

**ESTIMATES COMMITTEE  
1963-64**

**FORTY-FIFTH REPORT**

**(THIRD LOK SABHA)**

**MINISTRY OF RAILWAYS**

**Integral Coach Factory**



**LOK SABHA SECRETARIAT  
NEW DELHI**

***February, 1964/Magha, 1885 (Saka)***

**Price : Re. 1.00 nP.**

# LIST OF AUTHORISED AGENTS OF LOK SABHA SECRETARIAT

## ANDHRA PRADESH

1. G. R. Lakshminpathy Chetty & Sons, General Merchants & News Agents, Newpet, Chandragiri, Chittoor District (Andhra Pradesh).

## BIHAR

2. 'Jugriti', Bhagalpur-2.

## GUJARAT

3. Lok Milap, District Court Road, Bhavnagar.
4. The New Order Book Company, Ellis Bridge, Ahmedabad-6.

## MADHYA PRADESH

5. The National Law House, Near Indore Library, Opposite Old High Court Building, Indore.
6. Modern Book House, 286, Jawahar Ganj, Jabalpur-1.

## MADRAS

7. The Kalpana Publishers, Book-sellers, Trichinopoly-3.

## MAHARASHTRA

8. The Imperial Book Depot, 266, Mahatma Gandhi Road, Poona.
9. The Popular Book Depot (Registered), Lamington Road, Bombay-7.
10. The International Book House, Private Ltd., 9, Ash Lane, Mahatma Gandhi Road, Bombay-1.
11. The International Book Service, Deccan Gymkhana, Poona-4.
12. Charles Lambert and Company, 101, Mahatma Gandhi Road,

Opposite Clock Tower, Fort, Bombay.

13. The Good Companions, Rasputra, Baroda
14. The Current Book House, Maruti Lane, Raghunath Dadaji Street, Bombay-1.
15. Deccan Book Stall, Fergusson College Road, Poona-4.
16. The New Book Company (P), Limited, Kitab Mahal, 188-90, Dr. Dadabhai Naoroji Road, Bombay.

## MYSORE

17. Makkalapustaka Press, Balamandira, Gandhi Nagar, Bangalore-9.
18. People's Book House, Opp. Jaganmohan Palace, Mysore-1.
19. Pervaje's Book House, Koppikar Road, Hubli.

## ORISSA

20. The Cuttack Law Times Office, Cuttack-2.
21. Ekamra Vidyabhaban, Eastern Tower Room No. 3, Bhuvaneshwar-1.

## PUNJAB

22. The English Book Depot, 78, Jhoke Road, Ferozepore Cantt.

## RAJASTHAN

23. Information Centre, Govt. of Rajasthan, Tripolia, Jaipur City, Rajasthan.
24. K. M. Agarwal & Sons, Railway Book Stall, Udaipur.

## UTTAR PRADESH

25. Swastik Industrial Works, 59, Holi Street, Meerut City. (U.P.).

## CORRIGENDA

### Forty-fifth Report of the Estimates Committee (Third Lok Sabha) on the Ministry of Railways Integral Coach Factory.

Page 1, para 2, marginal heading, lines 4-5,  
for 'Collaborators' read 'Collaborators'

Page 10, para 16, Table, Column one, second  
item, for 'II Class' read 'III Class'

Page 13, line 1, for *durin* read 'during'

Page 16, line 2, for 'Railway' read 'Railways'

Page 21, marginal heading, for 'Part' read 'Part'

Page 23, Table I, item 2, for '14 2' read '1432'

Page 23, Table II, item 1, for '1965' read '1956'

Page 29, Para 35, line 7, for 'time saved' read  
'time saved'

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1963-64

Shri Arun Chandra Guha—*Chairman*

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### SECRETARIAT

Shri Avtar Singh Rikhy—*Deputy Secretary.*

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\*Elected w.e.f. 16th August, 1963 *vice* Dr. K. L. Rao ceased to be a member of the Committee on his appointment as a Minister.

## INTRODUCTION

1. The Chairman, Estimates Committee having been authorised by the Committee to submit the Report on their behalf, present this Forty-fifth Report on the Ministry of Railways—Integral Coach Factory.

2. The Committee took evidence of the representatives of the Ministry of Railways on Integral Coach Factory on the 21st and 22nd November, 1963. They wish to express their thanks to the Chairman, Member (Mechanical) and Additional Member (Finance) and other officers of the Railway Board, and the General Manager, Integral Coach Factory for placing before them the material and information that they wanted in connection with the examination of estimates.

3. The Report was considered and adopted by the Committee on the 11th February, 1964.

4. A statement showing an analysis of the recommendations contained in this Report is also appended to the Report (Appendix XIII).

NEW DELHI-1;  
February 14, 1964  
Magha 25, 1885 (Saka).

ARUN CHANDRA GUHA,  
*Chairman,*  
*Estimates Committee.*

## I. INTRODUCTORY

The Integral Coach Factory, Madras has the distinction of being the largest manufacturing unit of its kind in Asia and one of the largest in the World. The shops have dustless concrete floors and are well-ventilated. They are also equipped with modern lighting. The layout of the Factory follows the sequence of operations and is based on careful method-studies to obtain an uninterrupted flow of manufacture. It is well equipped with the latest machinery, jigs and fixtures to undertake large scale production of coaches. In short the layout and working conditions of the Factory are upto date and conducive to high efficiency and production.

Modern Lay-  
out of  
Factory.

2. As already noted in the 32nd Report of the Estimates Committee (1956), the Integral Coach Factory was planned and set up by the Railways with the technical collaboration of Swiss Car and Elevator Manufacturing Corporation Ltd. of Switzerland who are pioneers in the field of light weight coach building. The terms of Agreement provided for payment of basic fees of 2.5 million Swiss francs, royalty at the rate of 150 Swiss francs for each coach manufactured during the Agreement period and bonus at a sliding scale ranging from 1,000 Swiss francs per coach in the first year of manufacture to 225 Swiss francs per coach in the sixth year. The Factory commenced production with effect from 2nd October, 1955—Mahatma Gandhi's birthday. The total payments excluding salary and allowances to the Swiss personnel amounted to Rs. 34,16,000. In addition, 200 knocked down III Class coach shells were also purchased at a cost of Rs. 2,11,73,000. The Agreement also provided for employees of the Swiss firm working in the initial stages in the Factory and Indian personnel being trained in Switzerland. In all, 76 members of the Railway staff were trained abroad. The Agreement with the Swiss Car and Elevator Manufacturing Corporation Ltd. ceased to be operative from May, 1961 and thereafter the work in the Integral Coach Factory which includes the designing and building of new types of coaches, Electric Multiple Unit Motor Coaches, Metre Gauge Coaches, Diesel Rail Cars etc. has been carried out without any foreign collaboration.

Dispensing  
with Services  
of Foreign  
Collabora-

*The Committee note with satisfaction that within the span of a few years the Railways have been able to master the technical "know-how" of manufacture of integral coaches so as to dispense with the services of foreign technical collaborators and save the country valuable foreign exchange. The Committee are glad to note that the Integral Coach Factory is now geared up to build all types of Railway coaches for Broad Gauge and Metre Gauge and to suit any particular specification required.*



## 4. SHELL FACTORY AND FURNISHING DIVISION

3. The Shell Factory has a capacity of annual outturn on single shift of 350 coach body shells in terms of Broad Gauge III Class coaches. To meet the increasing demand of coaches for the Indian Railways, it was decided in 1959-60 to gradually step up the output from about 350 shells per annum to about 700 coach shells per annum by introducing second shift. With partial second shift working, the capacity at present is about 600 shells.

Production exceeds target.

4. The table below indicates the original target of production, the revised target and the actual production since 2nd October, 1955:

Year April-March	Original Target	Revised Target	Actual Production
1955-56	8	12	12
1956-57	49	72	88
1957-58	149	174	222
1958-59	255	312	381
1959-60	331	350	447
1960-61	350	350	583
1961-62			598
1962-63			600

*The Committee are glad to note that the actual production in the Factory has exceeded the target (both original and revised).*

Production on Two Shift Basis.

5. As mentioned in para 4 above, the Integral Coach Factory has already achieved the production rate of 600 coaches per year with the introduction of partial second shift. *The Committee feel that as production on single shift basis is 350, it is only equitable that production on two shift basis should be brought up early to 700.*

Production on Three Shift Basis.

6. The Study Group of the Estimates Committee which visited the Factory in October, 1963 was informed that "the third shift will be justified. Still third shift is not recommended on grounds of labour relations". During evidence it has been amplified by a representative of the Ministry of Railways that as the Integral Coach Factory have provided accommodation to only a limited number of staff, most of them have to come from suburbs or other places. If a third shift is introduced, workers required to come late at night would experience difficulty in getting the requisite transport. In response to a question, it has been clarified by the representative of the Ministry of Railways that the money allocated for the manufacture of coaches in the

The Factory commenced production only on 2-10-55.

Third Plan does not call for introduction of third shift working in the Integral Coach Factory but if the need arises for the third shift, the Railways would certainly consider it. *The Committee trust that local difficulties, like transport of workers, would not be allowed to come in the way of introduction of third shift if it is otherwise required to augment the coaching stock within the country or for exports.*

7. The Integral Coach Factory, Madras is the chief supplier of coaching stock to the Railways, the other being the Railway Workshop, Hindustan Aircraft Ltd., Jessop and Bruithwate. The question of development of further capacity in the Integral Coach Factory, Madras, has to be considered in the context of the requirements for the Third Five Year Plan and the planned sources of manufacture to meet it.

Require-  
ments of  
Coaches for  
Third Plan.

The Third Plan envisages an increase of 15 per cent in long distance passenger traffic, the suburban traffic being catered to the fullest extent possible. During the first two years of the Third Plan (in terms of passengers originating) suburban traffic has increased by 16.8 per cent over the level of 1960-61 and non-suburban traffic by only 4.5 per cent. The overall passenger traffic on Indian Railways has increased by 9.8 per cent during the first two years of the Plan. The Ministry of Railways have stated that "it is not possible at this juncture to make a year-wise forecast of the growth of passenger traffic, but it is anticipated that during the last year of the Third Plan, the increase would be around 15 per cent." The requirements of various types of coaches for Indian Railways during the Third Five Year Plan together with the programme for their manufacture are indicated in Appendices I and II.

The Committee note from the statement that the requirements of various types of coaches for Indian Railways during the Third Five Year Plan are estimated as follows:

	Throw- forward of require- ments from Second Plan	Require- ments of Third Plan	Total require- ments
Broad Gauge . . . . .	788	4,576	5,364
Metre Gauge . . . . .	590	3,268	3,858
Narrow Gauge . . . . .	186	233	419

It has been explained during evidence that the requirement of coaches has been estimated on the basis of additional coaching stock required to meet 15 per cent increase in passenger traffic for the entire Plan period and the re-

placement of overage coaching stock on condition-cum-  
obsolescence basis.

Overage  
Coaching  
Stock.

8. The Committee have been furnished the following table to indicate the percentage of overage coaching stock to the total stock at the commencement of the Second Plan, at the end of the Second Plan and the position as on 31-3-1962, 31-3-1963 and as anticipated at the end of the Third Plan:—

	Broad Gauge	Metre Gauge	Narrow Gauge
	%	%	%
1. At the commencement of Second Plan	32.3	32.7	53.1
2. At the end of the Second Plan	35.62	29.00	61.10
3. As on 31-3-1962	36.07	27.50	61.00
4. As on 31-3-1963	34.16	26.11	60.04
5. At the end of Third Plan anticipated	26.8	18.7	51.28

The Committee note that the percentage of overage coaching stock to total stock for Broad Gauge and Metre Gauge has not much improved during the last two years but by the end of the Third Plan there would be appreciable reduction of nearly 10 per cent in the overage coaching stock for Broad Gauge and Metre Gauge. The percentage of overage coaching stock on Narrow Gauge would, however, still be as high as 51.28 per cent. If it is the policy of Railways not to add new coaching stock for Narrow Gauge, as this Gauge may itself become obsolescent in course of time due to increase in traffic, the Committee would suggest that continuous efforts should be made to maintain the Narrow Gauge stock in as good a condition as possible so that the passengers are not put to any inconvenience.

Shortfalls in  
Production  
in Second  
Five Year  
Plan.

9. As regards the throw-forward of requirements from Second Five Year Plan, the Committee have been furnished a statement, reproduced in Appendix III, indicating the total requirements for indigenous production during the Second Five Year Plan and the actual production during that period.

The Committee note from the statement that there was a marked shortfall in the production of the following types of coaches:

#### Broad Gauge

I Class coaches	152
III Class coaches	79
III Class Luggage and Brake Vans	219
Non-Passenger coaches	303

#### Metre Gauge

III Class coaches	138
III Class Sleeper	107
III Class Luggage and Brake Vans	55
Non-Passenger coaches	243

## Narrow Gauge

Passenger coaches . . . . .	156
Non-Passenger coaches . . . . .	30

It has been explained by the representative of the Ministry of Railways during evidence that:—

“Towards the end of the Second Plan period, on an examination of the expenditure on the plan head ‘rolling stock’, it was found that due to the cost of both indigenous and imported material having gone up considerably the plan provision for rolling stock was likely to be exceeded by a wide margin if the plan for procurement was to be put through as envisaged earlier. It therefore became necessary to effect cuts in the coach building programme of railways to reduce the expenditure under the head ‘coaching stock’. This was also in keeping with the directive from the Planning Commission allotting lower priority to passenger traffic and to the building of coaches stock for passenger traffic.”

The Committee, however, note that during the Second Five Year Plan period from 1956-57 to 1960-61\*, the Railways incurred an actual expenditure of Rs. 11,079 lakhs against the Budget provision of Rs. 13,298 lakhs resulting in a shortfall of Rs. 2,219 lakhs or approximately 16.6 per cent. The shortfall was largely under non-passenger coaches and under M.G. III class coaches which was made good early in the Third Plan period. The Committee consider that the shortfall in the production of coaching stock during the above period was extremely unfortunate, as to this extent over-crowding on the Railways, particularly in third class coaches was not relieved.

## \*Rolling Stock—Carriages.\*\*

(Figures in lakhs of Rs.)

Year	Budget provision	Actual expenditure	Variation
1956-57 . . . . .	20,39	15,62	—4,77
1957-58 . . . . .	26,71	22,12	—4,59
1958-59 . . . . .	30,25	23,08	—7,17
1959-60 . . . . .	27,56	24,36	—3,20
1960-61 . . . . .	28,07	25,61	—2,46
	<u>1,32,98</u>	<u>1,10,79</u>	<u>—22,19</u>

\*\*Based on “Works, Machinery and Rolling Stock Programmes of Railways” Part I of respective years.

Production during Third Five Year Plan.

10. The table below indicates the production programme of coaching stock as compared to the plan requirements for the Third Five Year Plan period :—

	Total Planned Requirements	Total anticipated Production
Broad Gauge	5,364	5,231
Metre Gauge	3,858	3,406
Narrow Gauge	419	352

The Committee are constrained to note that the total anticipated production is less than the total planned requirements. The Committee would suggest that the Ministry of Railways should endeavour to match production with the planned requirements. They need hardly add that the "planned requirements" of coaching stock are in fact on the conservative side as they provide for only 3 per cent increase in passenger traffic per year whereas experience of both the Second Five Year Plan and of the first two years of the Third Five Year Plan indicate that the actual increase is of the order of about 5 per cent per annum, if both suburban and non-suburban traffic are taken together.

Actual Production from 1961-62 to 1963-64.

11. The actual production of coaches during the first three years of the current Plan is indicated in the table below. For facility of reference the yearly requirements have also been incorporated in the table:—

	Requirements		
	Broad Gauge	Metre Gauge	Narrow Gauge
1961-62	1,011	523	54
1962-63	1,194	320	5
1963-64	972	888	75

  

	Production		
	Broad Gauge	Metre Gauge	Narrow Gauge
1961-62	926	744	67
1962-63	1,265	415	75
1963-64	516	127	32
(From April to Sept. 1963)	+ 1304	+ 498	+ 70
(From Oct. '63 to March '64)	788	371	38

The Committee note that the production of coaching stock is keeping up with the yearly target fixed by Railways and that, in fact, it is catching up on the throw-forward of requirements from the Second Five Year Plan. If the existing production trend is any indication, the Railways should be able to achieve the limited target for production of coaching stock that they have fixed, however inadequate that target may be in relation to the requirements.

12. The expenditure incurred on Project Account, distributed over the township, the Workshop and the offices, upto the end of 1962-63 is as under:—

Accounts and  
Financial  
Results.

(Figures in lakhs of Rs.)

	ICF Shell Factory	Furnishing Project		Total
		Tempo- rary Fur- nishing	Perma- nent Fur- nishing	
Township	80.64		55.54	
Workshop and Offices	606.73	10.57	215.05	
	687.37	10.57	270.59	968.53

The break-up of the assets by important categories, such as, land, roads, buildings, works, machinery etc. is given in Appendix IV.

13. A statement showing overall outturn of coach shells, related capital at charge, average cost of production, sale value of the shells produced, etc. since 1955-56 when production was commenced, is reproduced in Appendix V.

Price of  
Shells.

In this connection, the Ministry of Railways have stated that as the outturn of Integral Coach Factory is entirely for the use of the Indian Railways, there is no pricing (i.e. fixing sale price) or profits in the ordinary sense of the term. The costing of manufacture, however, is done on a comprehensive basis covering all indirect charges including proportionate dividend payable by the Railways to General Revenues on the relevant portion of the capital. The sale price per unit shown in col. 9 of the statement (Appendix V) is the price at which the outturn is transferred to the Railways; this price is revised from time to time, depending on how the cost of production compares with the sale price. The difference between the two goes to a Development Suspense Account (debit if the sale value at price fixed is below the cost of manufacture and credit if the sale value exceeds the cost of manufacture).

The sale price is also varied depending on whether it is intended to wipe out or work off any credit or debit balances in the aforesaid Suspense. Recently, the balance in the Development Suspense Account, which stood at Rs. 6.34 crores at the end of 1962-63 has been reduced to Rs. 80 lakhs by transferring Rs. 50 lakhs to Depreciation Reserve Fund and by reducing the prices of shells with retrospective effect

*The Committee are glad to note from the statement (Appendix V) that the average cost of manufacture per shell has come down from Rs. 2.74,000 in 1955-56 to Rs. 71,000 in 1961-62.*

Furnishing  
of Shells.

14. Initially, the 'Furnishing' of the coach shells produced by the factory was undertaken in various Railway Workshops. Subsequently, in view of the increased repair load on the railway workshops and in order to get as many coaches built in this Factory commissioned into service as quickly as possible, a temporary furnishing unit was set up which started production in January, 1957 (furnishing includes fitting up of the interior of the steel shells, electric and sanitary fittings, sitting trucks, sleeping arrangements etc.).

During the Second Plan, as a permanent arrangement, a separate Furnishing Project was sanctioned at an estimated cost of Rs. 3.7 crores. This was planned to cater for turning out fully furnished coaches from the Integral Coach Factory. Subsequently, the project was rephased and accordingly sanction was given for an expenditure of only Rs. 1.5 crores during the Second Plan, balance being provided in the Third Plan. The Furnishing Division was formally opened on the 2nd October, 1962. With the progressive build up of capacity in this permanent furnishing unit, the Factory has already taken up furnishing of about

The reduction effected in the prices of shells is indicated in the table below :—

Type of coach (Shell)	Price before reduction	Price after reduction		
		1960-61	1961-62	1962-63
	Rs.	Rs.	Rs.	Rs.
First Class . . . . .	1,08,000	85,000	80,000	70,000
T.L.R . . . . .	1,08,000	85,000	80,000	70,000
Third Class Sleeper . . . . .	1,08,000	85,000	..	..
First and Third (FTS) . . . . .	1,08,000	..	..	70,000
Third Class Conventional (TC) . . . . .	1,08,000	85,000	..	..
TLR Conventional (TLRC) . . . . .	1,08,000	85,000	80,000	..

360 shells per annum. Since the inception of the Furnishing Division in the Integral Coach Factory till 31st March, 1963, 1,300 coaches, as per detail given below, have been furnished:—

Sl. No.	Type of furnished coach	No. turned out
1.	Third Class . . . . .	474
2.	T.L.R. . . . .	62
3.	T.C.N. . . . .	150
4.	Third (Conventional) . . . . .	5
5.	T.L.R. (Conventional) . . . . .	5
6.	First Class . . . . .	412
7.	First & Third composite . . . . .	171
8.	E.M.U. 'A' . . . . .	6
9.	E.M.U. 'C' . . . . .	10
10.	E.M.U. 'D' . . . . .	5
		1,300

During the year 1962-63, 372 coaches were furnished as per details given below:—

Year	F*	FT**	EMUs***	Total
1962-63	180	171	21	372

The capacity of the Furnishing Division is expected to be developed to 500 during 1964-65 and 650 (in terms of third class Broad Gauge coaches) during 1965-66. During 1964-65 and 1965-66, the Furnishing Division is expected to be in a position to furnish all the coach shells that would be produced in the Shell Factory.

15. The cost of furnishing coaches (average cost per unit) in the Integral Coach Factory from 1957-58 to 1962-63 is indicated in the statement at Appendix VI. The Committee desired to know how the cost of furnishing a coach in the Furnishing Division of the Integral Coach Factory compared with that in a Railway Workshop. The Ministry of Railways have sent in reply the following comparative statement showing the furnishing cost in Integral Coach

Cost of Furnishing

F denotes First Class Coach  
 FT denotes First and Third Class  
 EMU denotes Electric Multiple Units.



### Factory and Railway Workshops during the last four years:—

Year	Integral Coach Factory				Railway Workshops*			
	III	TLR	F	FT	III	TLR	F	FT
(Figures in thousands of rupees)								
1959-60	63	52	..	..	71	..	..	..
1960-61	..	57	95	..	70	65	..	..
1961-62	..	57	83	..	..	65	91	..
1962-63	..	..	81	64	..	..	..	81

The Committee observe from the above statement that the cost of furnishing coaches in the Integral Coach Factory is less, as compared to the cost of furnishing in the Railway Workshops.

They are, therefore, glad that the capacity of the Furnishing Division is being increased to match the production of shells. They would, however, like to stress that the capacity thus released in the Railway Workshops should be put to effective use, to avoid any waste of labour and resources.

Price of Coaches Manufactured in H.A.L.

16. One of the leading manufacturers of coaching stock is Hindustan Aircraft Ltd., Bangalore, who started manufacture of steel body coaches in 1948. The Hindustan Aircraft Ltd. took up production of Broad Gauge integral type coaches in 1958 in technical collaboration with Messrs. Maschinenfabrik Augsburg—Nurnberg A.G. (M.A.N.), a leading German manufacturer of rolling stock. Hindustan Aircraft Ltd. have now developed a capacity for manufacturing 300 integral type coaches per year.

The following are the types of coaches (Broad Gauge integral) that have been manufactured and are proposed to be manufactured in Hindustan Aircraft Ltd. during the Third Five Year Plan:

Type of coaches	Remarks
III Class Sleeper Coaches B.G Integral two tier	Manufactured against order completed. Currently under manufacture.
II Class.	
III Class Sleeper three tier	} Programmed for manufacture against Third Plan.
III luggage and Brakevan	
III & Postal Van	
Parcel Van	
Full Postal Van	

\* Based on figures obtained from Central Railway. The other Railways concerned with furnishing of coaches are Southern and Eastern Railways.

These coaches are sold to the Railways by Hindustan Aircraft Ltd., in terms of Agreement dated the 15th July, 1961, a copy of which is reproduced in Appendix VII.

The Committee desired to know how the coaches being manufactured in Hindustan Aircraft Ltd. compared in respect of price and operating and maintenance cost with the coaches manufactured in the Integral Coach Factory. The Ministry of Railways have stated in reply that the type of coach that lends itself as a ready standard of comparison of cost is the Broad Gauge integral III class coach, a number of which have been manufactured, both by the Hindustan Aircraft Ltd. and Integral Coach Factory.

The trend of cost of manufacture of this type of coach in Integral Coach Factory was as under:—

Year	Cost
	Rs.
1957-58	1,71,000
1958-59	1,50,000
1959-60	1,42,000

NOTE:—There has been no production of integral III class Broad Gauge coach in Integral Coach Factory after 1959-60.

The actual cost of production of a III class integral Broad Gauge coach wholly produced by Hindustan Aircraft Ltd. in the fifth batch of coaches, whose cost data has been finalised, works out to Rs. 1,76,237 inclusive of the profit of Rs. 11,000.

The Ministry of Railways have added that "It will no doubt be appreciated that a comparison of Hindustan Aircraft Ltd. cost in the initial years of construction of integral type coaches there—even if the lessons learnt from the experience of Integral Coach Factory are to be allowed for—with the present Integral Coach Factory cost when the construction has developed and stabilised in Integral Coach Factory, will not be realistic."

The Committee find that clause 5 of the Agreement between the Ministry of Railways and Hindustan Aircraft Ltd. for production of Integral Broad Gauge coaches provides that:

"The Government agrees to pay to the company for the integral type coaches on a cost plus basis subject to the usual detailed cost audit unless and until the company is in a position to quote the firm price, and the price is settled by mutual agreement between the parties. The profit will be a fixed sum of Rs. 12,000/- per coach for the first 400 coaches."

The Ministry of Railways have stated that "as a firm price acceptable both to the Railways and the company could not be arrived at, so far it has been decided in terms of clause 5 of the Agreement to continue the "cost plus" basis until such time the company is in a position to quote a firm price acceptable to the Railways."

The Committee feel that the formula of "cost plus" basis takes away the urgency for reduction of cost of production in Hindustan Aircraft Ltd. The Committee see no reason why Hindustan Aircraft Ltd. which have now been manufacturing integral coaches for more than five years should not be able to manufacture a coach at a cost comparable to that of Integral Coach Factory.

As the existing agreement is due to expire in 1965-66, the Committee suggest that the whole matter, with special reference to the cost of manufacture of coaches, may be carefully reviewed early by a departmental committee consisting of senior representatives of technical departments and finance.

*Price of  
Metre Gauge  
Coaches.*

17. It would be seen from the statement reproduced in Appendix II that during the Third Five Year Plan, Messrs. Jessop & Co. Ltd., Calcutta are to supply 1542 Metre Gauge Coaches out of a total planned production of 3406 coaches, the rest being produced by Railway Workshops and the Integral Coach Factory. The Committee desired to know the comparative price of manufacture of Metre Gauge coaches by Messrs. Jessop & Co. Ltd., Railway Workshops and Integral Coach Factory. The Ministry of Railways have furnished the following information in response thereto:—

	Price charged by Jessop	Railway Workshops cost	ICF estimated cost
			(Rs. in lakhs)
(i) Third Class . . . . .	1.22	1.05	1.35
(ii) T.L.R. . . . .	1.41	1.05	Nil
(iii) Parcel Vans . . . . .	69	68	Not available

The Ministry of Railways have, however, added that:

"Integral Coach Factory have only just started the manufacture of integral type MG coaches and the cost of manufacture of IMG coaches in I.C.F. is, therefore, not available for comparison. However, the anticipated cost of an MG coach as estimated by I.C.F. has been taken for purposes of comparison.

The Railway Workshops' costs refer to timber-bodied coaches on conventional underframes whereas Jessop's costs refer to steel-bodied coaches on conventional underframes.

The Railway Workshops' costs refer to the costs during the Second Plan whereas Jessop's price is the price being paid at present.

The I.C.F. coaches are of all steel integral design and are also longer in length (64' as against the standard 58' length for Jessops and Railways Workshop built coaches)

The Committee desired to know the basis adopted for determining the prices of Metre Gauge coaches ordered on Messrs. Jessop & Co. Ltd. The Ministry of Railways have furnished in reply the following information:

*"I. MG Class III fully furnished coaches.*

The price for the first order against 1957-58 Rolling Stock Programme was determined on tender-cum-negotiation basis. The prices of the orders placed against subsequent Rolling Stock Programme were derived from the agreed price of the first order.

*II. MG III Class Luggage and Parcel Van.*

The price of TLR is being derived from the agreed price of Class III fully furnished coach.

*III. MG Motor and Parcel Vans.*

Only one order against 1957-58 Rolling Stock Programme was placed on Messrs. Jessop and Co. The price of this stock was also fixed on tender-cum-negotiation basis."

The manufacture of Metre Gauge Coaches was started in Integral Coach Factory only from October, 1963. Till December, 1963, the Factory had manufactured 75 Metre Gauge Shells, out of which 16 Shells had been furnished.

The Committee note that the cost of manufacture of Metre Gauge coaches differs in Jessop, Railway Workshops and Integral Coach Factory. The Committee feel that as Messrs. Jessop and Co. Ltd., have experience of several years in the manufacture of Metre Gauge Coaches, it should be possible for them to bring down the cost. In this connection, it would be pertinent to mention that the Integral Coach Factory was able to bring down the cost of production of a III Class coach from Rs. 1,71,000 in 1956-57 to Rs. 1,42,000 in 1959-60. The Committee have no doubt that as the Integral Coach Factory gain experience of manufacture of Metre Gauge Coaches they would be able to bring down the cost.

The Committee have also no doubt that in the light of the cost of manufacture in the Railway Workshops and the expected reduction in the cost of manufacture in the Integral Coach Factory, the price paid to Messrs. Jessop and Company Ltd. would in equity be brought down.

### III. IMPROVEMENTS IN DESIGN OF COACHING STOCK

*Improvements in design of coaches.*

18. The Estimates Committee had recommended in para 88 of their Twenty-Fifth Report on Railways (1956) that a small committee should be appointed to examine the feasibility of revising the present design of latrines, wash basins, water pipes and storage tanks, arrangements for closing the doors and windows and lighting arrangements provided in third class carriages. The Committee understand that in pursuance of this recommendation, the Ministry of Railways appointed in 1956 a committee consisting of three senior Railway officials who, after eliciting suggestions from representatives and users and other public and private bodies and after examining coaches of different vintages recommended a number of improvements in III Class coaches, such as increasing the size of the lavatory and restricting coaches with sub-standard lavatories to less important branch lines, increasing the knee-room, hip width and depth of seats and liberal yardsticks regarding passengers per door, per lavatory etc. and degree of illumination, most of which were accepted in 1957 and incorporated in subsequent builds. Some of the more important improvements and additions made in the coaches during the last five years are indicated below:

- (i) Extended provision of fans in III Class compartments.
- (ii) Provision of wider seats, more knee room and more moving space especially in III Class coaches.
- (iii) Provision of spacious and better equipped lavatories with stainless steel lavatory pans with flushing arrangements.
- (iv) Provision of increased water tank capacity.
- (v) Provision of sleeping accommodation (in three tiers) in III Class without extra charge over the normal fare for long distance III Class passengers.
- (vi) Provision of cushioned sleeping accommodation (in two tiers) in III Class at a nominal surcharge over the normal fare for III Class passengers.
- (vii) Provision of wash basins outside the lavatories in such sleeper coaches in addition to the wash basins inside the lavatories.

The Committee desired to know the improvements which have been effected in III Class sleeper coaches during the last two years. The Committee are informed that

“In Broad Gauge two-tier sleeper coaches (already manufactured during this Plan period in (H.A.L.) and in the Metre Gauge three-tier and two-tier sleeper coaches (planned for manufacture in

I.C.F. in 1964-65) the number of body side doors has been increased from 2 to 3. This will improve the ease in entering the exit of passengers and luggage.

The positioning of the water closet has also been changed to advantage in these coaches in distributing them both in the end and in the middle, thus ensuring easier accessibility to passengers.

As a further measure of improvement on the Metre Gauge three-tier sleeper coaches, a new design has been evolved providing longer sleeper berths (6'-2") same as existing in the Broad Gauge instead of 5 ft. long berths in the earlier builds of Metre Gauge three-tier coaches. This has been done by doing away with the Aisle seats and berths in the Metre Gauge design. 50 such coaches are planned for production in the Integral Coach Factory in 1964-65."

It was admitted by the representative of Railways during evidence that a few complaints had been received about inadequacy of space between the lower and intermediate berths in the case of three-tier coaches and that the Railways were trying to effect some improvement in the matter.

*The last departmental committee to review the amenities provided in III Class coaches and to suggest improvements submitted their Report in 1957, i.e. more than five years ago. The Committee would suggest that small committee consisting of senior Railway officials with representatives drawn from the Research, Design and Standards Organisation and Integral Coach Factory, may be constituted to go comprehensively into the question of providing amenities in III Class coaches and suggest improvements. In fact it would be a good idea if such an expert committee is constituted after every five years to review the amenities provided in coaches and suggest measures to improve them.*

19. The Committee desired to know the defects in design and performance in the coaches manufactured by the Integral Coach Factory which might have been pointed out by the user Railways during the last five years. They also desired to know the action taken to rectify the shortcomings pointed out. The Ministry of Railways have furnished in reply a statement showing the defects and the action taken thereon which is reproduced in Appendix VIII. The Committee find that remedial measures have been taken in all cases.

*Defects in  
Design and  
Performance  
of ICF  
Coaches.*

The Committee also desired to know how the running efficiency and operating and maintenance cost of integral coaches manufactured in Integral Coach Factory compared

with those manufactured in Hindustan Aircraft Limited. The Ministry of Railway have stated in reply that:

"No separate records are maintained for collecting the operating and maintenance cost of individual types and makes of coaches. It may, however, be stated that bulk of the design and constructional features of ICF coaches and HAL integral coach are substantially similar and, therefore, the operating and maintenance cost of either type would also be the same.

As regards running efficiency i.e. from the riding quality aspect, while both are efficient, the HAL bogie has shown better results at speeds over 50 miles per hour in comparison to the all-coil type of I.C.F. bogie."

*The Committee would suggest that the design of the bogie under manufacture by Hindustan Aircraft Ltd., may be examined in detail to see what special features thereof could with advantage be incorporated in the design of bogie manufactured in Integral Coach Factory to enually improve its running at speeds of over 50 miles per hour.*

**III Class  
Sleeper  
Coaches.**

20. It has been stated by the representative of the Ministry of Railways in evidence that it is the policy to introduce the requisite number of III Class sleeper coaches on long distance trains having a run of 800 Kms. and over on Broad Gauge line, and 450 kms. and over on Metre Gauge line. The Committee desired to know whether any assessment had been made about the actual demand for sleeper facility as compared to its provision. The representative of the Ministry of Railways has stated in evidence that the facility of sleeper coaches is well-patronised. He was sure that if the Railways were able to replace some more of the existing sitting coaches with sleeper coaches, the public would definitely prefer it but to that extent they would be reducing the number of passengers which could otherwise have been carried. *The Committee find that the difference in the earmarked seating capacity between an ordinary III Class\* coach and a three-tier sleeper\*\* coach is only five. The Committee would, therefore, suggest that the Railways may endeavour to provide III Class sleeper coaches on all long-distance trains which involve night running of 8 hours and more.*

**Additional  
Rakes for  
De-luxe  
Services.**

21. During the Second Five Year Plan, 59 air-conditioned coaches (full and partial) were built in the Railway Workshops, but no such provision for construction of air-conditioned coaches has been made in the Third Five Year Plan.

During the course of evidence, the representative of the Ministry of Railways has, however, informed the Committee that as the provision of De-luxe trains has proved very

\* 80.

\*\* 75.

popular with the public, there is a proposal, under consideration, to manufacture 3 more rakes to increase the frequency of present de-luxe services. There is also a proposal to manufacture five air-conditioned tourist cars. The difficulty, however, is about the import of electrical equipment for air-conditioning for which foreign exchange is required.

*The Committee would suggest that early decision may be taken on the question of manufacture of three more rakes for augmenting De-luxe trains, which are stated to be very popular with the travelling public.*

22. In response to a question whether any research is being carried out to reduce noise and dust in rail coaches, the Committee have been informed that noise is inherent in the operation of coaches and it also comes from railway stations. No specific research as such has been made to eliminate it. However, shock absorbers, welded rails, rubber fittings under springs have been provided, which all help to reduce noise.

Elimination  
of Noise and  
Dust in  
Coaches.

As regards dust, rubber has been put at the bottom of windows to prevent the ingress of dust in the coaches.

The Committee would also like to draw attention to para 78 of their Report on Northeast Frontier Railway wherein they have stressed the need for improving the design of dining cars to reduce smoke and dust nuisance.

*The Committee would suggest that Research, Design and Standards Organisation of Railways may be specifically asked to go into the problem of noise and dust and suggest further measures to reduce them.*



#### IV. ELECTRICAL MULTIPLE UNIT COACHES AND DIESEL RAIL CARS

Diversification of Production in I.C.F.

23. With the emphasis on diversification of production in the Factory, a start has been made in the manufacture of Broad Gauge A.C. electric multiple unit coaches for service in the electrified suburban sections in Calcutta area. In the first instance, this factory is producing trailer and driving trailer coaches for electric loco operation in the electrified sections of suburban Calcutta. As a further development, the factory has taken up the manufacture of prototype electric multiple unit motor coaches. The first two prototype motor coach manufactured with electrical equipment supplied by M.S. Hitachi, Japan have been completed recently and are now on trial in Calcutta. Two more prototypes using equipment supplied by M.S. Associated Electrical Industries, U.K., are also being constructed. After successful trials with these prototypes for a few months, the electrical equipment would be ordered. The traction equipment is expected to be manufactured by Heavy Electricals India (Ltd)., Bhopal, on whom an indent for 76 numbers of this equipment has already been placed. Deliveries of these equipment are expected to commence from March, 1965. To meet the immediate requirements, prior to the availability of indigenously manufactured traction equipment, about 26 sets of traction equipment are proposed to be imported. With this arrangement the series production of these motor coaches is expected to commence in the factory from August, 1964. With the manufacture of these motor coaches, the services on the electrified suburban sections in Calcutta will be augmented by Multiple Unit coaches instead of electric loco hauled coaches.

It is further understood that the factory will undertake manufacture of Metre Gauge AC EMUs for the Madras-Tambaram-Chingleput electrified section. The production of these units is expected to be taken in hand from January/February, 1965.

During the course of evidence, the representative of the Ministry of Railways has stated that the Heavy Electricals have agreed to make supplies of electrical equipment required for electrical multiple unit coaches in different letters of correspondence. No formal agreement has, however, been entered into by Railways with them.

*The Committee would suggest that close liaison should be maintained by the Railways with the Heavy Electricals Ltd. To ensure long term supply of electrical equipment*

for EMU coaches, the Ministry of Railways may consider the advisability of entering into a formal agreement for this purpose with the Heavy Electricals Ltd.

24. The Committee note from the statement in Appendix II that 263 DC coaches during the Third Five Year Plan are to be manufactured by M/S Jessop & Co. Ltd. As DC EMU coaches are not manufactured in the Integral Coach Factory, the Committee desired to know how the cost and performance of Jessop manufactured stock compared with imported ones in price, running efficiency, operating and maintenance cost. The Committee are informed that DC EMU coaches were last imported from Japan in 1955. The comparative position of stock imported from Japan and that manufactured by Jessop as indicated by the Ministry of Railways is as follows:

	Japanese stock imported in 1955 (1500 V DC, 2 motor coaches) (plus 2 trailers)	Jessop manufactured stock as per 1961 order (1500 V DC (1 motor coach) (plus 2 trailers)
1. Cost per Unit . . . . .	Rs. 12.3 lakhs	Rs. 15.56 lakhs
2. Passenger capacity (Under crush load)	776	574
3. No. of coaches per unit . . . . .	2 motor coaches and 2 trailer coaches.	1 motor coach and 2 trailer coaches
4. Passenger amenities . . . . .	No major difference.	
5. Running Efficiency	} The supplies against the 1961 order on M/s. Jessop have only been received recently and as such no experience on their performance is available. However, comparing with the previous lot (converted from 3,000 V DC to 1500 V DC) supplied by Jessop it may be mentioned that the stock imported from Japan has been giving generally trouble-free service whereas in the Jessops stock there have been some mechanical defects. The defect with the converted Jessop stock of sudden loss of brake-power has been overcome.	
6. Operating and Maintenance Costs.		

The Committee find that while the cost of DC EMU coaches of Jessop, is Rs. 3.2 lakhs more than the Japanese imported stock of 1955, their capacity is less. It is also noted that while the stock imported from Japan has been giving trouble-free service the Railways have no experience yet of the performance of Jessop coaches as they were

*received only recently. The Committee would stress that the cost of manufacture in Jessop should be brought down and that care should be taken to see that their running efficiency and operating performance compare favourably with the imported units.*

**Diesel Rail  
Cars.**

25. Integral Coach Factory have undertaken manufacture of Metre Gauge diesel rail cars. M|S Ashok Leyland have supplied two Leyland 0.680 power-plus diesel engines along with transmission etc., free of charge in the first instance and to be paid for if found satisfactory after installation in rail cars and service trials. A prototype two-coach Metre Gauge diesel rail car unit is under manufacture in the Integral Coach Factory and is expected to be ready soon. Placing of further orders on M|S Leyland depends upon the performance of the prototype engines. So far no agreement has been entered into between the Railways and Messrs. Ashok Leyland.

The Committee are informed that there is no proposal to undertake manufacture of diesel engines for the rail cars in the Diesel Locomotive Works, Varanasi. The engines required for diesel cars are stated to be of different type. Moreover, their horse-power is stated to be very much smaller and is not within the range of manufacture of M|S American Locomotive Company, the collaborators for Diesel Locomotive Works, Varanasi.

*The Committee are glad that a beginning has been made in the Integral Coach Factory to undertake the manufacture of diesel rail cars which may well prove useful for carrying short distance passenger traffic.*

## V. STORES AND COMPONENTS

26. The Committee were informed in October, 1963 that so far only 40% of the spares had been supplied by the Integral Coach Factory to the user Railways for the maintenance of integral coaches. It was added that "supply is being stepped up. By December, 1963, 90% of the items will have been supplied.....It is expected that by the middle of 1964, the remaining 10% will be cleared..... Normal quota of spares will be supplied with each batch of 100 coaches." Supply of Spare Part

The Ministry of Railways have explained that the main reason for the inability of the Integral Coach Factory to supply the spares rose from production difficulties, particularly in the Machine Shop with the tight target set for production of diversified types of shells in the Factory. There were also difficulties about the shortage of materials.

The Committee desired to know the extent to which the maintenance of integral coaches suffered as a result of short supply. The Committee are informed that urgent requirements of the Railways were duly complied with on priority basis and therefore the maintenance of coaches did not suffer on this account.

*The Committee consider that as maintenance of coaches is no less important than the manufacture of new ones, the Integral Coach Factory should ensure that the normal quota of spares is supplied to the user Railways.*

27. The Committee are also informed that action is being taken to arrange for the procurement of spares from the Hindustan Aircraft Ltd. on annual basis for the maintenance of a unit of 100 coaches. *The Committee hope that necessary orders for supply of the requisite spares would be placed on the Hindustan Aircraft Ltd. without delay so that the maintenance of these coaches does not suffer.* Supply of spares by H.A.L.

28. The Committee find that in para 17.1 of the Report of the Integral Coach Factory for 1962-63, there is a mention of "delayed coverage made against the 1963-64 production programme". Supply of raw materials.

The Committee desired to know the reasons for the delay and the items affected thereby. The Integral Coach Factory have informed that—

“(a) Arrangements for the supply of steel to the Factory are made by the Railway Board. The delay in coverage was due to the following reasons:—

(i) Non-availability of foreign exchange;

(ii) Re-tendering necessitated by higher rates quoted originally;

(iii) Formalities regarding the AID loan.

(b) The following are the major items:—

Steel.

Centre Buffer couplers—M.G.

Vacuum reservoirs—M.G.

Vacuum cylinders—M.G.

Shock absorbers—M.G.

Slack adjusters—M.G.

E.P. brake equipment (E.M.U.)

Roller bearings—M.G.

(c) We could, with great difficulty, by resorting to various alternatives, see through 1962-63 programme. As regards 1963-64, position is however difficult. Even after having exhausted all sorts of alternatives, there are 31/35 sections of steel which are holding up or likely to hold up production.”

It has been amplified by the representatives of the Railways during evidence that the short supply has not affected production during the current year. At the end of September, 1963, 11,124 tons of steel were available with the Integral Coach Factory and out of about 700 items of steel required for the Factory, difficulties have been experienced only for 30 to 35 items. The Committee are informed that for 1964-65, clearance has been obtained from the Iron and Steel Controller and that orders for one half of the supplies required have already been placed, and for the balance would be placed by the end of March, 1964.

*The Committee are glad to know that the position regarding the supply of raw materials has eased. The necessity of ensuring smooth and regular supply of raw materials to the Integral Coach Factory needs no stress.*

29. The annual requirement of wheels and axles of the Integral Coach Factory is 4800\* and 2400\* respectively. This requirement is being met at present partially by imports and partially from indigenous sources. Wheels and axles to be imported and indigenously procured in 1963-64 are given below:—

Wheels and Axles.

	No. of wheels required	Source of supply		No. of Axles required	Source of Supply	
		TISCO	Imports		TISCO	Imports
1. B.G. Coaches	1448	1448	Nil	724	724	Nil
2. EMU Coaches including 3 Motor Coaches	142	Nil	1432	716	380	336
3. M. G. Coaches	1952	Nil	1952	976	Nil	976

The Committee understand that TISCO have not been able to meet in full the supplies planned on them in regard to wheels and axles during the years 1960-61, 1961-62 and 1962-63. Total requirement planned on TISCO and actual supplies made by them during the above years are given below:—

Production programme	Total requirements planned on TISCO		Actual supply made by TISCO		%age met by TISCO	
	Wheels	Axles	Wheels	Axles	Wheels	Axles
1960-61	2592	1296	1865	1238	72%	95%
1961-62	4456	2228	1346	1386	30%	62%
1962-63	4352	2176	3703	1891	85%	88%
TOTAL	11400	5700	6905	4515	60%	79%

During evidence the representative of the Ministry has stated that the short supplies in 1961-62 were due to failure of some machines in TISCO. The Committee are informed that the production in the Integral Coach Factory did not suffer on account of short supplies as the shortfall in supply of wheels during 1960-61 to 1962-63 was made up partly by imported supplies planned and partly from indigenous stocks brought over from previous years. The shortfall in axles was made up partly from supplies from Ordnance Factories and partly from indigenous stock brought over from previous years.

\*In addition the requirements of spares for supply to Railways is :

Wheels — 480  
Axles — 240

The table below shows the price of TISCO wheels and axles as compared to imported ones:—

	Source	F.O.R. rate
<i>Wheels</i>		
(a) BG (solid wheel)	Tisco	Rs. 335/
(b) BG (EMU tyred wheel)	imported	Rs. 858/(Italy)
(c) MG (solid wheel)	imported	Rs. 397 (Japan)
<i>Axles</i>		
(a) B.G.	Tisco	Rs. 315
(b) EMU	Imported	Rs. 715 (Italy)
	Tisco	Rs. 315
(c) M.G.	Imported	Rs. 267 (Japan).

The Committee are informed that the quality of Tisco wheels is considered as good as the quality of imported ones.

In reply to Committee's query it has been stated that advance planning is made for procurement of wheels and axles required by the Integral Coach Factory, so that adequate stocks are available well in advance of actual production, thus acting as a buffer stock. The Integral Coach Factory have at present got 600 coach sets of wheels and axles to cover their requirements of about 10 months.

*The Committee are glad to note the improvement in the position of supply of wheels and axles to the Integral Coach Factory. They, however, note from the table given under para 29 above that during 1963-64 the wheels required for EMU and Metre Gauge coaches and axles for Metre Gauge coaches are being imported. They would, therefore, stress that every effort should be made to develop indigenous capacity for manufacture of wheels and axles so that the necessity of imports is obviated.*

**Spherical  
Roller  
Bearings.**

30. Roller bearings used by the Integral Coach Factory for the manufacture of coaches are of spherical type. These roller bearings are at present not being manufactured indigenously. The annual requirements of these bearings of the Integral Coach Factory vary from year to year based on the number of coaches to be turned out. Based on an approximate out-turn of 700 coaches per year, 5600 axles box sets are required by the Integral Coach Factory annually.

So far the Integral Coach Factory have been meeting their requirements by importing them from Sweden and

West Germany. The value of roller bearings imported by the Integral Coach Factory during the last three years and the current year are as follows:—

1960-61	Rs. 2,80,975
1961-62	Rs. 5,42,630
1962-63	Rs. 10,19,154
1963-64	Rs. 8,01,640

In 1960-61 and 1961-62, Integral Coach Factory turned out 300 conventional coaches which did not need roller bearings. In addition, about 700 coach sets of roller bearings were already available at the end of 1959-60 which explains the less procurement in 1960-61 and 1961-62.

The Committee understand that a meeting was held on 23-9-1963 of the ball and roller bearing manufacturers who had shown interest in undertaking the manufacture of roller bearings in the country. The meeting was attended by the representatives of Andhra Pradesh Industrial Development Corporation, Hyderabad; Precision Bearings India Ltd., Bombay; Anti-friction Bearing Corporation Ltd., Bombay; Bharat Ball Bearing Co., Calcutta; and National Engineering Industries, Jaipur. The requirements of Railways were discussed in detail and the firms expressed their keen interest in going into this field. The manufacturers have also agreed to submit concrete proposals to the Railways for undertaking the manufacture of roller bearing including the spherical bearings required by the Integral Coach Factory.

*The Committee hope that concerted efforts would be made to develop at an early date indigenous capacity for manufacturing spherical roller bearings.*

31. During the year 1961-62, stores worth Rs. 46.78 lakhs were purchased by the Integral Coach Factory from Cottage & Small Scale Industries, but in the year 1962-63 stores for Rs. 26 lakhs only (8% of the total purchases) were purchased from them. The Ministry of Railways have added: "The position is unsatisfactory as the supplies are not only delayed but are also not according to specifications". The Committee have been informed in response to a question that the following assistance is being given by the Integral Coach Factory to the Small Scale Industries to meet the requirements of components:

Supplies  
from  
Cottage &  
Small Scale  
Industries

- (i) Technical guidance in respect of new items and new life of production.



- (ii) Inspection of advance samples submitted by the firms.
- (iii) Stage inspection.
- (iv) Assistance in obtaining raw materials which are in short supply like aluminium sheets, electrodes, etc. by contacting their suppliers.
- (v) Supplies of raw material from Railway stock on loan.

The Committee have also been informed by the representative of the Ministry of Railways, during evidence, that the Integral Coach Factory have appointed a special officer to go round the industries with whom orders have been placed and to 'show them the correct way of doing them'.

*The Committee are glad that the Integral Coach Factory are rendering assistance to the Small Scale Industries for meeting their demand of components and stores. They would also suggest that the Railways should take the assistance of the Indian Standards Institution so that the specifications for components to be procured from the market are standardised to the extent possible. The Railways may also invoke the assistance of the Commissioner for Small Scale Industries to ensure timely supplies according to specifications.*

**Silent  
Rubber  
Block Bushes  
and Seam-  
less Tubes.**

32. The annual requirement of the Integral Coach Factory with regard to silent rubber block bushes and seamless tubes in number and value is as follows:—

	<i>Number</i>	<i>Value</i>
(i) Silent Rubber Block Bushes .	6,000	Rs. 3·8 lakhs
(ii) Seamless Tubes .	65,000 metres	Rs. 2·79 lakhs

At present silent block bushes are being imported. The Committee are informed that to develop indigenous capacity for these items, the Railways are in contact with a number of manufacturing firms and they have recommended the application of one of the firms for the grant of industrial licence to undertake manufacture of the bushes.

As regards seamless tubes, the Committee are informed that at present Messrs. Indian Tube Co., Jamshedpur, are the only manufacturers in the country. Messrs. Indian Tube Co., are, however, manufacturing only two sizes out of six sizes required by the Integral Coach Factory. For

the remaining sizes, efforts are being made by the Department of Technical Development to develop their manufacture indigenously. In the meanwhile to save foreign exchange, the Integral Coach Factory have decided to use fabricated tubes for their production programme of 1964-65 onwards.

The Committee are informed that the Railways are maintaining liaison with the Department of Technical Development with a view to develop the indigenous capacity for manufacture of above items.

*The Committee hope that the manufacture of rubber block bushes and seamless tubes of all sizes would be developed in the country soon.*

33. The Integral Coach Factory plan to manufacture Bolster springs which are being imported at present. By October, 1963 the Integral Coach Factory had put in position all the machines except the shot peening and testing and scragging machine, which were to be imported, for the manufacture of these springs. The following statement indicates the date of placement of indent on the DGS&D, placement of order by the DGS&D and date of expected delivery etc. of these machines:

Description of the Machine	Date of placement of indent on DGS&D	Date of placement of order by the DGS&D	Delivery date stipulated in the order	Actual delivery date
Short Peening Machine	5-8-1961	7-12-1962	31-8-1963	16-11-1963
Testing and Scragging Machine	30-9-1961	20-12-1962	31-1-1964	Not yet received.

The Committee are informed that indents for Shot Peening and Testing Machines were placed along with other machines required for the manufacture of bolster springs. However, the orders for the Shot Peening and Testing Machines were placed sometime later, than the other machine as there was some correspondence between DGS&D and the Integral Coach Factory in regard to the type of machines required, their specifications etc.

*The Committee are unhappy that an unduly long period of 16 months was taken in placing orders for these machines on the manufacturers with the result that the programme*

*for the manufacture of bolster springs has been upset. The Committee however hope that the Testing and Scragging machine would be procured by the scheduled date and the manufacture of bolster springs taken in hand without delay.*

## VI. GENERAL

34. The Committee desired to know whether the Ministry of Railways have made any comparative study of the productivity of a worker in the Integral Coach Factory and that of a worker in certain leading coach building factories in Switzerland, Japan, Germany etc. The representative of the Ministry of Railways has stated, during evidence, that no such comparison has been made. It is understood that Messrs. Swiss Car & Elevator Manufacturing Corporation Ltd., Schileren, the collaborators of Integral Coach Factory had estimated that 5,800 man-hours would be required for the manufacture of a coach in the Integral Coach Factory. The Integral Coach Factory have improved upon this estimate as at present 5,200 man-hours are being spent on a coach. Productivity.

35. The Committee are informed that the Incentive Bonus Scheme was introduced in the Shell Division from January, 1960 and in the Furnishing Division from the middle of 1962. So far about 3,500 workers (both direct and indirect) have been covered by this scheme. The direct workers are paid at a fixed rate for the time saved by them (time saved-time allowed minus time taken) subject to a maximum of 50% of the time taken for each job. Essential indirect workers, Chargemen and Mistries are also covered by this scheme and the calculation of bonus to them for the hours worked by them is based on the total time saved and the total time worked by the direct workers in their sections. Payment is made at rates ranging from 75 nP to 25 nP per hour. Incentive Bonus scheme.

The total and the average bonus paid per worker and the percentage of increase in earnings are shown below :—

Year	Total Bonus Paid	Average Bonus per week	% age Increase in earnings
1960-61	1.76 lakhs	11	9%
1961-62	4.78 lakhs	14	11%
1962-63	5.55 lakhs	15	11%

The Ministry of Railways have concluded that "In the Shell Division, the productivity has increased by 31% and it has been possible to double the production in 1962-63 as compared to 1958-59 by increasing staff by 56% only."

36. The Committee, however, find from a reply furnished to the Study Group of the Estimates Committee which Scope for economy.

visited the Integral Coach Factory in October, 1963 that a saving of Rs. 4,29,000 has been achieved since declaration of emergency by surrendering 449 posts and by keeping in abeyance 172 posts.

During the evidence the representative of the Ministry of Railways admitted that a further reduction of 200 to 250 men was possible if the average productivity was raised from the existing 31 per cent to about 45 to 48 per cent.

*The Committee would stress that all efforts should be made to increase productivity in Integral Coach Factory and bring down the cost of manufacture. This will have the twin advantage of reducing the price paid by Railways and of making the Indian coaches competitive in price in the export market.*

Suggestions  
and inven-  
tions.

37. The staff are encouraged to offer suggestions for improvements in methods of working and in some cases awards for these were given to staff on the spot. Normally, however, all such suggestions are examined by a Screening Committee and awards are based on its recommendations. During 1962-63, 26 awards were made. It is expected that, as a result of these suggestions, a non-recurring saving of Rs. 12,500/- and a recurring saving of Rs. 150/- per coach will be made.

Particulars of suggestions received, accepted and rewards given since the inception of Factory are indicated in the table below:—

Year	No. of sugges- tions received	No. of sugges- tions accepted	Annual Savings Rs.	Value of rewards granted		
				Cash Rs.	Merit Certi- ficate	Letter of Com- menda- tion
1954-55	2	1	192	10	..	..
1955-56	..	..	..	..	..	..
1956-57	23	1	300	50	..	..
1957-58	157	26	20,659	250	2	1
1958-59	484	46	21,890	1,615	2	14
1959-60	254	20	25,787	805	..	9
1960-61	156	30	56,000	615	..	10
1961-62	125	12	42,900	310	..	3
1962-63	127	31	12,500 150@	2,365	..	9

\*non-recurring saving.

@recurring saving per coach.

*The Committee would in this connection, invite the attention of Railways to para 43 of their Report on Chittaranjan Locomotive Works and suggest that concerted steps*

*may be taken to give every encouragement to staff to offer constructive suggestions to improve efficiency and reduce cost of manufacture.*

38. The Integral Coach Factory has been making systematic use of method, time and case studies with a view to improve methods of production, make effective use of material and plant, equipment and man-power and in general to increase efficiency and economy.

Method,  
Time and  
case studies.

There is an Efficiency Cell which has been devoting its attention to the day to day problems of efficiency such as—

- (a) Improved material handling.
- (b) Provision of suitable shop equipment to get over the problems arising on various jobs.
- (c) Formation of production belts and re-location of certain items of machinery to improve production flow.

It is understood that the Efficiency Cell has been re-organised w.e.f. December, 1961 to cater to advanced planning needs arising out of diversified production programme of the Third Five Year Plan.

It is understood that as a result of suggestions given by the Efficiency Cell, necessary improvements were effected resulting in substantial savings. Some of the important improvements suggested and savings resulting therefrom are detailed below:—

---

(i) Revised scheme for transportation of MG coaches using IRS BG underframe instead of IRS BG Bogies.	Savings : Rs. 72,000
(ii) Gas cutting of plates as per pre-planned cutting diagrams.	Ann. Savings : Rs. 60,000
(iii) Development of Universal jigs for trough floor, roof and body assembly : modification to the side-wall jigs to suit different types of shells.	Savings. Rs. 2,00,000
(iv) Juggling of end stanchion to eliminate planning	Annual Savings : Rs. 5,500
(v) Manufacture of a substitute for electrode tips for the spot welding machines.	This is probably a superior product when compared with the imported electrode tips. The Board had advised the Railways that these tips should not be imported now and should be obtained from ICF.

---

The Committee are informed that as a result of 26 case studies made during the current year, the following economies have been effected:—

Material—Rs. 11,860 per year.

Labour—Rs. 79,269 per year.

The Method Study Section has taken up for investigation cases when bottlenecks existed with a view to suggest revised methods. The Committee are informed that as a result of suggestion thrown up by the method studies, the production procedure was revised where necessary resulting in increased output and economy. The details of improvements effected are given in Appendix IX. Some of the more important suggestions together with the saving resulting therefrom are mentioned below:—

	Savings Rs.
(i) Method evolved to reclaim the shorter bolster suspension hangers fitted on the earlier coaches and due to be replaced with longer ones. Extended trials being conducted to ensure efficiency of reclaimed hangers.	2 lakhs. (anticipated)
(ii) Machine welding adopted in place of manual arc welding on cross beams.	12,000/-
(iii) Milling of brake beam plug ends eliminated	10,000/-
(iv) Reduced milling operation by preforming the blocks to rough shape in the case of hanger top blocks.	Components produced 50% faster. Annual savings Rs. 10,000/-

*The Committee are impressed with the increased production and the economy achieved in Integral Coach Factory as a result of Method, Time and Case Studies and the efforts of Efficiency Cell. The Committee consider that the commendable example of the Integral Coach Factory may with advantage be emulated by other large workshops and public undertakings.*

Technical  
Training  
School.

39. A well-equipped Training School and Hostel, which can accommodate 26 trainees, is provided in the Integral Coach Factory. The number of employees who have been

trained are shown in the statement below, the number undergoing training being shown in brackets:—

Name of Admn.	Trade App.	Appren- tice Mechanics	Graduate Appren- tices	Misc. Courses like refresher courses, change of trade courses, etc.	Total
I.C.F.	2333 (55)	93	23	377 (22)	2826 (77)
Other Rlys.	232 (99)	108 (24)	..	549 (19)	889 (142)
Hindustan Tele- printers, Bharat Elec.	..	..	..	47	47
Defence Trainees Govt. of India	(158)	..	..	..	(158)
	<u>2,565</u> (312)	<u>201</u> (24)	<u>23</u> ..	<u>973</u> (41)	<u>3,762</u> (377)

As regards the Defence trainees, the Committee are informed that the cost of training will be borne by the Ministry of Defence.



## VII. EXPORT OF ROLLING STOCK AND RAILWAY EQUIPMENT

40. India now has a well-developed railway equipment industry and it is more or less self-sufficient in the manufacture of steam locomotives, passenger coaches and freight wagons of all types, train lighting and mechanical signalling equipment, vacuum brake equipment, track material etc. There exist, therefore, possibilities of export to countries in South-East and West Asia and in Africa which have recently gained independence and do not have a well-developed railway equipment manufacturing industry. Besides, India has the advantage of common standards and practices in railway working in a number of countries like Burma, Ceylon, Malaya, Nigeria, etc. because of past association under British Rule. The Railway Board constituted in October, 1962 a committee consisting of Director (Finance), Director, Mechanical Engineering, Director, Railway Stores and Joint Director, Railway Stores (Development Secretary) to examine the question of promoting exports of railway rolling stock.

41. The Ministry of Railways have so far taken the following measures to promote exports of railway rolling stock and equipment:

- (i) The Development Cell in the Board has compiled a prefiled illustrated catalogue of Railway equipment manufacturers in the country. Copies of this volume have been sent to Indian Missions abroad for presentation to Railway authorities in their regions and for general publicity.
- (ii) A display of some of the important items of Railway equipment available for export was organised by the Development Cell in the Railway Pavilion in the last Industries Fair held in New Delhi from November, 1961 to January, 1962. Delegates to the Asian Railways' Conference were conducted round this display.
- (iii) A number of foreign dignitaries have been taken round important Railway equipment manufacturing centres.
- (iv) Delegations have also been sent to Australia, Indonesia, Singapore, Malaya, Thailand, Burma, Pakistan, Ceylon and Argentina to meet and discuss with the top Railway officials and others there the possibilities of export of rolling stock and railway equipment etc.

- (v) Broad details of rolling stock and equipment in use in countries offering promising markets has been collected by the Development Cell for facility of reference by Indian manufacturers.
- (vi) Free technical advisory service by Research Designs and Standards Organisation of the Ministry of Railways has been made available to the neighbouring Railway systems.

A statement showing brief particulars of export of railway equipment during the last three years as furnished by the Ministry of Railways is reproduced in Appendix. X.

*While the Committee are glad to note the systematic measures taken by the Ministry of Railways to step up exports, they find that so far success has been achieved only in securing orders for supply of track materials and equipments but India has not yet been able to secure orders for supply of locomotives, coaches and wagons. As regards locomotives, it is understood that as steam traction is going out of use in the world, there may not be any bright prospects of exporting locomotives. In coaches and wagons, however, India has not been able to secure any order for a variety of reasons which are discussed below:*

*High Prices:* Steel prices in India are generally higher than obtaining in foreign countries and as a consequence prices of items like freight wagons are higher as compared to the international level. It is understood that at present manufacturers exporting railway equipment are allowed steel and raw materials at concessional prices and are also allowed to import raw materials and components upto a limit of 40 per cent of the f.o.b. value of the order. 10 per cent of the value of such import licences can be used for capital equipment.

The Ministry of Railways contend that the incentives have not proved sufficient.

The representative of the Ministry of International Trade has, however, stated in evidence before the Committee that no review of the incentive scheme for export of rolling stock is envisaged at present. Government intend to keep a watch on the operation of the present scheme and if necessary the question of revision or amendment thereof would be considered later.

*Deferred Payment:* It is understood that most of the countries offering export possibility are facing problems similar to that of India in finding the necessary finance for procurement of equipment from abroad. As no scheme has so far been evolved for exporting rolling stock and railway equipment on deferred payment basis, India could either not quote or secure the order for the supply of wagons and

coaches. In this connection, the Railway Board have furnished a Statement reproduced in Appendix XI which shows more important enquiries for the supply of railway wagons (freight stock) received from foreign countries through Indian Missions abroad which did not lead to any fruitful results ultimately.

*Shortage of Raw Materials:* It is understood that the industry in general is faced with the problem of shortage of raw materials like pig iron, steel, coke, etc.

*The Committee would suggest that the Ministry of Railways and the Ministry of International Trade should jointly make a close study of these problems and evolve suitable measures to step up exports of rolling stock and railway equipments. The Committee would also suggest early consideration by Government of two suggestions made by the Ministry of Railways for the appointment of Technical Attaches to a few Indian Missions abroad and for appointment of local agents to effectively follow up quotations given by Indian manufacturers.*

Consortium  
of manu-  
facturers.

42. The Committee understand that Government have a proposal under consideration to promote a consortium of manufacturers of railway equipment to tender quotations on collective basis as experience has indicated that it is not possible for an individual manufacturer to undertake supplies of railway equipment and railway rolling stock. It is hoped that if this consortium is organised, it would be possible to secure bigger orders for export. *The Committee hope that consortium of manufacturers of railway equipment would be organised at an early date.*

Plan for  
action for  
Exports.

43. The Committee note that apart from setting up a committee of Directors for reviewing the question of export of rolling stock and railway equipment, the Chairman, Railway Board also addressed a personal letter to the leading manufacturers of railway equipment in India in October, 1962 impressing on them the necessity of developing exports. While admitting that there may be problems like availability of material, price level, etc., the letter concludes:

“These difficulties are real, but once we start tackling them seriously, I am confident we will not only be able to open up foreign markets to Indian manufacturers but in due time will be able to establish a reputation for the quality and durability of our products. The important thing is to make a beginning especially in our neighbouring countries in South East and West Asia, and in Africa, so that the Railways there can judge for themselves the high standards being maintained in the industry here.”

The Committee also note that it was the idea of the Chairman, Railway Board to hold meetings with manufacturers so that a plan of action could be jointly chalked out.

*The Committee would suggest that the Ministry of Railways should take the initiative and chalk out a plan for exports in consultation with the Ministry of International Trade and the manufacturers of rolling stock, railway equipment, etc. so that India can take advantage of the market possibilities which are being offered by the developing countries of Asia and Africa.*

NEW DELHI;  
*The 14th February, 1964*  
*Magha 25, 1885 (Saka)*

ARUN CHANDRA GUHA,  
Chairman,  
Estimates Committee.

## APPENDIX I

Vide Para 7

*Requirements of various types of coaches for Indian Railways during IIIrd Five Year Plan*

Type of coach	2	3	4	5	6	7	8	Requirements of					Total Requirements
								Throw forward from IInd Plan	I year of III Plan	II year of III Plan	III year of III Plan	IV year of III Plan	
<i>Broad Gauge</i>													
I Class . . . . .		152	415	47	..	..	..	..	..	..	..	..	614
I & III Composite class . . . . .		..	..	391	..	..	..	..	..	..	..	..	391
III Class . . . . .		79	213	175	148	90	18	..	..	..	..	..	728*
III Class Sleeper . . . . .		..	50	125	..	75	70	..	..	..	..	..	320
III Luggage & Brakevan . . . . .		219	235	142	22	31	117	..	..	..	..	..	766
III & Postal Van . . . . .		16	..	..	14	11	..	..	..	..	..	..	41
<b>TOTAL PASSENGER COACHES—B. G.</b> . . . . .		466	98	880	184	207	205	..	..	..	..	..	2,860
<b>NON-PASSENGER COACHES—B. G.</b> . . . . .		303	93	214	442	277	236	..	..	..	..	..	1,565
<b>ELECTRIC-MULTIPLE UNIT COACHES—BG</b>	{	..	..	240	..	154	198	..	..	..	..	..	592
<b>DC</b>		19	..	100	106	104	18	..	..	..	..	..	347
<b>TOTAL—BROAD GAUGE</b> . . . . .		788	1,011	1,194	972	742	657	..	..	..	..	..	5,364

\*Note : Excludes 32 coaches, though provided against III plan requirements, were delivered during II Plan period.

1 2 3 4 5 6 7 8

*Metre Gauge*

I <sup>st</sup> Class . . . . .	1	143	47	193
I & III Composite Class . . . . .	43	75	50	27
III Class . . . . .	138	291	85	267
III Class Sleeper . . . . .	107	150	..	..
III Luggage & Brakevan . . . . .	55	90	51	75
III & Postal Van . . . . .	2	..	65	..
<b>TOTAL—PASSENGER COACHES—M.G.</b>	<b>347</b>	<b>457</b>	<b>186</b>	<b>635</b>
<b>NON-PASSENGER COACHES—M.G.</b>	<b>243</b>	<b>66</b>	<b>134</b>	<b>253</b>
<b>ELECTRIC-MULTIPLE UNIT COACHES—M.G.</b>	<b>..</b>	<b>..</b>	<b>..</b>	<b>..</b>
<b>TOTAL—METRE GAUGE</b>	<b>590</b>	<b>523</b>	<b>320</b>	<b>888</b>

<b>TOTAL—PASSENGER COACHES—M.G.</b>	<b>350</b>	<b>800</b>	<b>2,775</b>
<b>NON-PASSENGER COACHES—M.G.</b>	<b>87</b>	<b>198</b>	<b>981</b>
<b>ELECTRIC-MULTIPLE UNIT COACHES—M.G.</b>	<b>102</b>	<b>102</b>	<b>102</b>
<b>TOTAL—METRE GAUGE</b>	<b>539</b>	<b>998</b>	<b>3,858</b>

*Narrow Gauge*

Passenger coaches . . . . .	156	48	5	63	55	31	358
Non-passenger coaches . . . . .	30	6	..	12	13	..	61
<b>TOTAL</b>	<b>186</b>	<b>54</b>	<b>5</b>	<b>75</b>	<b>68</b>	<b>31</b>	<b>419</b>

**APPENDIX III**

Vide parts 7 and 17

*Programme for the manufacture of Coaches during the Third Five Year Plan period*

Type of Coach	Total Requirement	Production during					Total	Remarks	
		1961-62 Actuals	1962-63 Actuals	1963-64 Upto end of Sept. '63 (Actuals)	1964-65 Estimated	1965-66 Estimated			
I	2	3	4	5	6	7	8	9	10
<b>Broad Gauge</b>									
I Class	614	243 ICF	264 ICF	58 ICF	49* ICF	..	..	614 ICF	=614
I & III Compo-site	391	..	186 ICF	71 ICF J	49* ICF	85* ICF	..	391 ICF	=391
III Class	720	79 ICF 268 HAL	86 HAL	88 HAL	122 HAL	85 HAL	..	79 ICF } 649 HAL }	=728
III Class Sleeper	320	16 HAL	158 HAL	1 HAL	..	75 HAL	70 HAL]	320 HAL	=320
III Luggage & Brakevan	766	146 ICF 2 Ry. W/S	247 ICF	61 ICF 4 Ry. W/S	56 ICF 27Ry. W/S	53 ICF	170 HAL]	563 ICF } 170 HAL }	=766

\*These are being furnished by Rly. W/S on Shells already supplied by I.C.F.

Note : The production figures shown in respect of ICF comprise (i) coaches both shell-manufactured and furnished by ICF and (ii) coaches shell-manufactured at

1 2 3 4 5 6 7 8 9 10

ICF but furnished in Ry. W/S. The year-wise break-up of numbers furnished in ICF and in Rly. W/S. is as under :—

Year ICF Ry. W/S

16 Ry. W/S } =41  
25 HAL }

1961-62 240 228  
1962-63 372 346  
1963-64 154 141  
(Upto Sept.),  
1963-64 138 189  
(Oct-Mar)

906 Ry. W/S }  
119 Jessop } =1516 end of  
171 Braithwaite. }  
267 HAL }  
53 ICF }

1964-65 157 151 (Est.)  
1965-66 196 (Est.)

263 Jessop } =855  
592 ICF }

TOTAL . 1257 1035

25 HAL

16 Ry. W/S

41

III & Postal Van

Non-passenger coaches

1565

51 Ry. W/S  
76 Jessop  
11 Braithwaite.

123 Ry. W/S  
43 Jessop  
101 Braithwaite.

56 Ry. W/S  
1 HAL  
59 Braithwaite.

188 Ry. W/S  
91 HAL  
40 ICF

244 Ry. W/S  
115 HAL  
13 ICF

244 Ry. W/S  
119 Jessop  
171 Braithwaite.  
267 HAL  
53 ICF

Electric-Multiple-Unit Coaches.

18 Jessop  
21 ICF

36 Jessop  
21 ICF

12 Jessop  
105 ICF

53 Jessop  
113 ICF

72 Jessop  
157 ICF

72 Jessop  
196 ICF

263 Jessop  
592 ICF

468 ICF  
284 HAL  
94 Jessop  
11 Braithwaite.

718 ICF  
244 HAL  
79 Jessop  
101 Braithwaite.

295 ICF  
90 HAL  
12 Jessop  
59 Braithwaite.

307 ICF  
213 HAL  
53 Jessop  
215 Ry. W/S

308 ICF  
300 HAL  
72 Jessop  
244 Ry. W/S

196 ICF  
300 HAL  
72 Jessop  
244 Ry. W/S

2292 ICF  
1431 HAL  
382 Jessop  
171 Braithwaite.  
955 Ry. W/S

5364

926

1265

516

788

924

812

5231



	1	2	3	4	5	6	7	8	9	10
<i>Metre Gauge</i>										
I Class . . . . .	193	..	..	..	..	190 ICF 3 Ry. W/S	..	..	190 ICF 3 Ry. W/S	193
I & III Composite Class.	245	38 Ry. W/S	..	..	..	5 Ry. W/S 77 Jessop	..	..	43 Ry. W/S 202 Jessop	245
III Class	1484	319* Jessop	1 Ry. W/S 99 Jessop	50 Jessop	..	10 Ry. W/S. 80 Jessop 216 ICF	..	..	11 Ry. W/S 600 Jessop 513 ICF	1124
III Class Sleeper	257	107 Ry. W/S	..	..	..	..	150 ICF	..	107 Ry. W/S 150 ICF	257
III Luggage & Brake Van	529	22 Ry. W/S	32 Ry. W/S 118 Jessop	22 Jessop	..	3 Ry. W/S 143 Jessop	189 Jessop	..	57 Ry. S/W 472 Jessop	529
III & Postal Van	67	..	..	..	..	2 Ry. W/S	65 Jessop	..	2 Ry. W/S 65 Jessop	67
Non-passenger coaches	981	72 Ry. W/S 186 Jessop	152 Ry. W/S 13 Jessop	55 Ry. W/S	98 Ry. W/S 15 ICF	111 Ry. W/S 4 Jessop 53 ICF	130 Ry. W/S	..	618 Ry. W/S 203 Jessop 68 ICF	889
Electric Multiple-Unit coaches.	102	..	..	..	..	38 ICF	64 ICF	..	102 ICF	102
<hr/>										
	3858	744	415	127	371	878	871	3406		

Includes 53 coaches furnished in Ry. W/S. on shells supplied by Jessop.

**Narrow Gauge**

**Passenger Coaches**

358 65 Ry. W/S 63 Ry. W/S 31 Ry. W/S } 38 Ry. W/S 70 Ry. W/S 352 Ry. W/S-352

**Non-Passenger Coaches**

61 2 Ry. W/S 12 Ry. W/S 1 Ry. W/S }

419 67 Ry. W/S 75 Ry. W/S 32 Ry. W/S 38 Ry. W/S 70 Ry. W/S 352 Ry. W/S

### APPENDIX III

Vide para 9

Statement showing the total requirements for indigenous production for coaches during the Second Plan and actual production during the period.

Type of Coach	Total Requirement for Indigenous Production	Production during					Total	Remarks
		1956-57	1957-58	1958-59	1959-60	1960-61		
I	2	3	4	5	6	7	8	9
<i>Broad Gauge</i>								
Air-conditioned Coach (Full & Partial)	59	31 Ry. W/S	26 Ry. W/S	2 Ry. W/S	..	..	59 Ry. W/S=59	
1st Class	172	2* Ry. W/S	..	15 Ry. W/S	..	3 I.C.F.	17 Ry. W/S } 3 ICF	*The balance of 152 coaches (172-20) had already been turned out as unfurnished shells and were in various stages of furnishing at the end of II Plan. The furnishing was completed and coaches turned out for traffic in 1961-62.
I & III Class	148	38 Ry. W/S	40 Ry. W/S	32 Ry. W/S	28 Ry. W/S	10 Ry. W/S	148 Ry. W/S=148	

104 .. .. . 33 Jessops 52 Jessops 85 Jessops -- 85 Balance of 272 BMUs (376-104) obtained by import. Against the indigenous order of 104 on Jessops, the balance 19 were delivered III Plan.

III Class 2387 164 HAL 170 HAL 149 HAL 210 HAL 253 HAL 966 \*\*HAL }  
 53 ICF 207 ICF 339 ICF 369 ICF 115 ICF 1083 ICF } 2340  
 5\* Ry. W/S 54 Ry. W/S 102 Ry. W/S 104 Ry. W/S 25 Ry. W/S 291 Ry. W/S }  
 \*\*Those 7 coaches (2 I Class & 5 III Class) were furnished by the Ry. W/S on abells imported during I Plan.

\*\*Includes 32 coaches delivered in advance against III Plan requts.

III Sleeper 226 10 Ry. W/S 2 Ry. W/S 2 Ry. W/S 56 Ry. W/S 6 Ry. W/S 76 Ry. W/S } 226  
 150 ICF 150 ICF 150 ICF }

III Luggage & Brake Van (TLR) 673 57 Ry. W/S 108 Ry. W/S 104 Ry. W/S 60 Ry. W/S 5 Ry. W/S 334 Ry. W/S } 454  
 54 ICF 54 ICF 66 ICF }

III & Postal Van 141 14 Ry. W/S 38 Ry. W/S 31 Ry. W/S 10 Ry. W/S 32 Ry. W/S 125 Ry. W/S = 125

Non-passenger Coaches 878 1 HAL 126 Ry. W/S 110 Ry. W/S 59 HAL 64 Ry. W/S 46 Ry. W/S 60 HAL }  
 69 Ry. W/S 30 Jessops 64 Ry. W/S 80 Jessops 415 Ry. W/S } 585  
 110 Jessops }  
 The short-fall mainly comprises about 290 Motor & Parcel Vans to be supplied by Jessops & Braithwaites. These were supplied in 1961-62 and 1962-63.

1                    2                    3                    4                    5                    6                    7                    8                    9

53 ICF	207 ICF	339 ICF	423 ICF	334 ICF	1356 ICF
184 HAL	170 HAL	208 HAL	210 HAL	253 HAL	1026 HAL
283 Ry. W/S	378 Ry. W/S	357 Ry. W/S	322 Ry. W/S	125 Ry. W/S	1465 Ry. W/S
		30 Jessops	113 Jessops	52 Jessops	195 Jessops

4788 521                    755                    934                    1068                    764                    4042

NOTE:—The production figures shown in respect of ICF comprise (i) coaches both shell-manufactured and furnished by ICF and. (ii) coaches shell-manufactured at ICF but furnished in Ry. W/S.

Metre Gauge  
Air-conditioned  
Coach (Par-  
tial) .

31    20 Ry. W/S    7 Ry. W/S    1 Ry. W/S    3 Ry. W/S    ..    31 Ry. W/S = 31

80    ..    ..    27 Ry. W/S    17 Ry. W/S    34 Ry. W/S    78 Ry. W/S = 78

329    82 Ry. W/S    67 Ry. W/S    132 Ry. W/S    4 Ry. W/S    1 Ry. W/S    286 Ry. W/S = 286 38 more completed in 1961-62.

1728 III Class 257\* Jessops 129\* Jessops 345@ Jessops 270@ Jessops 1221 Jessops } 1590 Balance completed in  
 156% Ry. W/S 37% Ry. W/S 220\* Jessops 72 Ry. W/S 4 Ry. W/S 369 Ry. W/S } 1961-62.  
 100 Ry. W/S  
 \*Coaches furnished in Ry. W/S on shells supplied by Jessops.  
 @255 fully furnished by coaches supplied by Jessops and 15 coaches furnished in Ry. W/S on shells supplied by Jessops.  
 % Includes 167 coaches furnished in Ry. W/S on shells imported during I Plan.

220 III Class Sleeper .. 8 Ry. W/S, .. 8 Ry. W/S, 97 Ry. W/S 113 Ry. W/S = 113 Balance 107 completed in 1961-62.

506 II Luggage & j Brake Van (TLR) 78 Ry. W/S 128 Ry. W/S 131 Ry. W/S 64 Ry. W/S 50 Ry. W/S 451 Ry. W/S = 451 Balance completed in 1961-62 and 1962-63.

41 III & Postal Van .. .. 10 Ry. W/S } 29 Ry. W/S, 39 Ry. W/S } = 39  
 784 Non-Passenger Coaches 95 Ry. W/S, 44 Ry. W/S 62 Ry. W/S, 111 Ry. W/S 77 Ry. W/S 389 Ry. W/S } Balance completed in 1961-62.  
 152 Jessops 152 Jessops } 541

TOTAL . 431 Ry. W/S 291 Ry. W/S 463 Ry. W/S 279 Ry. W/S 292 Ry. W/S 1756 Ry. W/S  
 257 Jessops 129 Jessops 220 Jessops 345 Jessops 422 Jessops 1373 Jessops

GRAND TOTAL 3719 688 420 683 624 714 3129

## APPENDIX IV

*vide para 12*

### *Break up of the Assets of ICF by Important Categories*

(Figures in lakhs of rupees)

Fixed Assets	Shell Division		Total	Permanent Furnishing		Total
	Township	Workshop and Offices		Township	Workshop and Offices	
			(Workshop and offices)			
1. Land . . . . .	8.99	1.60	10.59	7.99	8.41	16.40
2. Roads . . . . .	1.72	7.80	9.52	3.42	2.96	6.38
3. Buildings . . . . .	49.49	146.49	195.98	27.00	99.80	126.80
4. Water Works . . . . .	6.84	2.23	9.07	5.38	2.10	7.48
5. Machinery . . . . .	..	223.75	223.75	..	36.69	36.69
6. Electrical Installation . . . . .	3.68	63.33	67.01	2.29	22.00	24.29
7. General Charges . . . . .	7.52	59.89	67.41	7.28	28.26	35.54
8. Other Charges . . . . .	2.40	101.64	104.04	2.18	14.83	17.01
<b>TOTAL PROJECT . . . . .</b>	<b>80.64</b>	<b>606.73</b>	<b>687.37</b>	<b>55.54</b>	<b>215.05</b>	<b>270.59</b>

## APPENDIX V

vide para 13

*Statement showing overall outturn of coach shells, related capital-at-charge, average cost of production, sale value of the shells produced, etc. for the period 1955-56 to 1961-62.*

(Rupees in thousands)

Year	No. of shells produced	Capital-at-Charge (includes Suspense for Shell as well as Furnishing Division)	Average cost of manufacture per shell i.e. direct production costs	Proportionate share per shell of dividend charges on Capital-at-Charge	Share per shell of cost of Rly. Board Audit and other Misc. Establishments	Total cost per Shell (Col. 4-5-6)	Total actual manufacture for shells produced (Col. 2 multiplied by Col. 4)	Average sale price per shell	Total Actual sale value of shells produced (Col. 2 multiplied by Col. 9)	Balance of Development Suspense Account at the end of the year	Remarks.
1	2	3	4	5	6	7	8	9	10	11	12
1955-56	12	[6,59.21	274	103	Negligible	377	[3,288	175	[2,100	4,190	Decimals of thousand rounded to nearest thousand
1956-57	88	[8,65,84	202	28	" "	230	[17,776	175	15,400	[6,861	
1957-58	222	[10,26,82	134	23	" "	158	29,748	175	[38,850	(-)458	
1958-59	380	[10,01,94	100	11	" "	111	38,000	110	[41,800	(-)9,434	Share of Railway Board cost etc. is about 0.3 per shell



	2	3	4	5	6	7	8	9	10	11	12
1959-60	447	9,35,68	88	8	"	96	39,336	108	48,276	(-)	20,130
1960-61	583	[6,67,74]	83	5	"	88	48,135	108	62,964	(-)	34,641
1961-62	598	[6,49,46]	71	4	"	75	42,902	108	64,584	(-)	37,629

**Note :**

1. Column 8 denotes total actual cost of manufacture for shells produced during the year, exclusive of changes mentioned in columns 5 and 6.
2. Depreciation charges in respect of Plant, Machinery and Buildings, estimated on the basis of the lives of the assets are charged to production. In case of Plant and Machinery the Depreciation charges take into account incidental cost of installation etc. When Plant and Machinery are worked on multiple Shift, the normal depreciation charges are proportionately increased to cover intensive utilisation.
3. The cost of general administration including cost of maintaining the township etc. is also charged to production and is included in total actual cost under column 8.
4. Average cost under Column 4 includes proportionate charge in respect of development expenditure representing initial cost of manufacture of jigs, tools, etc. distributed over the production of various years.
5. As the out-turn is entirely for the use of the Indian Railways, there is no pricing (i.e. fixing sale price) or profits in the ordinary sense of the term. The costing of manufacture, however, is done on a comprehensive basis covering all indirect charges including proportionate dividend payable by the Railways to General Revenues on the relevant portion of the capital. The sale price per unit shown in Column 9 is the price at which the out-turn is transferred to the Railways; this price is revised from time to time depending on how the cost of production compares with the sale price. The difference between the two goes to a Development Suspense (debit if the sale value at prices fixed is below the cost of manufacture and credit if the sale value exceeds the cost of manufacture). The sale price is also varied depending on whether it is intended to wipe out or work off any credit or debit balances in the aforesaid Suspense. (Recently it has been decided that out of the accumulated balances in the Development Suspense an additional sum of Rs. 40 lakhs may be set apart for the Depreciation Reserve Fund of this manufacturing Unit.)
6. Balances shown under Development Suspense in column 11 represent running balances from year to year and may not necessarily represent the difference between Columns 8 and 10. The (+) figures show unfavourable variance while (-) figures show favourable variance when production cost has progressively come down with increased production.
7. The reduction in the amount of Capital-at-charge from the year 1958-59, is due to the clearance of balances under Capital Suspense Heads, which form a part of the total Capital-at-charge, and does not represent a reduction by amortization, in the value of fixed assets.

## APPENDIX VI

*vide* para 15

*Statement showing the cost of furnishing coaches in the ICF from 1957-58 to 1962-63*

(In thousands of rupees)

Year	Type of Coach	No. of Coaches turned out	Direct Labour	Direct Stores	Over- heads	Total Manufac- turing Cost	Proforma Charges (Dividend, SC to PF & Share of cost of Rly. Board, DRA, etc.)	Total Cost (in- cluding proforma charges)
1	2	3	4	5	6	7	8	9
			Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
1957-58	Third Class	74	3	56	17	76		76
1958-59	Third Class	171	3	51	11	65	1	66
1959-60	Third Class	209	3	48	10	61	1	62
	TLR	39	3	39	10	52	1	53
	TLR Prototype	1	5	45	18	68	1	69

1	2	3	4	5	6	7	8	9
1960-61	Third Class . . . . .	20	3	47	13	63	1	64
	TLR . . . . .	21	3	41	13	57	1	58
	III Class Sleeper . . . . .	150	5	42	15	62	1	63
	Prototype First Class . . . . .	1	11	61	49	121	1	122
	First Class . . . . .	2	7	62	26	95	1	96
1961-62	First Class . . . . .	229	5	59	19	83	1	84
	TLR . . . . .	1	3	41	13	57	1	58
	TLR Conventional . . . . .	5	4	39	13	56	1	57
	Third Class Conventional . . . . .	5	3	43	12	58	1	59
1962-63	First Class (a) . . . . .	180	5	61	15	81	5	86
	First & Third Class (b) . . . . .	171	3	50	11	64	5	69
	EMU Trailer (A, C & D) (c) . . . . .	21	..	..	..	..	..	..

(a) Based on the Cost Reports for 175 coaches.

(b) Based on the Cost Reports for 60 coaches.

(c) Cost has not been finalised. The provisional costs are as under :—

EMU 'A'	. . . . .	Rs. 85,500
" 'C'	. . . . .	Rs. 77,000
" 'D'	. . . . .	Rs. 85,000

## **APPENDIX VII**

**Vide para 16**

### **Agreement between the Ministry of Railways and M/s. Hindustan Aircraft Ltd., Bangalore for production of Integral Broad Gauge Coaches**

This agreement made this FIFTEENTH day of JULY 1961 between the President of India hereinafter called "the Government" (which expression shall unless excluded by or repugnant to the context, include its successors and assigns) of the one part and the Hindustan Aircraft Limited, a Company incorporated under the Indian Companies Act and having its registered office at *Bangalore* hereinafter called "the Company" (which expression shall, unless excluded by or repugnant to the context, include its successors and assigns) of the other part.

WHEREAS the company at present is manufacturing conventional type third class passenger coaches and military type coaches for the Government.

AND WHEREAS the company has proposed to develop their existing capacity for the manufacture of integral type coaches in collaboration with Messrs. MASCHINENFABRIK AUGSBURG—NURNBERG A.G., whose registered offices are in NURNBERG, hereinafter referred to as "MAN".

AND WHEREAS the company has, on the 21st day of August 1956, entered into an agreement with MAN regarding assistance and technical aid to be given to the company by the MAN in the field of design and production of railway rolling stock.

AND WHEREAS under the said agreement, the company is required to make stage payments to the MAN in accordance with Clause 3 under Article III of the said agreement dated 21st day of August 1956.

AND WHEREAS the Government have agreed to place orders with the company for the integral type coaches *inter-alia* on the terms and conditions hereinafter set out.

AND WHEREAS the Government have agreed to pay to the Company payments in rupees in India, equivalent to the stage payments to be made by the company to MAN in accordance with the said agreement.

**NOW IT IS HEREBY AGREED AND DECLARED BY AND BETWEEN THE PARTIES HERETO AS FOLLOWS:**

1. The Government agrees to place orders with the company for integral type passenger as well as non-passenger coaches of the Broad Gauge type. The number of coaches for which orders will be placed will progressively increase to three hundred per annum by 1960-61.

2. After the year 1960-61, the Government will place an order with the company each year for about the same number of integral coaches viz. about 300 of the Broad Gauge type for a further period of five years.

3. The manufacture by the company of the existing model of coaches for the Government will continue simultaneously but the number of such coaches will progressively decrease with the development of integral coaches by the company in technical collaboration with the MAN.

4. The company undertakes to manufacture integral type coaches in collaboration with the MAN in accordance with the said agreement dated 21st August 1956, executed between the company and the MAN.

5. The Government agrees to pay to the company for the integral type coaches on a *cost plus* basis subject to the usual detailed cost audit unless and until the company is in a position to quote the firm price, and the price is settled by mutual agreement between the parties. The profit will be a fixed sum of Rs. 12,000/-\* per coach for the first 400 coaches.

6. The Government agrees to make the following advance "on account" payments to the company:

(i) Payment in rupees in India equivalent to the stage payments to be made by the Company to MAN in deutsche Marks as per the contract between MAN and the company, on receipt of an application in that behalf from the company and the company shall make such application ordinarily a fortnight before the date on which such stage payments are due to MAN.

(ii) Payment to the extent of 90% of the customs duty and ocean freight paid by the company on all supplies from MAN under the agreement with MAN.

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\*Note.—The amount of profit payable from 401st coach onwards has since been fixed as Rs. 11,000/-per coach.

- (iii) Payment to the extent of 90% of the value of stores purchased for production of coaches subject to the usual check of stores actually received by HAL on the same lines as currently in practice for conventional type 407 model coaches.

7. The Government agrees to make "On Account" payments to the Company at the rate of Rs. 1,40,000/- inclusive of profit of Rs. 12,000/- per B. G. coach on delivery out of which proportionate advances paid by the Government to the Company under clauses 6(ii) and 6(iii) above will be adjusted. This will, however, apply only to integral passenger coaches, brake luggage and thirds. The prices and payment terms in respect of other types of coaches will be settled by mutual agreement.

8. The payment in rupees by the Government to the Company under clause 6(i) above will be treated as advance payment towards the cost of the integral type coaches and necessary deductions will be made from the final bills preferred by the Company.

9. The Company shall re-assign the bank guarantee received from MAN in favour of the Government, on such reassignment, being duly approved by the Bank concerned, to cover such payments made in pursuance of clause 6(i) above.

## APPENDIX VIII

Vide para 19

*Statement showing the defects in design and performance of coaches manufactured by the Integral coach Factory.*

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Defects	Action
(i) Special lavatory fittings and door locks provided in the earlier coaches were pilfered as they were attractive and railways were finding it difficult to replace them, since spares were not easily available.	(i) All lavatory and door fittings were modified to the IRS pattern as they are simpler and common to Railways.
(ii) Aluminium mouldings and battery boxes covers have been reported to be wantonly removed by miscreants as they had higher resale value.	(ii) These have been replaced by steel.
(iii) Dents were observed below the window sill in the vicinity of the lifting pads.	(iii) These were attributed primarily to the coach being lifted only from one end and during attention to the bogies in the shops and railways were advised to lift the Integral Coaches simultaneously from both ends.
(iv) Grating noise from laminated spring bogies.	(iv) The noise was caused because the intermediate pieces above side bearers were not properly adjusted. Railways were advised to adjust the clearance between side bearers and this completely eliminated the noise.
(v) Grating noise from all-coil bogies.	(v) Railways were advised to replace the coil in the "dash-pots".
(vi) Cracks on the axle box guide at the root of the flange.	(vi) Axle boxes were re-designed.

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Defects	Action
(vii) The draw hook support angle on the head-stock was reported to be getting deformed in service.	(vii) A stronger design was adopted and railways advised
(viii) The destruction tubes in the side buffers were reported to be falling frequently.	(viii) This is not due to defective designs but a result of rough shunting. Railways have been asked to control the shunting speeds.
(ix) Heavy corrosions were observed at the bottom of the side walls and body side doors.	(ix) This was attributed to the drain holes originally provided at the bottom run-under of the side walls getting blocked due to collection of dust during service which arrested the normal flow of rain water running through the opening in the window sill. Larger openings were provided at the bottom of the side-walls and the bottom sheet thickened from 2.5 mm. to 5 mm. to compensate the weakness due to openings the bottom of the door was completely opened out with a provision of a deflector plate to drain the rain water outside the tread plate on the floor.
(x) Difficulty in regard to replacement of broken window shutters was pointed out as this required detachment of luggage racks.	(x) The gap between the luggage racks and the side walls was increased to facilitate attention to the shutters by slightly tilting the window frame within the increased gap.
(xi) The ladders provided in the First class compartments for climbing to the upper berth were reported to be inconvenient.	(xi) These have been replaced by folding foot-steps on the body-side wall.
(xii) The shutters provided on the corridor side of the compartments did not afford a clear view outside the coach.	(xii) Full opening type shutters have since been introduced on the corridor longitudinal wall.



Defects	Action
(xiii) Failure of the lengthened screw couplings of IGP coaches due to the coupling screw jamming, between the draw hooks, when running down-hill on Ghat sections.	(xiii) We have reduced the length of the coupling screw from 508 mm to 450 mm with other links lengthened by about 25 mm each and railways advised to shorten the 20" long coupling screw to 17-1/2".  Action has also been taken to revise Rule No. 56(48) of the IRCA, Conference Rules Part III (July 1962 edition) to redefine the buffer with rubber springs as 'dead' when the free length reduces from 25" to 23" instead of 22" originally specified, for rejection.

## APPENDIX IX

*Vide para 38*

*Statement showing the improvements effected as a result of Method time and case Studies in the I.C.F.*

Cases where bottlenecks are special difficulties existed were taken up for investigation and revised methods were planned in the following cases resulting in increased production and economy:

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### Results

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- |  |   |
|--|---|
| (i) Method evolved to reclaim the shorter bolster suspension hangers fitted on the earlier coaches and due to be replaced with longer ones. Extended trials being conducted to ensure efficiency of reclaimed hangers. | Anticipated savings Rs. 2 lakh  |
| (ii) Machine welding adopted in place of manual arc welding on cross beams.  | Annual savings Rs. 12,000/-   |
| (iii) Milling of brake beam plug ends eliminated.  | Annual savings Rs. 10,000   |
| (iv) Reduced milling operation by preforging the blocks to rough shape in the case of hanger top blocks.   | Components produced 50% faster. Annual savings Rs. 10,000/-   |
| (v) Conical bore in axle box guide substituted with stepped bore.  | Production increased by 15% Annual savings Rs. 4,500/-  |
| (vi) Hole drilling and bush pressing operation in body done in component stage instead of assembly stage. Bush pressing changed from manual to machine.  | One operation and one movement of the Bolster eliminated. Annual savings Rs. 5,740/- Load on overhead crane reduced Annual savings 2,000/-. |
| (vii) Drilling and topping the distance piece of the bogie bolster done in detail stage instead of assembly stage.   |   |
| (viii) Chamfering special pin processed on the Capstan instead of "fitting and floor grinding".  | Annual savings Rs. 5,400/-  |
-

## Results

(ix) Provision of a suitable drill jig for lug marking operation eliminated.	Annual savings Rs. 3,600/-
(x) Elimination of milled grooves in Tank filter flanges.	Annual savings Rs. 1,340/-
(xi) Provision of chamfer in place of radius on Draft Key.	Savings Rs. 980/100 coaches.
(xii) Taper planing on Headstock eliminated.	Handling reduced. Actual savings Rs. 4,790/-
(xiii) Individual drilling replaced by gang drilling and reaming eliminated in fastening piece.	Annual savings Rs. 2,160/-
(xiv) Cutting template for base plate (redesigned).	Better utilisation of off-cuts; Annual savings Rs. 1,860/-
(xv) Shearing operations clubbed together.	Production increased by 16 % Annual savings Rs. 1,030/-
(xvi) Components planned to be placed throughout the depth of the Salt bath instead of only at one level.	Better utilisation of the equipment.
(xvii) Provision of a run-way for the Gas cutting section to handle heavier plates.	Production increased by 20%. Idle time due to non-availability of "Stacca" considerably reduced.
(xviii) Formation of a belt for "Body and Bogie Bolster and Lower Spring Beam".	Increase in production and relieving of congestion in the 'A' shop.
(xix) Elimination of marking of holes for mouldings, flats and strips for coaches and trucks.	Savings of 1950 man hours or Rs. 1,482/- a month.
(xx) Improved method for milling 'U' grooves on bolt bearing.	90 y. increase in productivity%
(xxi) Improved method for press-breaking of stay mud-guard for trucks.	60 % increase in productivity
(xxii) Improvements in handling of production documents onoring printing machine.	33 1/3 % increase in productivity.
(xxiii) Improved method of assembling light luggage rack.	Rs. 1,364 on 22 coach/month.

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**Results**


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- (xxiv) Improved method of assembling bottom frame of glass shutter. } 88% increase in productivity.
- (xxv) Works study Project on Lamina . Rs. 1,089 per batch of 50 FMGs.
- (xxvi) Modification in design of air duct casing sheets for EMU coaches. *Material:* Savings Rs. 9300 for 40 coaches. 20.4% increase in productivity.
- (xxvii) Manufacture of canopy for EMU stock by hand-beating the sheets instead of pressing them to shape on the 1000-ton press with special dies. Rs. 10,500/- for 100 EMUs.
- (xxviii) Simplification of the re-inforcement of Cab Back Panel for truck. Rs. 730 per month (reckoned on 200 trucks).
-

## APPENDIX X

*Vide Para 41*

*Statement showing brief particulars of export of railway equipment, during the last three years.*

1. *J. Stone & Co. Calcutta—(Train Lighting Materials)*

	Rs.	
1961 . . . . .	1,18,000	}
1962 . . . . .	10,24,200	
1963 . . . . .	5,60,000	

to Pakistan, Burma etc.  
(Partial) to U.K.
2. *Ram Chander Heeralal, Calcutta—(Track Materials)*

1962-63 . . . . .	£ 213,400	to New Zealand
	i.e., Rs. 28,40,000	
3. *Guest, Keth Williams Ltd., Calcutta—(Track Materials)*

	Rs.	
1961 . . . . .	17,37,000	to Pakistan
1962 . . . . .	22,99,085	to Pakistan & Ceylon
1963 . . . . .	£ 14,400	

Rs. 1,92,000 to New Zealand  
(other details not yet received).
4. *Shree Krishna (P) Ltd., Calcutta—(Track Materials)*

1963 . . . . .	£ 1995	to New Zealand
	i.e. Rs. 16,600	
5. *Standard Batteries Ltd., Bombay—(Batteries)*

	Rs.	
1963 . . . . .	79,800	to Iraq
6. *Shree Luxmi Iron Steel Works (P) Ltd., Calcutta—(Track Material)*

1963 . . . . .	90,000 Pieces	Value not known
	Bearing	
	Plate	to Nigeria
7. *Seagrland & Co., Bombay—(Signal Lamp).*

1963 . . . . .	110 Nos.	Value not known.
		to Nigeria.

## APPENDIX XI

*Vide para 41*

*Statement showing the important enquiries received by Railways from foreign countries for railway equipment*

Year	Description of the stock	Remarks
<b>I. Pakistan</b>		
I 1 1959	1000 'MCJ' type MG. wagon	M/s. Burn & Co., quoted, but did not secure the order.
2 March 1961	1200 'MCJ' type MG. wagons	M/s. Indian Standard wagons submitted bid, but did not secure the order.
3 May 1961	475 B.G. 'CR' wagons	Enquiry was circulated by Railway Board to ten established wagon Builders. None quoted.
4 April 1962	20 Bogie covered wagon 'BCR'	} Circulated to 14 wagon builders, but none quoted.
	20 Bogie cattle wagon 'BCMR'	
	20 Bogie Flat Wagon 'BR'	
	20 Bogie petrol Tank 'BTP'	
	114 Bogie High sided wagon 'BOC'	
	150 Hopper Ballast wagons	
<b>II. Indonesia.</b>		
1 March 1963	2025 wagons . . . . .	Due to stipulation about payment over a prolonged period which in effect was a stipulation for long term credit it was not possible to quote.
<b>III. Ceylon.</b>		
I May 1960	17 Carriage Underframes 34 Bogies	} It was suggested to Braith Waite that they might quote. Their representatives visited Ceylon for discussion. Due to different specification, they could not make an offer.
2 May 1962	35 Bogie Hopper Wagons 60 Carriage Bogies 13 Carriage Underframes	

## APPENDIX XII

### *Summary of Conclusions/Recommendations*

S. No.	Reference to Para No. of Report	Summary of Recommendations/Conclusions
1	2	3
1	2	The Committee note with satisfaction that within the span of a few years the Railways have been able to master the technical "know-how" to manufacture of integral coaches so as to dispense with the services of foreign technical collaborators and save the country valuable foreign exchange. The Committee are glad to note that the Integral Coach Factory is now geared up to build all types of Railway coaches for Broad Gauge and Metre Gauge and to suit any particular specification required.
2	4	The Committee are glad to note that the actual production in the Integral Coach Factory has exceeded the targets (both original and revised).
3	5	The Integral Coach Factory has achieved the production rate of 600 coaches per year with the introduction of partial second shift. The Committee feel that as production on single shift basis is 350, it is only equitable that production on two shift basis should be brought up early to about 700.
4	6	It has been stated by the representative of the Ministry of Railways that the money allocated for the manufacture of coaches in the Third Plan does not call for introduction of third shift working in the Integral Coach Factory but if the need arises for the third shift, the Railways would certainly consider it. The Committee trust that local difficulties, like transport of workers, would not be allowed to come in the way of introduction of third shift if it is otherwise required to augment the coaching stock within the country or for exports.

1 2

3

- 5 8 The Committee note that the percentage of over-age coaching stock to total stock on Narrow Gauge would be as high as 51·28 per cent at the end of Third Plan. If it is the policy of the Railways not to add new coaching stock for Narrow Gauge, as this Gauge may itself become obsolescent in course of time due to increase in traffic, the Committee would suggest that continuous efforts should be made to maintain the Narrow Gauge stock in as good a condition as possible so that the passengers are not put to any inconvenience.
- 6 9 The Committee are informed that cuts were effected in the coach-building programme towards the end of the Second Plan period in order to reduce the expenditure under the head "coaching stock" as it was apprehended that if the original plan provision for rolling stock was put through it would exceed the financial provision due to increase in cost. The Committee, however, note that during the Second Five Year Plan period from 1956-57 to 1960-61, the Railways incurred an actual expenditure of Rs. 11,079 lakhs against the Budget provision of Rs. 13,298 lakhs resulting in a shortfall of Rs. 2,219 lakhs or approximately 16·6 per cent. The shortfall was largely under non-passenger coaches and under M.G. III class coaches which was made good early in the Third Plan period. The Committee consider that the shortfall in the production of coaching stock during the above period was extremely unfortunate, as to this extent over-crowding on the Railways, particularly in third class coaches was not relieved.
- 7 10 The Committee are constrained to note that the total anticipated production during the Third Five Year Plan is less than the 'total planned requirements' for that period. The Committee would suggest that the Ministry of Railways should endeavour to match production with the planned requirements. The Committee need hardly add that the planned requirements of coaching stock are in fact on the conservative side as they provide for only 3 per cent increase in passenger traffic per year whereas experience of both the Second Five Year Plan and of the first two years of the Third Five Year Plan indicate that the actual increase is of the order of about 5 per cent per annum, if both suburban and non-suburban traffic are taken together.



- 
- | 1 | 2 | 3 |
|---|---|---|
|---|---|---|
- 
- 8**    **11**    The Committee note that the production of coaching stock is keeping up with the yearly target fixed by Railways and that, in fact, it is catching up on the throw-forward of requirements from the Second Five Year Plan. If the existing production trend is any indication, the Railways should be able to achieve the limited target for production of coaching stock that they have fixed, however, inadequate that target may be in relation to the requirements.
- 9**    **13**    The Committee are glad to note that the average cost of manufacture per shell has come down from Rs. 2,74,000 in 1955-56 to Rs. 71,000 in 1961-62.
- 10**   **15**    The Committee observe that the cost of furnishing coaches in the Integral Coach Factory is less, as compared to the cost of furnishing in the Railway Workshops. They are, therefore, glad that the capacity of the Furnishing Division is being increased to match the production of shells. They would, however, like to stress that the capacity thus released in the Railway Workshops should be put to effective use, to avoid any waste of labour and resources.
- 11**   **16**    The Committee have been informed that as a firm price acceptable both to the Railways and the H.A.L. for integral type of coaches manufactured by the latter, could not be arrived at, so far, it has been decided in terms of clause 5 of the Agreement to continue the "cost plus" basis until such time the company is in a position to quote a firm price acceptable to the Railways. The Committee feel that the formula of "cost plus" basis takes away the urgency for reduction of cost of production in Hindustan Aircraft Limited. The Committee see no reason why Hindustan Aircraft Limited which have now been manufacturing integral coaches for more than five years should not be able to manufacture a coach at a cost comparable to that of Integral Coach Factory. As the existing agreement is due to expire in 1965-66, the Committee suggest that the whole matter with special reference to the cost of manufacture of coaches may be carefully reviewed early by a departmental committee consisting of senior representatives of technical departments and finance.
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| 12 | 17 | <p>The Committee note that the cost of manufacture of Metre Gauge coaches differs in Jessop. Railway Workshops and Integral Coach Factory. The Committee feel that as Messrs. Jessop &amp; Co. Ltd., have experience of several years in the manufacture of Metre Gauge Coaches, it should be possible for them to bring down the cost. In this connection, it would be pertinent to mention that the Integral Coach Factory was able to bring down the cost of production of a III Class coach from Rs. 1,71,000 in 1956-57 to Rs. 1,42,000 in 1959-60. The Committee have no doubt that as the Integral Coach Factory gain experience of manufacture of Metre Gauge coaches they would be able to bring down the cost.</p> <p>The Committee have also no doubt that in the light of the cost of manufacture in the Railway Workshops and the expected reduction in the cost of manufacture in the Integral Coach Factory, the price paid to Messrs. Jessop and Company Ltd. would in equity be brought down.</p> |
| 13 | 18 | <p>The last departmental committee to review the amenities provided in III Class coaches and to suggest improvements submitted their Report in 1957 i.e. more than five years ago. The Committee would suggest that a small committee consisting of senior Railway officials with representatives drawn from the Research, Design and Standards Organisation and Integral Coach Factory, may be constituted to go comprehensively into the question of providing amenities in III Class coaches and suggest improvements. In fact it would be a good idea if such an expert committee is constituted after every five years to review the amenities provided in coaches and suggest measures to improve them.</p>  |
| 14 | 19 | <p>The Committee have been informed that the H.A.L. Bogie has shown better results at speeds over 50 miles per hour in comparison to the all-coil type of I.C.F. bogie. The Committee would suggest that the design of the bogie under manufacture by Hindustan Aircraft Limited may be examined in detail to see what special features thereof could with advantage be incorporated in the design of bogie manufactured in Integral Coach Factory to equally improve its running at speeds of over 50 miles per hour.</p>   |

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| 15 | 20 | The Committee were informed that if the existing sitting coaches were replaced by sleeper coaches, it would be to that extent reduce the number of passengers which could otherwise have been carried. The Committee find that the difference in the earmarked seating capacity between an ordinary III Class coach and a three-tier sleeper coach is only five. The Committee would, therefore, suggest that the Railways may endeavour to provide III Class sleeper coaches on all long-distance trains which involve night running of 8 hours and more.   |
| 16 | 21 | The Committee are informed that there is a proposal, under consideration, to manufacture 3 more rakes to increase the frequency of de-luxe services. There is also a proposal to manufacture five air-conditioned tourist cars. The difficulty, however, is about the import of electrical equipment for air-conditioning for which foreign exchange is required. The Committee would suggest that early decision may be taken on the question of manufacture of three more rakes for augmenting De-luxe trains, which are stated to be very popular with the travelling public.   |
| 17 | 22 | The Committee would suggest that the Research, Design and Standards Organisation of Railways may be specifically asked to go into the problem of noise and dust in coaches and suggest further measures to reduce them.  |
| 18 | 23 | The Committee have been informed that the Heavy Electricals have agreed to make supplies of electrical equipment required for Electrical Multiple Unit coaches in different letters of correspondence. No formal agreement has, however, been entered into by Railways with them. The Committee would suggest that close liaison should be maintained by the Railways with the Heavy Electricals Ltd. To ensure long term supply of electrical equipment for E.M.U. coaches, the Ministry of Railways may consider the advisability of entering into a formal agreement for this purpose with the Heavy Electricals Ltd. |
| 19 | 24 | The Committee find that while the cost of D.C. E.M.U. coaches of Jessop is Rs. 3.2 lakhs more than the Japanese imported stock of 1955, their  |

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		<p>capacity is less. It is also noted that while the stock imported from Japan has been giving trouble-free service, the Railways have no experience yet of the performance of Jessop coaches as they were received only recently. The Committee would stress that the cost of manufacture in Jessop should be brought down and that care should be taken to see that the running efficiency and operating performance of E.M.U. coaches manufactured by this firm compare favourably with the imported units.</p>
20	25	<p>The Committee are glad that a beginning has been made in the Integral Coach Factory to undertake the manufacture of diesel rail cars which may well prove useful for carrying short distance passenger traffic.</p>
21	26	<p>The Committee consider that as maintenance of coaches is no less important than the manufacture of new ones, the Integral Coach Factory should ensure that the normal quota of spares is supplied to the user Railways.</p>
22	27	<p>The Committee are informed that action is being taken to arrange for the procurement of spares from the Hindustan Aircraft Limited on annual basis for the maintenance of a unit of 100 coaches. The Committee hope that necessary orders for supply of the requisite spares would be placed on the Hindustan Aircraft Limited without delay so that the maintenance of these coaches does not suffer.</p>
23	28	<p>The Committee are glad to know that the position regarding the supply of raw materials has eased. The necessity of ensuring smooth and regular supply of raw materials to the Integral Coach Factory needs no stress.</p>
24	29	<p>The Committee are glad to note the improvement in the position of supply of wheels and axles to the Integral Coach Factory. They, however, note that during 1963-64 the wheels required for E.M.U. and Metre Gauge coaches and axles for Metre Gauge coaches are being imported. They would, therefore, stress that every effort should be made to develop indigenous capacity for manufacture of wheels and axles so that the necessity of imports is obviated.</p>

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25	30	The Committee hope that concerted efforts would be made to develop at an early date indigenous capacity for manufacturing spherical roller bearings required by the Integral Coach Factory.
26	31	The Committee are glad that the Integral Coach Factory are rendering assistance to the Small Scale Industries for meeting their demand of components and stores. They would also suggest that the Railways should take the assistance of the Indian Standards Institution so that the specifications for components to be procured from the market are standardised to the extent possible. The Railways may also invoke the assistance of the Commissioner for Small Scale Industries to ensure timely supplies according to specifications.
27	32	The Committee hope that the manufacture of rubber block bushes and seamless tubes of all sizes would be developed in the country soon.
28	33	The Committee are unhappy that an unduly long period of 16 months was taken in placing orders for the machines required for the manufacture of bolster springs on the manufacturers with the result that the programme for the manufacture of bolster springs has been upset. The Committee, however, hope that the Testing and Scragging machine would be procured by the scheduled date and the manufacture of bolster springs taken in hand without delay.
29	36	The Committee would stress that all efforts should be made to increase productivity in Integral Coach Factory and bring down the cost of manufacture. This will have the twin advantage of reducing the price paid by Railways and of making the Indian coaches competitive in price in the export market.
30	37	The Committee would invite the attention of Railways to para 43 of their Report on Chittaranjan Locomotive Works and suggest that concerted steps may be taken to give every encouragement to staff to offer constructive suggestions to improve efficiency and reduce cost of manufacture.
31	38	The Committee are impressed with the increased production and the economy achieved in Integral

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Coach Factory as a result of Method, Time and Case Studies and the efforts of Efficiency Cell. The Committee consider that the commendable example of the Integral Coach Factory may with advantage be emulated by other large workshops and public undertakings.

32 41 While the Committee are glad to note the systematic measures taken by the Ministry of Railways to step up exports, they find that so far success has been achieved only in securing orders for supply of track material and equipment but India has not yet been able to secure orders for supply of locomotives, coaches and wagons.

33 42 The Committee understand that Government have a proposal under consideration to promote a consortium of manufacturers of railway equipment to tender quotations on collective basis as experience has indicated that it is not possible for an individual manufacturer to undertake supplies of railway equipment and railway rolling stock. It is hoped that if this consortium is organised, it would be possible to secure bigger orders for export. The Committee hope that consortium of manufacturers of railway equipment would be organised at an early date.

34 41 and 43 The Committee would suggest that the Ministry of Railways should take the initiative and chalk out a plan for exports in consultation with the Ministry of International Trade and the manufacturers of rolling stock, railway equipment, etc. so that India can take advantage of the market possibilities which are being offered by the developing countries of Asia and Africa.

The Committee would also suggest early consideration by Government of two suggestions made by the Ministry of Railways for the appointment of Technical Attaches to a few Indian Missions abroad and for appointment of local agents to effectively follow up quotations given by Indian manufacturers.

## APPENDIX XIII

### *Analysis of recommendations contained in the Report*

#### 1. Classification of recommendations:

##### A. Recommendations for improving the organisation and working:

S. Nos. 1, 2, 4-7, 13-18, 23, 24, and 28.

##### B. Recommendations for effecting economy:

S. Nos. 3, 9-12, 19, 29, 30 and 31.

##### C. Miscellaneous:

S. Nos. 8, 20-22, 25-27, 32, 33 and 34.

#### II. Analysis of the more important recommendations directed towards economy:

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S. No.	No. as per summary of recommendations	Particulars
1	11	H.A.L. should be able to manufacture integral coaches at a cost comparable to that of Integral Coach Factory. Since the Agreement with the H.A.L. is due to expire in 1965-66, it may be reviewed carefully by a departmental committee.
2	12	As Integral Coach Factory gain experience cost of manufacture of M.G. coaches should be brought down.
3	19	Cost of manufacture of EMU coaches in Jessop may be brought down.
4	29	All efforts may be made to increase productivity and bring down the cost of manufacture in Integral Coach Factory.
5	31	Method, Time and Case Studies may be introduced in workshops and public undertakings to achieve economy and efficiency.

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26. A. H. Wheeler & Company, Private Limited, 15, Elgin Road, Allahabad.
27. Law Book Company, Sardar Patel Marg, Allahabad.
28. Goel Traders, 100-C, New Mandi, Muzaffarnagar.
29. B. S. Jain & Company, 71, Abupura, Muzaffarnagar.

#### WEST BENGAL

30. M. C. Sarkar & Sons (Private) Limited, 14, Bankim Chatterjee Street, Calcutta-12.
31. W. Newman & Company Limited 3, Old Court House Street, Calcutta.
32. Thacker Spink & Company (1933) Private Ltd., 3, Esplanade East, Calcutta-1.
33. Firma K. L. Mukhopadhyay, 6/IA, Banchharam Akkur Lane, Calcutta-12.

#### DELHI

34. Jain Book Agency, Connaught Place, New Delhi.
35. M/s. Sat Narain & Sons, 3141, Mohd. Ali Bazar, Mori Gate Delhi.
36. Atma Ram & Sons, Kashmere Gate, Delhi-6.
37. J. M. Jaina & Brothers, Mori Gate, Delhi-6.
38. The Central News Agency, 23/90, Connaught Circus, New Delhi.
39. The English Book Stall, 7-L, Connaught Circus, New Delhi.

40. Rama Krishna & Sons, 16-B, Connaught Place, New Delhi.
41. Lakshmi Book Store, 42, M. M. Janpath, New Delhi.
42. Kitab Mahal (W.D.), Private Ltd., 28, Faiz Bazar, Delhi.
43. Bahri Brothers, 188, Lajpat Rai Market, Delhi-6.
44. Jayana Book Depot, Chapparwala Kuan Karol Bagh, New Delhi.
45. Oxford Book & Stationery Company, Scindia House, Connaught Place, New Delhi-1.
46. People's Publishing House, Rani Jhansi Road, New Delhi.
47. Mehra Brothers, 50-G, Kalkaji, New Delhi-19.
48. Dhanwantra Medical & Law Book House, 1522, Lajpat Rai Market, Delhi-6.
49. The United Book Agency, 48, Amrit Kaur Market, Paharganj, New Delhi.
50. Hind Book House, 82 Jan Path, New Delhi.
51. Bookwell, 4, Sant Narankari Colony, Kingsway Camp, Delhi-9.

#### MANIPUR

52. Shri N. Chaoba Singh, Newspaper Agent, Ramlal Paul High School, Annexe, Imphal, Manipur.

#### AGENTS IN FOREIGN COUNTRIES

##### U. K.

53. The Secretary, Establishment Department, The High Commission of India, India House, Aldwych, LONDON, W.C.-2.





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