

SOUTH CENTRAL RAILWAY



SDGM's (Plg) Office,
General Branch,
Secunderabad.

No.G.276/2/WSSCR-01/2021-22

Dated: 29.06.2021

CWM/Workshop/LGD

Sub: Review of Staff Strength of Trimming shop of
Carriage Workshop/LGD/Secunderabad .

Ref: Annual programme of work studies 2021-22.

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- As per the above subject, the Work Study Organization conducted a detailed work study on Trimming shop of Carriage Workshop/LGD vide no. WSSCR-01/2021-22.
- A copy of the Work study report is enclosed for kind perusal and implementation of the recommendation.

This has approved by SDGM

Encl: As above.

(V.S.RAMARAJU)

Sr. Work Study Officer
for Sr.Dy.General Manager.

Copy to: PCME/SC, CWE/SC & PCPO/SC for kind information.
WPO/LGD for kind information & necessary action.

SOUTH CENTRAL RAILWAY
WORK STUDY REPORT
ON
REVIEW OF STAFF STRENGTH
OF
TRIMMING SHOP OF CARRIAGE WORKSHOP
LALLAGUDA

***** ****

STUDIED BY
L SURESH KUMAR
Sr. WORK STUDY INSPECTOR

&

Y SRINIVAS RAO
EFFICIENCY INSPECTOR

GUIDED BY
V S RAMA RAJU
Sr. WORK STUDY OFFICER
CENTRAL PLANNING ORGANISATION
SECUNDERABAD.

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ACKNOWLEDGEMENT

The Central Planning organization takes this opportunity to express hearty thanks to the Officials and Staff of Carriage Work Shop/LGD for their valuable guidance and co-operation in compilation of the report

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METHODOLOGY

The Work Study department has applied the following techniques for completion of the Work Study.

1. Collection of the details of workload particulars.
2. Interaction with all the Staff and Officers in the workshop.
3. Observation of the pattern of working.
4. Critical examination of the existing system of working and
5. Assessment of manpower requirement for existing workload.

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SYNOPSIS

- **Subject:** Review of Staff Strength of Trimming shop of Carriage Workshop/LGD.
- **Authority:** Annual Programme of Work studies 2021-22.
- **Study No:** WSSCR-01/2021-22.
- **Reference File No:** G.276/2/WSSCR-01/2021-22.
- **Area Of Activity:** Trimming shop/Carriage Work shop/LGD
- The Railways have to reduce the expenses from all corners. The major portion of expenses being staff expenses, all out efforts have to be made to contain the same.
- The work study team divided the report in to TWO parts. i.e is
 - **Part-A** – Assessment requirement of the staff in Trimming section for existing work load,
 - **Part-B** – Recommending the activity for outsourcing.

PART-A

(Assessment requirement of the staff in trimming section for existing work)

- **Consolidated SAVE position:**

Desg	San	Act	Vac
Supervisors	9	5	4
Technicians	74	62	12
Helpers	9	3	6
Total	92	70	22
Carpenters of carriage shop exclusively working trimming shop.	13	13	0

- The following activities are being done in Trimming shop of Carriage Workshop/Lallaguda:

S No	Description	By Railway staff	By Contract staff
1	Stripping & Fitment of berths	-	Contract staff
2	Loading/Un-loading		
3	Transportation	-	Contract staff
4	Berth repairs of Non AC coaches (except chain sleeves)	-	Contract staff
5	Berth repairs of AC coaches	Railway staff	-
6	Berth repairs of other coaches (CZ, MMTS, Tower car, DEMU)	Railway staff	-

- Consolidated statement of berths repaired by Railway staff 2019-20 & 2020-21 are as follows:

- For the year 2019-20:

S no	Type of coach	Berths Per year	Berths Per month	Berths Per day
1	AC coach	10411	868	35
2	CZ	9953	830	34
3	MMTS	3943	329	14
Total		24307	2027	83

- For the year 2020-21:

S no	Type of coach	Berths Per year	Berths Per month (taken 11 months due to covid-19)	Berths Per day
1	AC coach	10863	988	40
2	CZ	12734	1158	47
3	MMTS	2611	238	10
Total		26208	2384	97

- Carpentry work concerned to AC coach berths is being done by the staff of Carriage shop and the work done by these staff is taken in carriage shop account. Hence allowed time and Time taken for carpentry work could not be taken. Hence work study team assessed the requirement of staff for Trimming shop only.
- Consolidated data of Out turn, Allowed time and Time taken for Trimming shop for last 3 years furnished below:

S. no	year	Out turn coaches	Allowed Time in hrs	Time Taken in hrs
1	2018-19	1669	167696	117363
2	2019-20	1735	164608	113001
3	2020-21	1534	119367	83877

- Work study team considered the following factors for assessment of staff required for Trimming Shop of Carriage Workshop/Lallaguda.
 - a) Save Position of Trimming Shop.
 - b) Work Load of Trimming Shop.
 - c) Outsourcing of activities.
 - d) Staff requirement as per CLW incentive Scheme.
 - e) Recommending outsourcing as per RB's Lr No. E(MPP)2016/1/59 of dt, 10.01.2017
- No. of man hours in a month as per CLW incentive scheme:
 - No. of working days in a month = 25 days
 - No. of working hours per day = 8 hrs
 - Total working hours per month = $25 \times 8 = 200$ hrs
 - Minimum % of incentive hours for average worker = 33.33%
 - Hence total man hours for a worker = $200 + 67 = \mathbf{267 \text{ hrs}}$
 - Generally 100% of berth repairs/ replacement will not be done. Repairs will be done as per the requirement identified by the Inspection team. On arrival of coach, inspection team will check the condition of all berths and identify the repairs to be done. Allowed time is calculated based on the time specified for each activity in **Inspection Report Sheets** for the given work. Hence work Study team considered Allowed time to assess the manpower requirement.

➤ **Assessment of manpower for Trimming section:**

Assessment of manpower for Trimming section			
Year	Average out turn / month	Average allowed time / month	Average time taken/month
2018-19	139.08	13975	9780
2019-20	144.58	13717	9416
2020-21	153.4	11937	8388
Total	437.06	39629	27584
Average	145.68 say 146	13210	9195
No. of Direct Workers (= allowed time/man hours in a month)		13210/267=49.47 say 50	
<u>LR@12.5%</u>		50x12.5% = 6.25 say 6	
Sub Total		50+6 = 56	
EIW/IW @10% #		56x10%= 5.6 say 6	
Total		62	
#As per Para no. 431 of Rolling Stock code, capping of EIWs /IW is 10% of DWs of Trimming shop			

➤ **Requirement of manpower (Technicians and group-D staff) in Trimming shop:**

S No	Description	Staff required
A.	Sanctioned staff	83
B.	Staff required	62
C.	Excess to the requirement (A-B)	21

➤ Vide letter no E (MPP)2018/1/1 dated 02.07.2020 (RBE No.48/2020), RB has approved following action plan for Economic measure and Rationalization of expenditure.

- Freezing new posts creation except safety, till further orders,
- Reviewing of posts created in last two years and if recruitment has not been done against these posts, reviewing the same for surrendering and
- Surrender of 50% of existing vacancies, in other than safety category.

➤ In view of the above, the following recommendation is made.

Recommendation I:

It is recommended to surrender **21 (18- vacant & 3- Live)** technician and helper posts from Trimming shop of Carriage Workshop/ Lallaguda which are excess to the requirement.

PART-B

(Recommending the activity for outsourcing)

➤ Factors considered for recommending outsourcing of the Trimming activity are as follows:

- RB's Lr No. E(MPP)2016/1/59 of dt, 10.01.2017 regarding outsourcing of non-core & non-safety activities.
- Trimming activity is one the non-core / non-safety activities, which is not directly related with train operations.
- Most of the activities pertaining **berth repairs** are already outsourced,
 - Stripping, un-loading, Transportation, **repairing**, loading & fitting of Non-AC coaches including carpentry work is outsourced.
 - Stripping, un-loading, Transportation, loading & fitting Except Repairs including carpentry work (**excluding repair work**) for **AC coach is outsourced**.
- Cost for repair work including carpentry work by Railway staff is much higher when compared with outsourced cost.
- After outsourcing the Trimming activity, the on roll staff may be deployed in needy areas.

➤ **Vide RB's Lr No. E(MPP)2016/1/59 of dt, 10.01.2017,** Effecting savings in manpower costs, increasing productivity and developing skilled human resources is essential for any organization. In this connection Railway Board has given its action plan and lays down some specific areas and timelines for the due attention of all concerned Officers.

- Para No. 6, of the above RB's Lr,** it has been stated that more non-core activities, which are not directly related with train operations and safety can be outsourced.
- Para No.3 of the above RB's Lr** it was stated that possibility of outsourcing, by limiting the total outsourcing cost not exceeding 40%-50% of the total departmental cost of shortfall in manpower.

➤ **Outsource activities in the Trimming shop:**

Description	Non AC (Stripping, un loading, Transportation, repairing, loading & fitting)			Ac coach(Stripping, un loading, Transportation, loading & fitting) Except Repairs		
	No. of berths	Cost per berth (in Rs)	Total cost (in Rs)	No. of berths	Cost per berth (in Rs)	Total cost (in Rs)
Lower berth	13416	355.36	4767509	4152	251.71	1045099
Middle berth	10152	266.52	2705711	3192	133.26	425365
Upper berth	10584	266.52	2820847	3240	133.26	431762
Side upper	5352	266.52	1426415	1656	133.26	220678
Side single seat	8664	140.66	1218 678	3144	133.26	418969
Single seat back rest	15144	288.73	4372527	5016	125.86	631313
Bed cum back rest	-	-	-	504	133.26	67163
Side middle berth (garibhrath)	-	-	-	192	133.26	25585

➤ Consolidated data of renewal / repairs of Non-AC berths attended by Contract staff:

Year	Berths Per year	Berths month Per	Berths Per day
2019-20	42735	3561	143
2020-21	30159	2742	110
Total	72894	6303	253

➤ Work study team arrived the cost towards repair works including carpentry by taking the following in to consideration:

- **A** – Contract value of Non-AC coaches: Stripping, un-loading, Transportation, **repairing**, loading & fitting activities outsource.
- **B** – Contract value of AC coaches: Stripping, un-loading, Transportation, loading & fitting activities are outsourced and repair works including carpentry is being done by the Railway staff.
- **C** – As per SSE/workshop, the cost towards other than repair works (stripping/fitting, loading/unloading and transportation) for non-AC coach berths will be approximately 20-25 % less than the cost of AC coach berths.
- **D**- The work study team considered the cost towards repairs of non AC coach berths will be the difference of contract value of non ac coach berths (A) to approximate cost towards other than repair works of non ac coaches (C). The details are as below:

Description	Non AC coach contract value in rupees (A)	Ac coach contract value in rupees (B)	Approximate cost towards other than repair works of non ac coaches (C=25% less of B)	Approximate cost towards repairs including carpentry works for Non-AC coaches in rupees (D = A-C).
Lower berth	355.36	251.71	188.78	166.58
Middle berth	266.52	133.26	99.95	166.57
Upper berth	266.52	133.26	99.95	166.57
Side upper	266.52	133.26	99.95	166.57
Side single seat	140.66	133.26	99.95	40.71

Single seat back rest	288.73	125.86	94.4	194.33
Bed cum back rest	-	133.26	99.95	<ul style="list-style-type: none"> Workload & cost of Bed cum back rest is considered in lower berth, Workload & cost of side middle berth considered in middle berth.
Side middle berth (garibhrath)	-	133.26	99.95	

- **Hourly rate for contract staff for repair works:** Work study team assessed the hourly rate for contract staff by dividing the repair cost of Non-Ac berths (para 3.31) by the time required for repair works including carpentry work for Non-AC coaches (para 3.30).

Description	Repair value Non AC coach in rupee (para no.3.31)	No. of hours as per IR sheet including carpenter (para 3.30)	Difference/ Hourly rate in rupees
Lower berth	166.58	5.15 hrs	$166.58/5.15 = 32.34$ say 33
Middle berth	166.57	5.15 hrs	$166.57/5.15 = 32.34$ say 33
Upper berth	166.57	5.15 hrs	$166.57/5.15 = 32.34$ say 33
Side upper	166.57	5.15 hrs	$166.57/5.15 = 32.34$ say 33
Side single seat	40.71	7.15 hrs	$40.71/7.15 = 5.69$ say 6
Single seat back rest	194.33	5.73 hrs	$194.33/5.73 = 33.91$ say 34

- **Approximate repair cost of AC coaches by outsourcing staff if the activity is outsourced (Hourly rate x Allowed time as per IR sheet):**
- Work study team considered contract value for similar berth of **Non-AC** coaches for calculating the approximate cost of contract value of **AC** berths.
 - To assess the approximate cost of contract value of ACCZ, GSCZ & MMTS, work study team considered the contract value of side single seat and single seat back rest of CN coach.

Description	Hourly rate as per para no. 3.32 in rupees	No. of hours as per IR sheet including carpenter for AC coaches (para 3.29)	Approximate repair cost by outsourced staff in rupees
Lower berth	33	17.02 hrs	562
Middle berth	33	16.33 hrs	539
Upper berth	33	16.33 hrs	539
Side upper	33	16.33 hrs	539
Side single seat	6	7.48 hrs	45
Single seat back rest	34	10.80 hrs	367
CZ seat	6	11.08 hrs	67
CZ back rest	34	8.62 hrs	293
MMTS seat	6	9.40 hrs	57
MMTS back rest	34	8.62 hrs	293

- Approximate contract value per Annum for repair works including carpentry work for **berths of AC coaches and seats of GSCZ/MMTS** coaches based on renewal / repairs attended by Railway staff (para no. 3.8 to 3.10) if proposed for outsourcing:

Type of berth	Renewal/ repaired 2019-20	Renewal / repaired 2020-21	Total Renewal / repaired	Average Renewal /repaired	Approximate repair cost (para 3.33)	Approximate contract value in rupees
Lower Berth	2268	2506	4774	2387	562	1341494
Middle berth	1074	1211	2285	1143	539	616077
Upper berth	1844	1864	3708	1854	539	999306
Side upper	586	801	1387	694	539	374066
Single seat	1597	1762	3359	1680	45	75600
Single back rest	3042	2719	5761	2881	367	1057327
CZ seat	5393	6444	11837	5919	67	396573
CZ back rest	4560	6290	10850	5425	293	1589525
MMTS seat	2337	1612	3949	1975	57	112575
MMTS back rest	1606	999	2605	1303	293	381779
Total						6944322

- After surrendering of excess staff of 21 as per recommendation-1, the balance sanctioned staff will be as follows:

S No	Desg	Sanctioned strength
1	SSE/JE	9
2	Technicians + Helpers	62
3	Carpenters of carriage shop working exclusively in trimming shop	13
	Total	84

- After outsourcing the Trimming activity including carpentry work 5 technicians and 3 supervisors may be retained for emergency/misc works, inspection works and supervision of outsourced activity. Hence balance 76 (84-8) posts may be surrendered after completion of outsourcing process.
- At present stripping, transportation and fitting of berths in AC coach, CZ and MMTS are outsourced. Repair work and carpentry works are being done by the Railway staff. If the repair work and carpentry work are outsourced, the following saving may be occurred. **Work study team considered the wages of Tech.III for calculation purpose (para no.2.11).**

S No	No. of staff + (Trimming Carpenter)	Average wages per month	Average wages per year
1	70 (57+13)	34500x70=2415000	28980000
2	6 (SSE/JE)	409860x12	4918320
	Total		33898320
3	Expected contract value for year	-	6944322
4	Saving per year (1-2)		26953998

With the above table, it is evident that approximately 269.53 lakhs of rupees per year can be saved if the Trimming activity is outsourced. The above calculations and savings are approximated only. **The detailed estimation may be made by Carriage workshop while going for outsourcing.**

- In view of the above, the following recommendation is made.

Recommendation II: It is recommended to outsource the trimming activity completely and resultant **76** (70-technician+helper & 6- SSE/JE) posts may be surrendered and on roll staff may re-deployed suitably.

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1.0 INTRODUCTION:

- 1.1** The Carriage Workshop/LGD was established in 1893 as the Locomotive, Carriage and Wagon Workshop of the Nizam State Railway (NSR). The Government of Hyderabad took over direct control of the Railways in 1930 and renamed as the Nizam Guaranteed State Railways (NGSR).
- 1.2** The Lallaguda workshop compiles is one of the oldest surviving examples of modern Industrial Architecture. After forming of SCR in 1966, the Lallaguda workshop became a major workshop in the zone. It continued to be a composite workshop for MG/BG rolling stock still 1973. As a result of phasing out of steam locos, the workshop took up POH of all types BG coaches and hence rechristened as "Carriage Workshop" during 1997.
- 1.3** This workshop was bestowed with the prestigious Heritage Award of Indian National Trust for Art and Cultural Heritage (INTACH) in 2015.
- 1.4** The workshop is spread over an area of 13.97 hectares with 4.25 hectares of covered area. The workshop presently handles a wide variety of coaches for POH schedules which includes ICF design coach, RCF design coach, LHB coach, and self propelled coaches like SPART/DEMU/DHMU and Tower car.
- 1.5** At present this workshop caters to POH of all types of BG coaches. It also undertakes POH of AC coaches, DMU's/ DHMU's coaches, Tower cars.
- 1.6 GENESIS OF THE REPORT:** It is evident that the Operating/working expenses are increasing year after year. It is therefore imperative that to keep the working expenses within financially viable limits, the Railways have to reduce the expenses from all corners. The major portion of expenses being staff expenses, all out efforts have to be made to contain it.
- 1.7** With a view to right size the manpower, Railway Board have chosen a few select areas and are monitoring the manpower available in those activities on all divisions of Indian Railways. This includes the study of "STAFF OF TRIMMING SHOP OF CARRIAGE WORK SHOP/LGD".
- 1.8** In view of the above, the Central Planning Organization under control of SDGM conducted Work study on Staff Strength of Trimming Shop of Carriage work shop/LGD.

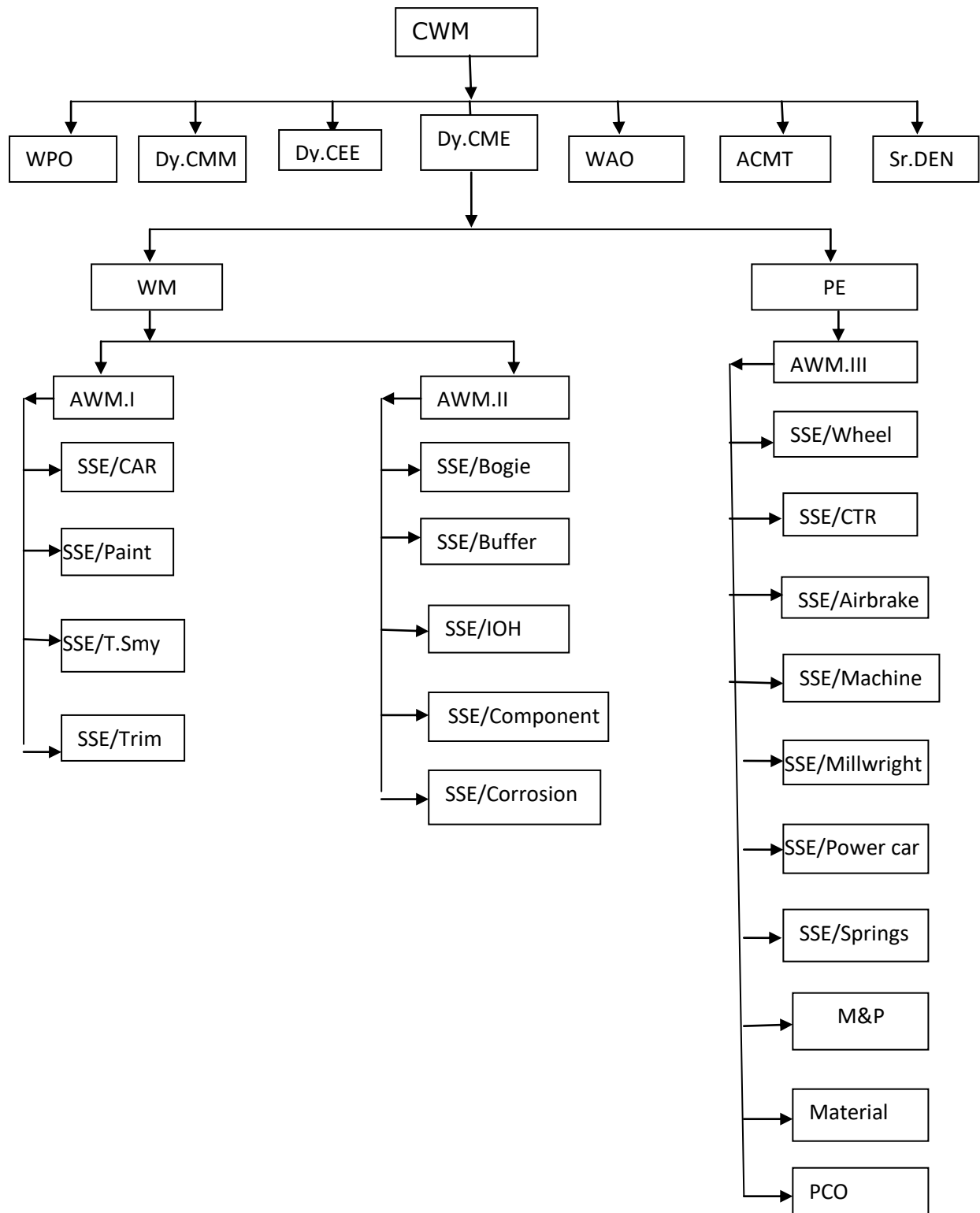
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2.0 EXISTING SCENARIO

- 2.1 Chief Workshop Manager is overall in-charge of Carriage Repair Workshop and assisted by various officers in discharging his duties. Under CWM various departments like Mechanical, Electrical, Accounts, Stores, Chemist & Metallurgy. Each department is headed by concerned departmental head.
- 2.2 Dy. Chief Mechanical Engineer is overall in-charge of cadre control, Computer Centre & Training Centre. He is responsible for monitoring Workshop Modernisation, Quality Management System, Budget, and assists CWM in all workshop matters.
- 2.3 Dy. Chief Electrical Engineer is responsible for POH of all Rolling Stock pertaining to Electrical wing and maintenance of electrical infrastructure of workshop. He assists CWM in all matters of Electrical department. He is assisted by Jr. Scale officer who looks after Electrical Infrastructure Maintenance and another Jr. Scale officer who looks after rolling stock maintenance.
- 2.4 Works Manager is responsible for POH & special repair attention to coaching stock and special stocks like, DHMU, DEMU etc as per target set by Board. Responsible for outturn of Bogie, Lift Lower, Corrosion, Carriage, Trimming, Tinsmith, Air Brake and Trimming shops. He is assisted by AWM-I & AWM-III.
- 2.5 Production Engineer is in-charge for production shops namely wheel, component, CTR, Millwright, Machine, Gas & welding shops. He is also responsible for monitoring industrial safety. He is also in-charge for Production Control Organisation consisting of Inspection, Planning, Progress and Drawing office. Monitoring of incentive system, processing of work orders, Millwright and material planning, commissioning and maintenance, maintenance of all machinery and plant, material plan of all non-stock, AAC revision. He is also responsible for outturn of special stocks like DEMU, DHMU & Tower Cars etc. He is assisted by AWM-II
- 2.6 Workshop Personnel Officer is responsible for HRD activities like Payroll preparation, maintenance of staff needs and maintenance of industrial relation.
- 2.7 Major milestones of Carriage workshop/ Lallaguda:
- 1893- Established as Loco, Carriage and Wagon Workshop under "Nizam's Guaranteed State Railway".
 - 1951 – Brought under Central Railway
 - 1966 – Carved out as South Central Railway.
 - 1975 – POH of BG steam cranes.
 - 1981 – POH of AC coaches.
 - 1988 – Commissioned mini computer
 - 1997 – Rechristened as Carriage Workshop.
 - 2000 – Awarded ISO-9002: 1994 certification.
 - 2003 - Commissioned POH of DHMU trailer cars.
 - 2006 – Commissioned POH of EMU TCs and Tower wagons.
 - 2007 – Awarded ISO-9001:2000 certification.
 - 2009 – Commissioned modernization of workshop.
 - 2011 – Commissioned POH of power cars of DHMU and DEMU.
 - 2012 – Awarded ISO 9001: 2008 certification.
 - 2015 – Commissioned POH of EMU & MEMU motor coaches.
 - 2016 – Accredited with 5S workplace management systems (WMS), IMS, Containing QMS (ISO 9001:2015), EMS (ISO 14001:2015), OSHAS(ISO 180001:2007) & EnHM (ISO 50001:2011).

- 2017 – Awarded Green-Co silver rating by CII/Hyderabad, Accreditation of NABL certificate to CMT laboratory and awarded best innovation for “Automated Single Car Test rig”.
- 2019-First Coaching Workshop on IR to be certified “Lean Six Sigma”.

2.8 Organisation Chart of Workshop/LGD:



Sections of Carriage Workshop /LGDS and the prime duties of staff:**1) Millwright:**

- Maintenance of all the machinery and plants available in the workshop.
- Testing of all the slings and chains of all cranes.

2) Machine shop:

- Turning activities in manufacturing process of items and profile cutting of wheels on Laths, Boring of discs, Turning and burnishing of axles e.t.c in POH of coaches.
- Milling activities
- Drilling activities.

3) Central Tool Room (CTR)

- POH of air brake components and testing.
- POH of Distributer valves, shock absorbers, bogie mounted brake cylinders, OEASD e.t.c.
- Calibration of all types of gauges and various measuring instruments used in workshop.
- Repair and return of Pressure gauges, Cuttogen cutters.

4) Component:

- Cutting of MS sheets.
- Bending of MS sheets.
- Rolling of MS sheets.
- Alignment and tack welding of items during manufacturing process.

5) Spring:

- POH of springs.
- POH of cattle guards.
- Repair / return and testing of draw gear & screw coupling.

6) Carriage:

- Attending all furnishing works in POH of coaches.
- Manufacturing of lavatory doors for POH coaches, wooden racks for ART & Saloon coaches if required.
- Attending UIC vestibules.
- Laying of PVC in coaches.
- Attending of POH of Alarm Signaling System

7) Tinsmith:

- Dismounting and, POH and mounting of water tanks in POH coaches.
- Attending plumbing work in all POH coaches and test for water leakages.
- Attending water rising equipment in AC coaches.

8) Trimming:

- Repair of berth frames (Trimming Carpentry)
- Cushioning of all types of berths, seats of POH coaches.
- Laying of carpets in saloons and inspection carriages.

9) Welding;

- Attending welding activity where ever required during POH process of coaches and manufacturing of items.

10) Carriage Bogie & Under Frame (CB&UF):

- Attending POH repairs of bogies.
- Lift and lowering of coaches.
- Buffer height of coaches.
- POH of buffers, CBCs, Shaku couplers and screw couplers.
- Strip and fitment of air brake components and testing.
- Attention of wheel and roller bearings.

11) Corrosion:

- Attending body (super structure) corrosion repairs of coaches.
- POH attention to battery boxes and body side doors..
- Laying of compreg flooring & chequered plate where ever required.
- Converting the coaches into ARTs, Inspection carriages, NMGs e.t.c.
- Attend special repairs to the coaches involved in accidents.

12) Power car:

- Attend POH of power cars of DEMU, DHMU, MEMU, EMU, SPART, SPMRV and Tower cars.

2.10 SAVE position on Trimming Shop is as follows:

S No	Desg	San	Act	VAc
1	SSE/JE	9	5	4
2	Sr.Tech	22	22	0
3	Tech.I	44	15	29
4	Tech.II	7	13	-6
5	Tech.III	1	12	-11
6	Helpers	9	3	6
7	Carpenters	13	13	0
	Total	105	83	22

2.11 Average payment for a worker per day:

		SSE	Sr. Tech.	Tech. I	Tech. II	Tech.III
A	Minimum pay in scale	Rs 44900/-	Rs 35,400/-	Rs 29200/-	Rs 25,500/-	Rs 19,900/-
B	10 th level pay in pay scale (as per RB's guidelines)	Rs 58600/-	Rs 46,200/-	Rs 38100/-	Rs 33,300/-	Rs 26,000/-
C	Average pay	Rs 51750/-	Rs 40,800/-	Rs 33,650/-	Rs 29,400/-	Rs 22,950/-
D	DA at 17%	Rs 8797/-	Rs 6936/-	Rs 5,720/-	Rs 4,998/-	Rs 3,901/-
E	Incentive bonus 33.33% on average	Rs 7763/- (15%)	Rs 13599/-	Rs 11,215/-	Rs 9,799/-	Rs 7,649/-
F	Total wages per month (C+D+E)	Rs 68310/-	Rs 61,335/-	Rs 50585/-	Rs 44,197/-	Rs 34,500/-
G	Average working days in a month	25	25	25	25	25
H	Average wages per day (F/G)	Rs 2732/-	Rs 2,453/-	Rs 2023/-	Rs 1,768/-	Rs 1,380/-
I	Sanctioned staff	9	59	117	12	9

Note- As per SAVE position maximum staff are in Tech.I and Sr.Tech grades, work study team considered Tech.III (lowest grade) for calculation purpose.

** ** *

CHAPTER – 3

3.0 CRITICAL EXAMINATION:

- 3.1 The Railways have to reduce the expenses from all corners. The major portion of expenses being staff expenses, all out efforts have to be made to contain the same.
- 3.2 As per the programme of work studies 2021-22, the Work-study Team conducted work study on "Staff Strength of Trimming Shop of Carriage Workshop/Lallaguda".
- 3.3 The work study team divided the report in to TWO parts. i.e is
- **Part-A** – Assessment requirement of the staff in Trimming section for existing work load,
 - **Part-B** – Recommending the activity for outsourcing.

PART-A

(Assessment requirement of the staff in trimming section for existing work)

- 3.4 At present in trimming shop of carriage work shop/LGD, repair works of berths including carpentry work for all AC, GSCZ and MMTS only being done by Railway staff and remaining all activities like stripping, transportation , fitting e.t.c are outsourced. The details are given below:

S No	Description	By Railway staff	By Contract staff
1	Stripping & Fitment of berths	-	Contract staff
2	Loading/Un-loading		
3	Transportation	-	Contract staff
4	Berth repairs of Non AC coaches (except chain sleeves)	-	Contract staff
5	Berth repairs of AC coaches	Railway staff	-
6	Berth repairs of other coaches (CZ, MMTS, Tower car, DEMU)	Railway staff	-

- 3.5 Consolidated SAVE position:

Desg	San	Act	Vac
Supervisors	9	5	4
Technicians	74	62	12
Helpers	9	3	6
Total	92	70	22
Carpenters of carriage shop exclusively working trimming shop.	13	13	0

- 3.6 Section wise deployment of Trimming Staff:

S No	Section	No. of staff
1.	Berth repair	42
2.	Chain sleeves	3
3.	Curtains	6
4.	Cutting	3
5.	Driver	1
6.	Patch work	1
7.	Stitching	7
8.	Stores	2
	Total	65

3.7 Targets and Production of coaches for workshop/LGD for the years 2018-19, 2019-20 & 2020-21 are as follows

- For the year 2018-19:

S No	Month	Working days	Target	Actual	Target per day
1.	April-18	22.5	139	139	6.18
2.	May-18	25	150	150	6.00
3.	June-18	23	142	142	6.17
4.	July-18	24	146	147	6.08
5.	Aug-18	22	132	133	6.00
6.	Sep-18	20.5	124	125	6.05
7.	Oct-18	23	140	141	6.09
8.	Nov-18	23	140	142	6.09
9.	Dec-18	21.5	130	128	6.05
10.	Jan-19	22.5	135	135	6.00
11.	Feb-19	21	132	132	6.29
12.	March-19	22.5	134	155	5.96
	Total	270.5	1644	1669	6.07

- For the year 2019-20:

S No	Month	Working days	Target	Actual	Target per day
1.	April-19	21.5	140	141	6.51
2.	May-19	25	162	162	6.48
3.	June-19	21.5	140	140	6.51
4.	July-19	24	156	156	6.50
5.	Aug-19	22.5	146	146	6.49
6.	Sep-19	21	137	137	6.52
7.	Oct-19	23	149	147	6.48
8.	Nov-19	23.5	153	153	6.51
9.	Dec-19	23	149	149	6.48
10.	Jan-20	23	149	149	6.48
11.	Feb-20	21.5	145	146	6.74
12.	March-20	23	150	108	6.52
	Total	272.5	1776	1734	6.51

- For the year 2020-21:

S No	Month	Working days	Target	Actual	Target per day
1.	April-20*	0	0	0	0
2.	May-20*	16	53	53	3.31
3.	June-20	24	155	155	6.46
4.	July-20	24	178	155	7.42
5.	Aug-20	22	151	131	6.86
6.	Sep-20	24	149	147	6.21
7.	Oct-20	22	147	147	6.68
8.	Nov-20	22.5	157	157	6.98
9.	Dec-20	24	166	166	6.92
10.	Jan-21	20.5	148	148	7.22
11.	Feb-21	22	158	158	7.18
12.	March-21	22	170	170	7.72
	Total	227	1579	1534	6.96

***-Due to Covid-19 targets and actual out turn in April'20 is 0 and in May'20 is 53. Hence not considered.**

3.8 Renewal/ repairs of **AC coach berths** attended by the Railway staff during the year 2019-20 & 2020-21 are as Follows:

- For the year 2019-20:

Month	No.of coaches	Lower berths	Middle berths	Upper berths	Long upper berths	Single seat	Side rest back	Total
No. of berths/coach		16	16	16	8	16	16	
April-19	28	117	82	148	57	147	342	893
May-19	26	177	66	154	50	122	309	878
June-19	28	196	77	132	36	78	299	818
July-19	27	190	85	171	43	127	253	869
Aug-19	27	222	111	211	57	179	304	1084
Sep-19	22	99	62	147	36	193	245	782
Oct-19	22	237	103	153	48	141	213	895
Nov-19	28	191	125	190	69	181	202	958
Dec-19	30	291	131	174	49	114	259	1018
Jan-20	21	183	78	142	51	144	232	830
Feb-20	27	214	76	115	38	101	213	757
March-20	20	151	78	107	52	70	171	629
Total	306	2268	1074	1844	586	1597	3042	10411
Ave/ month	25.5	189	89.5	153.66	48.83	133.08	253.5	867.58 say 868
Ave/day (25 as per CLW pattern)	1.02	7.56	3.58	6.14	1.95	5.32	10.14	34.72 say 35

- For the year 2020-21:

Month	No.of coaches	Lower berths	Middle berths	Upper berths	Long upper berths	Single seat	Side rest back	Total
No. of berths/coach		16	16	16	8	16	16	
April-20	0	0	0	0	0	0	0	0
May-20	13	105	33	61	17	58	124	398
June-20	10	76	30	72	32	69	99	378
July-20	32	297	179	238	99	204	320	1337
Aug-20	25	312	163	216	82	146	288	1207
Sep-20	29	328	173	272	122	300	306	1501
Oct-20	22	162	108	199	97	187	256	1009
Nov-20	26	220	171	204	99	196	285	1175
Dec-20	33	251	120	159	66	161	256	1013
Jan-21	28	225	85	140	61	135	186	832
Feb-21	30	272	72	129	44	158	233	908
March-21	27	258	77	174	82	148	366	1105
Total	275	2506	1211	1864	801	1762	2719	10863
Ave/ month	25	227.81	110.09	169.45	72.81	160.18	247.18	987.54 say 988
Ave/day (25 as per CLW pattern)	1	9.11	4.40	6.78	2.91	6.40	9.88	39.52 say 40

3.9 Renewal/repairs of **CZ coaches seats** attended by the Railway staff for the year 2019-20 & 2020-21 are as follows:

- For the year 2019-20:

Month	No of coaches	CZ seat	CZ back rest	Total
April-19	23	594	528	1122
May-19	16	410	408	818
June-19	18	512	408	920
July-19	20	391	239	630
Aug-19	20	612	493	1105
Sep-19	15	510	429	939
Oct-19	17	462	398	860
Nov-19	23	544	472	1016
Dec-19	16	346	334	680
Jan-20	18	407	386	793
Feb-20	21	527	447	974
March-20	23	78	18	96
Total	230	5393	4560	9953
Ave/ month	19.16	449.41	380	829.41
Ave/day (25 as per CLW pattern)	0.76	17.97	15.2	33.17 say 34

- For the year 2020-21:

Month	No of coaches	CZ seat	CZ back rest	Total
April-20	0	0	0	0
May-20	19	249	119	368
June-20	13	237	156	393
July-20	8	132	113	245
Aug-20	13	368	334	702
Sep-20	27	735	738	1473
Oct-20	9	248	248	496
Nov-20	20	806	771	1577
Dec-20	30	997	1085	2082
Jan-21	30	822	892	1714
Feb-21	34	823	804	1627
Mar-21	31	1027	1030	2057
Total	234	6444	6290	12734
Ave/ month	21.27	585.81	571.81	1158
Ave/day (25 as per CLW pattern)	0.85	23.43	22.87	46.32 say 47

3.10 Renewal / repairs of **MMTS coaches seats** attended by Railway staff for the year 2019-20 & 2020-21 are as follows:

- For the year 2019-20:

Month	No of coaches	MMTS seat	MMTS back rest	Total
April-19	3	99	46	145
May-19	2	12	12	24
June-19	4	79	34	113
July-19	2	52	26	78
Aug-19	4	107	20	127
Sep-19	4	184	81	265
Oct-19	7	302	193	495
Nov-19	7	363	266	629
Dec-19	5	225	191	416
Jan-20	6	241	151	392

Feb-20	5	164	124	288
March-20	3	509	462	971
Total	52	2337	1606	3943
Ave/ month	4.33	194.75	133.83	328.58
Ave/day (25 as per CLW pattern)	0.17	7.79	5.35	13.14 SAY 14

- For the year 2020-21:

Month	No of coaches	MMTS seat	MMTS back rest	Total
April-20	0	0	0	0
May-20	2	167	38	205
June-20	5	323	185	508
July-20	1	48	37	85
Aug-20	3	77	36	113
Sep-20	2	97	96	193
Oct-20	6	180	135	315
Nov-20	8	105	90	195
Dec-20	5	203	148	351
Jan-21	2	125	106	231
Feb-21	4	53	20	73
March-21	12	234	108	342
Total	50	1612	999	2611
Ave/ month	4.54	146.54	90.81	238
Ave/day (25 as per CLW pattern)	0.18	5.86	3.6	9.52 SAY 10

- 3.11 Consolidated data of renewal/ repairs of berths/ seats **for AC coaches, CZ coaches and MMTS coaches** attended by Railway staff 2019-20 & 2020-21 are as follows:

- For the year 2019-20:

S no	Type of coach	Berths Per year	Berths month	Per	Berths day	Per
1	AC coach	10411	868		35	
2	CZ	9953	830		34	
3	MMTS	3943	329		14	
Total		24307	2027		83	

- For the year 2020-21:

S no	Type of coach	Berths Per year	Berths month	Per	Berths day	Per
1	AC coach	10863	988		40	
2	CZ	12734	1158		47	
3	MMTS	2611	238		10	
Total		26208	2384		97	

- 3.12 **IR work Sheet for AC coach:**

S No	Description	Unit	Operation	A.T (Hr; Min)
1.	Seat Cushion	Each	Repair	03 : 00
2.	Long Seat	Each	Repair	01 : 50
3.	Single Seat	Each	Repair	01 : 30
4.	Arm rest	Each	Repair	01 : 15
5.	Bed cum back rest	Each	Repair	08 : 00
6.	Single seat back rest	Each	Repair	03 : 27
7.	Upper berth	Each	Repair	09 : 44
8.	Middle berth	Each	Repair	09 : 44
9.	Side Upper berth	Each	Repair	09 : 44

10.	Chest of Magazine bags	Each	Repair	00 : 37
11.	Window curtain	Each	Repair	00 : 58
12.	Floor Carpet	Each	Repair	01 : 41
13.	Carpet repair	Each	Repair	10 : 20
14.	Seat & stitch on machine on rexine	Each	70 rft	00 : 49
15.	Single back rest supporting bracket	Each	New	01 : 14
16.	Pasting of rubber sheet on foot rest (ACCZ)	Each	New	00: 26
17.	Head Rest	Each	Rft	00 : 30
18.	Seal bags	Each	Rft	00 : 20
19.	Upper berth Rexine covers	Each	Rft	00 : 37
	Total			48 : 46

3.13 **IR sheet for carpentry repairs (trimming) for AC coaches:**

S No	Description	Unit	Operation	A.T (Hr; Min)
1.	Upper berth	Each	Heavy repair	03 : 40
2.	Upper berth	Each	Medium repair	02 : 00
3.	Upper berth	Each	Light repair	00 : 49
4.	Seat	Each	Heavy repair	03 : 40
5.	Seat	Each	Medium repair	02 : 00
6.	Seat	Each	Light repair	00 : 49
7.	Arm Rest	Each	Heavy repair	01 : 50
8.	Arm Rest	Each	Medium repair	00 : 49
9.	Arm Rest	Each	Light repair	00 : 04
10.	Back rest	Each	Heavy repair	03 : 50
11.	Back rest	Each	Medium repair	02 : 10
12.	Back rest	Each	Light repair	00 : 55
13.	Bed cum back rest	Each	Heavy repair	02 : 30
14.	Bed cum back rest	Each	Medium repair	02 : 10
15.	Bed cum back rest	Each	Light repair	00 : 55
	Total			28 : 11

3.14 The data of Out turn, Allowed time and Time taken for Trimming shop for last 3 years furnished below

- For the year 2018-19:

S. no	Month/ year	Out turn coaches	Allowed Time in hrs	Time Taken in hrs
1	Apr-18	139	16986	11792
2	May-18	150	14914	10247
3	Jun-18	142	15530	10633
4	Jul-18	147	15147	10749
5	Aug-18	133	16497	11769
6	Sep-18	125	12959	8992
7	Oct-18	141	12398	8664
8	Nov-18	142	12861	8825
9	Dec-18	128	12654	8801
10	Jan-19	135	11564	8280
11	Feb-19	132	12293	8893
12	Mar-19	155	13893	9718
	Total	1669	167696	117363
	Average per month	139.08	13975	9780

- For the year 2019-20:

S. no	Month/ year	Out turn coaches	Allowed Time	Time Taken
1	Apr-19	141	15030	10331
2	May-19	162	13240	9142
3	Jun-19	140	11571	7910
4	Jul-19	156	15147	10749
5	Aug-19	146	21013	14350
6	Sep-19	137	11151	7595
7	Oct-19	147	11738	7979
8	Nov-19	153	12361	8502
9	Dec-19	149	13224	9063
10	Jan-20	149	13583	9215
11	Feb-20	146	13438	9269
12	Mar-20	109	13112	8896
	Total	1735	164608	113001
	Average per month	144.58	13717	9416

- For the year 2020-21:

S no	Month/ year	Out turn coaches	Allowed Time	Time Taken
1.	April-20	0	0	0
2.	May-20	53	8316	4164
3.	Jun-20	155	7138	5604
4.	Jul-20	155	12700	8927
5.	Aug-20	131	9822	6850
6.	Sep-20	147	12664	8852
7.	Oct-20	147	12487	8730
8.	Nov-20	157	13926	8678
9.	Dec-20	166	12322	8844
10.	Jan-21	148	12717	9096
11.	Feb-21	158	13127	9376
12.	March-21	170	12464	8920
	Total	1534	119367	83877
	Average per month	153.4	11937	8388
*-Due to Covid-19 targets and actual out turn in April'20 is 0 and in May'20 is 53. Hence not considered.				

3.15 Work study team considered the following factors for assessment of staff required for Trimming Shop of Carriage Workshop/Lallaguda.

- Save Position of Trimming Shop.
- Work Load of Trimming Shop.
- Outsourced activities.
- Staff requirement as per CLW incentive Scheme.
- Recommending outsourcing as per RB's Lr No. E(MPP)2016/1/59 of dt, 10.01.2017.

- 3.16 No. of man hours in a month as per CLW incentive scheme:
- No. of working days in a month = 25 days
 - No. of working hours per day = 8 hrs
 - Total working hours per month = $25 \times 8 = 200$ hrs
 - Minimum % of incentive hours for average worker = 33.33%
 - Hence total man hours for a worker = $200 + 67 = \mathbf{267 \text{ hrs}}$

3.17 Generally 100% of berth repairs/ replacement will not be done. Repairs will be done as per the requirement identified by the Inspection team. On arrival of coach, inspection team will check the condition of all berths and identify the repairs to be done. Allowed time is calculated based on the time specified for each activity in **Inspection Report Sheets** for the given work. Hence work Study team considered Allowed time to assess the manpower requirement.

3.18 Carpentry work concerned to AC coach berths is being done by the staff of Carriage shop and the work done by these staff is taken in carriage shop account. Hence allowed time and time taken separately for carpentry work could not be taken. Hence work study team assessed the requirement of staff for trimming shop only.

3.19 Assessment of manpower for Trimming section:

Year	Average out turn / month	Average allowed time / month	Average time taken/month
2018-19	139.08	13975	9780
2019-20	144.58	13717	9416
2020-21	153.4	11937	8388
Total	437.06	39629	27584
Average	145.68 say 146	13210	9195
No. of Direct Workers (= allowed time/man hours in a month)		13210/267=49.47 say 50	
<u>LR@12.5%</u>		50x12.5% = 6.25 say 6	
Sub Total		50+6 = 56	
EIW/IW @10% #		56x10%= 5.6 say 6	
Total		62	
#As per Para no. 431 of Rolling Stock code, capping of EIWs /IW is 10% of DWs of Trimming shop			

3.20 **Requirement of manpower (Technicians and group-D staff) in Trimming shop:**

S No	Description	Staff required
A.	Sanctioned staff	83
B.	Staff required	62
C.	Excess to the requirement (A-B)	21

3.21 Vide letter no E (MPP)2018/1/1 dated 02.07.2020 (RBE No.48/2020), RB has approved following action plan for Economic measure and Rationalization of expenditure.

- a) Freezing new posts creation except safety, till further orders,
- b) Reviewing of posts created in last two years and if recruitment has not been done against these posts, reviewing the same for surrendering and
- c) Surrender of 50% of existing vacancies, in other than safety category.

3.22 In view of the above, the following recommendation is made.

Recommendation I:

It is recommended to surrender **21 (18- vacant & 3- Live)** technician and helper posts from Trimming shop of Carriage Workshop/ Lallaguda which are excess to the requirement.

PART-B

(Recommending the activity for outsourcing)

3.23 Factors considered for recommending outsourcing of the Trimming activity are as follows:

- RB's Lr No. E(MPP)2016/1/59 of dt, 10.01.2017 regarding outsourcing of non-core & non-safety activities.
- Trimming activity is one the non-core / non-safety activities, which is not directly related with train operations.
- Most of the activities pertaining **berth repairs** are already outsourced,
 - Stripping, un-loading, Transportation, **repairing**, loading & fitting of Non-AC coaches including carpentry work is outsourced.
 - Stripping, un-loading, Transportation, loading & fitting Except Repairs including carpentry work (**excluding repair work**) for **AC coach is outsourced**.
- Cost for repair work including carpentry work by Railway staff is much higher when compared with outsourced cost.
- After outsourcing the Trimming activity, the on roll staff may be deployed in needy areas.

3.24 **Vide RB's Lr No. E(MPP)2016/1/59 of dt, 10.01.2017,** Effecting savings in manpower costs, increasing productivity and developing skilled human resources is essential for any organization. In this connection Railway Board has given its action plan and lays down some specific areas and timelines for the due attention of all concerned Officers.

- **Para No. 6, of the above RB's Lr,** it has been stated that more non-core activities, which are not directly related with train operations and safety can be outsourced.
- **Para No.3 of the above RB's Lr** it was stated that possibility of outsourcing, by limiting the total outsourcing cost not exceeding 40%-50% of the total departmental cost of shortfall in manpower.

3.25 **Outsource activities in the Trimming shop:**

Description	Non AC (Stripping, un loading, Transportation, repairing, loading & fitting)			Ac coach(Stripping, un loading, Transportation, loading & fitting) Except Repairs		
	No. of berths	Cost per berth (in Rs)	Total cost (in Rs)	No. of berths	Cost per berth (in Rs)	Total cost (in Rs)
Lower berth	13416	355.36	4767509	4152	251.71	1045099
Middle berth	10152	266.52	2705711	3192	133.26	425365
Upper berth	10584	266.52	2820847	3240	133.26	431762
Side upper	5352	266.52	1426415	1656	133.26	220678
Side single seat	8664	140.66	1218 678	3144	133.26	418969
Single seat back rest	15144	288.73	4372527	5016	125.86	631313
Bed cum back rest	-	-	-	504	133.26	67163
Side middle berth (garibhrath)	-	-	-	192	133.26	25585

3.26 Renewal / repairs of **Non-AC coaches** berths attended by outsourced staff during the year 2019-20 & 2020-21 are as follows:

- During the year 2019-20:

Month	No.of coaches	Lower berths	Middle berths	Upper berths	Long upper berths	Single seat	Side back rest	Total
No of berths /coach		18	18	18	9	18	18	
April-19	34	548	406	436	241	291	577	2499
May-19	61	920	558	676	404	636	982	4176
June-19	53	727	492	623	350	523	913	3628
July-19	30	542	447	476	248	475	556	2744
Aug-19	33	583	507	540	244	410	622	2906
Sep-19	42	709	555	584	339	439	764	3390
Oct-19	53	865	725	803	408	661	965	4427
Nov-19	55	912	817	837	436	716	998	4716
Dec-19	60	1020	880	875	418	830	1100	5123
Jan-20	54	906	734	820	398	628	1063	4549
Feb-20	40	444	329	328	203	238	733	2275
March-20	30	473	257	317	187	358	710	2302
Total	545	8649	6707	7315	3876	6205	9983	42735
Ave/ month	45.41	720.75	558.91	609.58	323	517.08	831.91	3561.25
Ave/day (25 as per CLW pattern)	1.81	28.83	46.57	24.38	12.92	20.68	33.27	142.45 say 143

- During the year 2020-21:

Month	No.of coaches	Lower berths	Middle berths	Upper berths	Long upper berths	Single seat	Side back rest	Total
No of berths /coach		18	18	18	9	18	18	
April-20	0	0	0	0	0	0	0	0
May-20	18	100	98	92	43	71	126	530
June-20	67	688	634	543	380	438	807	3490
July-20	40	605	525	529	309	424	706	3098
Aug-20	39	559	481	411	221	399	702	2773
Sep-20	32	568	534	519	286	513	576	2996
Oct-20	31	525	457	462	250	435	549	2678
Nov-20	25	363	279	285	158	195	453	1733
Dec-20	56	924	718	732	406	554	1011	4345
Jan-21	49	745	626	663	395	502	885	3816
Feb-21	39	504	500	443	256	304	704	2711
March-21	32	414	360	276	177	202	560	1989
Total	428	5995	5212	4955	2881	4037	7079	30159
Ave/ month	38.9	545	473.81	450.45	261.9	367	643.54	2742
Ave/day (25 as per CLW pattern)	1.55	21.8	18.95	18.01	10.47	14.68	25.75	109.68 say 110

- Consolidated data of renewal / repairs of Non-AC berths attended by Contract staff:

Year	Berths Per year	Berths Per month	Berths Per day
2019-20	42735	3561	143
2020-21	30159	2742	110
Total	72894	6303	253

3.27 IR work Sheet for Non-AC coaches coach:

S No	Description	Unit	Operation	A.T (Hr.Min)
1.	Long seat (WFC)	Each	Repair	03 : 00
2.	Bed cum back rest (WFC)	Each	Repair	08 : 00
3.	Upper berth 1 st (WFC)	Each	Repair	07 : 00
4.	Upper berth with flaps (WFC)	Each	Repair	10 : 00
5.	Upper berth without flaps (WFC)	Each	Repair	03 : 40
6.	Magazine bag (WFC)	Each	Rft	00 : 37
7.	Arm rest full repairs (all types)	Each	Repair	02 : 42
8.	Single seat (SCN)	Each	Repair	01 : 25
9.	Single seat back rest (SCN)	Each	Repair	02 : 30
10.	Lower berth (SCN)	Each	Repair	02 : 10
11.	Upper berth (SCN)	Each	Repair	02 : 10
12.	Middle berth (SCN)	Each	Repair	02 : 10
13.	Side upper berth (SCN)	Each	Repair	02 : 10
14.	Rexine chain covers for berths	Each	Repair	00 : 37
15.	Seater (CZ)	Each	Repair	02 : 30
16.	Back rest (CZ)	Each	Repair	02 : 30
17.	Rubberised coir cushion (WCB)	Each	Repair	04 : 10
18.	Set and stitch on machine	Each	70 Rft	00 : 49
19.	Attendant seat	Each	Rft	02 : 01
20.	Head rest	Each	Rft	00 : 30
21.	Long seat (GS)	Each	Rft	01 : 50
22.	Long seat back rest (GS)	Each	Rft	01 : 50
23.	Single seat (GS)	Each	Rft	01 : 17
24.	Single seat back rest (GS/SLR)	Each	Rft	01 : 17
	Total			64 : 55

3.28 IR sheet for carpentry repairs (trimming) for Non-AC coaches:

S No	Description	Unit	Operation	Allowed Time (Hr: Min)	Average
1.	Upper berth	Each	Heavy repair	04 : 00	2.10
2.	Upper berth	Each	Medium repair	02 : 00	
3.	Upper berth	Each	Light repair	00 : 30	
4.	Seat	Each	Heavy repair	04 : 10	2.10
5.	Seat	Each	Medium repair	02 : 00	
6.	Seat	Each	Light repair	00 : 30	
7.	Arm Rest	Each	Heavy repair	02 : 00	0.52
8.	Arm Rest	Each	Medium repair	00 : 30	
9.	Arm Rest	Each	Light repair	00 : 04	
10.	Back rest	Each	Heavy repair	04 : 10	2.25
11.	Back rest	Each	Medium repair	02 : 10	
12.	Back rest	Each	Light repair	00 : 55	
13.	Bed cum back rest	Each	Heavy repair	02 : 30	1.52
14.	Bed cum back rest	Each	Medium repair	02 : 10	
15.	Bed cum back rest	Each	Light repair	00 : 55	
16.	Longitudinal (4S)	Each		00 : 56	0.58

	seat frame for GS coach				
17.	Longitudinal (4S) seat frame for GS coach	Each		01 : 00	
18.	Single seat frame for GS coach	Each		00 : 40	0.40
19.	Single seat frame for GS coach	Each		00 : 40	
	Total				

3.29 Time taken for renewal / repair works of berths / seats attended by Railway staff is calculated by considering the following factors:

- **AC Coaches** - IR sheets of AC coaches at para no. 3.12 & 3.13
- **GSCZ** - IR sheets of Non-AC coaches at para no. 3.27 & 3.28 for GSCZ.
- **MMTS** - As there is no separate IR sheet for MMTS coaches, work study team considered IR sheet of GSCZ for MMTS also and the details are given below:

Repairs	AC coach Lower berth	AC coach middle berth	AC coach upper berth	AC coach side lower berth		AC coach side upper berth	AC CZ		GSCZ		MMTS	
				Single seat	Back rest		Single seat	Back rest	Single seat	Back rest	Single seat	Back rest
Seat cushion	3:00	3:00	3:00	3:00	3:00	03:00	3:00	3:00	3:00	3:00	3:00	3:00
Long seat	1:50	-	-	-	-	-	-	-	-	-	-	-
Single seat	-	-	-	1:30	-	-	-	-	-	-	-	-
Arm rest	1:15	-	-	-	-	-	1:15	-	1:15	-	-	-
Bed cum back rest	8:00	-	-	-	-	-	-	-	-	-	-	-
Single seat back rest	-	-	-	-	3:27	-	-	-	-	-	-	-
Upper berth	-	-	9:44	-	-	-	-	-	-	-	-	-
Middle berth	-	9:44	-	-	-	-	-	-	-	-	-	-
Side upper berth	-	-	-	-	-	9:44	-	-	-	-	-	-
Set & Stitch on machine on rexine	0:49	0:49	0:49	0:49	0:49	0:49	0:49	0:49	0:49	0:49	0:49	0:49
Single back rest supporting bracket	-	-	-	-	01:14	-	-	-	-	-	-	-
Pasting of rubber sheet on foot rest(ACCZ)	-	-	-	-	-	-	00:26	-	-	-	-	-
Upper berth rexine covers	-	00:37	00:37	-	-	00:37	-	-	-	-	-	-
Seater	-	-	-	-	-	-	2:30	-	2:30	-	2:30	-

Back rest	-	-	--	-	-	--	-	2:30	-	2.30	-	2:30
Carpentry repairs (para no.3.13 & 3.28)	0.55+ 01.12= 02.07	02:10	02:10	02:10	02.18	02:10	02.10+ 0.55 = 3.05	02.18	02.10+ 0.55 = 3.05	02.18	2.10 + 0.55 = 3.05	02.18
Chest for magazine bags	These items are replaced under procurement basis											
Window curtain												
Floor carpet												
Carpet repair												
Head rest												
Seal bags												
Total (hrs: min)	17:01	16:20	16:20	7:29	10:48	16:20	11.05	8:37	10:39	8:37	9:24	8:37
Total Hrs	17.02	16.33	16.33	7.48	10.80	16.33	11.08	8.62	10.65	8.62	9.40	8.62

3.30 Time taken for renewal / repair works of berths / seats attended by outsourced staff is calculated by considering IR sheets of Non-AC coaches at para no. 3.27 & 3.28 and the details are given below:

Repairs	Lower berth	middle berth	upper berth	side upper berth	Single seat	Back Rest
Arm rest full repairs (all types)					2.42	
Single seat					1.25	
Single seat back rest						2.30
Lower berth	2.10					
Middle berth		2.10				
Upper berth			2.10			
Side upper				2.10		
Set and stitch on machine	0.49	0.49	0.49	0.49	0.49	0.49
Carpentry repairs (para no. 3.28)	2:10	2:10	2:10	2:10	2.13	2.25
Total (hrs: Min)	5:09	5:09	5:09	5:09	7:09	5:44
Total (Hrs)	5.15	5.15	5.15	5.15	7.15	5.73

3.31 Work study team arrived the cost towards repair works including carpentry by taking the following in to consideration:

- **A** – Contract value of Non-AC coaches: Stripping, un-loading, Transportation, **repairing**, loading & fitting activities outsource.
- **B** – Contract value of AC coaches: Stripping, un-loading, Transportation, loading & fitting activities are outsourced and repair works including carpentry is being done by the Railway staff.
- **C** – As per SSE/workshop, the cost towards other than repair works (stripping/fitting, loading/unloading and transportation) for non-AC coach berths will be approximately 20-25 % less than the cost of AC coach berths.

- **D-** The work study team considered the cost towards repairs of non AC coach berths will be the difference of contract value of non ac coach berths (A) to approximate cost towards other than repair works of non ac coaches (C). The details are as below:

Description	Non AC coach contract value in rupees (A)	Ac coach contract value in rupees (B)	Approximate cost towards other than repair works of non ac coaches (C=25% less of B)	Approximate cost towards repairs including carpentry works for Non-AC coaches in rupees (D = A-C).
Lower berth	355.36	251.71	188.78	166.58
Middle berth	266.52	133.26	99.95	166.57
Upper berth	266.52	133.26	99.95	166.57
Side upper	266.52	133.26	99.95	166.57
Side single seat	140.66	133.26	99.95	40.71
Single seat back rest	288.73	125.86	94.4	194.33
Bed cum back rest	-	133.26	99.95	<ul style="list-style-type: none"> • Workload & cost of Bed cum back rest is considered in lower berth, • Workload & cost of side middle berth considered in middle berth.
Side middle berth (garibhrath)	-	133.26	99.95	

- 3.32 **Hourly rate for contract staff for repair works:** Work study team assessed the hourly rate for contract staff by dividing the repair cost of Non-Ac berths (para 3.31) by the time required for repair works including carpentry work for Non-AC coaches (para 3.30).

Description	Repair value Non AC coach in rupee (para no.3.31)	No. of hours as per IR sheet including carpenter (para 3.30)	Difference/ Hourly rate in rupees
Lower berth	166.58	5.15 hrs	166.58/5.15= 32.34 say 33
Middle berth	166.57	5.15 hrs	166.57/5.15 =32.34 say 33
Upper berth	166.57	5.15 hrs	166.57/5.15 = 32.34 say 33
Side upper	166.57	5.15 hrs	166.57/5.15 =32.34 say 33
Side single seat	40.71	7.15 hrs	40.71/7.15 = 5.69 say 6
Single seat back rest	194.33	5.73 hrs	194.33/5.73 = 33.91 say 34

- 3.33 **Approximate repair cost of AC coaches by outsourcing staff if the activity is outsourced (Hourly rate x Allowed time as per IR sheet):**

- Work study team considered contract value for similar berth of **Non-AC** coaches for calculating the approximate cost of contract value of **AC** berths.

- To assess the approximate cost of contract value of ACCZ, GSCZ & MMTS, work study team considered the contract value of side single seat and single seat back rest of CN coach.

Description	Hourly rate as per para no. 3.32 in rupees	No. of hours as per IR sheet including carpenter for AC coaches (para 3.29)	Approximate repair cost by outsourced staff in rupees
Lower berth	33	17.02 hrs	562
Middle berth	33	16.33 hrs	539
Upper berth	33	16.33 hrs	539
Side upper	33	16.33 hrs	539
Side single seat	6	7.48 hrs	45
Single seat back rest	34	10.80 hrs	367
CZ seat	6	11.08 hrs	67
CZ back rest	34	8.62 hrs	293
MMTS seat	6	9.40 hrs	57
MMTS back rest	34	8.62 hrs	293

- 3.34 Approximate contract value per Annum for repair works including carpentry work for **berths of AC coaches and seats of GSCZ/MMTS** coaches based on renewal / repairs attended by Railway staff (para no. 3.8 to 3.10) if proposed for outsourcing:

Type of berth	Renewal/ repaired 2019-20	Renewal / repaired 2020-21	Total Renewal / repaired	Average Renewal /repaired	Approximate repair cost (para 3.33)	Approximate contract value in rupees
Lower Berth	2268	2506	4774	2387	562	1341494
Middle berth	1074	1211	2285	1143	539	616077
Upper berth	1844	1864	3708	1854	539	999306
Side upper	586	801	1387	694	539	374066
Single seat	1597	1762	3359	1680	45	75600
Single back rest	3042	2719	5761	2881	367	1057327
CZ seat	5393	6444	11837	5919	67	396573
CZ back rest	4560	6290	10850	5425	293	1589525
MMTS seat	2337	1612	3949	1975	57	112575
MMTS back rest	1606	999	2605	1303	293	381779
Total						6944322

- 3.35 After surrendering of **21 excess staff** as per recommendation-1, the balance sanctioned staff will be as follows:

S No	Desg	Sanctioned strength
1	SSE/JE	9
2	Technicians + Helpers	62
3	Carpenters of carriage shop working exclusively in trimming shop	13
	Total	84

- 3.36 After outsourcing the Trimming activity including carpentry work 5 technicians and 3 supervisors may be retained for emergency/misc works, inspection works and supervision of outsourced activity. Hence balance 76 (84-8 at para 3.35) posts may be surrendered after completion of outsourcing process.
- 3.37 At present stripping, transportation and fitting of berths in AC coach, CZ and MMTS are outsourced. Repair work and carpentry works are being done by the Railway staff. If the repair work and carpentry work are outsourced, the following saving may be occurred. **Work study team considered the wages of Tech.III for calculation purpose (para no.2.11).**

S No	No. of staff + (Trimming Carpenter)	Average wages per month	Average wages per year
1	70 (57+13)	34500x70=2415000	28980000
2	6 (SSE/JE)	409860x12	4918320
	Total		33898320
3	Expected contract value for year	-	6944322
4	Saving per year (1-2)		26953998

With the above table, it is evident that approximately 269.53 lakhs of rupees per year can be saved if the Trimming activity is outsourced. The above calculations and savings are approximated only. **The detailed estimation may be made by Carriage workshop while going for outsourcing.**

- 3.38 In view of the above, the following recommendation is made.

Recommendation II: It is recommended to outsource the trimming activity completely and resultant **76** (70-technician+helper & 6- SSE/JE) posts may be surrendered and on roll staff may re-deployed suitably.

** ** *

4.0 FINANCIAL IMPLICATIONS:

If the recommendations are accepted, the recurring savings on surrender of the under mentioned posts would be as follows:

Sl. No	Category	Scale		No. of posts	Mean Pay	Incentive (33.33 %)	DA @ 17%	Emoluments P.M (in Rs.)	Total Emoluments P.A (in Rs.)
		From	To						
1.	SSE	44900	58600	6	51750	7763 (15%)	8797	409860	4918320
2.	Sr.Tech	35400	46200	22	40800	13599	6936	1349370	16192440
3.	Tech.I	29200	38100	44	33650	11215	5720	2225740	26708880
4.	Tech.II	25500	33300	7	29400	9799	4998	309379	3712548
5.	Tech.III	19900	26000	9	22950	7649	3901	310500	3726000
6.	Helper	18000	23500	9	20750	5519	3527	268164	3217968
TOTAL				97					58476156
Approximate contract value									6944322
Savings									51531834

- On implementation of the recommendations brought out in the Work-study report an annual savings of **Rs. 515.31 lakhs** can be achieved.

** ** *

5.0 RECOMMENDATIONS

S No	Recommendation	Para No
1	Recommendation I: It is recommended to surrender 21 (18-vacant & 3- Live) technician and helper posts from Trimming shop of Carriage Workshop/ Lallaguda which are excess to the requirement.	3.22
2	Recommendation II: It is recommended to outsource the trimming activity completely and resultant 76 (70-technician+helper & 6- SSE/JE) posts may be surrendered and on roll staff may re-deployed suitably.	3.38