

EASTERN RAILWAY

WORK STUDY REPORT

ON

REVIEW OF STAFF STRENGTH VIS-A VIS WORKLOAD OF C & W STAFF MECHANICAL DEPARTMENT AT ASN DIVISION

**(Study No.WSER-19/19-20)
(Submitted on 22.11.2019)**

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BY

GM'S EFFICIENCY CELL
EASTERN RAILWAY
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METHODOLOGY ADOPTED

The following methodology has been adopted in carrying out the study:

- i) Collection of data in regard to workload of the C & W wing/ Asansol.
- ii) Discussion with SSE/JE of the concerned wing.
- iii) Studied the existing workload and deployment of staff.
- iv) Analysis of data and assessment of actual requirement of staff in consideration with the Railway Board's Benchmarking norms for Maintenance Staff provision for Coaching Maintenance vide Bd's letter 2000/M©/143/5 dated 24.12.01.

AUTHORITY & TERMS OF REFERENCE

As approved by the competent authority, the subject work study has been undertaken by the GM's Efficiency Cell during the current financial year 2017-18 as per the following terms of references:

1. Identification of workload of C & W wing staff under Mechanical Department of ASN.
2. Rationalisation of deployment of staff against the existing workload.

SUMMARY OF RECOMMENDATION

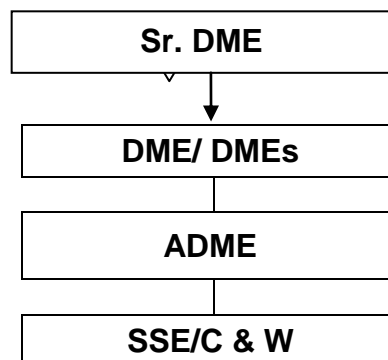
<i>Sl. No.</i>	<i>Recommendation</i>	<i>Para Ref.</i>
1.	It is recommended that the revised sanctioned strength of Helper & Store Khalasi in Mechanical C&W department over ASN division will be 368 & 04 posts as against the total present sanctioned strength of 405 & 05 posts respectively which will result in surrender of 37 posts of Helper & 01 post of Store Khalasi from Mechanical C&W department over ASN Division.	3.8

CHAPTER I

1.0 INTRODUCTION:

Asansol Division was established in 1925. This is one of the oldest divisions on the Indian Railways and has always been in the forefront of operations, both freight and passenger. As far as Eastern Railway is concerned, Asansol Division is referred to as the heart of operations, being at the crossroads of the Grand Chord route via Gaya and the main line route via Patna. With a total of 594.9 route kilometers, the division has the unique distinction of having quadruple lines (two up and two down line) from Khana to Sitarampur.

- 1.1 Mechanical Branch plays a vital role in the transportation system of Indian Railways connected with the production, maintenance and repairs of the Rolling Stock – viz., Locos, Carriages and Wagons. The C & W Wing is mainly responsible for maintenance and repair of rolling stock which is carried out under prescribed schedules and procedure. Standardization and inspection is also an important aspect for smooth functioning of the system. Timely supply of Quality Stores is another important factor.
- 1.2 The organizational set up of Mechanical Department of any division is more or less the same. This can be shown by a tree chart which is as under:



- 1.3 The improvements in the rolling stock, the latest being CBC Coupling has not only resulted in higher speeds and safety but also easy maintenance. The role of Electrical Branch is increasing after electrification, introduction of EMUs / MEMUs and computer applications in loco as well as in maintenance practices. The outsourcing of some activities is also a factor while reviewing the staff strength. The overall productivity is to be achieved not only by more production but also by qualitative training and effective man power utilisation through rightsizing.
- 1.4 In order to implant a sense of belonging and better care in maintenance, the coaches of a particular base division are to run only by rakes primarily maintained by the Division. As per the revised policy circular No. 4 of 2007, maintenance pattern for coaching trains is broadly classified into 5 groups, in which it stipulates the schedule of maintenance for various categories of trains. Accordingly, Primary maintenance is to be carried out after a run of 3500 Kms in respect of Mail/Exp, whereas En-route attention is carried out after every 250 to 350 Kms. The details of work are broadly classified as:

- Preventive maintenance at Pit line.
- Under gear examination and brake system
- Internal cleaning, Passenger amenities and watering
- External washing.
- Continuity check and Brake power check.

- 1.5 The subject work study on C & W wing at Asansol has been undertaken by the GM's Efficiency Cell as per terms of references mentioned earlier. Presently, 365 nos. of Artisan and Un-skilled category staff against sanctioned strength of 416 posts, are working under of C & W wing of Asansol. The main object of conducting the subject study is to assess a need based requirement of manpower consequent upon the changed scenarios of the C & W wing.
- 1.6 For any kind of development, money is the most important but limited resources. An organisation, like Indian Railways, may also provide a good financial support for its development, if good financial discipline can be practiced and expenditure due to man, materials & overheads can be managed optimally & economically. In view of the above, Rly. Board issued nos. of circulars, orders, etc. The Zonal Railways also implement various measures for financial discipline.
- 1.7 Indian Railway is facing tremendous financial crunch after implementation of 6th Pay Commission. Operating ratio is gradually increasing. Though Indian Railway is not a business organization but to survive, it is always essential to make the organization in profit i.e. operating ratio should be less than 1.
- 1.8 The aim of this Workstudy is not only to review the staff strength deployed to cater the workload of C & W wing at Asansol, but also to look through for impact of more involvement of contractual agencies to the day to day work. An attempt has been made to arrive at the manpower requirement based on not only the yardstick but also the salient features of various modern technologies. Study team considers both factors in ongoing chapters for review of manpower catering the workload of C & W wing/ ASN.

CHAPTER II

2.0 EXISTING SCENARIO:

- 2.1 Carriage and Wagon wing of Mechanical department plays a vital role to maintain the condition of the goods and passenger trains properly as per schedule of maintenance in order to have a safe and trouble free run from originating point to terminating point.
- 2.2 All C & W maintenance units of ASN division are under the overall control of Sr.DME /ASN and under direct control of concerned DME & AME. Each unit is functioning directly under supervision of concerned SSE/C & W in regard to maintenance of Coaches and Wagons.
- 2.3 All the staff of C & W wing of Asansol is directly under supervision of Senior Section Engineer/ C & W/ASN. The category wise Sanctioned Strength vis-à-vis Men- on-roll position of Supervisory category and Ministerial staff of C & W wing over Asansol division is furnished below:

Sl. No.	Category of staff	Pay Scale	Grade Pay	Sanctioned Strength	Men on Roll	Vacancy
Supervisory						
1	Senior Section Engineer	Rs. 9300-38400/-	Rs. 4600/-	177	174	03
2	Junior Engineer	Rs. 9300-38400/-	Rs. 4200/-	88	29	59
Total				265	203	62
Ministerial						
3	Ch. OS	Rs. 9300-38400/-	Rs. 4600/-	12	10	02
4	OS	Rs. 9300-38400/-	Rs. 4200/-	31	21	10
5	Clerk Gr.-1	Rs. 5200-20200/-	Rs. 2800/-	10	02	08
6	Clerk Gr.-11	Rs. 5200-20200/-	Rs. 1900/-	0	07	(-)07
Total				53	40	13

2.3.1 Similarly, the category-wise Sanctioned Strength vis-à-vis Men- on- roll position of Artisan and Un-skilled category staff of C & W wing of Asansol is furnished below:

Sl. No.	Category of staff	Pay Scale	Grade Pay	Sanctioned Strength	Men on Roll	Vacancy
Artisan						
1	MCM(F)	Rs. 9300-38400/-	Rs. 4200/-	322	311	11
2	Tech-I (F)	Rs. 5200-20200/-	Rs. 2800/-	631	381	250
3	Tech-II (F)	Rs. 5200-20200/-	Rs. 2400/-	99	158	(-)59
4	Tech-III (F)	Rs. 5200-20200/-	Rs. 1900/-	120	164	(-)44
	Sub Total			1172	1014	158
5	MCM(W)	Rs. 9300-38400/-	Rs. 4200/-	40	39	01
6	Welder-I	Rs. 5200-20200/-	Rs. 2800/-	79	50	29
7	Welder-II	Rs. 5200-20200/-	Rs. 2400/-	13	04	09
8	Welder-III	Rs. 5200-20200/-	Rs. 1900/-	23	15	08
	Sub Total			155	108	47
9	MCM(Carp)	Rs. 9300-38400/-	Rs. 4200/-	02	01	01
10	Carpenter-I	Rs. 5200-20200/-	Rs. 2800/-	03	01	02
11	Carpenter-II	Rs. 5200-20200/-	Rs. 2400/-	0	0	0
12	Carpenter-III	Rs. 5200-20200/-	Rs. 1900/-	01	0	01
	Sub Total			06	02	04
13	MCM(L/P)	Rs. 9300-38400/-	Rs. 4200/-	02	02	0
14	L/Painter-I	Rs. 5200-20200/-	Rs. 2800/-	03	03	0
15	L/Painter-II	Rs. 5200-20200/-	Rs. 2400/-	0	02	(-)2
16	L/Painter-III	Rs. 5200-20200/-	Rs. 1900/-	01	0	01
	Sub Total			06	07	(-)1
17	MCM(C/Dr)	Rs. 9300-38400/-	Rs. 4200/-	04	04	0
18	C/Driver-I	Rs. 5200-20200/-	Rs. 2800/-	08	02	06
19	C/Driver-II	Rs. 5200-20200/-	Rs. 2400/-	01	06	(-)5
20	C/Driver-III	Rs. 5200-20200/-	Rs. 1900/-	02	0	02
	Sub Total			15	12	03
21	Trimmer-I	Rs. 5200-20200/-	Rs. 2800/-	01	01	0
22	Trimmer-II	Rs. 5200-20200/-	Rs. 2400/-	0	0	0
23	Trimmer-III	Rs. 5200-20200/-	Rs. 1900/-	0	0	0
	Sub Total			01	01	0
24	MCM(M/V Driver)	Rs. 9300-38400/-	Rs. 4200/-	0	0	0
25	M/V Driver-I	Rs. 5200-20200/-	Rs. 2800/-	0	0	0
26	M/V Driver-II	Rs. 5200-20200/-	Rs. 2400/-	0	0	0
27	M/V Driver-III	Rs. 5200-20200/-	Rs. 1900/-	0	0	0
	Sub Total			0	0	0
Total (Artisan)				1355	1144	211

Sl. No.	Category of staff	Pay Scale	Grade Pay	Sanctioned Strength	Men on Roll	Vacancy
Unskilled						
28	Helper	Rs. 5200-20200/-	Rs. 1800/	405	265	140
29	Safaiwala	Rs. 5200-20200/-	Rs. 1800/	01	01	0
30	Peon	Rs. 5200-20200/-	Rs. 1800/	04	03	01
31	Store/Khalasi	Rs. 5200-20200/-	Rs. 1800/	05	04	01
32	S/Attendant	Rs. 5200-20200/-	Rs. 1800/	02	02	0
Total (Unskilled)				417	275	142

2.3.2 From para. 2.3.1, the summarized position of Artisan and Un-skilled staff of C & W wing Asansol under the purview of study is furnished below.

Category	Sanctioned Strength	Men on Roll	Vacancy
Artisan Staff	1355	1144	211
Unskilled staff	417	275	142
Grand Total	1772	1419	353

2.4 In existing pattern of working, it is observed by the study team that staff is mainly deployed in many places, i.e. at Station & Coaching complex, Hirapur, Sitarampur, Madhupur, JSME, Dumka, UDL, BOX'N'(ROH) depot & DSEY. The deployment of staff of Asansol C & W wing along with their respective workload is described underneath in brief.

2.5 **Workload of staff deployed at Station:**

Staff are deployed in three shifts i.e. Morning shift (6:00 hrs. to 14:00 hrs.), Day shift (14:00 hrs to 22:00 hrs.) and Night shift (22:00 hrs. to 6:00 hrs) for round the clock activity at station which includes loco change, loco turn round, platform turn round and pass through trains, etc under supervision of SSE/C&W. At each shift 25 staff is deployed for examination and Platform maintenance of coaches to ensure proper running of trains.

Activities involved in Platform Maintenance:

1. Rolling in examination
2. Visual Inspection of hanging parts, unusual sound.
3. Axle box feeling.
4. Pulling of DV release valve.
5. Cleaning, watering and certification of PFTR trains.
6. Brake Continuity check.
7. Rolling out examination.

Other than this, 4 staff are deployed under 1 supervisor in the shift (8:00 hrs - 16:00 hrs) for monitoring and checking work of Train cleaning activities (i.e. CTS) performed by contractual staff.

2.5.1 The deployment of staff at platform is shown as under:

Deployment	No. of staff deployed			
	Morning shift (6:00 hrs. to 14:00 hrs)	Day shift (14:00 hrs to 22:00 hrs)	Night shift (22:00 hrs. to 6:00 hrs)	Day shift (8:00 hrs - 16:00 hrs)
Platform no. 1-2 and Dock Siding	5	5	5	--
Platform no. 3-4	5	5	5	--
Platform no. 5-6 and 7	5	5	5	--
For Rolling-in and Rolling-out examination	HWH End-2 Kalka End-2 Total - 4	HWH End-2 Kalka End-2 Total - 4	HWH End-2 Kalka End-2 Total - 4	--
Watering	6	6	6	--
Monitoring and checking work of Train cleaning activities	--	--	--	4
Total	25	25	25	4

2.5.2 Workload of staff deployed at Station is shown as under:

2.5.2.1 Enrouting passing train examination

The work performed by C & W staff on enroute passing trains at Asansol station is listed below:

- Rolling-in and Rolling-out examination,
- Checking of any hanging parts,
- Under gear examination (specially releasing of piston),
- Brake power attention,
- Checking of any unusual ACP (Alarm chain pulling),
- Axle box temperature measurement,
- Front SLR locking by C&W key, etc.

Details of trains for Enroute examination at Asansol station is tabulated below:

Type of Train	Train No.	Authorised Composition of coaches	No. of days per week for Examination	Present Work Load of No. of Coach for Examination of Enroute train/ day
Super-fast / Long distance	12023/12024	14	6 days	12.00
	12303/12304	24	4 days	13.71
	12381/12382	24	3 days	10.29
	12177/12178	17	3 days	7.29
	12317/12318	20	2 days	5.71
	12315/12316	20	1 day	2.86
	12331/12332	20	3 days	8.57
	12321/12322	22	7 days	22.00
	12987/12988	17	7 days	17.00
	12307/12308	24	7 days	24.00
	12019/12020	10	6 days	8.57
	12311/12312	24	7 days	24.00
	12319/12320	15	1 day	2.14
	12323/12324	22	2 days	6.29
	12329/12330	19	1 day	2.71
	12333/12334	15	7 days	15.00
	12339/12340	20	7 days	20.00

Type of Train	Train No.	Authorised Composition of coaches	No. of days per week for Examination	Present Work Load of No. of Coach for Examination of Enroute train/ day
Super-fast / Long distance	12351/12352	19	7 days	19.00
	12313/12314	18	7 days	18.00
	12327/12328	13	2 days	3.71
	12937/12338	17	1 day	2.43
	12371/12372	18	1 day	2.57
	12379/12380	16	1 day	2.29
	12753/12754	18	1 day	2.57
	12753/12754	18	1 day	2.57
	12325/12326	15	1 day	2.14
	12359/12360	9	3 days	3.86
	12495/12496	18	1 day	2.57
	12249/12250	15	1 day	2.14
	12253/12254	18	1 day	2.57
	12369/12370	13	5 days	9.29
	Total			277.86
Mail / Express	13005/13006	23	7 days	23.00
	13007/13008	14	7 days	14.00
	13019/12320	16	7 days	16.00
	13039/13040	16	7 days	16.00
	13049/13050	17	7 days	17.00
	13111/13112	16	7 days	16.00
	15234/15235	19	1 day	2.71
	15629/15630	19	1 day	2.71
	15639/15630	16	1 day	2.29
	13009/13010	19	7 days	19.00
	19306/19305	18	3 days	7.71
	19605/19606	18	1 day	2.57
	13151/13152	19	7 days	19.00
	13025/13026	13	1 day	1.86
	18183/18184	12	7 days	12.00
	18449/18450	17	1 day	2.43
	18419/18420	18	1 day	2.57
	11105/11106	12	1 day	1.71
	13185/13186	18	7 days	18.00
	15272/15271	16	1 day	2.29
	13287/13288	20	7 days	20.00
	13417/13418	15	1 day	2.14
	13403/13404	12	7 days	12.00
	15905/15906	20	1 day	2.86
	15929/15930	18	1 day	2.57
	15047/15048	21	4 days	12.00
	15049/15050	21	2 days	6.00
	15051/15052	21	1 day	3.00
	13021/13022	17	7 days	17.00
	15642/15641	16	1 day	2.29
	15233/15234	19	2 days	5.43
	18627/18628	12	3 days	5.14
	13155/13156	16	2 days	4.57
	13105/13106	18	7 days	18.00
	11448/11447	14	7 days	14.00
	13157/13158	16	1 day	2.29
	13317/13318	22	7 days	22.00
	15640/15639	16	1 day	2.29
	15762/15761	12	2 days	3.43
	18181/18182	20	7 days	20.00

Type of Train	Train No.	Authorised Composition of coaches	No. of days per week for Examination	Present Work Load of No. of Coach for Examination of Enroute train/ day
Mail / Express	16309/16310	23	2 days	6.57
	*HWH-Raxual	15	2 days	4.29
	*HWH-Lalkuan	14	1 day	2.00
	*KOAA-Jaynagar	18	1 day	2.57
	*13137/13138	15	1 day	2.14
	*Bilaspur-PNBE	19	1 day	2.71
	*13425/13426	17	1 day	2.43
	Total			398.57
Passenger	53049/53050	9	7 days	9.00
	53131/53132	11	7 days	11.00
	53061/53062	10	7 days	10.00
	Total			30.00
Grand Total				706.43

2.5.2.2 Terminating/ Originating train examination

The work performed by C & W staff on Terminating/Oriinating trains at station is listed below:

- Rolling-in and Rolling-out examination,
- Under gear examination (specially releasing of piston after engine change),
- Brake continuity test and ensuring Brake power,
- Pipe coupling during engine attachment.
- Locking, etc.

The details of trains for Terminating/Oriinating Examination at station are tabulated below:

Type of Train	Train No.	Authorised Composition of coaches	No. of days per week for Examination	Present Work Load of No. of Coach for Examination / day
Super-fast / Long distance	12941/12942	22	1 day	3.1
	12341/12342	20	7 days	20.0
	12375/12376	23	1 day	3.3
	12361/12362	23	1 day	3.3
	12383/12384	13	1 day	1.9
	Total			29.7
Mail / Express	13501/13502	6	6 days	5.1
	13505/13506	6	1 day	0.9
	13507/13508	16	1 day	2.3
	13508/13510	16	1 day	2.3
	13511/13512	10	3 days	4.3
	Total			14.9
Passenger	53523/53524	15	7 days	15.0
	Total			15.0
Grand Total				59.6

2.5.2.3 Turn round attention at Station

Turn round attention is given to trains which are stable more than 6 hours at Terminating point. The work performed during Turn round attention at Station is listed below:

- i) Turn round examination,
- ii) Under gear examination (specially releasing of piston),
- iii) Pipe coupling during engine attachment,
- iv) Brake continuity test and Brake power attention, etc.

Details of trains for Turn round attention at Asansol station is tabulated below:

Type of Train	Train No.	No. of Coaches / Rake	Avg. No. of Turn Round attention at PF per week	Present Work Load of TR attention at PF (No. of Coaches / day for TR Attention)
Passenger trains	58017/58020	10	7.0	10.0
	58018/58019	10	7.0	10.0
	Total			20.00
Grand Total				20.00

2.5.2.4 Watering at Station

Watering in coaches is done at station in nominated trains.

2.6 Workload of staff at Coaching complex:

Coaching complex/ Asansol is divided into two parts i.e old coaching complex and new coaching complex. SSE (C & W) office is situated at old complex. There are two pit lines present at old complex and one pit line at new complex. An IOH shed is present at old complex.

2.6.1 The activities performed at depot are as under:

Core activities

- Pit line Maintenance
- Sick line Maintenance

Ancillary activities

- Stores
- Compressor
- Pest and Rodent Control.
- Linen Management.
- Watering in train.
- Relief & Rescue

Outsourced Activities

- Interior and Exterior Washing of Coaches.
- On Board House Keeping Management (OBHS)

2.6.2 The coach holding of Asansol C & W Depot is tabulated as under:

HOLDING OF VARIOUS TYPES COACHES IN ASANSOL COACHING DEPOT

Types of Coaches	Holding
AC Coaches	12
Non AC Coaches	195
DEMU Coaches	24
Total	231

2.6.3 Staff is deployed at two shifts at old and new complex for maintenance of coaches. Generally, Primary maintenance, Secondary maintenance and IOH maintenance of coaches is done. The brief outline of activities at depot is mentioned as under:

- Primary maintenance
- Secondary maintenance
- Sick line activities
- IOH activities
- Store activities
- M&P maintenance
- Contractual activities

2.6.4 **Present Engagement of staff at C & W depot, Asansol**

2.6.4.1 **Primary Maintenance**

Primary Maintenance is to be undertaken on all running coaches at Primary Depot and shall include periodical schedules as shown below along with trip schedules. Major Work in Primary Maintenance is Preventive maintenance, Trip schedule, Complete cleaning & washing and Watering etc.

Periodical Schedules are:

Schedule A : Every month (grace period 3 days).

Schedule B : Every three months (grace period 7 days)

IOH : Every nine months (grace period 30 days)

There are 22 activities listed under Schedule A including trip schedule, cleaning washing, testing, checking, oiling, lubrication, inspection etc. This can be done without detaching the coaches.

Nine activities are listed under Schedule-B apart from all the activities under Schedule-A, for which no detachment is required in normal course.

2.6.4.1.1 **Trip Schedule**

Nine activities are listed under this head with many activities having sub-activities. All the coaches of long distance trains having 3500 kms run and Mail/Exp trains are given trip schedule at the end of the trip.

2.6.4.1.2 Washing and Cleaning of Coaches:

Thorough Washing and Cleaning of Coaches is done as per Manual. The cleaning of coaches at Asansol has been fully outsourced and are catered by private agencies.

2.6.4.1.3 The details of Primary maintenance trains at ASN Coaching depot is tabulated as under:

Type of Train	Train No.	No. of Rakes	No. of Coaches / Rake	Frequency (no. of days/ week)	Avg. No. of PM (Primary Maintenance) per week	Present Work Load of PM (No. of Coaches / day for PM)
Super-fast / Long distance	12361/12362	1	23	1 days	1.0	3.3
	*12375/12376	1	23	1 days	1.0	3.3
	12383/12384	1	13	6 days	2.0	3.7
	Total					10.3
Mail / Express	13501/13502	1	6	6days	2.0	1.7
	13505/13506	1	6	1day	1.0	0.9
	13507/13508	1	16	1day	1.0	2.3
	13509/13510	1	16	1day	1.0	2.3
	13511/13512	1	10	3days	2.0	2.9
	ASN-PNBE=ASN-MFP-ASN	1	10	20days/year	1.0	0.5
	ASN-RXL	1	23	20days/year	1.0	1.3
	ASN-Chapra	1	22	20days/year	1.0	1.2
Total					13	
Passenger trains	53524/53523	7	15	7days	7.0	4.3
	53529/53530	2	7	7days	2.0	2.0
	73538/73539	1	8	6days	1.0	1.1
	75531/73532	1	8	6 days	1.0	1.1
	NMG/Spl load		23	1/week	1.0	3.3
	Total					11.9
Grand Total						35.2

2.6.4.2 Secondary Maintenance

Secondary Maintenance includes periodical schedules to be undertaken on running coaches of trains of other base depots. Major Work in Secondary Maintenance is Under gear examination & Complete cleaning & washing and Watering etc.

The details of Secondary maintenance trains at ASN Coaching depot is tabulated as under:

Type of Train	Train No.	No. of Rakes	No. of Coaches / Rake	Frequency (no. of days/ week)	Avg. No. of SM (Secondary Maintenance) per week	Present Work Load of SM (No. of Coaches / day for Secondary Maintenance)
Super-fast / Long distance	12941/12942	1	22	1 day	1.0	3.1
	Total					3.1
Grand Total						3.1

2.6.4.3 For scheduled maintenance of coaches (i.e. Primary Maintenance / secondary maintenance) mentioned in above paras, staff are deployed in batches consisting of 20 to 25 staff. The Activity-wise deployment of staff for Primary Maintenance / secondary maintenance is tabulated below:

Activity-wise deployment for Primary Maintenance / secondary maintenance		
S.No.	Activity	Deployment
	Under Gear	
1.	Air brake testing	4
2.	Brake gear	4
3.	Pit Examination	3
4.	Buffer Screw Coupling	2
5.	At Kalka end	1
6.	Under Gear Examination	North Side- 1 South Side -1
	Upper Gear	
7.	Pipe fitting	2
8.	Welding work	2
9.	Carpentry work	2
10.	Trimming work	2
Total		24

2.6.4.4 For Turn round attention at Washing Line

Turn round attention is given to trains which are stable more than 6 hours at Terminating point. The work performed during Turn round attention at Washing line is listed below:

- i) Turn round examination,
- ii) Under gear examination (*specially releasing of piston*),
- iii) Interior dry cleaning and watering, etc.

The details of Turn round attention at Washing line at ASN Coaching depot is tabulated as under:

Type of Train	Train No.	No. of Coaches / Rake	Avg. No. of TR (Turn Round) Attention per week	Present Work Load of TR attention at Washing line (No. of Coaches / day for TR Attention)
Super-fast / Long distance	12341/12342	20	7	20
	12383/12384	13	4	7.4
	Total			27.4
Mail / Express	13511/13512	10	2	2.9
	13501/13502	6	5	4.3
	Total			7.1
Grand Total				34.6

2.6.4.5 **Sick Line attention / Intermediate overhauling (IOH)**

IOH maintenance of coaches is done in every nine months (grace period 30 days). The activities performed during IOH of coaches are listed below:

1. Initial and final measurements including wheel and tyre on arrival and after IOH recording of Roller bearing details and register maintenance as per ISO and tool room management instructions.
2. Coach positioning, jack setting, coach lifting, placement on trustles, shifting of bogie to dismantling bay, bogie disassembling, bolster dismantling, cleaning of bogie and components with high pressure jet, reassembly and lowering.
3. Brake gear components examination, dismantling, cleaning, renewal of damaged components and refitting.
4. Centre pivot cleaning, examination, dye penetrate testing of equalising stays and anchor links, dismantling and refitting.
5. Axle box safety strap removal and refitting, dashpot assembly and side bearers examination and attention, crown clearance adjustment to wheel dia.
6. Deflecting testing of coil springs, grouping and colour coding and painting of the same, dye penetration test, grouping and examination of BSS hanger blocks and pins.
7. Buffer gear dismantling, adjustment of buffer projection and plunger stroke, examination of shock absorber, draw gear, replacement and painting.
8. Air brake testing, painting, dirt collector cleaning, single car testing, ICV testing and replacement.
9. Bogie scraping, dusting, cleaning and painting with primer and bituminous, painting of foot board.
10. Under frame examination for corrosion, scratching, dusting and painting with red oxide and then with bituminous black.
11. Re-examination, cleaning and ultrasonic testing of roller bearing of 4 wheels, cleaning of axle box with high power jet, dye penetrate testing, regressing and assembling, painting of axle, axle box, re-profiling of wheels.
12. Intensive cleaning of IOH coach and exterior washing.
13. Hoist and whiting jack operations,
14. Welding and cutting works in bogie frame, underframe pipe lines etc

15. Carpentry attention, if any.
16. Minor painting works, stencilling application of putty etc
17. Minor turning of axle box front cover, plate cutting with shearing machine.
18. Blacksmithy works as required.
19. IOH shed cleaning and up keeping.
20. Material collection and jurisdiction works.

2.6.4.5.1 Workload for Sick line attention of coaches at C & W Depot/ASN is tabulated as under:

No. of Primary Trains	Frequency (no. of days/ week)	No. of Rakes	Coach composition	Total bare	Maintenance spare @ 10.5%	Traffic Spare @ 4.5%	Total Holding
13501/13502 /13505/13506	7 days	1	6	6.00	0.63	0.27	6.90
12384/12383	6 days	1	13	13.00	1.37	0.59	14.95
13507/13508/ 13509/13510	1 day	1	16	16.00	1.68	0.72	18.40
13511/135112	1 day	1	10	10.00	1.05	0.45	11.50
12361/12362	1 day	1	23	23.00	2.42	1.04	26.45
12375/12376	1 day	1	22	22.00	2.31	0.99	25.30
53523/53524	7 days	4	15	60.00	6.30	2.70	69.00
53529/53530	7 days	2	7	14.00	1.47	0.63	16.10
73539/73540	6 days	1	8	8.00	0.84	0.36	9.20
73531/73532	6 days	1	8	8.00	0.84	0.36	9.20
53511/53512	7 days	1	8	8.00	0.84	0.36	9.20
53551/53552	7 days	1	8	8.00	0.84	0.36	9.20
Insp.Carriage	--	--	--	--	--	--	4.00
ART/ARME/St . Van	--	--	--	--	--	--	8.00
Total				196.00	20.58	8.82	237.40

2.6.4.5.2 Other workload

Other than the core activities mentioned above , deployment of staff of Asansol C & W depot for other activities are listed below:

- Stores
- Compressor
- Pest and Rodent Control.
- Linen Management.
- Watering in coaches.
- Relief & Rescue

CHAPTER III

3.0 CRITICAL ANALYSIS:

- 3.1 The periodical maintenance of coaching stock is a very important requirement for ensuring safety, punctuality and customer service. The regular attention at platform and at the end of rake link at the base stations, secondary depots and at notified junction stations in the rake link is also of paramount importance. Watering, cleaning, attendance of amenities is also part of these activities.
- 3.2 There are some additional factors to be taken into consideration while arriving at the right sizing of man power required for each activity. They are late running trains, detention on account of other departments, different timings during monsoon trains, running of special trains, extra coaches, weather related issues etc. The timely supply of stores, running of departmental and freight trains, the obligation under inter change quotas with other division / zone, disasters etc also affect the coaching operations.
- 3.3 However there is a dire need to minimise the utilisation of manpower because it is the main factor in arriving at productivity. The overall shortage of earnings from expenditure, operating ratio, and performance efficiency index (PEI) of Eastern Railway calls for prudent steps in this direction.
- 3.4 The following improvements have an impact on the efforts required for maintenance activities.
 - i) Improved fittings like couplings, springs, break blocks, braking system, bearings etc.
 - ii) All steel bodied, anti telescopic, anti climbing coaches
 - iii) Reduction in attachment / detachments, slip coaches and shunting operations.
 - iv) Advanced technology and equipments for inspection, checking, maintenance, attendance etc.
 - v) Better training facilities and induction of technically better qualified staff for ART, SPART, MRV, Cranes there of etc.
 - vi) Outsourcing activities like cleaning etc.
 - vii) Computerisation for records maintenance, stores works etc.
 - viii) Possibilities for multi skilling under changed pattern of working.
- 3.5 The brief description of workload catered by C&W staff is mentioned in Chapter II (*i.e. Existing Scenario*). The staff is deployed in different places i.e platform, C & W Depot and other places. Staff is deployed at these places for variety of activities in connection with maintenance & examination of coaches for coaching stock and same kind of maintenance of wagons of freight stock and other related activities. It is very tedious job to assess the requirement of manpower on the basis of analysis of such versatile nature of workload. So, in chapter below study team will assess the requirement of manpower i.e Helper & Store khalasi for different types of activities performed at different units over ASN division.
- 3.6 While conducting the subject work study, the work study team given concentration on the day to day activities of Helper & Store khalasi deployed at different units & depots under the supervision of SSE (C&W) of concern unit. It is pertinent to mention here that the primary and secondary maintenance of coaches for coaching stock and same kind of maintenance of wagons of freight stock, are carried out by C&W units/depots as per schedule of maintenance stated in the previous chapter. It is seen that various types of maintenance are done at the C&W depots concerned to the freight and coaching stocks as a routine measure. The said jobs related to

Mechanical Wing are usually done by the skilled Artisan staff in association with the helpers deployed thereof. In this connection, it may be said that the helpers play a vital role by assisting the skilled artisan staff in connection with the day to day out turn of both C&W units over ASN division.

3.7 The complement of staff over Asansol C&W units is as under:

UNITS	CATEGORY OF STAFF	S/S	MOR	VAC
ASN COACHING COMPLEX, HPR, STN, MDP, JSME, DUMK, UDL(BOX'N' ROH DEPOT & DSEY	ARTISAN	1355	1144	211
	HELPER	405	265	140
	STORE KHALASI	05	04	01
TOTAL		1765	1413	352

3.7.1 While conducting the study, the men-on-roll position of both Gr-'C' Artisan staff and Gr-'D' Helper has been seen in the above table where 265 Helpers cater the daily workload of C&W Depots/units in association with 1144 posts of skilled Artisan staff to achieve the targeted out turn of the concerned wing. During study, it is noticed that there is a clear picture of short fall of helpers in the said C&W depots/units, while the existing deployment of 1144 posts of skilled artisan staff is 100% justified.

Consequent upon the want of helpers in different C&W units/depots, it is felt necessary by the study team that the deployment of additional posts of helpers to compensate the short fall of helpers in proportionate to the enhanced work load for which the vacant posts are required to be filled in for the said depots/units on urgent measure. For better smooth flow of out turn to achieve the target, the nos. of additional posts of helpers has been logically assessed based on the following equation.

During the study period, it is noted that (a reasonable magnitude of work load) in the above depots/units have been enhanced in phases against which the vacant posts have not been inducted till now for which the day to day work is badly hampered and the work load related to helpers is catered & somehow managed by the Junior Technician/Artisans by compromising with the exact quality of out turn.

During the field study, it is noticed that one helper is assisting of artisan staff which is not possible for which junior artisan staff is taking care of the existing work load of Helpers. It is noticed that exactly 45 Artisan staff require the assistance of 1 Helper to tackle the element wise concerned work load of the section. Therefore, it may be said that one (1) post of Helper is required for every group of 5 (five) artisan staff. Keeping this justified equation in view, it is calculated that 265 posts of helpers are required to maintain the day to day out turn concerned to the subject study matter. The evaluation procedure is as under:-

5 Artisan staff is assisted by 1 helper. As a result, 1144 nos. Artisan staff are assisted by 265 nos. of helper i.e. $(1144/5 = 229)$.

Therefore, the bare requirement of helper is assessed as 229 nos.

Considering 16.66% as R.G. & 12.5% as L.R. on bare requirement of nos. of helper, the revised sanctioned strength i.e. revised MOR will be 302 as a whole.

3.7.2 Requirement of manpower for Emergency work, ancillary and other activities:

Other than deployment for above mentioned workloads, study team feels necessity of Special gang to cater Emergency work that may arise due to various reasons such as late arrival of rake, during running of special trains or in case of any accidents and unusual happenings, etc. During conducting the study, it has been observed that other than core maintenance activities, Helper is provided for various other ancillary works such as in operation of compressor, maintenance of M & P, etc. and other activities of pest control, linen management etc.

So, a gang consisting of 17 Helper 3 shift is recommended by the study team for the said Emergency, ancillary and other activities workload. In normal case, this gang may be utilized for daily routine work.

The bare requirement of Helper for Emergency, ancillary and other activities will be $17 \times 3 = 51$. Considering 16.66% as R.G. & 12.5% as L.R. on bare requirement of nos. of helper, the revised sanctioned strength i.e. revised MOR will be 66. as a whole.

3.7.3 In view of analysis made in para 3.7.1 & 3.7.2, the actual requirement of Helper under C&W Mechanical department over ASN division has been calculated as $(302+66) = 368$ posts as against the sanctioned strength of 405 thus, rendering surplus of $(405-368) = 37$ vacant posts.

3.7.4 The activities of store khalasi under Mechanical C&W department of ASN division are as under.

1. To handle the C&W store materials under the guidance of supervisor and to collect the store materials from different C&W store as and when required.
2. To tackle the work load of the office peon in absence of office peon.

In view of the above workload of store khalasi, the existing posts i.e. 4 posts of Store khalasi over ASN division is justified as against the sanctioned strength of 5 posts thus rendering surplus of $(5 - 4) = 1$ posts.

Keeping the above concept stated in para 3.7.1, 3.7.2 & 3.7.3 in view, it is concluded by the study team that the total revised requirement of helper & Store Khalasi under Mechanical C&W department over ASN division will be 368 & 04 respectively inclusive of R.G. & L.R. as against the present S/S of 405 & 05 posts respectively.

3.8 Summarizing analysis made in para 3.7.1, 3.7.2, 3.7.3 & 3.7.4, the revised S/S vis-a-vis MOR as against the present status of Helper & Store khalasi over ASN division, will be as under.

Category	Present S/S	Present MOR	Revised S/S i.e. Revised MOR	Surplus
Helper	405	265	368	37
Store Khalasi	05	04	04	01
Total				38

Consequent upon the above logical inference, it is crystal clear that 103 vacant posts of helper should be filled up immediately to compensate the short fall of helper in Mechanical C&W department over ASN division.

Recommendation:

It is recommended that the revised sanctioned strength of Helper & Store Khalasi in Mechanical C&W department over ASN division will be 368 & 04 posts as against the total present sanctioned strength of 405 & 05 posts respectively which will result in surrender of 37 posts of Helper & 01 post of Store Khalasi from Mechanical C&W department over ASN Division.

CHAPTER-III**3.0 FINANCIAL APPRAISAL:**

- 3.1 According to recommendation made in Para 3.8, the financial savings achieved on account of surrender of total 38 posts comprising the category of 37 posts of Helper and 01 posts of Store Khalasi under Mechanical C&W department over ASN Division is calculated based on lower scale as under:

Category	No. of posts	Scale of Pay	Mean pay	DA @ 17%	Monthly	Yearly
		Figures in Rs.				
Helper Store Khalasi	38	Rs.18000- 56900/- (Level-1)	37450	6367	43817	1,99,80,552/-

Thus, consequent upon implementation of recommendations the annual savings would be Rs.1,99,80,552/-.