 90 days	24	13	6	3	1	1	1	N.F	Nil	Nil	Nil	49
	91 to 180 days	5	Nil	4	1	1	Nil	2	N.F	Nil	Nil	Nil	13
	Above 180 days	2	Nil	6	Nil	Nil	Nil	Nil	N.F	3	Nil	Nil	11
	Total	**31**	**13**	**16**	**4**	**2**	**1**	**3**	**N.F**	**3**	**Nil**	**Nil**	**73**
1999-2K	31 to 90 days	15	22	Nil	1	Nil	Nil	2	N.F	Nil	Nil	Nil	40
	91 to 180 days	3	2	3	Nil	Nil	1	Nil	N.F	Nil	1	Nil	10
	Above 180 days	Nil	2	3	Nil	1	Nil	Nil	N.F	3	Nil	Nil	9
	Total	**18**	**26**	**6**	**1**	**1**	**1**	**2**	**N.F**	**3**	**1**	**Nil**	**59**
2000-01	31 to 90 days	20	18	2	2	Nil	1	3	3	Nil	Nil	1	50
	91 to 180 days	7	1	3	Nil	1	Nil	Nil	1	Nil	1	Nil	14
	Above 180 days	Nil	2	1	Nil	Nil	1	Nil	Nil	3	Nil	Nil	7
	Total	**27**	**21**	**6**	**2**	**1**	**2**	**3**	**4**	**3**	**1**	**1**	**71**
2001-02	31 to 90 days	21	9	1	2	1	4	2	8	Nil	5	1	54
	91 to 180 days	12	5	2	Nil	2	1	1	1	Nil	Nil	Nil	24
	Above 180 days	1	6	3	Nil	2	Nil	Nil	1	3	Nil	Nil	16
	Total	**34**	**20**	**6**	**2**	**5**	**5**	**3**	**10**	**3**	**5**	**1**	**94**

(*) N.F→ Data not furnished.

Forty one to 94 machines remained under break-down for more than 1 month's duration in a year during 1997-98 to 2001-02. The downtime period exceeded three months' duration in a year in respect of 17 to 40 machines. 16 machines in the Heavy Vehicles Factory, Avadi, Rifle Factory, Ishapore, Engine Factory, Avadi, Small Arms Factory, Kanpur, Field Gun Factory, Kanpur and Ordnance Factory, Kanpur remained in break-down condition for more than six months in 2001-02. Besides, nine machines costing Rs 5.99 crore at six factories were continuously under break-down for period ranging between 20 months and eight and a half years as of April 2002. This indicates that proper attention has not been given to maintenance of CNC machines, which could adversely affect production.

The managements of the Ordnance Factory, Medak, Ordnance Factory, Khamaria, Ordnance Factory, Kanpur and Ordnance Factory, Ambajhari stated that there was no impact or negligible impact of break-down and production was managed through alternative route.

7.3.10 Extra expenditure in production through conventional machines

Production of components through conventional machines was resorted to even though there was capacity available in terms of CNC machines. This led to an extra expenditure in manufacture of those items due to higher cost of production through the conventional route. Details of such cases noticed at the Rifle Factory, Ishapore, are shown below:

Items	Year	Quantity manufactured in conventional route instead of CNC route	Conventional Route		CNC Route		Difference (5) – (7)
			Unit cost	Total value	Unit cost	Total Value	
			(Rs in lakh)				
5.56 mm rifle Piston Extension	1998-99	19,706	0.015	295.59	0.010	197.06	98.53
	1999-2K	7449	0.0147	109.50	0.009	67.04	42.46
	2000-01	2029	0.0203	41.19	0.0097	19.68	21.51
Barrel Extension	1998-99	23,770	0.0097	230.57	0.0053	125.98	104.59
	1999-2K	13,335	0.0155	206.69	0.0052	69.34	137.35
	2000-01	2,209	0.0167	36.89	0.0086	18.99	17.90
Block Breech	1999-2K	40,465	0.0083	335.83	0.0071	287.30	48.53
	2000-01	33,840	0.0128	433.15	0.0121	409.46	23.69
Bracket	1999-2K	12,640	0.0075	94.80	0.0065	82.16	12.64
	2000-01	13,718	0.0129	176.96	0.0116	159.13	17.83
	2001-02	10,790	0.0095	102.51	0.0091	98.19	4.32
9mm pistol Slide	1998-99	3129	0.0251	78.54	0.0225	70.40	8.14
pistol Body	1998-99	4145	0.0445	184.45	0.0311	128.91	55.54
	1999-2K	3282	0.0404	132.59	0.0196	64.33	68.26
	2001-02	1652	0.0613	101.27	0.0161	26.60	74.67
						Total	**735.96**

Thus, the factory management could have saved Rs 7.36 crore, had CNC machines been optimally utilised. This would have ultimately reduced the cost of production of 5.56 mm rifle as well as 9 mm pistol.

Similarly, there was also extra expenditure of Rs 2.35 crore in manufacture of nine components through the conventional route during 1999-2000 to 2001-02 at the Ordnance Factory, Trichi, in spite of surplus capacity in terms of CNC machines.

In respect of other factories no separate documents or cost cards were made available to Audit showing details of production of various components through CNC route and conventional route.

7.3.11 Offloading of jobs to trade despite availability of CNC machines

Audit came across instances where factory management offloaded certain jobs to trade or procured finished components either from indigenous sources or through import in spite of having CNC machines capable of undertaking similar jobs/manufacture of such components. A few such cases are discussed below:

a) The Engine Factory, Avadi, imported one CNC creep feed grinder machine at a cost of Rs 58.93 lakh in October 1989. But the machine could not be fully

commissioned as the firm failed to prove operations on two components viz. master con rod and rod cap of engine of infantry combat vehicle (ICV). As the machine could not be fully commissioned and proved, the management got those two operations done through trade at an expenditure of Rs 49.90 lakh during December 1998 to August 2002.

The factory management also placed orders on trade for machining of three components of tank and ICV engines and placed import orders for three finished components. It incurred a total expenditure of Rs 2.74 crore during July 1997 to May 2001 due to poor performance of six CNC horizontal machining centres supplied by Praga Tools Limited.

b) The Ordnance Factory, Trichi, procured 14,727 brackets of 5.56 mm rifle valuing Rs 1.20 crore during 2000-01 and 2001-02 from trade despite availability of three CNC machines which were commissioned in August 1999 for manufacture of the bracket.

c) Despite creation of capacity for manufacture of 15.96 lakh pairs of socks in the Ordnance Clothing Factory, Shahjahanpur, at an investment of Rs 4.49 crore by way of 35 computerised socks knitting machines, the management placed eight orders on trade during July 2002 to February 2003 at a total cost of Rs 87.72 lakh for 16.7 lakh pairs of socks.

7.3.12 Non-disposal of condemned machines replaced by CNC machines

Condemned machines replaced by new CNC machines are to be disposed of on receipt of the new machines at the factories. Even though Ordnance Factories were procuring CNC machines under renewal and replacement grant in replacement of old conventional machines which were declared beyond economical repair, it was noticed that the factories continued to hold the condemned conventional machines without disposing them off to the best advantage of the Government, disregarding the Board's instructions.

Details of the factories holding old condemned machines, awaiting disposal as of March 2002 are shown below:

Sl.No.	Name of the factory	Number of machines awaiting disposal
1	Small Arms Factory, Kanpur	172
2	Ordnance Factory, Ambajhari	66
3	Ordnance Clothing Factory, Shahjahanpur	73
4	Ordnance Factory, Trichi	52
5	Vehicle Factory, Jabalpur	46
6	Ammunition Factory, Kirkee	22
7	Field Gun Factory, Kanpur	22
8	Rifle Factory, Ishapore	23
9	Ordnance Factory, Khamaria	10
10	Ordnance Factory, Ambernath	10
	Total	**496**

These 496 conventional machines had been progressively condemned since 1986-87. These machines not only occupy space but will also realise lower values if not disposed off in time.

7.3.13 Payment to the suppliers without adequate check

a) The Ordnance Parachute Factory, Kanpur, placed an order in April 2001 on Solomon Industries Limited, Delhi, for supply of 40 socks knitting machines, eight dial linking machines, three turning machines, two cone to cone rewinding machines and three ironing machines at a total cost of Rs 4.88 crore. The machines were commissioned in stages by December 2001. In terms of the order, the supplier was to arrange application training for 12 months each to the machine operators and technicians of the factory at the factory premises. The factory management, however, released the payment for training charges amounting to Rs 23.50 lakh even though the training was imparted only from 11 to 22 March 2002 against 12 months stipulated in the supply order.

b) The Ordnance Factory, Dum Dum, placed an order in May 1999 on Bharat Fritz Werner Limited, Bangalore, for supply of two CNC horizontal machining centres at a cost of Rs 1.17 crore. During pre-despatch inspection of the machines, the cycle time achieved for the intended component was 38 minutes against the cycle time of 23.45 minutes per component per machine as quoted by the firm. Even during commissioning of the machines in August 2000, the cycle time was observed to be 41 minutes and 56-57 seconds.

The supply order stipulated that if the proven cycle time was found to be more than the quoted cycle time, the amount proportionate to the excess cycle time should be deducted from the total cost of the order. However, the management accepted both machines without enforcing the recovery of Rs 90 lakh on account of excess cycle time of 18.11 minutes.

These findings were reported to the Ministry in September 2003; its reply was awaited as of February 2004.

Planning

7.4 Blocked inventory due to abrupt withdrawal of demand by user

Abrupt decision of the Army in withdrawing their requirement for one version of 155mm ammunition forced three Ordnance Factories to hold blocked inventories worth Rs 9.21 crore without any prospect of their gainful utilisation.

Mention was made in Paragraph 45 of Report No.7 of 2000 of the Comptroller and Auditor General of India of delay in development and establishment of production of High Explosive Extended Range version of 155 mm ammunition at Ordnance Factories, leading to bulk production clearance for the ammunition by the Army only in July 1998.

The Ministry of Defence in their Action Taken Note had stated in August 2000 that the delay in development of the High Explosive Extended Range version of 155 mm ammunition was attributed to the absence of complete Transfer of Technology from Bofors.

Further examination of the case revealed that based on two indents of August 1990 (2268 nos) and August 1998 (18,707 nos) received from the Army, the Ordnance Factory Board placed two extracts in September 1992 (2268 nos) and November 1998 (9707 nos.) on Ordnance Factory Chanda and an extract in November 1998 (9000 nos) on Ordnance Factory, Badmal, for manufacture and supply to the Central Ammunition Depot, Pulgaon, the dates of delivery being 1992-93 and 1998-99 respectively. However, in February 1999, the Ordnance Factory Board diverted manufacture of 3000 ammunition from Ordnance Factory, Badmal to Ordnance Factory, Chanda.

Ordnance Factory, Chanda and Ordnance Factory, Badmal, however, could manufacture only 3201 and 1980 ammunition, respectively, between September 1996 and March 1999 and supply 5139 ammunition between March 1997 and March 1999 after obtaining empty shells from Ordnance Factory, Ambajhari. The remaining 42 ammunition manufactured by OFChanda were expended in proof (40 nos) and rejected (2 nos) in inspection.In April 1999 the Ordnance Factory Board authorised Ordnance Factory, Chanda, to manufacture and supply 2000 shell 155 mm High Explosive Extended Range to the Army during 1999-2000. However, the Master General of Ordnance abruptly intimated to the Ordnance Factory Board in a meeting held in July 1999 that their requirement of shell 155 mm High Explosive Extended Range for 1999-2000 was nil.

Accordingly the Ordnance Factory Board instructed Ordnance Factory, Chanda, Ordnance Factory, Badmal and Ordnance Factory, Ambajhari, in July 1999 to

suspend manufacture of the subject version of ammunition. The decision was taken to accord priority for development of the ammunition according to the Naschem design.

As a result of suspension of manufacture of shell 155 mm High Explosive Extended Range the three factories were saddled with blocked inventories worth Rs 9.21 crore as mentioned below and there was no prospect of any alternate use of the store.

Ordnance Factory Chanda	-	Rs 5.01 crore
Ordnance Factory Badmal	-	Rs 1.79 crore
Ordnance Factory Ambajhari	-	Rs 2.41 crore

The abrupt intimation by the Army on non-requirement of 155 mm High Explosive Extended Range ammunition after authorising the Ordnance Factory Board to supply them during 1999-2000 resulted in avoidable blocked capital worth Rs 9.21 crore. In March and June 2003 Ordnance Factory, Ambajhari and Ordnance Factory, Chanda, respectively, stated that there was no scope for alternate use of the surplus stores.

The Ordnance Factory Board stated in November 2003 that surplus materials could be used gainfully if fresh orders were placed by the Army.

The matter was referred to the Ministry of Defence in July 2003; their reply was awaited as of February 2004.

Production

7.5 Loss due to failure of cartridge cases in proof

Bulk manufacture of cartridge cases of an ammunition in new plants by Ordnance Factory, Varangaon, before its development in pilot batch of suitable sizes, resulted in avoidable abnormal rejection loss of cartridge cases worth Rs 32.20 lakh.

Mention was made in Paragraph 47.6.3.1 of the Report of the Comptroller and Auditor General of India No.7 of 2001 of delay in commissioning of two cartridge case plants due to malfunctioning of the machines at Ordnance Factory, Varangaon. Those machines were commissioned by June 1999 and were technically accepted for production in July 1999.

Further examination at the Factory revealed that in spite of initial malfunctioning of the machines, the factory, instead of issuing warrant for trickle production, issued a consolidated warrant in August 2000 for bulk production of 85 lakh 5.56 mm

cartridge cases. It processed 100.50 lakh cartridge cases, of which 61.50 lakh cartridge cases were rejected in proof between October 1999 and September 2001 due to primer out and split cases, thereby registering 72.35 per cent rejection, calculated with reference to ordered quantity as against the authorised unavoidable rejection of 18.24 per cent. Resultantly, there was an abnormal rejection loss of 46 lakh cartridge cases valuing Rs 32.20 lakh after providing credit towards realisation of scrap. Abnormal rejections are required to be analysed by the factories after constituting a Board of Enquiry for taking suitable corrective measures to avoid recurrence of such instances.

In response to Audit, Ordnance Factory, Varangaon, stated in March 2002 that there were initial teething problems associated with the plant and design of the components which were eliminated by making appropriate changes in the case dimensions, tooling and production process. It added that a Board of Enquiry was not necessary since the failed lots were manufactured under commissioning warrant and that it was contemplated to cover the rejection under unavoidable rejection percentage.

These contentions of Ordnance Factory, Varangaon, were not tenable since the factory ought to have issued warrant for trickle production of cartridge cases in the new plants before undertaking bulk manufacture.

When the matter was raised by Audit in December 2002 Ordnance Factory, Varangaon, stated in February 2003 that since the results/performance of lots produced during commissioning were under consideration by Armament Research and Development Establishment, Pune, the warrant was not closed and exact quantum of loss ascertained. It added that they had constituted a Board of Enquiry in October 2002 after ascertaining the extent of final rejection.

The Board of Enquiry in its findings attributed failure of cartridge cases in proof to manufacture of the item by Ordnance Factory, Varangaon, in the new plants, the whole process of which had not been established fully. This finding of the Board of Enquiry supports Audit's viewpoint that bulk production in the new plants ought to have been undertaken only after stabilising the production process in the new plants with trickle production.

The case was referred to the Ministry of Defence/Ordnance Factory Board in June 2003; their replies were awaited as of February 2004.

Provisioning of Stores and Machinery

Stores

7.6 Receipt of defective stores due to incorrect specification in the supply order

Incorporation of incorrect specification in the import order by Heavy Vehicles Factory, Avadi allowed a foreign firm to supply track assembly wraps valuing Rs 3.60 crore which was different from factory's standards.

Heavy Vehicles Factory Avadi manufactures T-72 Ajeya Tanks MI based on a Transfer of Technology agreement finalised by the Ministry of Defence with Russia. Track assembly wraps are one of the important sub-assemblies required in manufacture and over-hauling of T-72 Ajeya Tanks. The factory imported 56 sets of track assembly wraps valuing Rs 3.60 crore from OMNIPOL between March and May 2000 against its order of June 1999 for 100 sets.

The factory rejected the sub-assemblies since there were major defects like damaged rubber bushes and consequent abnormal elongation of tracks, cracks on some links, rough surface and problems in closing the wraps.

Free replacement of the entire rejected track assembly wraps provided by OMNIPOL between July 2000 and November 2000 were also rejected by the factory in April 2001. The rubber bushes were damaged in the trial run and hence the factory directed OMNIPOL in April 2001 and June 2001 to re-imburse the cost realised by OMNIPOL through letter of credit and other incidental charges incurred by the factory as well as to take back the rejected consignment. The request of OMNIPOL of May 2001 and July 2001 for a trial run of one more pair of tracks though not accepted initially was finally accepted by the factory in March 2002 at the intervention of Armoured Vehicle Headquarters, Avadi.

The trial run of one more pair of tracks, however, could not take place since there were divergent views with regard to adoption of inspection criteria - while OMNIPOL insisted on inspection criteria applicable to Czech Republic specifications, the factory wanted inspection based on Russian specifications. OMNIPOL did not accept the views of the factory and closed the matter in November 2002 stating that they had supplied track assembly wraps strictly according to the terms of clauses 11 and 14 of the factory's import order of June 1999 which provided for manufacture of the items based on the technology valid in the country of supplier i.e. the Czech Republic. OMNIPOL reiterated their stand in July 2003.

Meanwhile the factory had approached the Ministry of Defence in August 2002 to

prevail upon OMNIPOL to refund the cost of 56 sets of track assembly wraps including other incidental charges incurred by the factory or to realise the amount by withholding their payments due from Public Sector Undertakings and other Ordnance Factories. The Ministry of Defence had not accepted (December 2002) the proposal of the factory since the technical specifications and the acceptance criteria of the stores as indicated in the order of June 1999 were only in accordance with the ones in vogue in the country of the supplier viz Czech Republic and not as per the Russian specifications.

The action of Heavy Vehicles Factory, Avadi, in not incorporating the provisioning of stores of specific requirement provided by the Russian collaborator foreclosed the possibility of obtaining free replacement of 56 sets defective track assembly wraps valuing Rs 3.60 crore from OMNIPOL and consequently its utilisation in production of tanks.

Ordnance Factory Board stated in November 2003 that the issue was not of specifications but of quality, in as much as the quality of rubber bushes and links was poor. Therefore, it would not be concluded that specifications were inappropriate. However, the fact remains that the supplier rejected the factory's claims, seeking recourse to the conditions of the supply order which stipulated that technical specifications and acceptance criteria would be based on those prevailing in the country of the supplier. The OFB also stated that the relevant clauses in the contract have been amended to avoid recurrence of such instances.

The matter was referred to the Ministry of Defence in June 2003; their reply was awaited as of February 2004.

7.7 Injudicious procurement of spares

Procurement of hood glass and shatter-proof glasses by Heavy Vehicles Factory, Avadi, as spares despite the items not being included in the Tables of Tools and Equipment, resulted in their non-acceptance by the user.

Heavy Vehicles Factory, Avadi (HVF), manufactures T-72 Tanks for supply to Army Units along with the spares finalised by the Controllerate of Quality Assurance (Heavy Vehicles), Avadi (CQA), being the Authority Holding Sealed Particulars.

The factory was holding 553 hood glass valued at Rs 67.62 lakh and 999 shatter-proof glass valuing Rs 11.75 lakh as of February 2004. These were procured from Opto-Electronic Factory, Dehradun (OLF), during July 1992 to January 2001 even though the list of spares finalised by the CQA in the form of Tables of Tools and Equipment

for T-72 tanks and circulated to HVF in August 1992, August 1995 and November 2000 did not include these items.

The factory issued 511 hood glass and 892 shatter proof glass to Central Armoured Fighting Vehicle Depot, Kirkee, who back loaded it to HVF since there was no requirement of these items.

In view of the Army and the Central Armoured Fighting Vehicle Depot, Kirkee, refusing to accept hood glass and shatter-proof glass provided by the factory, the inventory of Rs 79.37 lakh was blocked. The prospect of its utilisation is remote.

Armoured Vehicle Headquarters, Avadi, stated in March 2003 that the Heavy Vehicles Factory procured these items on the basis of the Russian list of spare parts, tools and accessories without knowing that those lists were for the older version of T-72 Tank. This contention is not tenable as the older version of T-72 tank was not manufactured in India at all.

Ordnance Factory Board stated in January 2004 that Controllerate of Quality Assurance (Heavy Vehicles) Avadi was not the final authority to amend/delete any items from the list of spare parts, tools and accessories unilaterally and the lists given by them were only proposals which was not accepted and finalised by Army. This contention of Ordnance Factory Board is not acceptable since Army and Central Armoured Fighting Vehicle Depot, Kirkee refused to accept the items since the Controllerate of Quality Assurance (Heavy Vehicles) Avadi in December 2001 categorically intimated that these items were not reflected in any TOTE/CCES.

The failure of HVF to adhere to the list of spares processed by CQA led to unnecessary procurement of inventory valued at Rs 79.37 lakh.

The matter was referred to the Ministry of Defence in July 2003; their reply was awaited as of February 2004.

7.8 Loss due to non-replacement of defective instruments

Mention of technical requirements valid in the country of the supplier in the contract ultimately facilitated a foreign firm which had supplied defective Periscopes to Heavy Vehicles Factory, Avadi.

Heavy Vehicles Factory, Avadi (HVF) manufactures T-72 Ajeya tanks fitted with sight periscope in terms of a Transfer of Technology agreement finalised by the Ministry of Defence with Russia.

As the supply of sight periscope from Opto Electronic Factory, Dehradun (OLF) was not sufficient, and in order to meet production requirements up to March 2001, HVF imported 50 sight periscopes from a foreign firm in December 1999, against its import order of June 1999, at a cost of Rs 1.33 crore.

Of the 50 periscopes imported, Controllerate of Quality Assurance (Instruments), Dehra Dun (CQA(I)) accepted only 4 in February 2000 after testing. The remaining 46 Periscopes valuing Rs 1.22 crore were rejected due to poor quality of IC tubes, filters and mirrors.

The firm agreed to replace the defective consignment of 46 periscopes.

HVF received the first replacement consignment of 10 periscopes in April 2000 and they were also rejected by the CQA(I) in June 2000 due, inter alia, to poor working resolution.

In order to resolve the problem, a meeting was convened at OLF in October 2000 with the supplier where there was a difference of opinion on the results of tests for resolutions. The supplier proposed that a pre-despatch inspection of the item might be

organised at the manufacturer's premises before despatch of the replacement consignment to HVF.

Accordingly, HVF proposed to Department of Defence Production and Supplies in December 2000 the deputation of a team to carry out pre-despatch inspection of the items. The proposal was rejected and it was advised that the material be procured on the firm's warranty and risk.

Thereafter, HVF received another consignment of 26 numbers from the firm in August 2001 without pre-despatch inspection, which were also not acceptable to the CQA(I) in October 2001 due to non-achievement of specified range.

In view of the repeated rejection of sight periscopes in inspection, HVF approached the foreign supplier in November 2002 either to reimburse the entire value of letter of credit including other incidental charges incurred by the factory or to depute their representative for carrying out joint inspection of 26 sight periscopes once again.

The foreign supplier did not accept the proposal of HVF in November 2002 on the ground that CQA(I) did not test the stores according to technical requirement valid in their country in terms of the import order of June 1999. HVF finally approached the concerned Indian Embassy in July 2003 in order to resolve the impasse. The Embassy, however, intimated HVF in August 2003 that the supplier no longer existed.

In the mean time HVF met its requirement of sight periscopes from supply of OLF.

All the 72 rejected periscopes received from the firm were, thus, lying at HVF as of November 2003 without any prospect of either their utilisation or free replacement.

Since nothing was heard from the foreign supplier, their bank guarantee amounting to Rs 14.29 lakh was invoked. The balance amount of Rs 1.08 crore had not been recovered as of November 2003. HVF had incorporated a clause in the contract, according to which technical specifications of the stores would be in accordance with the technical requirement valid in the country of the supplier. This permitted the supplier to evade its responsibility for free replacement of the rejected stores. Ordnance Factory Board stated in November 2003 that the firm raised this issue only when they were asked to replace the periscopes or refund the money. However, the Board's reply has to be seen against the existing contractual specifications. The Board also stated that the relevant clause had been amended for future contracts.

The matter was referred to the Ministry of Defence in August 2003; their reply was awaited as of February 2004.

Machinery

7.9 Uneconomical procurement of machines

Extra-expenditure of Rs 85.75 lakh was incurred by Ordnance Factory, Ambernath, due to procurement of two trimming machines from trade instead of sister factory.

Ordnance Factory, Ambernath (OFA) and Ordnance Factory, Katni (OFKat) require trimming machines for carrying out trimming operations in the production of 130 mm cartridge cases.

In order to replace the two existing trimming machines which had outlived their life and been declared beyond economical repairs, OFA approached the Ordnance Factory Board (OFB) in March 1999 and March 2000 for their procurement.

OFB advised OFA in July 1999 and August 2000 to procure two new trimming machines from trade. OFA accordingly procured one pneumatic and one hydraulic trimming machine from Excellent Engineers Limited, Pune, at a cost of Rs 54.97 lakh and Rs 66.78 lakh, respectively, against its two orders of October 2000 and January 2002. The machines were commissioned at the factory in January 2002 and July 2002 respectively.

Meanwhile, in November 2001 OFB ordered Machine Tool Prototype Factory,

Ambernath (MTPF) to produce one Mandrel Type Trimming Machine for issue to OFKat for carrying out trimming operations of the same 130 mm cartridge case. MTPF manufactured and supplied the machine to OF Kat in January 2003 at a cost of only Rs 18.00 lakh.

Thus, procurement of two trimming machines from trade at a cost of Rs 1.22 crore by OFA when machines for the same use could be produced at a sister factory (MTPF), at cheaper rates, resulted in extra expenditure of Rs 85.75 lakh.

The Ministry of Defence stated in September 2003 that the machine supplied by MTPF Ambernath to OFKat was manually operated whereas those procured by OFA were fully automatic and had a programmable logic control system besides having a fault diagnostic mechanism interfaced with a personal computer. Hence, it would not be appropriate to make such cost comparison.

However, the reply of the Ministry itself indicates that the capacity of the trimming machine produced by MTPF worked out to 2.65 lakh pieces per annum. This was much higher than the capacity (1.20 lakh cases per annum) of the 130 mm case production line at OFA. Hence, the procurement of two trimming machines with a much higher capacity (14.83 lakh and 9.53 lakh pieces per annum at 80 per cent efficiency) was not required, since the capacity of the production line itself was 1.20 lakh pieces per annum.

Research and Development

7.10 Failure to develop a propellant

Failure to develop a propellant for a missile at Ordnance Factory, Itarsi, by High Energy Material Research Laboratory, Hyderabad, after incurring expenditure of Rs 4.75 crore.

The Ordnance Factory, Itarsi (OFI), was vested with the development of Artus Block propellant required for the Milan missile by the Bharat Dynamics Limited, (BDL), Hyderabad, in association with the High Energy Material Research Laboratory Detachment (HEMRL), Hyderabad. This was to be developed at OFI by HEMRL and supplied to BDL.

The Ordnance Factory Board (OFB), Kolkata, sanctioned Rs 11.61 lakh in March 1994 for developing the Artus Block propellant. The developmental work was undertaken at OFI in association with HEMRL. OFI spent Rs 28.29 lakh upto March 1998 against the sanctioned amount of Rs 11.61 lakh stating that it had to incur the

additional expenditure due to frequent changes in parameters by HEMRL. Meanwhile, in September 1994, OFB also accorded sanction for Rs 70 lakh towards creation of facilities for production of 2000 Artus Block propellants per annum for Milan missile at OFI, against which the Itarsi factory spent Rs 30.51 lakh towards procurement of plant and machinery and equipment.

The initial supply of Artus Block propellant from the casting powders supplied by the Cordite Factory Aruvankadu, (CFA), failed in trials due to moisture content control.

BDL projected requirement of 100 sets of Artus Block propellants to OFI in June 1994 followed by another 1500. The latter order was cancelled in October 1996 due to delay in supply.

HEMRL and BDL manufactured 200 artus block propellant at OFI in June 1997 at a cost of Rs 75.48 lakh from the modified casting powder composition recommended by the HEMRL. These were also rejected during further trials. Total quantity manufactured up to August 1997 was 526. Taking into consideration the outcome of these trials, another 40 Artus Block propellants were manufactured at OFI at a cost of Rs 15.10 lakh in December 1997, which were also rejected during testing.

Despite this, another 618 propellants at a cost of Rs 2.33 crore were processed at OFI as of February 2000 whereas HEMRL discontinued further trials of the propellants in October 2002. In the meantime BDL met their requirement of propellants for the Milan missile by procuring the same through their licensors for the complete production of indented quantities for supply to the Army. Since BDL had cancelled their order for 1500 sets in October 1996, the manufacture thereafter could have been in small quantities for trials.

The Ministry of Defence stated in September 2003 that the entire exercise carried out at OFI fell within the arena of design development which would normally have been done in HEMRL. Since HEMRL did not have the requisite facilities, the exercise was carried out at OFI. It added that trial manufacture of subject propellant at OFI had all along been continuously monitored, supervised and guided by HEMRL and BDL. OFI was only associated with and provided facilities to HEMRL and BDL in the manufacture of propellant grains for their trials. It added that facilities created at OFI at a cost of Rs 30.51 lakh in September 1994 were being utilised for other cast propellants under the Integrated Guided Missile Development project.

HEMRL, failed to indigenously develop Artus Block propellant at OFI even after incurring an expenditure of Rs 4.75 crore. Propellant costing Rs 2.33 crore had not even been trial evaluated.

Miscellaneous

7.11 Non-recovery of inspection charges

Failure of Senior Quality Assurance Establishment (Armaments), Trichy, to levy inspection charges on armaments supplied by Ordnance Factory, Trichy, to State Police Organisations resulted in non-recovery of Rs 1.28 crore.

Ordnance Factory Trichy (OFT), manufactures 7.62 mm 1A1 rifle and 7.62 mm 2A magazines for civil trade including the Ministry of Home Affairs and State Police Forces.

In line with the Ministry of Home Affairs' decision of April 1998 to engage the inspectorates of the Ministry of Defence for undertaking inspection of armaments supplied by Ordnance Factories to them, the Ministry of Defence in May 1999 directed the Directorate General of Quality Assurance, New Delhi (DGQA), to levy inspection charges at four per cent of the value of the stores supplied by the Ordnance Factories to the Ministry of Home Affairs and State Police Forces. The DGQA advised their inspectorates in July 1999 for compliance.

The Senior Quality Assurance Establishment (Armaments), Trichy, (SQAE) failed to recover inspection charges amounting to Rs 1.28 crore from State Police Forces for carrying out inspection of 7.62 mm 1A1 Rifle and 7.62 mm 2A magazines worth Rs 32.08 crore manufactured and supplied by OFT between June 1999 and August 2000. The inspection of rifles and magazines to the civil indentors was transferred to OFT since August 2000.

After the issue was raised by Audit, SQAE approached the Factory in August 2001 for the recovery of inspection charges from the State Police Units. This was not acceptable to OFT since the responsibility for recovery of inspection charges rested solely with SQAE.

The Ordnance Factory Board stated in July 2003 that the responsibility for recovery of inspection charges during June 1999 and July 2000 lay with SQAE.

The matter was referred to the Ministry of Defence in July 2003; their reply was awaited as of February 2004.

7.12 Recovery at the instance of Audit

Heavy Vehicles Factory, Avadi, recovered Rs 8.70 crore from a Public Sector Undertaking towards supply of product support after its being pointed out in Audit.

Heavy Vehicles Factory, Avadi, has been manufacturing T-72 (Ajeya) tanks since 1990-91 based on a Transfer of Technology agreement concluded with Russia by the Ministry of Defence in July 1982.

The indigenous manufacture of stabiliser units/systems with mountings, accessories and individual spare parts, tools and accessories of T-72 tanks was entrusted to BEL[1], Chennai, by the Ministry of Defence. Accordingly, an order was placed with them by the Factory in September 1989 for supply of 250 sets for which a sum of Rs 8 crore, being 20 per cent of the total value of the order was advanced to BEL between March 1989 and February 1991.

In terms of the order of September 1989 the Factory, as a part of developmental/indigenisation activities, supplied 70 sets of stabiliser units/systems imported from Russia at a cost of Rs 11.20 crore as product support to BEL. The cost of these was to be adjusted against the total amount due to BEL.

It was noticed in audit that the Factory received the entire supply of 250 sets of stabiliser units/systems from BEL, between 1990-91 and 1992-93 without actually adjusting the cost of the 70 sets supplied to BEL as product support. BEL initially provided for a liability of Rs 8.70 crore in their books on this account, based on a rough estimate. This was later written back in March 2001 consequent on not hearing further in the matter from the Factory.

After the issue was raised in Audit, the Factory took up the matter with BEL in December 2002 and recovered Rs 8.70 crore from the outstanding bills of BEL in August 2003. The recovery of the remaining amount of Rs 2.50 crore was yet to be effected as of October 2003.

The Ministry of Defence stated in October 2003 that the case was initiated at the initial stage of T-72 project office in 1988 and during reorganisation of purchase sections and closure of project office in March 1993 the case file got inadvertently closed. It further stated that the Factory had taken action to recover the amount after it was pointed out by Audit.

[1] BEL - Bharat Electronics Limited, Chennai.

7.13 Suppression of excess consumption of components

Rifle Factory suppressed abnormal consumption of components of a rifle and a pistol worth Rs 3.19 crore by indicating them as consumed in terms of total value of each warrant rather than reflecting it in terms of ordered quantity of each warrant as required.

Rifle Factory, Ishapore (RFI), has been manufacturing 9mm pistol and 5.56 mm Indian Small Arms Rifle since 1981 and 1993-94 respectively. While the assembly of the 9mm pistol consists of 54 components/sub-assemblies, the 5.56mm Indian Small Arms Rifle involves 156 components and sub-assemblies. Since the factory works on the Except system, in terms of the prevailing rules these components/sub-assemblies manufactured in the factory should be drawn for purpose of assembly of both the weapons on red material demand notes. The rule also provides that in very exceptional cases after a job is put in operation some addition to material over and above the provisions in the standard estimate may be sanctioned through non-recurring rate forms for the purpose of covering some sundry job required to bring the material to the correct size or shape or to rectify defective forgings or castings or for similar jobs of a non-recurring nature.

The estimates/benchmarks governing assembling of 9mm pistol and 5.56mm rifle authorise drawal of components/sub-assemblies to the extent of one per cent in excess of ordered quantity to cater for its normal rejection. The normal rejection percentage was increased to three per cent in respect of 9mm pistol with effect from March 1998.

However, in violation of the prevailing rules during the period July 1997 to May 2001 Rifle Factory, Ishapore, had drawn components/sub-assemblies worth Rs 3.19 crore (Rs 2.39 crore for Rifle 5.56mm and Rs 0.80 crore for Pistol) through replacement orders over and above the normal rejection percentage provided in the standard estimate, which was necessitated due to components/sub-assemblies becoming damaged, functionally defective during firing test and rejection of rifle in the performance of requisite operation.

Rifle Factory, Ishapore, stated in February 2002 and July 2002 that in respect of pistol components the replaced components claimed against replacement orders remained within authorised limit of one per cent of the value of the warrant.

In respect of excess consumption of components/sub-assemblies of 5.56 mm rifle the Ministry of Defence stated in October 2003 that as per the practice in vogue normal rejections for any assembly are always given in terms of value of each warrant because of involvement of multiple components.

However, this contention is in violation of Ordnance Factory Board's order of September 1990 which provides for normal rejection on ordered quantity and not on

the value of warrant. Moreover, the factories at Kanpur and Tiruchirapalli do not provide any rejection during assembly.

With regard to excess consumption of components/sub-assemblies of 9mm pistol Ministry of Defence stated in January 2004 that –

i) as per the practice in vogue, a normal rejection for any assembly is always given in terms of value of each warrant in view of involvement of multiple components.

ii) components and sub-assemblies, duly accepted in inspection before they are drawn for assembly of pistol, are required to be replaced not due to any defect but due to manufacture and acceptance of individual components within their respective dimensional tolerance limit and their assembly may give rise to different level of tolerance owing to cumulative effect.

These contentions of Ministry are not acceptable since (i) provision of rejection allowance based on total value of each warrant in the estimate of RFI is not in consonance with the drawal of components or sub-assemblies in assembling of pistol which are expressed in terms of "per 100 Nos". (ii) if the components and sub-assemblies are replaced not due to any defects the same ought to have been returned to stock through Return Notes instead of regularising it through replacement orders.

7.14 Deterioration of forgings due to long storage

Failure of Gun and Shell Factory, Cossipore, to utilise forgings worth Rs 1.41 crore in time allowed the stores to deteriorate due to long storage.

The production line at Gun and Shell Factory, Cossipore, (GSF) for machining of 81 mm High Explosive Bomb Body (empty) from forgings received from Metal and Steel Factory, Ishapore (MSF) and Ordnance Factory, Ambajhari (OFAj) was in operation upto 1994-95. Thereafter, it was dismantled owing to absence of substantial orders, and GSF was holding a stock of 17347 forgings valuing Rs 1.41 crore as of April 1995. These forgings were received at GSF from MSF up to March 1995.

Since the same machining operation was carried out at OFAj also, GSF approached the Ordnance Factory Board (OFB) and OFAj in August 1995 to transfer the stock of 17347 forgings to OFAj for their utilisation. But the proposal did not materialize due to non-availability of machining facilities for single piece bomb body at OFAj.

However, in April 1997 Ordnance Factory, Chanda (OFCh) placed an order for 10,000 empty 81 mm bomb body on GSF.

Instead of utilising the surplus forgings on receipt of OFCh's demand of April 1997, GSF decided to utilise the same only in August 1999. By this time the 17347 surplus forgings had become defective and pitted in the cavity due to long storage.

In January 2000, GSF placed an order on KEW Industries, Jalandhar, for repair and conversion of 10,000 defective and pitted forgings to empty bomb body 81 mm Mortar 'D' (empty), against which the factory issued 4600 forgings to the firm in May 2000 and August 2000. However the Senior Quality Assurance Establishment (Armaments) attached with GSF opined in October 2000 that the repair was not feasible since the forgings had been lying at the factory in a mixed-up condition for a long time, resulting in their corrosion/pitting. The source of supply, heat batch, cast code etc of these forgings was also not known. Consequently the prospect of repair and utilisation of these forgings was bleak.

In view of this, GSF allowed KEW Industries, Jalandhar, to supply the store with new material to meet OFCh's demand of April 1997. But no supply had been made to Ordnance Factory, Chanda by GSF as of February 2004.

The failure of GSF to use the forgings within a reasonable time had not only allowed the stores to become defective due to long storage but also foreclosed the possibility of gainfully utilising 17347 forgings worth Rs 1.41 crore.

Ordnance Factory Board stated in January 2004 that all out efforts were made by Gun and Shell Factory Cossipore for gainful utilization of surplus 17347 forgings and

despite best efforts to preserve the subject store in good condition with sufficient preservative the same got corroded/pitted. The contention of Ordnance Factory Board is not convincing because the best efforts of Gun and Shell Factory Cossipore were insufficient to preserve the forgings in good condition. Further, the fact remains that repair of 4600 forgings costing Rs 37.30 lakh was not feasible and 12747 forgings have been lying unused for over 8 years, some of them being corroded and pitted deeply.

Ordnance Factory Board had further stated in January 2004 that since the action of salvaging the forgings did not materialize, regularization of loss was being processed by constituting Board of Enquiry and working out financial repercussion.

The matter was referred to the Ministry of Defence in September 2003; their reply was awaited as of February 2004.

7.15 Follow up on Audit Reports

The Ministry of Defence failed to submit remedial Action Taken Notes on three Audit Paragraph as of December 2003.

With a view to ensuring enforcement of accountability of the executive in respect of all the issues dealt with in various Audit Reports, the Public Accounts Committee desired that Action Taken Notes on all paragraphs pertaining to the Audit Reports for the year ended 31 March 1996 onwards be submitted to them duly vetted by Audit within four months from the date of laying of the Report in Parliament.

Review of outstanding Action Taken Notes relating to Ordnance Factory Board as of December 2003 revealed that the Ministry of Defence had not submitted Action Taken Notes in respect of three paragraphs included in the Audit Reports for the years ended March 2000 and March 2002 as detailed in the Annexure-V.

Ministry of Defence stated in November 2003 that all out efforts were being made at all levels to ensure the submission of Action Taken Note of pending audit paras to Audit in time.

7.16 Response of the Ministry/Departments to Draft Audit Paragraphs

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

The Draft Paragraphs are always forwarded by the respective Audit Officers to the Secretaries of the concerned ministries/departments through Demi Official letters drawing their attention to the audit findings and requesting them to send their response within six weeks. It was brought to their personal notice that since the issues were likely to be included in the Audit Report of the Comptroller and Auditor General of India, which are placed before Parliament, it would be desirable to include their comments in the matter.

Draft Paragraphs proposed for inclusion in the Ordnance Factory Section of the Report of the Comptroller and Auditor General of India for the year ended March 2003: Union Government (Defence Services), Army and Ordnance Factories No.6 of 2004 were forwarded to the Secretary, Department of Defence Production and Supplies, Ministry of Defence between June 2003 and December 2003 through Demi Official letters.

The Secretary Department of Defence Production and Supplies did not send replies to 10 out of 16 Draft Paragraphs included in the Report in compliance to above instructions of the Ministry of Finance issued at the instance of the Public Accounts Committee. Thus the response of the Secretary of the Ministry could not be included in them.

New Delhi
Dated: 28th April 2004

(B.K. CHATTOPADHYAY)
Director General of Audit
Defence Services

Countersigned

New Delhi
Dated: 28th April 2004

(VIJAYENDRA N. KAUL)
Comptroller and Auditor General of India

ANNEX - I

Position of outstanding ATNs

(i) Pending for more than five years

(Referred to in Para 2.4)

Sl.No.	Report No. and Year	Para No.	Subject
1.	Audit Report, Union Government (Defence Services) for the year 1985-86	34*	Loss due to delay in pointing out short/defective supply.
2.	No.2 of 1988	9**	Purchase of Combat dress from trade.
3.		41**	Loss in procurement of wax special.
4.	No.2 of 1989	11*	Purchase and licence production of 155mm towed gun system and ammunition.
5.	No.12 of 1990	9*	Contracts with Bofors for (a) Purchase and licence production of 155mm gun system and (b) Counter trade.
6.		10*	Induction and de-induction of a gun system.
7.		19*	Import of ammunition of old vintage.
8.		46**	Ration article-Dal.
9.	No.8 of 1991	10*	Procurement of stores in excess of requirement.
10.		13*	Central Ordnance Depot, Agra.
11.		15**	Extra expenditure due to wrong termination of meat contract.
12.		17**	Infructuous expenditure on procurement of dal chana.
13.	No.8 of 1992	20**	Procurement of sub-standard goods in an Ordnance Depot.
14.		28**	Avoidable payment of maintenance charges for Defence tracks not in use.
15.	No. 13 of 1992	Part I*	Recruitment of Other Ranks
16.	No. 8 of 1993	15**	Non-utilisation of assets
17.		22**	Over-provisioning of corrugated card board boxes

Sl.No.	Report No. and Year	Para No.	Subject
18.		29*	Import of mountaineering equipment and sports items
19.		31*	Avoidable payment of detention charges
20.	No. 8 of 1994	10**	Establishment of a National War Museum
21.	No. 8 of 1995	12*	Working of the Department of Defence Supplies
22.		13*	Delay in repair of defective imported ammunition
23.		17**	Import of radar
24.		29*	Manufacture of defective parachutes
25.		30*	Non-utilisation of parachutes
26.	No. 8 of 1996	24*	Wasteful expenditure on injudicious procurement of tyres
27.	No. 7 of 1997	14*	Loss due to improper despatch of imported equipment
28.		15***	Over provisioning of seats and cushions for vehicles
29.		18*	Management of Defence Land
30.		23**	Avoidable expenditure on Demurrage charges
31.		24*	Undue favour to a firm
32.		27**	Non-realisation of claims from the Railways
33.		69**	Defective construction of blast pens and taxi track
34.	No. 7 of 1998	14**	Extra expenditure on modification of radar
35.		16*	Questionable deal
36.		17*	Procurement of defective radars
37.		18***	Extra expenditure on procurement of rifles and ammunition due to failure to adequately safeguard Government interest
38.		20*	Excess procurement of barrels
39.		21***	Extra expenditure due to non-adherence of contract provision
40.		22**	Import of defective missiles
41.		25**	Follow up on Audit Reports

Sl.No.	Report No. and Year	Para No.	Subject
42.		26*	Design and development of Main Battle Tank-Arjun
43.		29*	Abnormal delay in repair/overhaul of tanks
44.		30*	Avoidable payment of container detention charges
45.		32*	Infructuous expenditure on procurement of substandard cylinders
46.		34**	Unauthorised issue of free rations
47.		36*	Procurement of batteries at higher rates
48.		52*	Loss of revenue
49.		64**	Unfruitful expenditure on procurement of substandard hot mix plants
(ii)	**Pending for more than 3 years**		
50.	No.7 of 1999	12***	Presumptive fraud in import of ammunition
51.		13**	Defective training ammunition supplied by Bofors
52.		14*	Delay in renewal of lease agreement
53.		15***	Premature deterioration of imported ammunition
54.		17*	Procurement of defective sleeping bags
55.		18**	Loss of revenue
56.		24**	Negligence in framing terms of supply orders
57.		25*	Unauthorised transfer of Defence land
58.		28***	Non-recovery of advance
59.		29**	Injudicious acquisition of land under urgency clause
60.		30***	Failure to meet operational requirement
61.		32*	Non-utilisation of friction drop hammers
62.		33*	Failure to observe proper issue procedure for batteries

Sl.No.	Report No. and Year	Para No.	Subject
63.		36**	Non-recovery/overpayment of electricity charges
64.		37**	Avoidable extra expenditure in the purchase of leather cloth
65.		38*	Failure to administer a risk and expense contract
66.		40*	Delay in setting up of repair facilities for helicopters
67.		42**	Non-utilisation of a bulk petroleum installation
68.		44**	Extra expenditure due to substandard work
(iii)	**Pending upto 3 years**		
69.	No. 7 of 2000	13*	Failure to Safeguard Government Interest
70.		19**	Overhaul of infantry combat vehicles and engines (Project – White Lily)
71.		20*	Rejection of Barrels manufactured for T-72 tanks
72.		21**	Downgradation of mines due to manufacturing defects
73.		23***	Procurement of defective bullet proof windscreen glasses
74.		24***	Procurement of Batteries at higher rates
75.		27***	Extra expenditure due to delay in taking risk purchase action
76.		28*	Non-recovery of due from a commercially run club occupying Prime Defence Land
77.		30*	Delay in setting up of an aviation base
78.		31*	Delay in taking over of land leading to pilferage of trees
79.		33**	Idle investment owing to non-utilisation of assets
80.		36**	Unjustified payment towards sewerage cess
81.		41**	Nugatory expenditure on indigenisation of a Rocket
82.		42**	Delay in construction of bridges by Director General of Border Roads

Sl.No.	Report No. and Year	Para No.	Subject
83.		52***	Repowering of Vijayanta Tank
84.	No.7A of 2000	Entire*** Report	Review of Inventory Management in Ordnance Services
85.	No. 7 of 2001	14*	Non-utilisation of imported radars
86.		15**	Procurement of an incomplete equipment
87.		17**	Unauthorised expenditure on operation of unsanctioned posts
88.		18**	Injudicious construction of officers quarters at Naval Air Station Arkonam
89.		19**	Infructuous expenditure on procurement of entertainment films
90.		20***	Inadequate follow up on deficient supplies leading to avoidable loss
91.		23*	Loss due to cavitation/cracks in High Explosive filling of shells
92.		24*	Unauthorised use of defence land by a club at Mumbai
93.		25*	Misuse of delegated powers in special repairs to buildings and diversion of staff for use by a private college
94.		26*	Hiring of buildings by Defence Estates Officer from an unauthorised party
95.		27***	Undue benefit to a private society
96.		28*	Non-availing of an advantageous offer
97.		31**	Irregular construction of married officer accommodation in a field area
98.		32***	Wrongful credit of sale proceeds of usufructs to regimental fund
99.		34***	Non-levy of penalty by Canteen Stores Department for supplies in default
100.		36**	Non-utilisation of accommodation due to defective projection and planning of essential services
101.		37*	Payment for water lost in transmission from MIDC tapping junction to R&D(E) Pune take-over point

Sl.No.	Report No. and Year	Para No.	Subject
102.		38** (Case-II)	Cracks in garages and collapse of living accommodation due to defective design
103.		41**	Undue benefit to a contractor
104.		42**	Staff Projects completed by Vehicle Research and Development Establishment
105.		43*	Infructuous expenditure on irregular execution of a work
106.		45**	Injudicious expenditure in constructing temporary bridges
107.	No.7A of 2001	Entire*$^{\propto}$ Report	Review of Procurement for OP VIJAY(Army)
108.	No. 7 of 2002	11*	Outstanding dues on account of special flights
109.		15***	Avoidable expenditure on creating storage accommodation and helipad with allied facilities for helicopters
110.		17(a)**	Follow up on Audit Reports
111.		17(b)**	Non-production of documents
112.		18***	Delegation of special financial powers to GOC-in-C to meet urgent and immediate requirements of counter insurgency operations and internal security duties
113.		19**	Non-utilisation of mines due to premature failure of cells
114.		20***	Bouncing of Bank Guarantee furnished by Punjab Wireless System Ltd.
115.		21**	Over provisioning of minor fire extinguisher and subsequent excess issue
116.		22*	Recovery/saving at the instance of Audit
117.		23*	Improper provisioning of tyres
118.		25*	Overpayment of Rs 2.49 crore to Civil Hired Transport contractors
119.		26**	Premature downgradation of ammunition due to improper storage
120.		27***	Inept handling of loss of store
121.		28*	Avoidable loss of revenue

Sl.No.	Report No. and Year	Para No.	Subject
122.		29**	Avoidable loss due to non-availing of concessional electricity tariff
123.		30**	Loss of revenue due to non-functioning of electric meters
124.		32**	Avoidable expenditure due to delay in availing of concessional electricity tariff
125.		33**	Non-commissioning of Fire hydrant
126.		34*	Re-appropriation of single living accommodation constructed for Sailors
127.		35***	Construction of married accommodation for which no utility exists
128.		36**	Unauthorised construction
129.		37*	Time and cost over-run in construction of Road due to lapse on the part of Border Roads Organisation
130.		38*	Avoidable expenditure due to lapse in supervision
131.		39*	Infructuous expenditure due to change in sequence of construction for development of a road to wider specification
132.	**No. 6 of 2003**	2***	Exploitation of Defence lands
133.		3*	Non-functional equipment
134.		4*	Non-recovery of outstanding advance
135.		5***	Unnecessary import of spares
136.		6***	Response of the ministries/departments to Draft Audit Paragraphs
137.		7***	Follow up on Audit Reports
138.		8*	Idle investment on manufacture of defective ammunition
139.		9***	Accumulation of stocks of Grenades
140.		10***	Additional expenditure attributable to non-adherence to fuel policy
141.		11*	Recoveries effected at the instance of Audit
142.		12***	Procurement of sub-standard paint

Sl.No.	Report No. and Year	Para No.	Subject
143.		13***	Unauthorised opening of a riding school and club
144.		14***	Irregular recruitment of personnel
145.		15***	Unproductive expenditure on construction of residential accommodation
146.		16*	Unfruitful investment on an incomplete scheme
147.		17*	Non-realisation of Departmental Charges on a Deposit Work
148.		18***	Idle investment on construction of a transmitting station
149.		19*	Short recovery of electricity charges
150.		20***	Unfruitful expenditure on an air-conditioning plant
151.		21**	Avoidable additional payment of electricity charges
152.		22*	Avoidable import of Directional Solidification Furnace
153.		23*	Avoidable additional liability on special repairs
154.		24***	Over-provisioning of Tippers
155.		25*	Avoidable expenditure on construction of a Border Road
156.		26*	Infructuous expenditure on construction of accommodation

* **Action Taken Notes awaiting final settlement/vetting - 68$^{\propto}$**

** **Copy of the finalised ATN/Corrigendum to the finalised ATN awaited from Ministry, after being duly vetted by Audit – 54**

*** **Action Taken Notes not received even for the first time - 34**

$^{\propto}$ **Action Taken Notes on 13 individual paras and 7 Macro Analysis paras totalling 20 out of 42, not received even for the first time, though indicated at Sl. No. 107 as one 'Review'.**

ANNEX - II

(Referred to in Para 5.1.2)

List of fifteen laboratories and establishments covered in the Review.

(i) Defence Research and Development Laboratory (DRDL)

(ii) Research Centre Imarat (RCI)

(iii) High Energy Materials Research Laboratory (HEMRL)

(iv) Armament Research and Development Establishment (ARDE)

(v) Terminal Ballistic Research Laboratory (TBRL)

(vi) Combat Vehicle Research and Development Establishment (CVRDE)

(vii) Defence Electronics and Research Laboratory (DLRL)

(viii) Defence Metallurgical Research Laboratory (DMRL)

(ix) Research and Development Establishment (Engineers) – RDE(E)

(x) Vehicle Research Development Establishment (VRDE)

(xi) Solid State Physics Laboratory (SSPL)

(xii) Institute of Nuclear Medicine and Allied Sciences (INMAS)

(xiii) Laser Science and Technology Center (LASTEC)

(xiv) Integrated Test Range (ITR)

(xv) Proof and Experimental Establishment (PXE)

ANNEX - III

(Referred to in Para 5.1.2)

Functions of the fifteen Laboratories and establishments selected for Review:

(i)&(ii) DRDL and RCI have been primarily responsible for the design and development of missile systems for the three services.

(iii) The HEMRL has been dealing with entire spectrum of military explosives and high energy materials.

(iv) The ARDE is responsible for developing an R&D base in the field of conventional armaments.

(v) TBRL provides facilities for basic and applied research in detonics and blast studies, evolves design data of armament stores and develops all kinds of warheads and related subsystems.

(vi) The primary function of CVRDE is to design, develop and manufacture prototypes of tracked combat vehicles and to conduct performance evaluation of these vehicles.

(vii) DLRL is responsible for development of electronic warfare systems covering both communication and radar and ground electronics system for integrated guided missile development programme.

(viii) DMRL deals with generation of technologies for defence hardware production, metallurgical coverage for services and R&D on futuristic materials.

(ix) RDE(E) is responsible for system engineering, development of mobility equipments, combat engineering and ground support equipments.

(x) VRDE deals with design, development, modification and evaluation of all types of general service vehicles, tanks, transporters, cranes, specialist role vehicles, etc.

(xi) SSPL conducts R&D work in the design and development of solid state devices, electronic components/sub-systems and semi conducting materials.

(xii) The INMAS conducts research in basic and medical sciences using radio-isotopes and effects of radiation on human body.

(xiii) The LASTEC conducts research and development of laser sources, material and techniques, development of solid state laser, gas laser, high power laser, etc.

(xiv) ITR is responsible for setting up of test facilities of rockets, missiles and airborne system for other R&D Laboratories and their performance evaluation.

(xv) PXE provides test facilities of arms and ammunition produced by various ordnance factories and newly designed and developed ammunition by R&D Laboratories in its testing range to evaluate their performance.

ANNEX - IV

(Referred to in paragraph 7.3.8)

RANGE OF PERCENTAGE OF UTILISATION / NUMBER OF MACHINES

Sl. No.	Name of the Factory	Number of machines involved	1997-98			1998-99			1999-2000			2000-01			2001-02		
			0 to 30	31 to 60	Above 60	0 to 30	31 to 60	Above 60	0 to 30	31 to 60	Above 60	0 to 30	31 to 60	Above 60	0 to 30	31 to 60	Above 60
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
1	HVF, Avadi	71	39	29	3	23	28	20	24	26	21	33	30	8	44	25	2
		21	← Data not furnished→						6	9	6	6	11	4	11	9	1
2	SAF, Kanpur	10	Data not furnished			8	2	Nil	8	2	Nil	4	5	1	2	7	1
		20	Data not furnished						15	5	Nil	8	6	6	1	8	11
		27				← Data not furnished→						18	9	Nil	9	14	4
		7				← Commissioned after April 2001→									6	1	Nil
3	RF, Ishapore	45	5	40	Nil	17	17	11	Nil	22	23	12	10	23	Nil	17	28
4	HAPP, Trichi	32	6	24	2	6	26	Nil	Nil	4	28	Nil	5	27	2	21	9
5	OF, Ambajhari	20	Nil	15	5	Nil	17	3	Nil	5	15	Nil	11	9	Nil	9	11
		9	← Commissioned after April 2000 →									5	4	Nil	5	4	Nil
6	VF, Jabalpur	26	Data not furnished						10	1	3	4	Nil	21	11	15	Nil
7	EF, Avadi	12	4	1	7	3	7	2	3	1	8	1	5	6	Nil	2	10
8	GSF, Cossipore	10	7	← Production data not furnished for the years 1997-98 to 1999-2000 →								4	6	Nil	Nil	2	8
9	OF, Dum Dum	9	← Machines commissioned between December 1999 and August 2000 →									Nil	8	1	1	8	Nil
10	OF, Trichi	9	← Production data not furnished by the management →						9	Nil	Nil	1	3	5	Nil	1	8
11	MSF, Ishapore	2	2	Nil	Nil	2	Nil	Nil	2	Nil	Nil	2	Nil	Nil	2	Nil	Nil
12	FGF, Kanpur	2	← Commissioned in 2000-01→									2	Nil	Nil	2	Nil	Nil
13	OF, Medak	17	4	10	3	5	9	3	1	7	9	Nil	7	10	Nil	11	6
	Total	**349**	**60**	**119**	**20**	**64**	**106**	**39**	**78**	**82**	**113**	**100**	**121**	**121**	**96**	**154**	**99**

ANNEX - V

Position of outstanding ATNs

(Referred to in 7.15)

Report No. & Year	Para No.	Subject	Remarks
7 of 2001	66	Non-recovery of Rs 1.08 crore from a defaulting firm.	ATN not at all received.
6 of 2003	27	Performance of Ordnance Factory Organisation	- do -
	33	Procurement of defective track assemblies	- do -