

# Costing in Workshops

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### **601. Introduction**

Costing is the process of classifying, recording and ensuring appropriate allocation of expenditure so as to accurately arrive at the cost of the final product or service of a workshop or production unit. Costing of each and every activity will help the workshop to measure its efficiency and improve it. A proper costing system will inculcate the habit of working out viability of a product or service before taking decisions on producing it or buying it.

### **602. Costing in Workshops of Indian Railways**

The basic purpose of costing in Railway workshops is to arrive at the Total Cost of Ownership of each item of rolling stock so that replacement decisions can be made on a rational and scientific basis. This process can be more effective only after the introduction of ERP (Enterprise Resource Planning) systems in all the workshops of IR. In order to enable introduction of ERP, Railway Board as well as Zonal Railways must digitise on a data base details of all assets right from the time of proposal for acquisition till their condemnation. Details of every expenditure on maintaining each asset of the unit must be available on the system. Till ERP is fully introduced in all the railways, cost of repair of rolling stock will be worked out as described in the following paragraphs.

**603.** The system of costing will differ depending on the nature of work carried out in workshops. The systems to be adopted in Railway workshops are Process Costing System (for Foundry Accounts & similar activities), Job Costing System, (For Shop manufactured items), Batch Costing System (for Rolling stock production) and Revised Costing system (for arriving at Unit Repair Cost (URC) of Rolling stock given POH). Process Costing system and Batch Costing system are fully explained in chapter 3 and are applicable to workshops engaged in production of rolling stock and also undertaking Foundry activities. Job Costing system and Revised Costing System are explained in the following paragraphs.

### **604. Job Costing System**

This system will be followed by all the workshops engaged in manufacture of spare parts required during POH of Rolling Stock in Indian Railways. This system is used to arrive at unit rate of manufacture in respect of shop-manufactured items. The technique of Standard Costing is applied in this system and the expenditures are collected element wise under the respective work order and the exact cost per unit is arrived at. The actual cost so arrived at is compared with the standard already set for material and labour. However, these items are manufactured for internal consumption only. Under this system, the expenditure for each specified item of manufacture is collected under one Work Order and on completion of ordered quantity the Final Completion Advice (FCA) is sent to Costing section for generation of Cost sheet and arriving at unit rate of manufacture item wise.

### **605. Features of Job Costing System**

- a For each item of manufacture there is Allowed time against each process of work.
- b Standard quantity of raw material to be drawn with the specification is also given.
- c The unit cost of manufacture is arrived from cost sheet for the particular work order wherein, all elements of cost are charged to that work order.
- d Total cost divided by the quantity completed for that work order will give the unit cost of item manufactured.
- e The standard fixed helps comparison of unit cost with other shops or with trade cost.

### **606. Planning**

When a new standard part is to be manufactured for stock purposes, the drawing as finally approved should be sent to the Workshop Production Office where the following procedure should be adopted by the Planner and Rate Fixer, working under the supervision of the Production Engineer.

- a. The number of parts to be manufactured should be decided.
- b. The drawing should be examined to see if there are any alterations required to design, in order to reduce the cost of production
- c. When parts are made from castings, it should be decided whether the moulds are to be made on a Moulding Machine or by hand.
- d. The Section and length of material, required for making one part should be recorded (This applies to parts not made from castings).
- e. The details of various operations and types of machines, on which the parts are to be made, should be set out, estimated times being fixed for each operation on the best data either available or obtained for the purpose.
- f. The jigs, fixtures or special tools required should be decided on. Particulars of jigs and tools required should be passed to the Jig and Tool Drawing Office, who should prepare the necessary drawings. The layout of operations together with particulars of jigs to be used and lists of material required should be passed on to the Progress Office.

**607.** The Progress Office should then issue pattern requisition and prepare process sheets described in para 608.

### **608. Process Sheets**

Process Sheet in Form No. M.608 is compiled by the Planner who first enters the usual information in the different cages on the heading portion. The planner then details the operations required to manufacture components/assembly in their sequence. Against each operation, in the appropriate columns, he enters the operation number, the Shop number and the Section in which the operation is to be done and the code of the machine on which the operation will be performed.

- a The Operation is briefly but precisely stated. The Process Sheet is checked by the in charge, Processing Section and initialled in token of his approval. It is, thereafter forwarded to the Rate Fixing Section. The Rate Fixer fills in the

necessary information regarding PA and AT( Preparatory Allowance and Allowed Time) in the appropriate columns.

- b Process Sheet is the basic record. It is filed in the Planning Office. Whenever any change in the process is decided, it is noted on the back of the relevant Process Sheet indicating the authority and the reasons for the change. Each alteration is initialled by the Incharge, Processing Section in token of its record. All alterations to processes are advised to the Rate Fixing Section. The process sheet and other production documents will be printed through the computer.

**Form M 608**

PROCESS SHEET

Control Work order No	Set Nos.	<u>DATE REQD.</u> LATEST STARTING DATE	
Sub-Work Order	Name of Part	NQ/Set	Batch No.
Component of	Drawing No.	Priority	

MATL. SPECN: MATERIAL SIZE & LENGTH/PIECE

Route	Delivery to	Kgs.		
Dept.	M/C Class	Operation	Time	No. off.

**609. Revision of Control Work Order Series**

The series of the control work orders should be revised after every half year and all cases of sub-work orders remaining incomplete for more than 3 months after the old series has been revised should be listed by the job costing section and reported to the Works Manager for taking special steps for their completion.

**610. Recoupment of Stock**

All orders for newly designed parts, that have not previously been stocked, should emanate from the Progress Office. When a part becomes a stock, item, the Officer-in-charge of the Workshop Stores should be made responsible for arranging for recoupment as soon as the stock reaches the fixed minimum. A computerised requisition for such recoupment should be placed by the Stores Depot in duplicate in an appropriate form.

### **611. Issue of Production Documents**

**Job Card (Normal Production Work):** The time worked by workmen (other than squads) on individual operations is booked on this card. Computerised Job cards are printed by the Production Control separately for each operation indicated on the Route Card and sent direct to the shop concerned simultaneously when the Route Card and other forms are handed over to the Stage Progress Section. When a job is taken up the operator punches 'ON' (the time of commencement) the job card with the aid of the Time Clock installed beside the Time Booth. Similarly, when the job is finished the operation punches 'OFF' time on the Job Card. The time taken by the operator for each date, the operation remained in progress, is recorded by the Time Booth Clerk in the columns provided for this purpose on the reverse of the Job Card. On completion of the operation, the Job Card is passed on to the shop Inspector for certifying the quantity passed. On receipt back in the Time Booth the Card is passed on to the Incentive Bonus Section of the Workshop Accounts Office.

**Job Card (Replacement Work):** This document is exactly the same as the form the Job Card (Normal Production Work) except that its use is confined to the "replacement" work and is in pink colour for easy identification.

**Job Card for squad work.**—This card will be used for each of the workmen (including the leading hand) handling the operation covered by the squad summary card. Sufficient number of such blank Cards will be supplied to the shop in charge. At the time of starting the job, the supervisor will enter the Ticket No. of the leading hand on the squad summary card and hand it over to the leading hand along with a separate job card for him and for each man in the gang, duly filled in, in respect of Ticket No. category, work order number and operation No. and signed by the supervisors concerned. The leading hand will punch 'on' the squad summary card and the job-cards of the men in the gang and hand over all the punched on cards to the Time Booth.

**Squad Summary Card.**—Squad summary card will be used for consolidating the labour hours of men employed on squad work. One such card is supplied for squad work of each operation of the work order, to the shop supervisor. This card is punched 'on' by the leading hand at the time of starting the job and punched 'off' by him again on its completion.

**Proceeding Time Card.**—In respect of jobs are which remain in complete during the month, the time put in during the month is transcribed by the Time-clerk in the "Proceeding Time Cards" showing, Ticket No. work order No. and the hourly rate for costing. Such cards are sent to the costing section. A note of the proceeding time is also kept in the original job card against the space provided for this purpose. The proceeding time cards also given a distinct serial number each month by each time booth. The arrangement of Proceeding Time Cards will however, not be required to be followed where compilation of workshop Manufacture Suspense Account has not been mechanized as the accounts will continue to be compiled under the head - and hand method by making use of the Time sheets/tally sheets.

**Material Requisition:** This form serves as an authority for the Shop Superintendent to draw material as specified therein for manufacture of components etc. against a specific work order, etc. This form is printed through computer shows all particulars as shown on the top portion of the Route Card. Necessary cages are provided on the reverse of the form for the particulars and the value of the material issued. The number of copies of Material Requisition to be prepared should be settled in consultation with the FA & CAO/in accordance with the Stores code.

**Form M.611A**

**MATERIAL REQUISITION**

Control Work Order No.		Quality On Order	Date Required	Requisition No.	Shop	
			Latest Starting Date	Requisition Forwarded		
				Date	Signature	
Sub-Work Order		Name of Part	Material Issued			
			Date		Signature	
Component of		Drawing No.	Priority	Material Received		
				Date	Signature	
Material Specification		Material Length/Piece	Size &	Recorded		
				Date	Signature	
Route	Delivery To		Kgs			
Issue Note No. ....			Dated .....		P.L.No. ....	
Value	Price	Proof	Class of Store	Qty.	Demanded	Qty Issued

Depot Closing Balance -----	Quantity .....
	Date .....
	Signature .....

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**Material Requisition (Replacement):** This form is the same as that of the Material Requisition for production work except that its use is confined to replacement work duly authenticated by appropriate rejection advice. This form is issued in pink colour for easy identification.

**Form M 611B**

**MATERIAL REQUISITION REPLACEMENT WORK**

Control Work Order No.	Quality On Order	Date Required	Requisition No.	Shop
		Latest Starting Date	Requisition Forwarded	
			Date	Signature
Sub-Work Order	Name of Part	Material Issued		
		Date	Signature	
Component of	Drawing No.	Priority	Material Received	
			Date	Signature
Material Specification	Material Size & Length/Piece		Recorded	
			Date	Signature
Route	Delivery To	Kgs		
Class of Stores .....		P.L. No. ....		
		Kgs	Rate	Unit
			Value (Rs)	Clsing Balance

Quantity Demanded .....					
Quantity Issued .....					

**Material Tag :** This form is printed through computer and remains tagged with the material right from the time the raw material is drawn till the component/assembly is delivered to the Stores Department so as to identify the sub-work order to which it relates.

**Form- M.611C**

**MATERIAL TAG**

Control Work Order No.	Quality On Order	Date Required	THIS LABEL MUST STAY WITH WORK		
Sub-Work Order		Name of Part			
Component of		Drawing No.	Priority		
Material Specification			Material Size & Length/Piece		
Route		Delivery To		Kgs	
Receipt Note No. ....			Dated .....		
Value (Rs)	Price	Proof	Class of Store	Qty Ordered	Qty Received
Depot Closing Balance .....			Quantity .....		
			Date .....		
			Signature .....		

**Material Tag (Replacement Form):** This form is same as of the material tag for ordinary production work except that its use is confined to replacement work. This form is issued in pink colour for easy identification.



**Form M.611D**

**MATERIAL TAG REPLACEMENT WORK**

Control Work Order No.	Quality On Order	Date Required	
		Latest Starting Date	
Sub-Work Order	Name of Part	THIS LABEL MUST STAY WITH WORK	
Component of	Drawing No.	Priority	
Material Specification		Material Size & Length/Piece	
Route	Delivery To	Kgs	

**612. Route Card**

The route card which shall be in Form M. 712 is the authority for the shops to undertake manufacture of the component/assembly for which it is issued. This is an exact replica of the Process Sheet (Form M. 708) with adequate space provided for the inspection staff to record the results of inspection or checking on completion of each operation. The Route Card is issued by the Production Control (through the Progress Office) to the Shop initiating manufacture and thereafter it accompanies the material till its delivery to Stores on completion of all operations. The Stores Depot acknowledges, on the Route Card, receipt of the component/assembly sent to the Depot from the Shops in the case of shop manufactured items. The Shop in charge thereafter passes on the Route Card to the Progress Office. The Progress Office sorts out the Route Cards by different Control work orders after scrutinising that necessary references of material requisitions and piecework Job Cards have been entered therein and forwards the Route Cards to the Job Costing Section of the Workshop Accounts Office. Normally, only one Route Card is issued to cover the number of components/assembly on outer against a sub-work order.

**Form M 612 ROUTE CARD**

Control Order No.	Work	Quantity on order	Date Reqd.	Requisition No. Shop		
			Latest starting date	Requisition Forwarded		
				Date	Signature	
Sub-work order	Name of part	Material Issued				
		Date	Signature			
Component of	Drawing No.	Priority	Material Received			
			Date	Signature		
Matle. Specn.	Material length/piece	size	and	Posted		
				Date	Signature	
Route	Delivery to	Kgs .	Qty. produced	Qty. Passed	REJECT S	Inspectors Signature
					Mat.	
Dept.	M/C Class	Operation		Time	No. off.	

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Note: Operating Times and Prices given are "for each" unless otherwise stated.

## Reverse of Form M. 612

Class of Stores			P. L. No.		
Qty. Demanded	Kgs.	Rate	Unit	Value	Closing Balance
Qty. Issued					

### **613. Work order System in Workshops**

The work order should be so designed to capture the related expenditure of a particular job and this eight digit Work order on sight should also convey the purpose/ details for which it is undertaken. At any given point of time the work order should depict the clear picture of expenditure booked and outturn achieved. This system has been elaborated in Chapter VIII.

**614.** Any product or service undertaken needs to be financially viable, economically and socially workable. For this purpose the costs are basically bifurcated into Prime Costs (consisting of Direct labour and Direct material) and Overheads or On costs (consisting of Indirect labour and Indirect material). The proportion of each of these three basic elements of costs viz, Direct labour, Direct material and Overheads to the total cost of the product or service will highlight the essentiality of that element to the final product or service. This basic analysis will help the workshop identify the areas so as to exercise control over expenditure. Various Elements of costs and their accountal is discussed in the following paragraphs.

### **615. Prime Cost**

Direct labour and Direct material which are essential and directly allocable to the final product or service are known as Prime costs. **Direct labor cost should include incentive bonus and overtime payment.** While booking the cost of direct materials, consumables that are expensive or used in substantial quantities must be included.

### **616. Direct Labour**

Direct labour hours should be captured from the job cards or squad cards for the respective work order. In the Workshop General Register and Labour Sub ledger the Direct labour hours so captured may be multiplied by the Average Hourly Rate which is to be computed on monthly basis so as to reflect the labour payment of that particular month. Since the work shop payment data is ready immediately with technical advancement, same month's data should be utilized for computation of Average Hourly Rate. The capturing of labour hours work order wise on day to day basis, arriving at the total hours on the date of closure of job cards should be directly captured by the computers. Write Back Order in respect of labour booking will not

under any circumstances be permitted. Such a system should be implementable after installation of ERP in workshops/PUs.

### **617. Direct Material/Stores**

Issue note is the basic record for drawal of stores. The stores drawal must be commensurate with the physical outturn ensuring minimum shop floor inventory. It is possible to indent for the combined quantity where material is common for more than one activity (eg.) Material may be common for POH of Passenger Coaching Vehicles and POH cum Corrosion of Passenger Coaching Vehicles and POH of Other Coaching Vehicles or even Wagon POH in the same workshop. However, at the time of preparation of issue note, Write Back Orders to the respective Head of allocation should also be prepared simultaneously to ensure correct booking to the respective work. The quantity drawn is multiplied by the Book Average Rate already available in the system P L number-wise in respect of Stock items to arrive at material cost in respect of Stocked items. In respect of Non Stock items the input is given by Workshop Accounts office consignee wise (shop wise) and the material cost is incorporated in the Workshop general register (**WGR**) for the respective Head of allocation. On any account WISE (Workshop Information System) should be linked to MMIS (Material management Information System) to clearly record the stores drawn by workshops. Until implementation of Rolling stock wise costing, the common material for coach and wagon POH can be allowed to be drawn against one work order. However, later the same may be written back to the respective work based on the material issued.

### **618. Accountal of Material cost for costing data**

The generation of costing data will be based on consumption of materials and the input regarding consumption of material (stock, Non stock as well as consumables that are expensive or used in substantial quantities) for type wise rolling Stock should be supplied by shop floor and the same is to be averaged amongst the number of rolling stock turned out in that particular type for Group A cost of material, and any specific material used for any individual rolling stock is to be booked to that rolling stock. Wherever the cost of high value consumables can be directly identified with the work should be allocated directly to that work.

### **619. Overheads/ on costs**

The expenditure required to be incurred for completion of a product or service but, which cannot be directly allocated to the product or service and can only be apportioned on some logical basis is known as overheads. In Railway workshops, On-costs may be classified in to Shop on cost (comprising of Labor and Material), General On cost (comprising of Labor and Material) and Administrative On costs.

### **620. Shop & General On Costs**

**a. Shop On Cost:** Shop On Cost includes all on cost incurred within an accounting unit, such as a shop or a department or a section. The following are examples of such On Cost:

- i. Wages, overtime etc. of workshop apprentices attached to particular shops, JEs, unskilled labour except when employed as direct labour tally men, storemen, and of shop clerks

Note: Expenditure on clerks who are working on the shop floor but are responsible for Time-Keeping and Time Booking functions under control of the Accounts department, will continue to be charged to final heads of account under the Rev. Abstracts concerned.

- ii. Leave pay, idle time, sick hurt and holiday pay, travelling allowances and arrear pay, and pay allowed to men on volunteer duty or part-taking in sports.
- iii. Shop scrap (credit) i.e. scrap which cannot be allocated to jobs.
- iv. Stationery and forms used in shops.
- v. Defective and spoilt work, in the case of experimental work.
- vi. Power chargers, whether electric pneumatic, gas or hydraulic which can be directly allocated to shops.
- vii. Wages of operators of automatic machines, not otherwise allocated.
- viii. Wages, overtime etc. of men employed on mechanical transport in the shop.
- ix. Wages, overtime etc. of all general labour in shops including those employed on transport.
- x. Hammer driving in shops.
- xi. Small differences between muster rolls and time sheets (paragraph 520).
- xii. Consumable stores for shop use, such as
  - i. Oil for lubrication of machinery and shafting oil and waste for cleaning machines.
  - ii. Sponges, emery and glass cloths, soap, pumice, acid, glue and chamois leather.
- xiii. Charges for coal and coke in the smithies.
- xiv. Lighting charges in shops.
- xv. Fine creditable to works.
- xvi. Suspension allowances.
- xvii. Wages etc. of shop messengers.
- xviii. Working expenses of crane and shunting engines, lorries, autotrucks, traversers etc. which can be charged to shop on cost.
- xix. Small tools for shop use.

**b. General On Cost:** General On Cost denotes all On Costs other than Pro Forma On Cost/Administrative On Cost that is incurred in common with more than one shop or department within a workshop. General On Cost will include:

- i. Leave, sick, hurt and holiday pay paid to workshop employees whose wages are not charged to shops, such as the yard establishments.
- ii. Wages, overtime etc. of staff, such as the workshop apprentices, tool keepers, not attached shops.
- iii. Freight charges that cannot be directly allocated to jobs.
- iv. Electrical power, which it is not possible to allocate to shops.
- v. Hydraulic and pneumatic power and gas that cannot be allocated to shops.
- vi. Wages paid in lieu of notice to workshop staff not charged to shops.
- vii. Replacement of articles stolen or lost.
- viii. Expenditure on apprentices' school and hostel (Net).
- ix. Working expenses of crane and shunting engines, lorries, autotrucks, traversers etc., provided for the use of the workshop when not chargeable to Shop on cost.
- x. Working expenses of central works pumping plant.

- xi. Experimental work, when not more appropriately charged directly to the job itself.
- xii. Water charges that cannot be allocated to shops.
- xiii. Wages, overtime etc. of general labour in yards and shunters.
- xiv. Sanitary arrangements in workshops.
- xv. Messengers' wages, uniforms etc. when not allocable to shops.
- xvi. Consumable stores for general use not allocable to shops.
- xvii. Maintenance of mess rooms.
- xviii. Yard lighting.

The above list is only illustrative and not exhaustive. Chief Workshop Manager of every workshop will arrange to issue in consultation with associated finance fresh work orders for on-cost required for their workshops and the same should be reviewed once in 5 years. These on-cost expenditures are to be charged to various works undertaken in the respective shop and general on cost are common to workshop as a whole. On costs are always expressed and levied as a percentage of Direct labour including incentive Bonus and overtime paid in that work order.

**Standing Work Orders for General On Cost:** The expenditure chargeable to General On Cost, that is actually incurred, will be booked understanding work orders for such On Cost separately under labour and materials, the wages of workmen being booked as "General On Cost (labour)" and the remaining as "General On Cost (materials)". The number of such work orders should be sufficient to yield at least the following analysis of such expenditure.

- a. Cost of operating general plant and equipment (labour and materials).
- b. Yard lighting (materials).
- c. Yard staff wages including wages of collies (labour).
- d. Leave, sick hurt, holiday and notice pay of men whose wages are not charged to shops, such as (3) above (labour).
- e. Wages, overtime & c. of apprentices not working in shops (labour) and the net expenditure on their school, hostel, & c. (materials.)
- f. Freight bills which cannot be conveniently allocated to specific work orders (materials).
- g. Cost of consumable stores for general use not allocable to shop oncost (materials).
- h. Other items of general Oncost (labour and materials).

**Standing Work Orders for Shop On cost:** The expenditure on labour and materials of the nature of on cost actually incurred in individual shops should be collected under a sufficient number of standing work orders, separately under "labour" and "materials" as in the case of general on cost. The following work orders provide the minimum analysis considered essential:

- a. Wages, overtime, & c. of chargemen, mistries, unskilled labour except when employed as direct labour, tallymen, storemen, shop clerks, messengers, beltlers, oilers and other such labour (labour).
- b. Leave pay, idle tme, holiday pay, & c. (labour).
- c. Defective and spoilt work in the case of experimental works (labour and materials).
- d. Power and lighting including coal and coke (materials).
- e. Loose tools and hand machine tools (materials).
- f. Shop scrap, i.e. scrap which cannot be allocated to jobs (materials).

- g. Consumable stores, such as oil, waste, & c. (materials).
- h. Furniture and sundries (materials).
- i. Other items of shop Oncost (labour and materials).

**621.** Annual Budgeting for on costs is necessary since large payments to employees like Productivity Linked Bonus, DA Arrears etc. are paid once or twice a year but these on costs are to be recovered throughout the year. The on-cost budget should be prepared taking into account the probable outlay on indirect and direct expenditure during the ensuing financial year. As the actual on cost will be collected under On cost work order and the same will be recovered at predetermined rates on Direct labour including incentive and over time payment, effort must be made to recover the maximum possible amount.

### **622. Quarterly Review of on-costs**

A review of efficiency of overhead percentages should be made quarterly with reference to total actual expenditure incurred vis-à-vis that recovered at the overhead percentages. A comparison of these actual overheads with recoveries made through estimated percentages will reflect over/under charges for the month under different overheads. If these are found unduly large, the percentages are revised without waiting for the Annual On cost Budget so as to minimize the difference between the actual and the predetermined percentage. The Under / Over charges at the end of the year should be less than 5% so as to make On cost budget realistic and the same must be cleared through the final Heads before the end of the Financial Year.

**Senior scale/JA grade executive officer in charge of Production Control Organization should review the trend of on-cost budget every quarter, jointly with workshop Accounts Officer. The outcome of this review in the form of management summary shall bring to the knowledge of Chief Workshop Manager for the management review and 'on-cost' control exercise.**

**623.** Direct Labor, Direct material, Shop On cost and General On cost need to be charged to all types of works executed at workshop irrespective of their nature. Proforma on cost and other charges will be charged as a percentage of direct labour (including incentive & Over Time Payment) labour on cost to be charged only for works of Rebuilding/modification under RSP as well as works of repair/rebuilding/rehabilitation done for outsiders. Method of charging of various elements forming part of proforma on cost to be done based on an annual budgeting exercise as given below in a tabular form. Explanation on proforma oncost budgeting can be seen in chapter 8. Profit will also be charged for work done for outsiders, based on the prevailing instructions. In order to be competitive in works done for outsiders, the General Manager of a zonal Railway shall with the concurrence of FA & CAO have the power to reduce the quantum of Proforma on cost and or profit either wholly or in part in accordance with special instructions in vogue. It should be examined whether Railway gains any advantage, financial or otherwise, by the remission and the fact that the Railway did not actually incur any identifiable overhead charges should not by itself be treated as necessary and sufficient reason for foregoing the recovery of such oncost. The following table shows the details of recovery of costs.

**Table**

<b>Sl.No.</b>	<b>Cost elements</b>	<b>Revenue works</b>	<b>Rehab/Modfn under RSP</b>	<b>Deposit works for outsiders</b>
<b>1.</b>	<b>Direct labour.</b>	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>
<b>2.</b>	<b>Direct Material.</b>	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>
<b>3.</b>	<b>Shop &amp; Genl labour on cost .</b>	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>
<b>4.</b>	<b>Shop &amp; Genl stores on cost.</b>	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>
<b>5.</b>	<b>Freight.</b>	<b>Nil</b>	<b>Yes</b>	<b>Yes</b>
<b>6.</b>	<b>Storage &amp; sup.</b>	<b>Nil</b>	<b>Nil</b>	<b>Yes</b>
<b>7.</b>	<b>Proforma oncost(PFOC)</b>			<b>Yes</b>
	<b>(a) Sup. at higher level.</b>	<b>Nil</b>	<b>Nil</b>	<b>Yes</b>
	<b>(b) PF &amp; Grat.</b>	<b>Nil</b>	<b>Yes</b>	<b>Yes</b>
	<b>(c) Repairs &amp; maint.</b>		<b>Yes</b>	<b>Yes</b>
	<b>(d) Interest.</b>	<b>Nil</b>	<b>Nil</b>	<b>Yes</b>
	<b>(e) Depreciation</b>		<b>Yes</b>	<b>Yes</b>
<b>8.</b>	<b>Profit.</b>	<b>Nil</b>	<b>Nil</b>	<b>Yes</b>
<b>9.</b>	<b>Contingencies</b>	<b>Nil</b>	<b>Yes</b>	<b>Yes</b>
<b>10.</b>	<b>Taxes</b>	<b>Nil</b>	<b>Nil</b>	<b>Yes</b>

*For manufacturing activities including rolling stock construction done under RSP/Capital/DRF for railways as well as for outsiders under Deposit by repair workshop, charging of overheads will be done in accordance with the relevant provisions in chapter 3 viz., 'Production Units'.*

#### **624. Costing of POH of Rolling Stock**

Importance of proper maintenance of rolling stock for providing safety and comfort to the Traveling Public is well recognised. The basic maintenance of coaches and wagons is done in workshops during periodical overhaul. It is, therefore, necessary that special efforts are made to ensure good workmanship and ensure quality of repair during POH in workshops so that the coaches give reliable service on line. Open line depots have been equipped for carrying out safety checks and maintenance of passenger amenities in coaches. Hence, it is reiterated that adoption of the right repair practices during POH in workshop is of paramount importance.

**625.** Variation of unit repair cost from work shop to workshop and also in the same workshop from quarter to quarter, differences with regard to classification of repair in Mechanical and Electrical departments have led to the necessity of streamlining the



booking of material and labor to POH, IOH and to other repairs. In the process of streamlining the following are to be ensured.

**Defining standard Allowed Time for POH based on**

- a. Must Change Items and Schedules of normal POH
- b. Condition of Rolling stock. Unscheduled repairs based on the condition of the rolling stock may be booked to Corrosion repair activity where separate work order exists to collect the expenditure under POH cum Corrosion activity.
- c. Cost of replacement of High value items

Para reference of respective Coach/ Wagon Maintenance Manual published by the Railway Board must also be given against each of the above classification. Similar standards must be prescribed for Mid Life Rehabilitation. (MLR).

- a. Existing procedure regarding collection of Expenditure for POH and POH cum corrosion may be continued as the same is in line with Finance code Vol.II
- b. Corrosion repair, though a part of POH should be collected separately and added to POH cum Corrosion activity.

**626.** The necessity of knowing the cost spent on each type of Rolling Stock has led to new system of arriving at POH unit cost per Coach, per Wagon and per Locomotive.: The Revised Costing system (RCS) which arrives at Unit Repair Cost of each Loco has already been implemented in all workshops in respect of POH of AC Locos and Diesel Locos in Indian Railways. Under this system, the bills to other zonal Railways are based on the Loco wise Unit Repair Cost generated under the system and transfers to Revenue in respect of POH to Home Railway Locos are also based on the Revised Costing system bills. This system is realistic as the actual labor and Material utilized per Loco along with Labor and Stores On cost is the transfer price. The salient features of Revised costing System are in Annexure-I.

**627.** Revised Costing System already implemented in electric and diesel Loco workshops of Indian Railways aims at arriving at loco wise costing wherein the POH ( Periodical over Haul) cost is grouped into three categories viz. Group A ( dealing with all scheduled repairs ie. POH: Group B (dealing with items changed/ replaced on condition basis) and Group C (cost of replacement of High value items). This is the only system where the cost of POH of Rolling stock based on the material consumption and not drawal. This system must be extended to coaches and Wagons after setting standards for POH of Coaches and Wagons.

**628.** The following steps must be taken by HOD incharge of workshop at HQ of a Railway along with respective CWMs of all workshops for introduction of Coach wise, wagon wise costing.

- a. Defining Must change items (with reference of Coach and Wagon Maintenance Manual) and categorizing them as Group A for type-wise Rolling stock.
- b. Identification of Cost Centers engaged in specific portion of POH activity
- c. Defining items to be replaced based on condition (with reference to Coach & Wagon Maintenance Manual) and categorizing the same as Group B.
- d. Listing some of the High value Items requiring to be replaced on necessity and branding the same as Group C along with a list of Capital Spares.

- e. Arriving at type wise Rolling stock cost data in time to prefer other Railway debits and also for Home Railway transfer to Revenue Demand.
- f. Ensuring proper linking of costing data with Financial Accounts.
- g. Creation of a network of computers so as to capture cost data on a real time basis at the shop floor itself.

### **629. Reconciliation and merger of Costing records with financial records**

All workshop expenditures are routed through Workshop Manufacturing Suspense and clearance of Workshop Manufacturing Suspense to various Final Heads should be on the basis on Costing data generated for type-wise Rolling Stock. All Budgetary Reviews should be based on the type wise cost of Rolling stock available as per Cost records. The Balance under WMS as at the end of the financial year should only reflect the value of work in progress to be completed in the ensuing month. Clearance or credits in respect of completed work for the financial year must be chased before the closure of March accounts to ensure minimum balance under WMS.

### **630. Managerial Statements**

An illustrative list of Managerial statements that should be prepared on the computer system for every workshop is given below. This can be abridged or elaborated based on local needs.

#### **1. Day End Reports To CWM**

- a. Percentage of absenteeism
- b. Total Gate Attendance Hours Vis-a-vis Job Card Hours
- c. Number of Rolling Stock attended on each bay
- d. Idle time booked with reasons, shop wise
- e. Reconciliation of Time Taken with Gate Attendance and reasons for variations.
- f. Urgent requirement of materials ( Both stock & non stock)

#### **2. Weekly Reports to CWM and CWE (items e & f)**

- a. Outturn of Rolling stock Type wise
- b. Labor hours spent on each type of Rolling Stock turned out during that week
- c. % of outturn achieved compared with the Target
- d. Over Time booked if any to meet the target
- e. Reason for slow or staggered working (if any) on account of want of material or otherwise.
- f. Position of Material availability to ensure smooth functioning in the ensuing week.

#### **3. Weekly Reports to CWE**

- a. % of outturn achieved compared with the Target
- b. Position of Material availability to ensure smooth functioning in the ensuing week.
- c. Any special problem faced by CWM.

#### **4. Monthly Reports to CME/CWE as part of MCDO**

- a. Outturn of Rolling stock item-wise and type-wise compared with the Target
- b. Unit Repair Cost of Rolling stock item-wise and type-wise compared with previous month's actual.

- c. Suggestions to overcome shortcomings experienced during the month under review.
- d. With a view to encourage Workers participation in Management suggestions from grass root level for system improvement may be called for, studied for feasibility and implement with due reward immediately.

***a and b of monthly reports may be utilized by Railway Board to fix the annual targets and fix transfer price for POH.***

## **5. Quarterly Report**

- a. On Cost review done by executive and workshop account officer

Based on the above list, CWM of every Workshop should decide in consultation with FA&CAO (S&W), CMM, and executive Departmental officers, the formats of statements needed for Managerial control according to their local needs and get them incorporated in the Management Information/ERP system. These would be reviewed periodically by concerned PHOD and should also be discussed in the General Manager's meeting with PHODs. There should be a constant endeavor to reduce costs without compromising quality.

### ***631. Use of costing data***

The practice of incremental budgeting must be dispensed with and the Budget Estimates should be proportionate to the physical outturn projected during the various Budgetary Reviews. The Budgetary Reviews submitted by workshop should be based on the costing data for type wise rolling stock.

**Revised Costing System**

This system of costing contemplated by RITES aims at arriving at the POH cost incurred per loco. This is the only system available to arrive at unit repair cost in respect of major repair activity.

**FEATURES:**

1. The cost incurred is divided into three categories viz. Group 'A', group 'B' & group 'C'.
2. Group 'A' cost is the usual scheduled repair to be attended to in respect of all locos and hence the total cost incurred under this group is averaged amongst the locos turned out during that month.
3. Each group is divided into various cost centers based on work and the cost will be collected cost centre wise.
4. Group 'B' cost is cost incurred on each loco based on the condition of individual loco.
5. Under this group 'B' additional expenditure on account of 6P/ABC/DBC/spl etc. are brought in to account.
6. Group 'C' cost will reflect the high value items replaced in respect of individual loco turned out during the month.
7. All expenditure booked cost centre wise are apportioned to the locos turned out during the month based on standard p d ratio(based on equated output)
8. The greatest advantage of this system is that the stores cost is based on consumption and not drawal.
9. This enables comparison of unit repair cost of locos every month.
10. For comparison purpose, only group A cost is taken as standard POH cost.

This system helps in identifying the excess drawl of material against LOCO POH as the consumption alone is accounted in the bills.