



**REPORT OF THE
COMPTROLLER AND AUDITOR GENERAL
OF INDIA**

**UNION GOVERNMENT
NO. 13 (COMMERCIAL) OF 1992**

PRAGA TOOLS LIMITED



**REPORT OF THE
COMPTROLLER AND AUDITOR GENERAL
OF INDIA**

**UNION GOVERNMENT
NO. 13 (COMMERCIAL) OF 1992**

PRAGA TOOLS LIMITED

REPORT OF THE
COMPTROLLER AND AUDITOR GENERAL
OF INDIA

1950-51

TABLE OF CONTENTS

CHAPTER	SUBJECT	PAGE NO.
	Preface	(iii)
	Overview	(v)
I.	Introduction	1
II.	Objectives	2
III.	Organisation	3
IV.	Capital Structure	4
V.	Development & Projects	5
VI.	Performance	9
VII.	Marketing & Pricing	36
VIII.	Ecology	40

TABLE OF CONTENTS

PAGE NO.	CHAPTER
111	Introduction
112	Definition of Terms
113	Methodology
114	Objectives
115	Organization
116	Scope of the Study
117	Limitations
118	References
119	Appendix

PREFACE

Audit Boards are set up under the supervision and control of the Comptroller and Auditor General of India (CAG) to undertake comprehensive appraisal on the performance of the Companies and Corporations subject to audit by CAG.

2. The report on Praga Tools Limited was finalised by an Audit Board consisting of the following members:-

Shri N. Sivasubramanian	Deputy Comptroller and Auditor General-cum-Chairman, Audit Board.
Smt. Sushma Sharma	Principal Director of Commercial Audit & Ex-officio Member, Audit Board, Hyderabad
Smt. Sudha Rajagopalan	Principal Director of Commercial Audit & Ex-officio Member, Audit Board, Bangalore.
Shri K. Viswanathan	Retd. General Manager, Southern Railway. - Part-time Member
Shri P.V. Naik	Retd. General Manager, Richardson & Cruddas Ltd., Bombay. - Part-time Member.

The Part time Members are appointed by the Government of India (in the respective Ministry or Department controlling the Company or Corporation) with the concurrence of the Comptroller and Auditor General of India.

3. Audit Board held discussions with the representatives of the Ministry of Industry, Department of Heavy Industry.

4. The Comptroller and Auditor General of India wishes to place on record his appreciation of the work done by the Audit Board.

PREFACE

The Board of Directors set up under the supervision and control of the Corporation and the Board of Directors (CAB) to undertake comprehensive appraisal on the performance of the Corporation and its subsidiaries in the year 1971.

The report on this appraisal has been prepared by an Audit Commission consisting of the following members:

Chairman: Mr. S. S. Srinivasan
Members: Mr. S. S. Srinivasan, Mr. S. S. Srinivasan, Mr. S. S. Srinivasan

Secretary: Mr. S. S. Srinivasan
Members: Mr. S. S. Srinivasan, Mr. S. S. Srinivasan, Mr. S. S. Srinivasan

Members: Mr. S. S. Srinivasan, Mr. S. S. Srinivasan, Mr. S. S. Srinivasan
Members: Mr. S. S. Srinivasan, Mr. S. S. Srinivasan, Mr. S. S. Srinivasan

Members: Mr. S. S. Srinivasan, Mr. S. S. Srinivasan, Mr. S. S. Srinivasan
Members: Mr. S. S. Srinivasan, Mr. S. S. Srinivasan, Mr. S. S. Srinivasan

Members: Mr. S. S. Srinivasan, Mr. S. S. Srinivasan, Mr. S. S. Srinivasan
Members: Mr. S. S. Srinivasan, Mr. S. S. Srinivasan, Mr. S. S. Srinivasan

The Board of Directors are appointed by the Government of India (in the respective States) to control and manage the affairs of the Corporation (with the consent of the Government of India).

The Board of Directors are appointed by the Government of India (in the respective States) to control and manage the affairs of the Corporation (with the consent of the Government of India).

The Board of Directors are appointed by the Government of India (in the respective States) to control and manage the affairs of the Corporation (with the consent of the Government of India).

OVERVIEW

INTRODUCTION

I. Praga Tools Ltd., Secunderabad was incorporated as a Public Limited Company in May, 1943 for manufacture of high speed cutting tools and measuring instruments. It was taken over by Central Government on 31st March, 1959. The Company became a subsidiary of HMT Ltd. from 25th February, 1988.

(Para 1)

II. The objectives of the Company are to design, produce and market machine tools & industrial forgings and diversify into areas of appropriate technology and state of the art engineering.

(Para 2)

FINANCIAL PERFORMANCE

III. The Authorised Capital of the Company is Rs.1500 lakhs, paid-up capital Rs.1224.07 lakhs and net worth Rs.1614.36 lakhs. Loans from Government of India as on 31st March, 1992 stood at Rs.1258.00 lakhs. The Company is running at a loss from 1990-91, though its performance till then was satisfactory. The loss for the year 1991-92 was attributed to increase in payment of interest on cash credit, delay in realisation from sundry debtors and credit squeeze. Although the Company became a subsidiary of HMT Limited with effect from February, 1988, linkages between holding company viz HMT Ltd. and Praga Tools Ltd. have not developed to their mutual cost benefit.

(Para 3, 4 & 6.1)

DEVELOPMENT & PROJECTS

IV. A project for manufacture of Computerised Numerically Controlled (CNC) Machining Centre with outlay of Rs.675 lakhs (Foreign Exchange Content : Rs.352 lakhs) was implemented in 1984-87 with foreign collaboration. The Company had plans of manufacturing 20 to 24 machines per annum. The numbers sold by Company have declined from twentyfour in 1988-89 to sixteen each in 1989-90 and 1990-91 and fourteen in 1991-92. The fall in demand was attributed to the adverse economic and money market conditions though products of the Company were stated to be popular.

(Para 5.1)

PRODUCTION PERFORMANCE

V. The capacity for products was computed by reference to time but expressed in terms of Surface Grinders which is the Company's popular product. No action was taken to balance capacities or raise capacity rating to higher achievable levels.

(Para 6.5)

VI. The utilisation of capacity in Forge Shop was below optimum and Company incurred cumulative loss of Rs.541.87 lakhs from 1981-82 to 1991-92. The reasons attributed by the management were lack of orders, inadequate Die Sinking Capacity, poor technical know-how and non-receipt of raw material in time. The Foundry capacity was adequate to meet the requirements of Machine Tool Division but full capacity of the foundry was not utilised. The Company used outside foundries also to meet its requirements for high quality heavy castings because it was uneconomical to set up such facilities in-house. The rejections in Machine Tools Division were higher than the norms. Apart from lack of orders, factors like power failure, machine breakdown due to electrical or mechanical problems and absenteeism were causes of under-utilisation of men and machines leading to 56% of working hours being lost.

(Para 6.8 to 6.10 and 6.15 (ii))

MARKETING

VII. Drop in export was due to changes in USSR, Bulgaria and East European countries. The Company was trying to export to General Currency Areas with the assistance from HMT (International).

(Para 6.11)

VIII. The losses of over Rs.40 lakhs incurred by the Company were mostly on the one model of Milling Machine which was sold at less than cost price in 1988-89 and 1989-90. Lack of orders and severe competition were the major reasons for drop in sales in most of the products. Labour problems also added to costs making products less competitive.

(Para 7.3 & 7.4)

IX. The Sundry Debtors constituted 33% of annual sales and the high figure was attributed to time taken by many Govt. customers including Railways in making payments and the credit squeeze.

(Para 7.5)

CHAPTER I

Introduction

1. Praga Tools Limited, Secunderabad was incorporated as a Public Limited Company in May, 1943 for manufacture of high speed cutting tools and measuring instruments. It became a Central Government Company from 31st March, 1959 under the administrative control of the Ministry of Commerce and Industry. It was transferred to the Ministry of Defence in December, 1963 and transferred back to Ministry of Industry with effect from 25th April, 1986. From 25th February, 1988 the Company became a subsidiary of HMT Limited.

The activities of the Company fall into two divisions viz; Machine Tools and Forge & Foundry. Production of Computerised Numerically Controlled (CNC) Machines was taken up in a separate division, from January 1988.

The Machine Tool Division is located over an area of about 11 acres in Secunderabad; the Forge and Foundry is located in Kukatpally, an industrial suburb.

CHAPTER II

Objectives

2. The objectives set out by the Company are given below:
 - to design, produce and market machine tools, industrial forgings, etc.
 - to diversify into areas of appropriate technology and the state of the art in engineering.
 - customer satisfaction by offering quality products at competitive prices and after sales service.

CHAPTER III

Organisation

3. The management of the company is vested in a Board of Directors with a part-time Chairman (viz. Chairman of HMT Ltd.) and a full-time Managing Director. There are no other full-time Directors.

Although the Company became a subsidiary of HMT with effect from February, 1988 linkages between the holding Company viz. HMT Limited and Praga Tools Limited had not developed to their mutual cost benefit. Closer and more meaningful interaction between the two companies was necessary.

CHAPTER IV

Capital Structure

4. The authorised capital of the Company is Rs.1500 lakhs.
The paid-up capital of Rs.1224.07 lakhs is held as follows:

(as on 31.3.1992)

	Number of Shares	Paid-up Capital (Rs. in lakhs)
HMT Limited	17,83,800	624.33
Government of India	15,25,179	533.81
Govt. of Andhra Pradesh	1,35,412	47.40
Public	52,940	18.53
	34,97,331	1224.07

Loans from Govt. of India as on 31st March, 1992 stood at Rs.1258 lakhs.

CHAPTER V

Development And Projects

5.1 CNC Machining Centres

A project for manufacture of Computerised Numerically Controlled (CNC) Machining Centres with outlay of Rs.675 lakhs (Foreign Exchange content: Rs.352 lakhs) was implemented during 1984-87 with foreign collaboration. The Chairman and Managing Director and Government Directors visited the Collaborators' works in July, 1984. There were delays in execution of structural and civil works. They were planned to be completed by January, 1985 but were completed only in July, 1987. There were also delays in import of two mother machines costing Rs.375.89 lakhs. Capital outlay on the project went upto Rs.807 lakhs.

The Company had planned to manufacture 20 to 24 machines per annum. Company had sold three machines in 1985-86, seven in 1986-87, fourteen in 1987-88, twentyfour in 1988-89, sixteen each in 1989-90 and 1990-91 and fourteen in 1991-92. Company suffered (till 31.03.1992) loss of Rs.157.75 lakhs due to heavy overheads on the production. The import content in the CNC machining centre which was 75% in 1986-87 had come down to 30% by 1991-92.

Some of the machines were not taken up for production because of lack of demand.

Management stated that the reasons for delay in production to the levels envisaged were inability to get subcontractors interested in the volume of orders that was likely.

CHAPTER VI

Performance

6.1 Financial Performance

(i) The Financial Performance in recent years is given below:

(Rupees in lakhs)

	1982-83	1987-88	1988-89	1989-90	1990-91	1991-92
<u>Liabilities</u>						
a) Paid-up Capital	724.07	1224.07	1224.07	1224.07	1224.07	1224.07
b) Reserves & Surplus	78.04	795.45	855.93	865.51	697.43	616.86
c) Borrowings						
i) From Government of India	500.17	859.50	926.00	1073.00	1163.00	1258.00
Interest accrued and due	26.15	--	--	86.03	268.33	406.90
ii) Cash Credit	17.08	302.37	434.00	745.66	749.92	1059.87
iii) Foreign						
Currency Loan	-	206.78	186.37	165.96	137.89	264.81
iv) Deferred Credit	-	108.01	135.11	122.89	176.64	168.50
v) Short Term Loans	-	-	200.00	200.00	350.00	450.00
d) Trade dues and other liabilities	260.39	1024.62	1159.02	1319.66	1707.11	1618.67
Total	1605.90	4520.80	5120.50	5802.78	6474.39	7067.68

<u>Assets</u>						
e) Gross Block	926.52	2511.46	2878.46	3055.46	3193.82	3527.38
Less Depreciation	581.73	1183.01	1403.22	1628.32	1851.86	2148.39
g) Net Block	344.79	1328.45	1475.24	1427.14	1341.96	1378.99
h) Capital Work- in-Progress	8.66	65.94	60.47	6.03	17.09	6.51
i) Machinery & Equipment under inspection and transit	49.92	273.03	37.67	1.38	30.24	36.07
j) Current Assets & Loans & Advances	1202.53	2795.39	3501.87	4337.24	5068.56	5419.54
k) Capitalised expenditure	-	57.99	45.25	30.99	16.54	58.06
l) Profit&Loss A/c.	-	-	-	-	-	168.51
Total:	1605.90	4520.80	5120.50	5802.78	6474.39	7067.68

	1982-83	1987-88	1988-89	1989-90	1990-91	1991-92
Capital employed (g + j - d)	1260.78	3099.22	3818.09	4444.72	4485.50	4835.59
Net Worth (a + b - k-l)	802.11	1961.53	2034.75	2058.59	1904.96	1614.36
Income -----						
1) Sales						
i) Machine Tools & Accessories	945.70	3071.19	3373.87	3160.69	3020.34	3264.17
ii) Forgings	152.06	750.98	1028.59	1426.14	1593.40	1389.38
iii) Stock-in-Trade utilised internally	6.88	11.78	32.43	34.64	54.57	40.65
Total	1104.64	3833.95	4434.89	4621.47	4668.31	4694.20
2) Other Income	26.27	308.13	239.21	238.99	229.06	156.57
3) Stock adjustments	(-)30.35	84.46	328.28	410.86	392.09	89.37
Total	1100.56	4226.54	5002.38	5271.32	5289.46	4940.14

Expenditure						

1. Revenue						
Expenditure	862.82	3541.91	4354.02	4572.12	4749.14	4228.21
2. Depreciation	51.49	210.49	221.24	238.13	237.46	287.18
3. Interest	40.85	189.35	281.29	369.73	454.77	646.19
Total Expenditure	955.16	3941.75	4856.55	5179.98	5441.37	5161.58
Profit/Loss for the year	145.40	284.78	145.83	91.34	(151.91)	(221.44)
Prior Period Adjustment	(-)33.45	(-)58.98	(-)12.03	(-) 8.17	(-)17.97	3.12
Profit before tax	111.95	225.80	133.80	83.17	(169.88)	(218.32)
Less: Provision for Tax	-	37.50	-	2.57	-	30.94
Profit/Loss after Tax	111.95	188.30	133.80	80.60	(169.88)	(249.26)

The loss in the year 1991-92 was attributed to increased payment of interest on cash credit due to increase in the rate of interest, decline in exports, delay in realisation from Sundry Debtors and credit squeeze.

6.2 Internal Audit

The Internal Audit Wing had reviewed over the years

- Purchase files
- Machine utilisation
- verification of stores
- rejections
- cash vouchers

- Sale order files
- cost records

According to the Management, Internal Audit was used by the Company to review

- i) internal control systems and procedures
- ii) adequacy of accounting records
- iii) compliance with procedure
- iv) sanctions issued by Management

6.3 Costing

Comparison of actual time taken with standards adopted in costing and pricing revealed large variations. Management stated that efforts were being made to revise standards using computerised data.

6.4 Production Performance

The performance of the Company in production of major items in recent years is given below:

S.No.	Product	Year	Production	
			Quantity (Nos.)	Value (Rs. in lakhs)
Machine Tools				
1.	Cutter & Tool Grinder	1982-83	65	35.08
		1987-88	243	182.38
		1988-89	139	120.86
		1989-90	115	108.22
		1990-91	123	170.37
		1991-92	147	232.01

2. Surface Grinder	1982-83	128	95.21
	1987-88	328	418.92
	1988-89	322	446.93
	1989-90	265	365.79
	1990-91	288	467.35
	1991-92	333	662.41
3. Milling Machine	1982-83	30	37.06
	1987-88	181	304.14
	1988-89	98	237.75
	1989-90	117	296.75
	1990-91	87	217.80
	1991-92	88	318.77
4. Thread Rolling etc. Machines	1982-83	34	53.56
	1987-88	69	139.85
	1988-89	50	102.05
	1989-90	55	125.26
	1990-91	58	173.02
	1991-92	53	203.57
5. CNC Machining Centre	1987-88	13	795.60
	1988-89	24	1022.49
	1989-90	18	863.37
	1990-91	17	1079.41
	1991-92	14	931.22
6. CNC Lathe	1987-88	1	23.05
	1988-89	3	66.00
	1989-90	13	292.11
	1990-91	10	235.99
	1991-92	8	188.72
7. Jig Boring Machine	1987-88	6	92.33
	1988-89	7	117.60
	1989-90	4	67.40
	1990-91	4	64.64
	1991-92	-	-
8. DST Practice Shot A.P. Shot	1982-83	-	266.29
	1987-88	-	163.10
	1988-89	-	81.62
	1989-90	-	255.62
	1990-91	-	-
1991-92	-	-	

9. Accessories for Machine Tools	1982-83		140.24
	1987-88		817.63
	1988-89		895.14
	1989-90		793.61
	1990-91		532.63
	1991-92		537.43
10. Screw Couplings	1982-83	50 MT	8.73
	1987-88	1021.05	209.03
	1988-89	-	-
	1989-90	-	488.46
	1990-91	1978.58	702.59
	1991-92	1304.91	576.00
11. Industrial Forgings	1982-83	630.00MT	151.40
	1987-88	1013.50	333.74
	1988-89	-	-
	1989-90	-	600.23
	1990-91	1358.63	748.11
	1991-92	1324.75	709.00
12. Bomb Body	1987-88	521.27	193.31
	1988-89	-	-
	1989-90	-	146.31
	1990-91	-	-
	1991-92	-	-

Management stated (October, 1992) that certain machine tool products such as Cutter and Tool Grinder, Surface Grinders and Thread Rolling machines enjoyed good reputation in the market. The Company was also diversifying into machines for fertilizer plants and earth movers to offset the dwindling demand from Railways and Defence.

6.5 Capacity Utilisation in Machine Tool Division

The production facilities are divided into 19 work centres such as machines for turning, lathe work, milling, drilling, grinders, planing, etc. The capacity for products

was expressed in terms of Surface Grinders which is the Company's popular product. The Company stated that the capacity was calculated on the basis of time factor but only expressed in terms of Surface Grinders. Thus Work Centrewise capacity available for production is given in terms of equivalent Surface Grinder Machines. According to the Management this method is considered suitable for Machine Tools because of the complexity of product-mix.

In 1975-76, the capacity was determined as equivalent to 310 Surface Grinders. In 1984-85 and 1985-86, it was estimated at only 315 equivalent Surface Grinders even after some Capital investment from 1978 to 1984. Capacity was raised to 476 only in 1986-87. The bottleneck had been the slideway grinding operation which required lot of skill and was needed for all product machines. The number of Surface Grinders that could be processed in different work centres in 1986-87 and 1987-88 ranged widely between 6480 and 476 and the capacity in 1986-87 was fixed at 476 equivalent Surface Grinders due to limitations in slideway grinding capacity. The Company stated that slideway grinding capacity was not available with sub-contractors locally, to meet the requirements of the Company.

Slideway grinding capacity is not necessarily a constraint factor for production of machines such as Cutter and Tool Grinder, Milling Machine, Thread Rolling

Machine, etc. Thus capacity was understated by 746 equivalent Surface Grinders in 1986-87 and 1987-88. No action was taken to balance the capacities. In 1988-89, 34 standard hours was adopted as equivalent to a Surface Grinding machine and capacity was increased from 476 to 524 equivalent Surface Grinders. The Management stated in July, 1990 that such capacity was worked out taking into consideration the capacity in various work centres, the limited capacity of Slideway Grinding machine, and also the increase in the capacity of Slideway Grinding work centre on account of net additional capacity of 0.5 machine during 1988-89. The reason for adding only marginally to the capacity for slideway grinding was not indicated then. The Company stated (October 1992) that the method required revision on a more logical basis and stated that as recommended by a Committee, the installed capacity was re-worked in a scientific way by declaring it in terms of number of machines of each product by following an acceptable methodology assuming an optimum product mix of six major products of the Company. While working out the revised capacity, it was still considered that the slideway grinding capacity was the critical and the deciding factor.

6.6 Capacity Utilisation in Forge and Foundry Division

In Forge Shop, the capacity was assessed in May, 1976 at 2400 tonnes of finished forgings, although capacity for 4000 tonnes was created. This was because of non-availability of machining and heat treatment facilities. After the Company provided additional balancing equipment costing Rs.263.27 lakhs from 1978-79 to 1986-87, the capacity was only marginally increased to 2529 tonnes. The capacity was refixed at 3200 tonnes in 1990-91 after a performance review initiated after Audit appraisal was started.

Capacity utilisation in recent years is given below:

	Utilisation					
	1982-83	1987-88	1988-89	1989-90	1990-91	1991-92
a.Machine Tools (equivalent Surface Grinders)	301	938	680	639	629	730
b.Machine Tool Accessories						
Lathe Chucks(Nos)	5000	1799	3727	2590	2858	3189
Drill Chucks(Nos)	19267	-	-	-	-	-
c.Forgings(tonnes)	680	2583	3081	3222	3337	2630
d.Castings(tonnes)	573	744	872	850	773	676
e.CNC Machining Centres	-	13	24	18	17	14

It was stated (October, 1992) that the Company was able to achieve utilisation over and above the installed capacities mainly by subcontracting components.

The production in terms of value varied over the years as given below:

Year	Actuals (Rupees in lakhs)
1982-83	1038.12
1987-88	*3740.13
1988-89	*4054.00
1989-90	*4487.50
1990-91	*4503.81
1991-92	*4531.85

* Include bought out items.

The following reasons were given by the Management for the shortfall in capacity utilisation.

- low labour productivity
- high rate of absenteeism
- lack of motivation of workers under the existing incentive schemes
- old equipment prone to frequent breakdowns
- power cuts
- inability to meet competition from the small scale sector for Drill/Lathe Chucks
- low market for certain machine tool items
- delay in development of dies
- decline in demand
- delays in receipt of raw materials etc.
- tool down strike, go-slow and labour problems
- poor quality

6.7 Production for Defence

The Company was placed under the administrative control of the Defence Ministry from December, 1963 when the Ordnance factories were overloaded with orders. This lasted upto April, 1986. Special defence requirements which involved development work were ordered on the Company. But the Company had to compete with other manufacturers in the trade on the price front to obtain the orders. The value of the items manufactured by the Company for defence decreased after 1982-83 as shown below:

Year	Total Value of production	Value of production for Defence	Percentage of Defence production to total production
			(Rs. in lakhs)
1982-83	1038.12	266.29	25.65
1987-88	3740.13	170.65	4.56
1988-89	4054.00	81.62	2.01
1989-90	4487.50	255.62	5.70
1990-91	4503.81	--	--
1991-92	4531.85	1.11	0.02

Bulk orders for an item was given to the Company from 1982-83 to 1985-86 by the Defence Department when Ordnance Factories were not fully geared up. Other than specific defence items, the Company has been meeting only the needs of Machine Tools in the Defence Sector.

6.8 Performance Of Forge Shop

The Forge Shop was the second most important contributor to the sales of the Company and its performance in recent years is given below. The products, inter-alia, consist of Railway Duplicates, Crank Shafts, Cam Shafts and Auto and Diesel Engine parts. When orders for Screw Couplings from Railways declined, the Company switched over to Industrial Forgings. But additional facilities created at a cost of Rs.263.27 lakhs from 1978-79 to 1986-87, did not yield expected results of 4200 tonnes of products valuing Rs. 18 crores per annum though value of output went up from Rs.487.39 lakhs in 1986-87 to Rs.1285.00 lakhs in 1991-92. The performance of Forge Shop was below optimum capacity. It incurred cumulative loss of Rs.541.87 lakhs from 1981-82 to 1991-92.

	1982-83	1987-88	1988-89	1989-90	1990-91	1991-92
1.Capaci (tonnes)	2400	3200	3200	3200	3200	3200
2.Production						
a) Screw Coup- lings(tonnes)	50	1021	1673	1814	1978	1305
b) Indl forgings (tonnes)	630	1562	1408	1408	1359	1325
3. Value of Produc- tion(Rs.in lakhs)	160.12	738.22	908.04	1235.00	1451	1285
4. Sales (Rs. in lakhs)	152.06	750.98	1028.59	1426.14	1366	1200
5.Profit(+)/Loss(-)	(-)37.40	(-)8.80	(+)13.47	(+) 50.58	-	(-) 40.36

The reasons attributed by the Management for the shortfall were lack of orders, inadequate Die Sinking Capacity, poor technical know-how and non-receipt of raw material in time.

6.9 Performance Of Foundry

i) The grey iron Foundry was set up in early fifties and shifted to Kukatpally, in 1964-65. The location was found to have drawbacks of poor layout, limitation of space and lack of mechanical handling facilities. The melting capacity was 2400 tonnes per annum with 45 percent yield of castings i.e., 1080 tonnes. During the years 1987-88, 1988-89 and 1989-90 yield of good castings was only 49% to 60% due to nature of product-mix.

ii) The performance of Foundry in recent years is given below:

	1982-83	1987-88	1988-89	1989-90	1990-91	1991-92
						(in tonnes)
1. Metal charged	1516	1232	1764	1752	1863	1394
2. Yield of good castings	574	744	872	852	773	676
3. Cupola loss	137	113	152	64	203	62
4. Foundry rejections	94	80	95	112	142	126
5. Rejections in Machine Shop	25	45	44	46	48	25
6. Percentage of good castings to meta charged	139	60	49	49	41	48
7. Percentage of cupola loss to metal melted	9	9	9	4	11	4

Management stated in April, 1989 that in any cupola the maintenance of liquid temperature being difficult when compared to that in an induction furnace, the percentage of good castings was around 50%. The Company could register better yield at 60 per cent with suitable product-mix.

iii) The Foundry capacity was captive to the requirements of Machine Tool Division but could execute outside orders also. After shifting the Foundry to a new shed in 1988-89, outside orders for Rs.39 lakhs were received. While full capacity of the Foundry was not utilised, the Company used outside foundries also to meet its requirements of high quality heavy castings because it was un-economical to set facilities in-house for them.

iv) Because of shortage of working space in the Foundry, the effective capacity was only 500 tonnes per annum though 1080 tonnes of good castings could be produced. The requirement was of the order of 1000 tonnes per annum. So the Company modernised the Foundry in 1989 at a cost of Rs.135.35 lakhs. The capacity was expected to go up to 2700 tonnes per annum. But substantial changes had occurred in the Casting requirements of the Company and capacity of the Foundry was revised to 1600 tonnes of Grey Iron Castings and 400 tonnes of SG Castings per annum as against 2160 tonnes of Grey Iron Castings, 440 tonnes of SG Castings and 100 tonnes of NiHard Castings proposed earlier. The revised project is still to be completed (March, 1990).

6.10 Rejections

The Company had fixed the following norms for rejections:

1. Machine Tool Division - 6 per cent on an average
2. Forge - 6 to 15 per cent
3. Foundry - 20 per cent
4. Subsequent rejections at Machining after Foundry - 5 per cent

The rejections in Machine Tools were higher than norms as given below:

Sl. No.	Year	No. of Items produced	No. of Items rejected	% of Rejection to production
---------	------	-----------------------	-----------------------	------------------------------

I. MACHINE TOOLS

1.	1987-88	1,06,338	9,637	9
2.	1988-89	99,265	6,750	7
3.	1989-90	1,09,167	10,099	9
4.	1990-91	75,576	5,069	7
5.	1991-92	83,830	2,504	3

II. FOUNDRY

1.	1987-88	7,305	708	10
2.	1988-89	11,234	1,037	9
3.	1989-90	6,464	804	12
4.	1990-91	1,863	142	8
5.	1991-92	1,394	126	9

III. FORGE

(in tonnes)

1.	1987-88	2,583	258.80	10
2.	1988-89	3,080	160.56	5
3.	1989-90	3,222	279.80	9
4.	1990-91	3,337	129.59	4
5.	1991-92	2,630	118.84	5

6.11 Export Performance

i) Export performance of Company is given below

(Rs. in lakhs)

Year	Total Turnover	Exports	% of Export on Turnover
1987-88	3,833.96	1,136.66	29.65
1988-89	4,434.89	650.92	14.68
1989-90	4,621.47	177.60	3.84
1990-91	4,668.30	400.51	3.58
1991-92	4,694.20	82.20	1.75

Drop in exports was due to changes in USSR, Bulgaria and East European Countries.

The Management stated (October, 1992) that the Company was trying to export to General Currency Areas with the assistance from H.M.T. (International).

ii) Saving in Foreign exchange due to indigenisation for CNC Machining Centres and CNC Lathes is given below:

Machine	Projected Imports	Estimated savings due to indigenisation
CNC Lathe	Rs. 10 lakhs per Machine in I Phase	Rs. 10 lakhs over 2 Machines
	Rs. 5 lakhs per Machine in Phases II and III	Rs. 15 lakhs over 3 Machines
Machining Centres	Rs. 15 lakhs per Machine in the II Phase	Rs. 150 lakhs over ten Machines

According to the Management the share of the Company in the Machining Centre market in India was around 50%, whereas other manufacturers like HMT, Kirloskar, Bharat

Fritz Werner, Cooper etc., held remaining 50%. The quality of Company's products and vigorous drive to capture the market had given the Company an edge over its competitors. For Screw Couplings, Railways have given rate Contract to Company.

6.12 Machine Utilisation

i) The Machine utilisation in Machine Tool Division was generally around 65 per cent to 75 per cent as given below:

Percentage of utilised hours to available hours

Year	MT I	MT II	MT III AP SHOT	LATHE CHUCK	DRILL CHUCK	TOTAL
1982-83	68	60	72	67	61	66
1987-88	70	67	88	88	--	73
1988-89	72	72	88	86	--	76
1989-90	61	61	85	80	--	67
1990-91	69	69	78	88	--	73
1991-92	67	71	76	87	--	73

Factors like power failure, machine breakdown due to electrical or the mechanical problem and absenteeism were the causes of under-utilisation of machines, apart from lack of orders.

ii) There were thirtyone Machines valued at Rs.50 lakhs capable of producing 42,000 AP Shots per annum. During

1987-88 to 1989-90 the production was only 35,000 Nos per annum due to lack of orders. The Management identified 4 Machines as surplus. Two Machines were transferred to Forge and Foundry Division and were utilised. One Machine was disposed-off and the fourth is under disposal.

iii) The Machine utilisation in Foundry and Forge Division varied from 32 to 68 per cent as given below:

Percentage of utilised hours to available hours.				
Year	Forge Shop	Forge M/c Shop	Die Shop	Total
1982-83	32.98	55.44	73.49	55.33
1987-88	42.27	61.49	60.57	57.00
1988-89	54.69	56.45	64.93	59.22
1989-90	54.81	57.00	65.52	59.66
1990-91	52.53	58.75	64.93	59.85
1991-92	50.25	55.00	61.37	56.41

Machine breakdown and absenteeism apart, lack of orders was the reason for poor utilisation.

6.13 Research and Development Management

According to the Management, the Company developed the following Machines using in-house technologies:

1. NC Co-ordinate Tables (2 Models)
2. Cutter and Tool Grinder - Model 415
3. Horizontal Milling Machine
4. Incremental Spline Rolling Machine
5. M.G. Set for stable power supply
6. Tool pre-setter for CNC Machining Centre
7. N.C. Rotary Indexing Unit
8. Surface Grinder Model 452 MP with micro.
processor based control system
9. Copy Milling Machine
10. Thread Rolling Machine - Model 518
11. Imported Jig Boring Machines were provided
with Electricals
12. CNC Cutter and Tool Grinder
13. Interfaced CNC Machining Centre with Hinumerik
CNC System 3100 M of HMT Ltd.,
14. Interfaced CNC Lathe with Hinumerik NC System
2100 T of HMT Ltd.,

The expenditure incurred on R & D annually ranged between Rs.5 lakhs and Rs.21 lakhs during the seven years ended 1989-90. It was stated (October,1992) that the Company is customising the products through applied R & D efforts.

6.14 Material Management

- i) The Company's norms for Inventory levels are given below:

Raw Materials, Stores and spares - 4 months consumption
 Work-in-process - 4 months production
 Finished Goods - 2 months sales

The holding were as given below:

Description	1982-83	1987-88	1988-89	1989-90	1990-91	1991-92
Raw Materials, Components, Stores & Spares (in terms of months consumption)	8.4	4.4	5.6	6.6	7.0	7.1
Work-in-process (months production)	2.3	1.1	1.6	1.9	2.1	1.5
Finished Goods (months sales)	1.5	0.9	0.8	1.4	2.1	3.1

According to the Management the main reasons for holding more inventory than the norms were as below:

- Production hold-ups due to strike
- New models and products
- Fall in demand
- To prevent stock-out of imported items

ii) ABC Analysis of Inventory revealed the following position:

Year	Stock in terms of number of months of consumption		
	A	B	C
1982-83	3.46	6.41	18.25
1987-88	1.88	3.43	12.35
1988-89	3.40	4.73	13.09
1989-90	2.63	5.11	12.44
1990-91	1.79	5.62	13.42
1991-92	2.42	4.02	11.27

"A" Class items were within the norms of 4 months consumption. But "B" and "C" Class items were more than norm.

(iii) The non-moving raw materials and stores were as follows:

(Rs. in lakhs)

Year	Value of raw materials stores and spares and loose tools not moved for two yrs.	Total value of raw materials/ stores & spares and loose tools	Percentage of non-moving to the value of raw materials, stores and components and loose tools to total
1982-83	43.35	354.84	12.22
1987-88	45.86	842.70	5.44
1988-89	71.37	1235.42	5.78
1989-90	76.67	1437.25	5.33
1990-91	62.82	1553.51	4.04
1991-92	75.26	1382.94	5.44

The Management stated that Company is trying to reduce non-moving stock.

6.15 Man Power Management

i) The Man Power employed by the Company is given below:

Category	1982-83	1987-88	1988-89	1989-90	1990-91	1991-92
1. Officers & Supervisors	271	436	413	470	503	505
2. Ministerial Staff	251	198	217	204	212	201
3. Workmen (Skilled & semi-skilled)	1099	1193	1169	1151	1176	1130
4. Security Guards)						
5. Cooks)						
6. Drivers)						
7. Lady Checker)						
8. Security Havaladar)						
9. Male Nurse)	74	103	107	111	112	110
10. Dresser/ Drivers)						

11. Despatch Rider)						
12. Security Sub-Inspector)						
13. Un-skilled Workers)	293	252	275	245	246	238
TOTAL :		1988	2182	2181	2181	2249	2184

According to the Management, the Industrial Engineering Department of the Company carried out a detailed study in 1982 for arriving at the cadre strength on the basis of available Machine standard hours, productivity, absenteeism, production standards, etc. This yielded a limited number of vacancies and the Management was soon faced with a situation where they could not effect any promotions, necessitating revision of the cadre strength, without, at the same time, increasing the Man Power. The approved cadre strength was accordingly re-structured to provide for an increased number of posts in the higher grades in 1985.

Regarding implementation of voluntary retirement scheme it was stated (October, 1992) by the Ministry that the same could be considered for implementation by the Company without assistance from the National Renewal Fund. The Company could however possibly get some grant or concessional loans from the Government of India.

(ii) The utilisation of labour in Machine Tool Division is given below:

	1982-83	1987-88	1988-89
1. Available hours	12,87,593	15,88,305	15,93,554
2. Absenteeism	2,52,369	2,23,144	2,20,035
3. Net available hours	10,35,224	13,65,161	13,73,519
4. Utilised	9,01,346	12,45,005	12,84,102
5. Percentage of utilisation to net available hours (excl. absenteeism).	87	91	93
	1989-90	1990-91	1991-92
1. Available hours	15,27,103	15,34,202	14,91,796
2. Absenteeism	2,69,606	2,80,396	2,67,905
3. Net available hours	12,57,497	12,53,806	12,23,891
4. Utilised	11,39,053	11,49,735	11,07,289
5. Percentage of utilisation to net available hours (excl. absenteeism).	91	92	90

Absenteeism continued to be high, affecting labour utilisation.

According to Management average age of employees was 45 years; there was abuse of ESI Scheme to take time off. The Industry was in the midst of the City providing diversion to employees. Under utilisation of labour was attributed to following:

- lack of tools and tool breakdown;
- lack of materials
- power failure

The hours lost on account of avoidable causes was above 56% in all the years. Management stated in May, 1989 that avoidable causes like lack of tools and materials had come-down. The employees from Drill Chuck Section were transferred to other Sections to meet the requirement of increased volume of production there, when production in Drill Chuck Section was discontinued.

(iii) Production Incentive Scheme

The Company after discussions with Workers' Union decided in December, 1986 to modify the existing Incentive Scheme from 1st April, 1987. This was done with a view to remove the discontentment among the workmen in continuing with the old Scheme and to achieve higher production and meeting export commitments. The Incentive payments over the years are given below:

(Rs. in lakhs)			
Year	Value of Production	Incentive Payments	Total salaries, Wages etc., paid
1982-83	1074.29	8.15	279.33
1987-88	3918.42	75.93	647.56
1988-89	4763.17	85.53	903.89
1989-90	5032.33	48.94	968.07
1990-91	5060.39	50.21	1139.84
1991-92	4783.57	48.30	1088.39

6.16 Ancillaration

The procurement from ancillaries was as given below:

Year	Procurement Value (Rs. in lakhs)	Percentage of procurement to total sales of Company
1982-83	74.00	6.70
1987-88	492.36	12.84
1988-89	336.09	7.58
1989-90	126.36	2.73
1990-91	164.27	3.52
1991-92	234.84	5.00

The major jobs awarded to ancillaries were:

- Turning
- Milling
- Surface Grinding
- Cylindrical Internal Grinding
- Drilling
- Jig Boring/Hobbing/Planing
- Fitting

For each of the above jobs, rates allowable were approved by the Management based on Machine hour rates applicable for registered small scale industries as worked-out by the Central Institute of Tool Design in 1981.

The Company constructed two sheds at a cost of Rs.4.60 lakhs in its Forge & Foundry Division, wherein 3 Ancillary Units started functioning from June 1986.

Management stated in May 1989 that the constructed sheds were allotted to Ex-employees of the Company who had the technical know-how for the Company's products and could give quality components or undertake some complicated operations.

CHAPTER VII

Marketing And Pricing

7.1 The Sales performance of major products is given below:

Sales Performance

(Value-Rs. in lakhs)

Sl. No.	Name of the Product	1982-83 Qty/ Value	1987-88 Qty/ Value	1988-89 Qty/ Value	1989-90 Qty/ Value	1990-91 Qty/ Value	1991-92 Qty/ Value
I. MACHINE TOOL DIVISION							
1.	Cutter & Tool Grinder	82 43.78	238 193.49	118 111.36	107 119.21	126 130.77	129 172.42
2.	Surface Grinder	157 117.34	315 394.94	283 412.24	234 337.02	308 493.04	307 553.17
3.	Milling Machine	36 47.60	167 289.61	100 215.61	112 265.91	83 203.86	70 242.26
4.	50mm Box Col. Drilling M/c	13 10.09	-- --	-- --	-- --	-- --	-- --
5.	Drilling Machine	29 2.90	-- 6.11	17 3.13	5 1.01	4 0.85	-- --
6.	Thread Rolling M/c	37 59.60	61 115.70	49 136.34	40 102.57	56 161.58	34 152.09
7.	G.F. Copy Lathe	12 131.96	-- --	2 22.18	2 25.93	-- --	3 34.89
8.	Spl. Toolings Accessories Spares, Reconditioning	-- 210.55	-- 1078.62	-- 943.82	-- 760.99	-- 870.68	-- 883.10
9.	Cold Forming M/c	-- --	-- --	-- --	-- --	-- --	-- --
10.	CNC Machining Centre	-- --	14 731.61	24 1076.14	16 814.27	16 919.85	14 1003.55

11.	CNC Lathe	--	1	3	13	4	4
		--	24.55	76.74	311.24	94.37	107.92
12.	Jig Boring Machine	--	1	12	3	3	2
		--	15.22	202.53	59.58	51.16	37.62

II. MACHINE TOOL ACCESSORIES

1.	Lathe Chucks	4291	1385	2725	2653	3007	2394
		73.47	31.65	70.25	73.16	84.66	73.74
2.	Drill Chucks	10333	376	6	18	132	78
		16.28	0.40	0.01	0.03	0.22	0.11
3.	NC Co-ordinate Table	--	1	2	--	1	--
		--	1.98	6.13	--	6.85	--
4.	Others	--	--	--	--	--	--
		--	--	4.36	5.83	3.17	7.18

III. MISCELLANEOUS PRODUCTS

	A.P. Shot (Defence Items)	--	--	--	--	--	--
		232.13	188.05	95.53	285.96	0.72	2.24

IV. FORGE & FOUNDRY DIVISION

q/							
1.	Screw Couplings	--	29706	50602	52563	55347	38234
		--	205.81	383.36	510.60	615.69	333.23
2.	Other items	--	--	--	--	--	--
		152.06	545.17	645.23	915.54	977.71	1056.15
3.	Cost of items used internally for addition to C.B.	--	--	--	--	--	--
		6.88	11.04	29.93	32.62	53.12	34.53

7.2 For marketing, the Company has Regional Offices at New Delhi, Faridabad, Calcutta, Madras, Bombay, Bangalore and Pune and Resident Representative's Office at Jabalpur. The offices at Ahmedabad and Kanpur were closed. Sales forecasts

are made for planning production. The sales have exceeded the forecast in a few items and fallen short in certain other items. One-man market intelligence cell has been functioning to gather information. The Regional Offices were also strengthened with temporary Market Survey Trainees to get more market information which has resulted in increased booking of orders for standard machines.

7.3 Selling Prices are revised from time to time especially for Drilling Machines and Drill Chucks where the sale prices were generally less than cost of production. Because of severe competition in the market, the Company decided to discontinue production of such items.

Selling prices of Milling Machines are revised based on cost of production, demand for product, and prices of competitors. Manufacturing cost alone is not the basis for fixing selling prices. Selling price of one model of milling machine was marginally less than cost of manufacture.

The losses of over Rs.40 lakhs incurred by the Company were mostly on the aforesaid model of Milling Machine which was sold at less than cost price in 1988-89 and 1989-90.

7.4 The drop in sale of Milling Machine in 1987-88 was mainly due to cancellation of order from Bulgaria.

Lack of orders and severe competition were the major reasons for drop in sales of most of the products. Labour problems also added to costs making products less competitive.

According to the Management the Indian Engineering Industry is still in the initial stage for introduction of CNC Machines in a large way. The next five years are expected to witness a rapid demand for this Machine from large, medium and small scale sectors. Though there will not be a perceptible increase in the demand for general machines, the CNC Machines off-take will be substantial, in respect of which, the Company now holds a market share of 50%.

7.5 The Sundry Debtors dues as on 31st March, 1992 amounted to Rs.1563.26 lakhs. Dues from Government Departments (including PSUs) amounted to Rs.1156.75 lakhs.

The outstandings from Sundry Debtors constituted 33% of the total sales and the high figure was attributed to time taken by many Government customers including Railways in making payments, and the credit squeeze.

The Company stated that various steps were taken to arrange for speedy collection from debtors. Recovery was also being closely followed up through the administrative Ministry.

CHAPTER VIII

Ecology

8. The expenditure incurred by the Company on maintenance of suitable ecological conditions during the two years 1990-91 and 1991-92 was Rs.2.35 lakhs, towards planting and maintenance of plants, saplings and seedlings.

N. Sivasubramanian

New Delhi
The

(N.SIVASUBRAMANIAN)
Deputy Comptroller and Auditor General
-cum-Chairman, Audit Board

10 MAR 1993

Countersigned



New Delhi
The

(C.G. SOMIAH)
Comptroller and Auditor General of India

19 MAR 1993

ERRATA

<u>PAGE</u>	<u>PARA</u>	<u>COLUMN</u>	<u>LINE</u>	<u>FOR</u>	<u>READ</u>
14	6.4	4th	1st		-
14	6.4	4th	2nd		-
14	6.4	4th	3rd		-
14	6.4	4th	4th		-
14	6.4	4th	5th		-
14	6.4	4th	6th		-
16	6.5	-	2nd	equi ent	equivalent
16	6.5	-	4th	34	734
16	6.5	-	5th	Sur ace	Surface
21	6.8	1st	2nd	Capaci	Capacity
21	6.8	1st	6th	(ton s)	(tonnes)
21	6.8	1st	7th	Ind orgings	Indl. Forgings
21	6.8	1st	8th	(ton)	(tonnes)
22	6.9(ii)	2nd	10th	meta	metal
27	6.12(iii)	-	7th	68	73
33	6.15(iii)	-	13th	1936	1986