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**401. Introduction**

With the avowed objective of improving productivity in workshops, the Railway Board took a decision to introduce some form of incentive scheme in 1949. The first formal incentive scheme was introduced in Chittaranjan Locomotive Works in December 1954. The initial success of the scheme known as "payment by results" manifested in extending it to other Repair Workshops and Integral Coach Factory. The salient features of the incentive scheme are discussed in paras 402.

**402. Features of the Chittaranjan Scheme**

a) The workers in an incentive shop are classified as Direct, Essentially Indirect and Indirect Workers:
   i. Direct workers are those engaged in work, whose quantum can be assessed through time studies.
   ii. Essential Indirect workers are those who contributed to the continuity of the work and whose services are essential but whose work cannot be assessed through time studies. Supervisors up to the rank of Charge man are also included in this category.
   iii. Indirect workers are those who are provided for cleaning etc. do not contribute directly or indirectly to production and do not earn any incentive bonus.
   iv. Apprentices are not eligible to participate in the incentive bonus scheme.

b) Basic wage is guaranteed to all the workers.

c) Time is the yardstick for measuring work. The various operations in the workshops are subjected to time study in accordance with the standard practices of work measurement.

d) The allowed time is so fixed that a workman of normal ability may earn 33\(\frac{1}{3}\)% bonus over and above his basic wages in respect of period spent on piece-work jobs.

e) This allowed time includes all allowances such as fatigue, general handling, gauging (as relevant) and production bonus allowance.
   i. General handling & contingencies: allowance up to 10% or as advised by board time to time is given.
   ii. Gauging allowance: allowance up to 5% or as advised by the board time to time is given.
   iii. Fatigue allowance: allowance up to 12.5% or as advised by the board time to time is given.

f) The allowances are built up cumulatively and works out to 65 to 73 % of the time taken by the workman of normal ability as seen from the table below:

<table>
<thead>
<tr>
<th>Chittaranjan scheme Visa-vis ILO</th>
<th>Normalized time of an 80 rating person</th>
<th>Built in bonus %</th>
<th>Contin-gency %</th>
<th>Fatigue %</th>
<th>Gaug-ing, if applicable %</th>
<th>AT reducti on by RB in %</th>
<th>Total W/out Gaug-ing Hrs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Original 1954 scheme</td>
<td>100 hrs</td>
<td>33.33</td>
<td>12.5</td>
<td>25</td>
<td>5</td>
<td></td>
<td>187</td>
</tr>
<tr>
<td>Modified in Year 1999</td>
<td>100 hrs</td>
<td>33.33</td>
<td>10</td>
<td>12.5</td>
<td>5</td>
<td></td>
<td>165</td>
</tr>
</tbody>
</table>
g) The ceiling limit of profit is fixed at 50%, of the time taken in each of the operations/GA hours.

403. **Prerequisites for introduction of Incentive Scheme**

The proposal to bring the direct workers, essentially indirect workers and staff of service shops under the coverage of Incentive Scheme shall be dealt with on the basis indicated in the broad guidelines laid down by the Railway Board from time to time and shall be sanctioned by the General Managers under their own powers. Following points are kept in view while introducing incentive scheme in shops/sections of a workshop:

- Whether a list of items to be manufactured or repaired in the section/shop in which incentive scheme is proposed to be introduced has been prepared.
- Whether adequate load to meet the increased capacity generated as a result of introduction of Incentive scheme has been ensured.
- Whether proper computation and the time studies have been carried out.
- Whether allowed time have been approved by the Production Engineer/Works Manager.
- Whether quota cards have been introduced and the allowed time established before any system of payment by results can be introduced, the allowed times computed from basic data should be checked to see that they compare favorably with those actually required to carry out the job.
- Whether the strength and categories of indirect workers including those declared essentially indirect have been fixed as a result of proper analysis and approved by Chief Mechanical Engineer.
- Whether the strength and categories of staff of direct workers have been determined with reference to the workload on the different load centers and sections. The No. of effective hours available per shift per month will be taken as 200 and with the addition of 33-1/3% representing the average efficiency under incentive scheme, 267 man hours per man per month shall be the basis for working out the number of direct workers.
- Whether the number of supervisors has been determined according to actual need keeping in view the supervisory ratio authorized by Railway Board from time to time.
- Whether regular supply of raw materials has been ensured. Also whether arrangements have been made with the stores departments for their reservation before the release of work orders.
- Whether a system of periodical oiling of machines tools and plants and other preventive maintenance measures have been introduced.
- Whether a proper system of inspection has been introduced.
- Whether action has been taken to introduce biometric punching of entry and exit.
- Whether production forms on the Chittaranjan Locomotives Works pattern have been introduced.
- Whether computers for making production documents are in place.
404. **Allowed Time**

This is assessed on the assumption that under non-incentive conditions, an average employee will work at a rating of 60 units. The same worker while working under incentive conditions would be expected to improve his rating to 80 units i.e. 33-1/3% more. It is expected that an average worker would complete an operation in 3/4 of the allowed time. The time saved/lost on the time allowed in each operation is calculated separately for each worker and the gain/loss can not be carried over to the next month. The ceiling limit of profit is fixed at 50%, of the time taken in each of the operation.

Allowed time of elemental activities should not be stagnant for more than five years. Allowed time for elemental activities has to be reviewed at least every five years by work study, in CLW pattern as well as in Group Incentive Scheme, taking into account the changes in process, inputs of M&P & materials as well as the effect of learning due to expiring gained.

405. **Timing of Operation**

The only positive check on the efficiency of labor is the systematic comparison of time taken for a known job with that allowed for it careful experimentation, the conditions of work such as speeds and feeds, quality of material, promptness of supply services, being all sufficiently fixed and standardized so as to enable just comparison being made. Time standards should be fixed for individual operation on or with the aid of particular machines and materials and the time taken by individual worker should be carefully recorded before it is decided whether the required standard of efficiency has been attained.

406. **Time Study**

The system envisages fixation of time standards for each operation, through a time study to determine the time necessary to carry out a given activity as accurately as possible from a limited number of observations, at a defined standard of performance. Before starting a time study it is necessary to undertake method study and work-simplification. The time Study is the detailed record of series of events on a floor cycle, which accounts for all elements of work both effective and ineffective idle time (during which man, machine or both are idle), the effective time having been rated and ineffective time classified. Each operation is split into elements which are basic parts of the operation and consists of one or more motions regularly combined in the same sequence to establish a definite purpose. These movements are termed as elements and can be classified into constant and variable.

Constant elements are those which have a standard time allowance for the same set of conditions while variable elements are those where time will change in allow for variation of work required in accordance with the dimension or the condition of setting; Time Studies are then taken separately to establish definite and tangible data for the performance of above elements. It is essential that wasteful motions and time taken thereon
are not accounted for. Elements should be chosen with clearly defined break points as for example where the worker changes his hand from one level to another or puts down one as ride and picks up another. After observations, the actual time of each element is normalized depending up to the rating performed by the worker.

407. Synthetic Times

Synthetic time standards are time standards built up (synthesized) from element times, previously obtained from direct time studies. Sufficient time studies are taken to arrive at synthetic data such as:

a. Manipulation values.
b. Loading and unloading values.
c. Setting up values.
d. Changing tool values.
e. Preparational values.

The average normalized values obtained out of series of similar studies or standard given by the machine manufacturer is taken as basis for the synthetics.

408. Rating

Rating is the assessment of the skill and effort involved in each element and every element should be rated independently of previous elements. The principle of rating is that an average worker when working at such a speed and with such an effort that he is just earning basic pay i.e. working at a time or day work rate under non-incentive conditions is said to be working at a 60 rating. This can be interpreted as saying that he is producing 60 units of work per hour. This same average worker when working under a properly applied incentive scheme works at a speed and with such effort as to earn 33-1/3% more i.e. at an 80 rating, can then be said to be producing 80 units of work per hour. If he is working at half the effective speed, he is working at 30 rating or alternatively if he is working at double the effective speed, he is said to be working at 120 rating. Similarly other ratings are assessed by comparing the worker under study with the rating of an average worker. Different operative workers performing the same job are studied and the results checked by superior rate fixers which finally be endorsed by the Senior Section Engineer of the rate fixing department.

409. Normalizing

On completion of the time study, the actual times of all the elements in the work cycle should be converted to time at 80% rating i.e. the time which the average worker should take to do each element when working under a correct incentive scheme. This conversion is done by the following calculation:

\[
\text{Normalized Time} = \frac{\text{Actual time} \times \text{observed rating}}{80}\text{ i.e. Incentive rating}
\]

Additional allowances as given in the table at Para 502-f are added to the
above.

**410. Preparational Time (PT)**

Whereas the operational time is per piece, the preparational allowance is added per batch which allows a worker to prepare to take up a new job such as collecting tools and drawing raw materials, obtaining necessary instructions etc.

**411. Extra Time**

Extra time over the allowed time can be allowed due to:

a. Excess machining work required on castings forgings bars etc.
b. Hard material/alternative material.
c. Defects in the machine for which the worker is not responsible.
d. Change in batch quantity against a work order.

The rate fixer will fill up an excess Time Card and issue it to the supervisor concerned who will get it countersigned by the SSE hand over to the Time Booth clerk for connecting up with the relevant job/squad cards. At least 10 to 20% of excess time cards in manufacturing shops and 2 to 5% of inspection cum computation sheets should be personally checked by PE/APE.

“Extra time” taken must be submitted to the workshop in charge in the form of an exception report every month; the issues contributing to “repeated bookings” of extra time shall be addressed to prevent recurrence.

**412. Job Cards/Squad Cards**

Job card/squad cards are basic documents on the basis of which incentive bonus is calculated. Allowed time for the job is indicated in each job card. Once the job is done, same is passed by inspector and certified by Rate Fixer. Such completed job/squad cards should be sent to Incentive Bonus section within 48 hours of completion of the job.

**413. Out-turn**

Results of Incentive working will be determined on the total quantity "passed" in respect of each operation as recorded on the job-card. The "passed" out-turn should be recorded by the inspector concerned on job cards under his dated initials. The inspector examining and passing the work in regard to both quality and quantity should not be under the influence of any of those participating in the incentive bonus scheme. *The computation sheets should be finalized within two working days after passing of final inspection.*

**414. Simplification of accountal of Time Taken with computerized GA.**

With the introduction of computerized GA system, accountal of Time Taken in job cards for the monthly accountal period can be simplified by
accounting the total number of jobs passed by inspector for the respective accountal period of the month instead of maintaining Allowed Time vis a vis Time Taken for each job card passed. Based on this, bonus earned for any month can be calculated as under:-

a. Total GA hours (under incentive) clocked as recorded by his entry and exit.
b. Aggregate of the Allowed time of all jobs completed
c. His hourly rate and the bonus based on the formula= (b-a)*c.

**415. Time Saved/Time Lost**

(i) The difference between the "time allowed" and "time taken" is the time saved, if the former is greater than the latter and "time lost" if it is otherwise, the allowed time will comprise of the following:

a. Time per piece multiplied with the quantity passed by inspection.
b. Preparatory time per batch, and
c. Extra time allowed by the rate fixer as per extra time card.

(ii) Where two or more workers are engaged on the same job, the net time saved/lost from each squad card as worked out will be distributed over the workers in proportion to the time taken by each of them.

(iii) Allowed time on job cards should be printed by the computer. The allowed times on squad cards should be supported with detailed printed/cyclostyled inspection cum computation sheets. Hand written/typed allowed times on job cards/inspection cum computation sheets should be countersigned by PE/APE. The job cards and other production documents shall be printed through the computer. Suitable specific electronic security checks on the computer system would have to be incorporated to prevent possibility of tampering with the job data for different shop manufactured items.

**416. Material Scrap**

Normally incentive bonus is payable on quantities of work which conform to laid down standards and pass inspection. However, if the inspector certifies rejections as owing to Material scrap. The reject of out-turn will also be taken into account up to the percentage of work done on the rejects, for calculation of the "total time allowed and consequently the net time saved/ lost.

**417. Guaranteed Basic Wages**

The basic wages of all workers are guaranteed irrespective of their results of Incentive Bonus, but losses during any particular month are adjustable against the profits of the same month. Special procedure should be laid down to electronically disallow completed job cards of one wage period accounted in the bills of any other month than the current bill. Details of painted numbers of Locos, coaches or wagons turned out every month from the workshop or Production Unit must be fed into the system at regular intervals. Job cards pertaining only to those of the rolling stock turned out during the month should get accounted; and they should be accounted in the same month and the system should reject any accumulation.
418. **Incentive Bonus Rates and ceiling on profits in CLW scheme**

Time saved or lost will be evaluated at the Incentive Bonus hourly rates as fixed by the Railway Board for different categories of staff from time to time and circulated to Railways. Time saved or lost will be evaluated at the Incentive Bonus hourly rates. Ceiling limit on profits has been fixed at 50% of the standard basic wages in respect of each worker on simplification of the system as in para 414.

419. **Abnormal Profits**

The ceiling limit on profit is fixed at 50% of time taken/GA hours. When large profits (above 50%) are made more or less consistently or by the majority of workers, the causes contributing to this result should be carefully analyzed and any defects discovered, rectified.

Allowed times can be revised if improved machine tools are installed or other time saving devices are introduced and also if there is any error in computation or in printing. Revised timings thus to be issued with the approval of Production Engineer should be effective from the date of issue without any retrospective adjustments.

420. **Losses**

It is expected that the average worker will complete an operation in 75% of the allowed time when he will earn 33 1/3 % bonus. If allowed times are realistic and established, there should be no reason why an employee of average ability should incur losses instead of making profits. Therefore where losses, however, small are made more or less consistently by the majority of workers, the inducement offered by the incentive scheme has ceased to exist. Hence detailed investigations must be made to ascertain the cause and take remedial measures including improvement of methods.

421. **Incentive Bonus to essential indirect workers and Junior Supervisors**

a. *Supervisors at the level of Junior Engineers as essential indirect workers participate in the incentive bonus. Their earnings are to be restricted to 80% of the average percentage of profit earned by direct workers of the incentive section supervised by them.*

b. *The Shop in charge shall submit the information monthly to the Incentive Bonus section in respect of Direct workers, Essential Indirect workers and the supervisory staff in the following format, duly countersigned by Assistant Works Manager by the second of the month following that to which this relates.*

---

**Form 421 A**

Railway............
Work Shop. ........
Monthly list of "Essential Indirect Workers" serving Direct workers in
Section No............ of Shop No............ during the month. ...............

Part 'A'

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Ticket No.</th>
<th>Name</th>
<th>Category</th>
<th>Rate of Pay</th>
<th>Remarks</th>
</tr>
</thead>
</table>

Part 'B'
Ticket Nos. of Direct workers served by the "Essential Indirect Workers".

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Ticket No.</th>
<th>Name</th>
<th>Category</th>
<th>Rate of Pay</th>
<th>Remarks</th>
</tr>
</thead>
</table>

Assistant Works Manager
SSE

---------

Form 421 B

Railway............
Work Shop. ..........Statement of "Essential Indirect Workers" serving Direct workers in Section No............ of Shop No............

Part 'A'

<table>
<thead>
<tr>
<th>Name</th>
<th>Designation</th>
<th>Ticket No.</th>
<th>Rate of Pay</th>
<th>Category No.</th>
<th>Remarks</th>
</tr>
</thead>
</table>

Part 'B'
Ticket Nos. of Bonus workers served under the supervision of

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Ticket No.</th>
<th>Name</th>
<th>Remarks</th>
</tr>
</thead>
</table>

Assistant Works Manager
SSE

Note: A separate statement is required for each supervisor.

422. Incentive Bonus to Senior Supervisors

Senior Engineers and Senior Section Engineers supervising incentive sections shall be paid a monthly bonus of 15% of their basic pay. This bonus will be suitably attenuated to debit for the days of absence. Thus the monthly bonus of will be = 0.15 X ratio of no of days he was on duty to the total no of working days in the month. The senior supervisors are entitled to this bonus, even while supervising essentially indirect workers (EIWs). When supervising incentive and non incentive sections, the bonus shall however be reduced in the ratio of labor hours under incentive section to total labor hours of incentive and non incentive section.
**423. Payment of incentive bonus**

(a) Direct workers. Payment of incentive bonus to Direct workers is made monthly along with the monthly salary. The payment of bonus to direct workers is made on the basis of net time saved. The total of time taken as recorded on job cards is deducted from the total allowed time obtained from job cards passed by the inspectors. Time saved/lost/month is worked out with the restriction that the time saved is not more than 50% of the GA hours. The net time saved is multiplied by the prescribed rate of the category of worker and bonus paid accordingly.

(b) Essential Indirect Workers and Junior Supervisors are paid bonus at 80% of the average bonus earnings of the section. For this purpose a concept of standard hour is used to simplify calculations for hours of work per month. The formula for working out standard hours is:

\[
\text{Total No. of G.A. card hours actually worked by the direct workers during the preceding 6 months/one year} \times 208 \text{ hrs}
\]

\[
\text{Total No. of hours which the workers should have worked as per the Scheduled working hours during the preceding 6-months/one year.}
\]

Standard No. of hours can be worked for the workers is a whole or for certain divisions of the works. Standard hours thus worked out shall remain current for the ensuring 6 months/12 months after which it will again be revised. The average percentage of profit of direct workers of each section is calculated separately as follows:

\[
\text{Section Percentage} = \frac{\text{Total net time saved by the section}}{\text{Standard Hours} \times \text{No. of direct workers in the section}} \times 100
\]

Note: Leave reserve should be included in above calculation.

Accordingly bonus payable to the essential indirect workers is =

\[
\frac{\text{Section percentage}}{100} \times \frac{80}{100} \times \text{No. of G.A. card hours} \times \text{Hourly rate of category of worker.}
\]

In case of JEs the bonus is paid as per the above formula.

**Note:** The bonus payments of the supervisors supervising the direct worker under incentive scheme as well as direct workers under non incentive, calculated as per the above, formula should be further multiplied by the ratio of the Direct Workers under the incentive scheme to direct workers under incentive scheme plus direct workers under non incentive scheme supervised by them.

**424. Incentive to staff in the service shops**

Such of the service shops and sections of mill Wright and tool and template shops where workload can be measured and quantified should be
covered under incentive scheme as for direct workers. But where it cannot be undertaken and where the maintenance staff are wholly engaged in the servicing maintenance and repairing of machinery, plant and equipment of various shops, should be covered under incentive scheme as essential indirect workers. The following guidelines should be adopted:

a. The machinery, plant and equipment maintenance should be completely segregated into individual groups attached to specified manufacturing and production shops;
b. For each such maintenance group a work register must be maintained indicating the jobs done in each shift with the commencement and completion time thereof. This should be countersigned by the JE/SSE every day. This is necessary because on the basis of the information contained in this register idle time of machines due to breakdown will be assessed.
c. Gang strength should be fixed after hiking random study of the activities of these gangs and the workload involved in the shops/sections where they are attached.
d. In the case of absenteeism in the maintenance gangs, the deficient numbers should be made good from the general pool of workers of the millwright shops and on the specific request made by the gang in-charge.
e. Payment of incentive to 'Essential Indirect Workers" should be related to their performance for this purpose a minimum monthly machine breakdown leading to idle time of direct workers should be fixed. When this target is exceeded, no incentive payment will be made to the maintenance gangs.
f. The amount of incentives bonus should be worked out as for "Essential Indirect Workers" staff, with reference to average percentage of profits earned by direct workers of the shops/ sections to which they are attached. Supervising the service shop artisans who have been brought under incentive scheme will also be eligible for 80% of the average percentage of bonus earnings of the sections to which such service shop men are attached.

425. Workers booked on Incentive and day work systems

Ordinarily a worker booked on Incentive system should not be utilized on 'day work' and vice versa during the same wage period except in very special circumstances.

426. Overtime working in Incentive sections

There should not be any overtime booking in sections under incentives

427. Idle time

Apart from wages having to be paid for no work done, idle time entails huge avoidable losses in production. All possible steps should therefore be taken for preventing idle time. The time taken up in delays and holdups, due to breakdown of service or plant or any other cause for which the direct worker cannot be held responsible should be booked to "idle time" and all time so booked should be carefully investigated, responsibility for the delay or breakdown located and such steps, as may be, considered desirable, taken to prevent such waste.
To record idle time, there shall be an "idle time card" for each worker for each month. These cards will depict the reasons as detailed below on the reverse of the idle time cards for the analysis of idle time. These cards will remain in the custody of time booth clerk and shall be punched on/off with the commencement/cessation of idle time on the authority of idle time slips issued by JE. Idle time cards shall be signed by JE and countersigned by SSE and shall be sent to the accounts office along with the job cards.

Idle time shall be chargeable against shop on cost work order. However, idle time up to 15 minutes in each case may be allowed to be booked against job card concerned and not accounted for as idle time.

Idle time can be booked on account of the following reasons:
a. No power.
c. Lack of material
d. Lack of tools
e. Waiting for work
f. Crane repair
g. Miscellaneous.

428. Deduction from supervisors for idle time

The JE of a shop are directly responsible for (i) lack of work and (ii) lack of tools. Therefore, for the idle time arising out of these two causes, proportionate deductions on the following scales should be made from the percentage incentive bonus earned by the concerned supervisors.

<table>
<thead>
<tr>
<th>S.No</th>
<th>Idle time for direct workers</th>
<th>Percentage incentive bonus to be debited</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2% and above but less than 5%</td>
<td>10%</td>
</tr>
<tr>
<td>2</td>
<td>5% and above but less than 15%</td>
<td>20%</td>
</tr>
<tr>
<td>3</td>
<td>15% and above</td>
<td>No Bonus</td>
</tr>
</tbody>
</table>

If data for idle time not available at the time the bills for incentive bonus are prepared, the position should be reviewed subsequently and necessary adjustments carried out through the bill for the next month.

429. Allocation of bonus

a. The amount of Incentive bonus of direct workers shall be chargeable to the work order concerned. The amount of bonus of Essential Indirect workers and the supervisory staff shall be chargeable against shop on cost work order to be opened for this purpose.

b. For the purpose of allocation, the time saved up to the ceiling limit of 50% of the time taken/GA hours as evaluated at hourly rate shall be taken into account. Time lost which shall be taken into account for calculating the net amount payable, shall be ignored. The difference between the amount allocate and paid shall be charged as shop on cost.
430. Extension/ Contraction Proposals

The following points should be kept in view while dealing with the Extension/Contraction proposals of incentive scheme in the sections already operating under the scheme:

The proposal for extension should only be made out wherever there is an increase in the work load on the nature of work for which an incentive proposal has already been noted and reasons for increase in work load have been brought out.

- No increase has been made in the original allowed lime and that any increase in the strength of staff is proportionate to that indicated in the original proposal.
- Number of Essential Indirect Workers and Indirect Workers is strictly below the caps prescribed.
- In cases of extension, the possibility of using the same unskilled staff for material handling movements under the extended load should be carefully checked, in case of contraction of incentive scheme, the possibility of reductions of unskilled staff should be carefully checked,
- The provision of supervisory staff should be critically examined. In cases of merger of sections, the possibility of reduction of supervision shall be properly looked into.

431. Capping on IW and EIW strength

The following targets should be worked in respect of unskilled staff engaged as indirect and essential indirect workers. As the infrastructure and methods of operations improve, this ratio can be further reduced by Chief Workshop Managers.

<table>
<thead>
<tr>
<th>Name of the sub-shop</th>
<th>Maximum Strength of unskilled workers engaged as indirect and essentially indirect workers.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Erecting</td>
<td>15% of the total strength of the erecting/shop.</td>
</tr>
<tr>
<td>Welding</td>
<td>12-1/2% of the total strength of the Welding shop.</td>
</tr>
<tr>
<td>Carriage Building</td>
<td>10% of the total strength of the Carriage Building shop.</td>
</tr>
<tr>
<td>Carriage Repair</td>
<td>10% of the total strength of the Carriage Repair/shop.</td>
</tr>
<tr>
<td>Paint</td>
<td>10% of the total strength of the Paint shop.</td>
</tr>
<tr>
<td>Trimming</td>
<td>10% of the total strength of the Trimming shop.</td>
</tr>
<tr>
<td>Wagon Building .</td>
<td>12% of the total strength of the Wagon Building shop.</td>
</tr>
<tr>
<td>Wagon repair</td>
<td>15% of the total strength of the Wagon Repair shop.</td>
</tr>
<tr>
<td>General Iron Foundry</td>
<td>20% of the total strength of the General Iron Foundry.</td>
</tr>
<tr>
<td>Brass Foundry</td>
<td>25% of the total strength of the Brass Foundry.</td>
</tr>
<tr>
<td>Smith &amp; Forge</td>
<td>10% of the total strength of the Smith &amp; Forge Shop.</td>
</tr>
<tr>
<td>Machine</td>
<td>10% of the total strength of the Machine shop.</td>
</tr>
<tr>
<td>Department</td>
<td>Percentage of Total Strength</td>
</tr>
<tr>
<td>------------------</td>
<td>------------------------------</td>
</tr>
<tr>
<td>Wheel shop</td>
<td>10%</td>
</tr>
<tr>
<td>Tool room</td>
<td>10%</td>
</tr>
<tr>
<td>Millwright</td>
<td>25%</td>
</tr>
</tbody>
</table>

### 432. Checking of Job Cards

The job cards received in Incentive section of the Accounts Office should be checked to see that:

a. These have been inspected and signed with date by the shop inspector for the quantity passed;

b. All corrections in the pre-printed job cards bear the dated signature of the shop rate fixer under his designation.

c. Total of the 'Time Taken' as struck on the job cards by the Time booth clerk tallies with the details on the job cards.

d. "Total allowed time" will be worked out on the basis of the 'passed' outturn. The allowed time as appearing on the job card should be checked with that approved by the P.E. by comparison with the master planning card or list of allowed times approved by Production Engineer. For this purpose, a copy of each master-planning card should be supplied by the P.E. to W.A.O. This check may be exercised as a percentage post check (under orders of the FA&CAO) in such a way that all "allowed times" get checked in rotation.

e. Time saved/lost for each operation shall be worked out taking care that the time saved against job card/squad card is restricted to 50% of checked up "time taken" as recorded on each card. If simplification of job card accountal is adopted as per para 515, the limit of 50% of time saved over time taken should be adopted for the entire accountal month for each worker.

f. Hand written job cards are certified by AWM/P.E.

g. Excess time card is attached with the job card wherever "excess time card' is indicated.

h. Out-turn statements are certified by the Inspector and are signed by the shop supervisors. For excess time and for the items of work not covered by the approved list there should be signature of the rate fixer.

i. It should be crosschecked that No. of direct workers, essentially Indirect Workers and supervisors in whose favor bonus has been billed for, are not in excess of the sanctioned strength.

j. All the job cards as per monthly statement showing serial nos. of job cards supplied during the month as received from the time booths have been taken into account.

k. Proportionate deductions are made from the profits earned by the JEs and SEs, if idle time of production workers on account of lack of work and lack of tools is 2% and above.

l. Amount of bonus to JEs is in the ratio which the total No. of direct workers under incentive bears to total number of direct workers in the section.

m. Detailed instructions for checks to be exercised on the job cards and bills of incentive bonus may be laid down by the Financial Adviser & Chief Accounts officers of each railway to suit the local requirements.

n. The idle time cards attached with the job cards should be checked with idle time slips issued by shop JEs. All the idle time cards should have been personally checked by Works Manager/Assistant Works Manager within 24 hours of being punched 'IN'.

o. Job cards should be supported by suspension/ resumption slips if there
have been punching "OFF" and punching "IN" due to suspension/resumption of jobs. Suspended job should be rigidity checked by Works Manager/Assistant Works Manager and suspended jobs for one month to another month should be checked by Production Engineer/Assistant Production Engineer.

433. **Group Incentive scheme**

The group incentive scheme has following aims:

a. Improved output performance of shops and sections
b. Improved quality of workmanship
c. Reduced absenteeism
d. Improved man power ratio.

For a new PU or Railway workshop *where* an incentive scheme is proposed, GIS shall be introduced. *In* the PUs or Shops where Chittaranjan pattern is already in vogue, GIS shall be progressively implemented.

434. **Main Features**

Main features of this scheme are:

a. Built on the fundamental logic of linking bonus to physical output which---
   - Shall be transparent and identifiable as the final product and
   - Not lend itself for reworking or recycling.
b. In units having a broad product matrix, the unit of output is standardized in terms of SPUs (Standard Production Units)
c. Classification of employees into direct, indirect and EIW categories is replaced by a new classification based on groups
   - Production shops, with 100% bonus
   - Support shops at 80% of Average Incentive earned by Production shops and
   - Support departments at 50% of Average Incentive earned by Production shops.
d. Covers all manpower – supervisor upto JE, skilled and unskilled
e. Individual groups are chosen such that the products manufactured/repaired by them are directly dispatchable in numbers. If they produce/repair different products with varying man-hours, such products are expressed in an equated SPUs.
f. Groups are to be as small and as cohesive as possible.
g. SE & SSE’s earn bonus a maximum of 15% of their basic pay, subject to the condition that, their production shops earn incentive bonus equal to (or) above 15%. If it is less than 15%, they will get as per the shops earnings.
h. There is deduction in this system against the quality factor and excess detention of products/rolling stock
i. Irrespective of work content of each type of rolling stock/product, the unit of account is in ‘SPUs’.
j. The incentive earnings is purely dependent if the out turn of the system crosses over and above the outturn based on 100R.
k. Here, if the percentage of heavy repair rolling stock/product be received more at par with the product mix, the incentive gets affected.

Annexure 4.3 compares the features of the Group incentive scheme with those of the earlier Chittaranjan model.
435. **Special Management responsibility in incentive schemes**

With a thorough understanding of the limitations of both the incentive schemes managements in Workshops and Production Units have a special responsibility to maximize returns from incentive payments by constantly fine tuning the schemes and ensuring that efficiency and enterprise are only rewarded.

436. **Training**

The responsibility for equipping an employee with necessary skills and knowledge to discharge his/her duty rests with the employer. When the employee is not sure of his/her skills or knowledge of rules, he/she tends either to make mistakes or altogether avoid his legitimate duty or activity under some pretext due to fear of flouting an unknown rule, damaging a machine, facing the ignominy of vigilance complaints, peer sneer etc.

While the establishment related issues of training are spelt out in the Establishment Manual, the exposure necessary for employees in various activities in a Production Unit, Repair Workshop, Loco shed or C&W depot is elaborated here.

Management must aim to train up every employee of the unit for at least two percent of their man-days every year on any need based subject or standard syllabus adopted for promotion/refresher courses.

437. **Categories of Employees**

Employees can be divided into three groups:

a. Skill based - for e.g. artisans
b. Rule based - for e.g. senior supervisors and junior management.
c. Knowledge based - for e.g. senior management

As seen from the table below, there are no tight compartments and some overlap of traits between the groups is not only essential, but also inescapable. Apart from improving attitude and commitment to organization, Training courses should intensively target the core competence on aspects as highlighted in this table:

<table>
<thead>
<tr>
<th>Designation of Trainee</th>
<th>Training to concentrate on</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unskilled to Skilled</td>
<td></td>
</tr>
<tr>
<td>Skilled to JEII, JE I</td>
<td></td>
</tr>
<tr>
<td>JEII, JE I</td>
<td></td>
</tr>
</tbody>
</table>
Remarks:

a. Irrespective of the grade of entry, every employee should be given a short orientation course on his/her first appointment, explaining organizational structure, work environment and basic rules of the Railway and how he/she is expected to conduct himself/herself.

b. Special care must be taken to ensure that employees are not qualified routinely without acquiring necessary skills before being deployed in “safety critical work”, that is likely to affect safety of the organization or the society at large (fitters or electricians for e.g. deployed in wiring, maintenance of brakes etc). It is incumbent on the management to ensure that:
   - The employee is competent and has developed adequate skills in that trade and is so certified fit to undertake that work by a competent agency like NCTVT.
   - There is an existence of an adequate record of training and an assessment as said above undergone by the employee and that the employee has been issued with means of identification.

c. Promotion to any of the entry grade should be preceded by a structured training. In fact, such training will be a “pre-requisite” for promotion to the entry grades (skilled artisan, JE II, SSE, junior scale/assistant officers etc.).

### 438. Training of new comers

Just as a person’s character is shaped by the love and care he/she received in the infant days, an employee’s commitment and competence is made or marred by how an organization treats him in the initial years. Every new comer to the organization should have a focused, albeit short training, exposing him to the organizational structure, basic conduct and discipline rules, organizational goals and what the organization expects from an employee. The syllabus for this training should be carefully crafted and reviewed periodically, at least once a year. Once trained and certified fit, these persons should be employed straightaway in core activities to derive the full benefits of their commitment and competence.

### 439. Multi-skilling

In order to strengthen Plant agility and labor mobility, best plants across the world train their employees in 5 to 6 trades. Inside their production shops people are cross trained to operate all machines in a cell and many firms have as many as six job descriptions for their employees.

For training artisans in additional trades, the Directorate General of Employment & Training, Ministry of Labor & Employment, Government of
India ([http://dget.nic.in/mes/index.htm](http://dget.nic.in/mes/index.htm)) has designed “modular employable courses”. These short courses enable a person to do other jobs requiring different skills.

In order to improve the productivity standards of the employees, appropriate multi skilling with “Modular Employable Skills” must be attempted progressively through specific administrative orders. To start with, technicians being rotated through various work centres demanding similar skills should be tried so as to make them familiar with the working of different work centres/sections, say once in five to seven years. This will improve their employability and promotional prospects, besides the productivity. This will also pave way for optimization of manpower to suit the changing pattern of workload.

Every employee who widens the span of skills/knowledge should be rewarded generously.

### 440. Designing of courses and employee involvement

Apart from mandatory training courses, special courses are needed to hone the skills of employees. Here it may be necessary to involve the stakeholders and ask them areas where they feel some exposure is necessary to improve their functioning. Some examples are - rate fixers looking for training on work study, millwright fitters on CNCs, electricians on locomotive circuits, supervisors on 6 sigma or 5S Kaizen, clerical staff on Word Processing, drawing office staff on AutoCAD for, Crane usage on accident sites for BD staff and a variety of such topics.

Employees may not be aware of the menu that the world of training can offer them and the Director/IRIMEE/other Centralized Training Institutes (CTI) shall circulate details of these courses every quarter, and also help by conducting these courses in the workshop BTCs or divisional training centers.

The list sent by IRIMEE/other Centralized Training Institutes (CTI) should be exhibited for the notice of the employees and formal consultations made to know their perceived training needs.

### 441 Improving trainee Participation

It is necessary that the training programs are run with full attendance with employees carefully chosen for each course. In order that the fruits of the vast infrastructure reach the targeted employees and training slots do not remain unutilized, the following action must be taken:

a. Period of training to be kept less than 7 days more so for older employees with family commitments.

b. Compulsory training Programs may include an element of lucrative sojourns to a good industry combining with a tourist spot.

c. Assure trainees of getting posted back to the same station after the program.

d. Decentralize the training to Divisions and workshops to the extent possible so that each Division/Workshop has a training center liberally equipped with class rooms, latest training gadgets, teaching aids, equipment, etc. The
minimum requirement must be stipulated by Railway Board and this must
be reviewed once in 5 years by Railway Board.
e. In addition PUs and zonal Railways should have a running arrangement
with renowned training institutions for specialized courses.
f. Promising employees with excellent performance records and trainees who
excelled in their courses may be incentivized by deputing them to training
in premier Institutions inside and outside the country.
g. Create advisory boards for every training Institution with retired officers and
supervisors of academic and professional eminence, whose collective
thinking with years of experience can provide valuable inputs in deciding
the courses, course content and the target audience.
h. Adequate resource personnel in the form of faculty
members/Instructors/identified Key Resource Persons (KRP) who are
regular employees must be made available as trainers. The incentive for
teaching staff must be adequate to attract talent.

It is important to realize that every rupee spent on training is a good
investment and not a wasted expenditure.

442. Salary Payment.

All regular salary payments will be made through Banks by electronic
means of transfer (like Electronic Clearing System, Electronic Funds
Transfer etc.) All miscellaneous payments like supplementary bills,
advances, arrear payments, PF withdrawals etc. shall be planned to
coincide with monthly salary and shall be prepared in the appropriate
payroll system and merged with salary. However, the Chief Workshop
Manager in consultation with their associate finance can arrange for cheque
payment only for miscellaneous payments in an emergency.
Managerial And Exception Statements
to be generated by the system

Four levels of managerial statements are required for analysis and effective utilization of manpower.

i. Individual Shop level  
ii. Workshop level  
iii. Head quarters level.  
iv. Railway Board- mostly exception statements, arising out of comparing the vital statistics of shops.  
   a. The details of GA hours logged by the shop/section/division/workshop etc; the detail should be available up to each employee.  
   b. Load lifted by the shop/section/division/workshop etc; the detail should be available up to each employee.  
   c. Details of incentive earned shop/section/division/workshop etc; the detail should be available up to each employee.  
   d. Details of idle time, missing hours of shop/section/division/workshop etc; the detail should be available up to each employee.  
   e. List of regular absentees and DAR action details.  
   f. List of poor incentive performers.  
   g. Load center/section/shop wise rejection/rework details.  
   h. Load center/section/shop wise +timings/-timings booking.  
   i. For POH of every type of Rolling stock, man hours consumed in each shop and for the total workshop and the national best figures. (Painting man hours of a GS coach in one shop for example to be compared with the paint shop in another zone).  
   j. Failure on line of stock within-  
      * 3 months of POH/Rebuild/Manufacture of coaches  
      * 100 days for POH/Manufacture of wagons  
      * One year for POH/Rebuild/Manufacture of Locos  
   k. Accident indicted quality problems reported by divisions  
   l. Incidence of wagon Heavy Repair within 2 POHes of new manufacture or previous Heavy repair  
   m. Incidence of corrosion in Coaches within 10 years of manufacture/Rebuild or 5 years of previous corrosion repair
### Annexure 4.2

#### Comparison between Chittaranjan and Group Incentive Scheme

<table>
<thead>
<tr>
<th><strong>Chittaranjan Incentive Scheme (CIS)</strong></th>
<th><strong>Group Incentive Scheme (GIS)</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>There are two Groups of Staff.</td>
<td>Shops are categorized as follows:</td>
</tr>
<tr>
<td>* Direct Workers.</td>
<td>* Production Group</td>
</tr>
<tr>
<td>* Essentially Indirect Workers.</td>
<td>* Support shops.</td>
</tr>
<tr>
<td>All Incentive shops are DW &amp; EIW, where DWs gets 100% and EIWs get 80% of DWs.</td>
<td>* Support Dept</td>
</tr>
<tr>
<td>SE &amp; SSE in shops get 15% incentive bonus on their Basic pay. Their bonus is not linked with the bonus earned by shops.</td>
<td>SE &amp; SSE’s earn bonus a maximum of 15% of basic pay, subject to their production shops earning incentive bonus equal to (or) above 15%. If less than 15%, they will get as per the shops earnings.</td>
</tr>
<tr>
<td>There is no penalty clause included in this system for deduction from the outturn in respect of quality factor.</td>
<td>There is deduction in this system against the quality factor and excess detention of rolling stock.</td>
</tr>
<tr>
<td>Here allowed time is assessed for each and every nature of repairs on the product/wagon.</td>
<td>Irrespective of work content of each type of stock, unit of account is in ‘SPUs’.</td>
</tr>
<tr>
<td>Even a PU or workshop produces less than even the minimum targeted outturn that was achievable under Non-incentive conditions, a section in that PU/Workshop if it completes its quota can still earn bonus.</td>
<td>Unless there is physical dispatch, there is no incentive earning.</td>
</tr>
<tr>
<td>Quality is achieved by the Inspection staff and no bonus is payable for jobs not passed by inspection.</td>
<td>Physical parameters as reported by the user are quantified to measure Quality and determine the bonus.</td>
</tr>
</tbody>
</table>
Annexure 4.3

Administration Responsibilities on Industrial Safety & Environment Management

Industrial Safety

a. Putting in place, fire fighting systems and to ensure its efficacy in times of distress by conducting regular drills.
b. Evolve an Emergency Preparedness Plan for the shop and ensure that it works by frequent mock drills.
c. Battery management and handling as per rules.
d. Maintenance of fire extinguishers, fire hydrants and static water tanks and other equipments
e. Setting up of disaster management system and to conduct periodic drills to deal with any eventuality.
f. Medical examination of operators of dangerous machines.
g. Accident preventive measures, counseling, safety propaganda campaign.
h. Training in Safety & Environmental issues:
i. Conduct safety audits internally and externally and implement recommendation based on audits.
j. Investigation and enquiry of accidents of major nature.
k. Other safety related activities.
l. Training employees in reducing repetitive motion injuries.
m. Eye water wash facility for staff working in welding and painting area.
n. Assessment and provision of personal protective equipment like industrial safety shoes, helmets, goggles, ear muffs, nose mask and gloves.
o. Testing and examination of EOT cranes, hoists, lifting tackles pressure vessels, power presses, grit blasting plant, Forklifts, mobile cranes by competent personnel.
p. Work permit system for contract workers
q. To ensure that contract labour, when employed, use necessary protective clothing.

Environment Management

1. Air management

a. Ambient air quality monitoring
b. Stack monitoring of furnace gases
c. Remedial measures to improve air quality in consultation with Pollution Control Board (PCB)
d. Identification of sources of dust and airborne particles and their elimination
e. Effective operation and maintenance of air pollution equipment like wet scrubbers and dust collectors

2. Water management

a. Construction and maintenance of Effluent treatment plants as necessary.
b. Regular sampling and evolving control measures to neutralize Toxins and Pollutants.
c. Sewage collection, treatment and disposal
d. Identification and origin of water pollutants and their disposal

e. Supply of potable water

f. Recycling waste water where economically and/or ecologically justified.

g. Rainwater harvesting.

Mandated Procedures and Other Improvements on Industrial Safety and Environment Management.

a. Obtaining license for operation of factory from Chief Inspector of Factories.
b. Obtaining license from Chief Controller of Explosives for usage and storage of flammable, compressed/liquefied gases if any.
c. Obtaining consent for operation of factory from Pollution Control Board (PCB).
d. Obtaining approval for any alterations, extension or inclusion of M&P items and fixed structure from Chief Inspector of Factories.
e. Submitting annual environmental audit report
f. Filing periodical returns as per acts.
g. Coordination with PCB and Factory Inspectorate for sampling, testing, and issue of Licenses.
h. Coordinate with external laboratories for conducting tests.
i. To conduct energy and fuel audits and to reduce their consumption in a graduated manner.
j. Periodical environment audits
k. Setting up of environment laboratory where necessary.
l. Maintenance of fixed structures.

In case of repair workshops, separate cleaning area should be created outside the workshop security zones, where incoming coaches and wagons are cleaned thoroughly by a separate contract. In the divisions, On-Board Housekeeping System (OBHS) should be adopted to ensure faster cleaning of coaches. The effluent water may be recycled and the debris should be cleared by the same contractor on a day to day basis.

Waste generation

Any by product of the repair/manufacturing processes and activities executed inside the workshop premises, not useful to the Railways is termed “waste”. Waste in any form is a cost to the Railways and therefore generation of waste must be creatively and actively eschewed. Accordingly an important environmental initiative is to frequently review input material specifications, processes and final products so as to minimize, if not, completely eliminate pollution or hazardous and other wasters through capital and process improvements. The efficacy of these initiatives may be assessed by the reduction in the “solids-per-pound of product” from the workshops, as well as waste liquid discharged, the eventual goal being Zero waste discharge.