

## CHAPTER 3

### Working and Performance of Signal Workshop, Gorakhpur

#### 3.1 Highlights

- There were no records available to determine the overall production capacity of the workshop to manufacture various items. The production was short of target and well below the required level to meet the pending orders in all the years reviewed.  
(Para 3.7)
- The gap between annual expenditure and annual outturn was widening year after year. The gap of Rs.1.50 crore as on 31 March 2001 increased to Rs.4.90 crore as on 31 March 2004.  
(Para 3.8)
- The laid down procedure for maintenance and reconciliation of vital records for proper accounting of stores consumed, wages/salaries paid, percentages of on-costs applied and harmonising various production activities to arrive at correct cost of production of various items was not being observed.  
(Paras 3.9 and 3.10)
- During 2002-03 to 2003-04, the unit cost of production of Electric Points Machines (Rotary) and QN1 Relays was very high. It was Rs.68,880 and Rs.2,470 respectively as against Rs.33,750 and Rs.1,825 respectively of cost of production in sister Workshop, Podanur. The cost of production of Electric Points Machines (Rotary) was also very high compared to the price at which the workshop procured them from the market (Rs.49,200 per unit).  
The price at which the Electric Points Machines (Rotary) and QN1 Relays were sold from October 2002 (Rs.48,250 and Rs.2,025 per unit respectively) were much lower than the assessed cost per unit.  
(Para 3.10)
- Workshop Manufacturing Suspense Account was not being reviewed every month to ensure that there were no inefficient balances. The balance was steadily increasing and it increased from Rs.2.69 crore as on 31 March 2000 to Rs.10.37 crore as on 31 March 2004 and is unlikely to be reduced.  
(Para 3.11)
- The capacity utilisation of cupola in the foundry shop was to the extent of only 53 per cent. Against the calculated capacity of 730 tonnes per annum, the actual production per annum was only 386 tonnes. Under-utilisation has serious implications in view of high pendency of indents for Electric Points Machines (Rotary) and the Railways resorting to procurement of these bases from the market.  
(Para 3.12.2)

- **The Workshop Authorities are not serious about obtaining ISO-9000 certification despite the Railway Board's orders of July 1992 and August 2001.**

(Para 3.15)

## **3.2 Introduction**

Signal Workshop, Gorakhpur, of North Eastern Railway, was established in 1958. Since 1970, it is engaged mainly in the manufacture of Electric Points Machines-Rotary [EPM(R)], Relays, Lifting Barriers Gates, Apparatus cases, etc. It is the second largest signal workshop in Indian Railways after signal workshop at Podanur, Southern Railway.

### **3.2.1 Organisation**

Signal Workshop functions under the over all administrative control of Chief Signal and Telecommunication Engineer and is headed by Chief Workshop Manager, assisted by one Divisional Signal & Telecommunication Engineer, one Production Engineer, one Assistant Production Engineer and one Workshop Accounts Officer, in charge of the Accounts branch of the workshop.

The Workshop is divided into 8 functional units (shops) viz. Planning and Production Shop, Foundry and Sheet Metal Shop, Machine Shop, General Shop, Relay Shop, Lifting Barrier Gate Shop, Mill Wright Shop, and Testing and Inspection Cell.

The men-in-position, as on 1 April 2003, were 766 in Group 'C' and 214 in Group 'D' against the sanctioned strength of 878 and 206, respectively.

## **3.3 Scope of Review**

The review covers the overall working and performance of the Workshop over a period of five years from 1999-2000 to 2003-04.

## **3.4 Audit Objectives**

The working and performance of the Signal Workshop, was examined to see the level of economy, efficiency and effectiveness achieved in its activities, which, in turn, involved ascertaining whether:

- a proper mechanism/ system was in place to ensure that plant/ equipment and labour are used at optimal level;
- rules/ regulations for maintenance of records and observance of procedures were being followed;
- proper costing system was in place so that the pricing of product is fixed realistically; and
- materials management was efficient.

### 3.5 Audit Criteria

Provisions laid down in Mechanical Code and other related codes were taken as the basis for assessing the operations and performance. A comparison was also made with a sister unit at Podanur, Southern Railway, which also is engaged in production of similar items.

### 3.6 Audit Methodology

Audit collected data from the records of the office of Chief Workshop Manager, Signal Workshop. As the proper records of different activities in workshop were not properly maintained, Audit held discussions with the middle and higher management for clarification on certain issues. The facts and figures observed by Audit were got vetted from the Workshop authorities. The audit findings are discussed below:

### 3.7 Production performance vis-à-vis targets and indents

There were no records available to determine the overall production capacity of Workshop to manufacture various items. Audit, however, attempted to assess its performance with reference to targets fixed and the pending work orders. Given below is a five year picture in respect of the two main items manufactured by the workshop:

Production	Year	Target	Production	Work orders pending as on 31 March
Relays	1999-2000	4500	3950	4303
	2000-01	5700	4690	15909
	2001-02	9000	5345	7796
	2002-03	9000	6600	11816
	2003-04	10200	9220	28431
EPM (R)	1999-2000	360	255	917
	2000-01	360	415	1026
	2001-02	600	428	691
	2002-03	600	384	1303
	2003-04	600	562	1808

As can be seen from the above table, though the production has been gradually increasing over the years, it was still short of targets and way below the levels required to meet the pending work orders, which have only been increasing over the years. The pending work orders in respect of relays increased from 4,303 as on 31 March 2000 to 28,431 as on 31 March 2004 (an increase by 561 per cent). Similarly, pending work orders in respect of EPM(R) increased from 917 as on 31 March 2000 to 1,808 as on 31 March 2004 recording an increase by 97 per cent.

### 3.8 Financial Position

The financial position of the workshop in terms of its budget allotment, actual expenditure and annual outturn during the period under review (1999-2000 to 2003-04) is given in the following table.

(Rs. in crore)

Year	Budget Allotment	Actual Expenditure	Annual Outturn	Excess of Actual Expenditure over outturn
1	2	3	4	5 (3-4)
1999-00	11.76	12.42	10.37	2.05
2000-01	13.51	13.56	12.06	1.50
2001-02	16.00	15.96	13.33	2.63
2002-03	17.84	17.63	13.18	4.45
2003-04	19.93	18.79	13.89	4.90

Note: 1. The figures in Cols.3 and 4 comprise salaries to officers, office staff and workshop supervisors and consumable stores under Demand No.7 and direct expenditure in shops on wages to the workers and cost of stores (in Workshop Manufacturing Suspense under Demand No.16) etc.

2. The above figures exclude allotment/ expenditure under the head 'Training School'.

As would be seen from the above table, there was wide gap between actual expenditure and actual outturn. The gap steadily increased from Rs.1.50 crore in 2000-01 to Rs.4.90 crore in 2003-04.

The Railway Administration stated (October 2004) that the outturn of a workshop is to be compared with Workshop Manufacture Suspense Account (WMS) and not with the actual expenditure and that the actual expenditure adopted by Audit should have excluded the expenditure under Demand No.7 (Repair and Maintenance of Plant & Equipment), Demand No. 11 (Staff Welfare and Amenities) and Demand No.12 (Miscellaneous Working Expenses).

The contention is not tenable. Signal Workshop, Gorakhpur is a production unit. Hence, all expenditures, direct and indirect, including Proforma on Costs and expenditures on Demands No.7, 11 and 12 etc. incurred on manufacture of various items – finished or in progress – should be reflected in the outturn. A comparison of annual expenditure (input) with annual outturn/ annual production (output) for judging the financial position of a production unit has been correctly made.

The reasons for wide gap between expenditure and outturn and its continuous increasing trend are analysed and discussed in the following paras.

### **3.9 Non-observance of laid down procedure regarding maintenance and reconciliation of workshop records**

According to Para 1201 of Indian Railway Code for the Mechanical Department, the labour and stores sub-ledgers having been totalled, the totals of labour charges, stores and miscellaneous charges for the month relating to each work order should be transferred to Workshop General Register (WGR) and posted under the relevant work orders, shop by shop, care being taken to see that no item is left out in posting. Simultaneously, a summary of sub-ledgers called check sheet should be prepared as provided for in para 1202 W. This is done with a view to checking correctness of posting of labour, stores including miscellaneous charges in WGR and to ensure that the amounts are correctly transferred from WGR to outturn statements to record expenditure incurred on each work order. A monthly Workshop Account Current of WMS needs also to be prepared to facilitate reconciliation with General Books.

A review of the accounts of the workshop by Audit revealed that the above mentioned registers and statements were not being properly maintained, reconciled and reviewed. As a result, the actual expenditure incurred on production of items was not ascertainable from these records.

The Railway Administration stated (October 2004) that all efforts would be made to maintain records according to codal provisions and suggestions of Audit.

### **3.10 Non-observance of procedure for costing**

In accordance with the provision of the Mechanical Code, the cost of a product in a production unit is to be classified into Direct Labour, Direct Stores and Overheads. Further, the cost of the item manufactured should be arrived at after review/ reconciliation of vital records such as WGR, check sheet, outturn statements, WMS and Workshop Accounts Current etc. It was, however, observed by Audit that the records were not maintained as prescribed nor was any review/ reconciliation being done. Due to this, the cost of stores, labour and on costs were not ascertainable from records. Obviously, there was no costing system in place in the workshop.

The Railway Administration admitted the irregularity (October 2004) and stated that the costing of products according to codal provisions will be started in the current year viz., 2004-05 itself.

The existence of a proper costing system is fundamental to the running of the workshop in an efficient and economical manner. The absence of costing data compelled Audit to make its own assessment of the cost of the products from available records. Based on data available for 2002-03, the cost was found to be Rs.68,880 per unit of EPM (R) and Rs.2,470 per unit of Relay. Audit compared these costs with the prices at which these items were invoiced by the workshop, the prevailing market price and the cost at which these items were manufactured by the workshop at Podanur. The comparative cost analysis is discussed below:

- As against the cost of Rs.68,880 per unit of EPM (R), assessed by Audit, the workshop was selling EPM (R) at Rs.68,750 per unit till September 2002 and at Rs.48,250 per unit from October 2002 onwards. Similarly, against a cost of Rs.2,470 per unit, Relays (QN1 and QNA1) were being sold them at the rate of Rs.2,025 per unit (QN1) and Rs.2,100 per unit (QNA1) from October 2002. During October 2002 to 31 March 2004, for sale of 761 units of EPM (R) and 13,920 units of Relays, the workshop, thus, suffered a loss of Rs.2.16 crore.

The Railway Administration stated (October 2004) that the reduction in price from Rs.68,750 to Rs.48,250 was possible due to increased production with reduced labour.

The reply is not tenable, as the production of EPM (R) was lower at 384 in 2002-03 as against 428 in 2001-02.

- The sister unit at Podanur produced EPM (R) and Relays at a cost of Rs.33,750 and Rs.1,825 per unit respectively during the same period.

Thus, on production of 852 units of EPM (R) and 12,545 units of QN1 Relays during 2002-03 to 2003-04, the Gorakhpur workshop incurred an excess expenditure of Rs.3.80 crore.

The Railway Administration held (October 2004) that cost of production in Podanur Workshop was less as it was an incentive workshop, has one Dy. Controller of Stores (DCOS) and one Asstt. Controller of Stores (ACOS) for material management (which is the main problem in Signal Workshop, Gorakhpur) and material was easily available for Podanur from Coimbatore, which is an industrial city, as against Signal Workshop, Gorakhpur which has to depend on markets of Delhi and Kolkata.

The reply is not tenable. The constraints put forth are surmountable and finding ways and means for overcoming these problems is expected from higher management.

- The prevailing market rate for EPM (R) was Rs.49,200 per unit (including ED and CST). As against this, the cost of EPM (R) unit produced in the workshop was working out to Rs.83,096 (by adding an amount of Rs.14,216 to Rs.68,880 towards ED and CST to make a correct comparison). On production of 852 units of EPM (R) during 2002-03 to 2003-04, the workshop incurred an extra expenditure of Rs.2.89 crore with reference to market price.

### **3.11 Accumulation of heavy balances in WMS**

WMS is maintained in every production shop. The cost of products in process (unfinished products) and the finished products awaiting adjustment is debited to this account.

According to codal provision, the balance under WMS are to be reviewed monthly, to ensure that:

- all the items are current and that jobs were undertaken only after issue of a proper work order duly sanctioned by competent authority;
- the details relate to labour, materials and work on-cost charges expended on unfinished and finished jobs, awaiting adjustment;
- there are no credit items in the details of balance and if there are any such items, they have been noted for immediate adjustment; and
- there are no inefficient balances and that periodical adjustments in respect of overcharges and undercharges are carried out.

Audit review revealed that:

- The balances under WMS increased from Rs.2.69 crore as on 31 March 2000 to Rs.10.37 crore as on 31 March 2004.
- No reviews of the WMS were being undertaken and submitted to Financial Adviser and Chief Accounts Officer (FA&CAO) as required in the codal provisions. The FA&CAO also did not insist that reviews/reports be submitted to him regularly.
- As already brought out in the previous paragraph, the prices at which invoices were raised and credits received were far less than the actual

expenditure (debits in the WMS). Since credits have already been received with reference to underpriced invoices, the chances of reducing the debit balance in WMS are remote.

The Railway Administration stated (October 2004) that the prime reasons for the rise in the WMS balance were to some extent low production, non-costing of the products and belated consumption of stores. They further stated that the actual position of WMS balances could only be ascertained after proper costing of each product is completed during the current year. While doing so, the audit observations would be kept in view.

The argument of low production runs contrary to their argument of increased production given with reference to the Audit observations discussed in the previous paragraph. The reply regarding non-costing and belated consumption of materials is an acceptance of poor management practices leading to accumulation of huge balances in WMS.

### **3.12 Foundry shop**

#### **3.12.1 Loss due to bad casting**

According to codal provisions, the foundry foreman should keep a Daily Log Sheet indicating full particulars of each draw of molten metal. The casting from the molten metal need to be dressed, cleaned and inspected. The inspection and weighment is required to be done by an agency independent of the foundry foreman. Further, the foremen is required to prepare a Monthly Statement of foundry wastage (from the data available in the Daily Log sheet), work out the percentage of good casting and percentage of loss of metal and submit the same to the production engineer/ works manager.

Audit scrutiny revealed that the prescribed inspection and weighment of the casting were not being done. Data collected by Audit revealed that the percentage of defective casting to good casting ranged 1.29 to 11 percent after giving a reasonably fair allowance of 5 per cent.

The Railway Administration stated (October 2004) that (i) log sheet of good casting and rejection is maintained for every heat but it is not sent to the Production Engineer and (ii) there was no weighbridge in the Workshop for weighment.

The contention is not tenable because:

- There is no use of maintaining log book when it is not submitted to the Production Engineer.
- Bulk of the molten metal is used for casting the bases of EPM(R). The standard weight of a finished EPM(R) base is a known factor and the quantity of metal lost in casting is easily ascertainable from the difference between the weight of molten metal and the weight of EPM(R) bases produced. Hence the absence of a weighbridge need not deter the Railway Administration from controlling the bad castings. Moreover, the workshop has admitted to maintaining the log book which obviously means that weighment was possible.

### **3.12.2 Under-utilisation of Cupola**

The foundry shop has one cupola. The day when the cupola is fired, the Railway Administration is able to produce four tonnes of molten metal. Assuming four tonnes per day and cupola being fired on every alternate day, the capacity of cupola works out to 730 tonnes per annum. Audit noticed that the actual outturn of cupola during this period had been about 386 tonnes per annum. Thus, the foundry shop was under-utilised to the extent of about 47 per cent although there were pending indents for manufacture of EPM-R. It was also observed that the signal workshop procured EPM bases from open market for Rs.30 lakh during last two years which could have been avoided had the cupola been used to its capacity.

The Railway Administration stated (October 2004) that only two heats per week is technically possible and efficiency of Cupola is 30 to 50 per cent only. This contention is not tenable in audit in the absence of any technical data furnished by the Railway Administration. The audit point is related to the use of Cupola and not to its efficiency.

### **3.13 Non-disposal of non-moving items**

It was noticed that 340 non-moving items have been lying in the workshop since long. Some of these items have not been issued since 1989. The Production Engineer stated that most of these materials were transferred from Diesel Shed, Kanpur Anwarganj.

The existence of such balances in the form of dead stock had led to accumulation of stores worth more than Rs. 25 lakh. Decay/ pilferage of such stores could not be ruled out.

The Railway Administration accepted the facts and stated (October 2004) that action for disposal of these items is being taken by a three member committee.

### **3.14 Labour productivity**

Time office of a Railway Workshop is responsible for maintaining the initial records of attendance, which eventually form the basis for payment of wages. The 'In' and 'Out' attendance of workshop labour at the workshop gate is controlled by a Time Stamping Clock. The 'In' and 'Out' time of the labour at the shop floor is controlled by the Chargeman's Time Book. An Absentee Statement of workers is prepared after reconciliation of time stamped by the Clock and the time recorded in the Chargeman's Time Book on the shop floor.

The time stamping clock had not been operational for more than six years. The 'In' and 'Out' timing on workers' Gate Attendance Cards was, therefore, being marked manually by Time Clerks. The Railway Administration has, however, not been reconciling the two separate records and preparing the labour pay sheets based on the 'In' and 'Out' time sheets maintained in the shops.

Clerks Train Ticket (CTT) have been issued to 22 per cent of the workmen. These workmen are coming by trains. Based on a test check of data for the month of July 2004, it was seen by Audit that nine per cent of the man hours



available were lost due to late attendance of the workmen on account of late arrival of trains. Assuming a similar pattern for all working days of the review period, audit assessed a loss of 2,03,906 man hours during the review period. Since the late attendance as shown in the time sheets was not taken into account while preparing the wage sheet, workmen were paid Rs.1.65 crore for the man hours not spent on duty.

There is, therefore a need to make the time clock functional, relate the time sheets to wage sheets, fix productivity norms for workmen to ensure that they are paid wages according to their productivity and time spent on duty.

The Railway Administration stated (October 2004) that a computerised system of stamping time had already been sanctioned and is under process of being procured. Also, all efforts would be made to minimise the idle time.

### **3.15 Lack of efforts for quality-certification under ISO-9000**

The Railway Board stressed upon (July 1992) the need to implement ISO-9000 certification in the Signal Workshop at Gorakhpur and Podanur. Later, it was made mandatory (August 2001). While Signal Workshop, Podanur obtained ISO-9000 certificate in 1998 for “Q” series Relays and in 2001 for High Thrust Point Machines. Signal Workshop, Gorakhpur is yet to obtain that certification (September 2004).

Infact, the Railway Administration was never serious about ISO certification. They floated a limited tender in June 2002 for obtaining consultancy services under ISO 9002. The tender was scheduled to be opened on 25 June 2002. The Tender Committee, however, met on 17 August 2001 to open the tenders after about one year. On scrutiny of tender offers, it was noticed that the offered rates were for consultancy of ISO 9001-2000. All the offers were rejected on the ground that the offered rates were for consultancy of ISO 9001-2000 whereas the advertisement had been made for ISO 9002. The Railway Administration cancelled the tender and proposed to invite fresh tenders for ISO 9001-2000. The fresh tenders are yet to be invited (June 2004).

The Railway Administration stated (October 2004) that the matter was under process.

### **3.16 Conclusion**

The working of the workshop left much to be desired. The accounts and requisite records were either not being maintained or being maintained casually and improperly. Pricing was being done arbitrarily without any regard, whatsoever, for cost of production. Products were being sold at prices much lower than the costs of production. The capacity of Cupola was underutilised. There was absence of managerial will to ensure quality and productivity as would be evident from the Time Stamping Clock not having been repaired/ replaced for more than six years and inaction in obtaining certification under ISO-9000.

### **3.17 Recommendations**

- The maintenance/ reconciliation of records and costing procedure should be observed as per codal provisions and cost of production fixed based on actual expenditure.
- Old diehard balances in the Workshop Manufacturing Suspense Account should be written off and the balances relating to unfinished products/ finished products awaiting adjustments only carried forward so that the Account can be maintained and reviewed as per codal provisions at least from the ensuing financial year of 2005-06.
- The high incidence of unaccounted labour hours should be checked. The Time Sheet and Labour Pay Sheet should be as per time recorded in the time attendance sheets maintained in the shops. The time stamping clocks, not functioning for more than six years, should be replaced or repaired immediately.
- The efforts for getting ISO Certification, which has been delayed for long, should be stepped up so that financial discipline and a proper work culture is brought about and inefficiencies eliminated.