

**WORK STUDY TO REVIEW
THE STAFF STRENGTH AT PAINT SHOP
AT LOCO WORKS/PER**

SOUTHERN RAILWAY

PLANNING BRANCH

G. 275 / WSSR- 092021 / 2020-21

**WORK STUDY TO REVIEW THE
STAFF STRENGTH AT PAINTSHOP
AT LOCO WORKS/PER**

STUDIED BY

**WORK STUDY TEAM
OF
PLANNING BRANCH**

SEPTEMBER 2020



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(i)
ACKNOWLEDGEMENT

The study team acknowledges the valuable guidance, co-operation and the immense help rendered by CWM/LW, WM/D and SSE of paint shop and SSE of the planning section.

(ii)
AUTHORITY

Annual Programme of work studies for the year 2020-21.

(iii)
TERMS OF REFERENCE

Work study to review the staff strength at Paint Shop at Locomotive Workshop / PER..

(iv)
METHODOLOGY

The following methodology has been adopted.

- 1) Collection, compilation and analysis of statistical data.
- 2) Interaction with Supervisors and Field staff.
- 3) Field observations.

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(v)

SUMMARY OF RECOMMENDATIONS**RECOMMENDATION No. I:-**

9 posts of Technician grade III over and above the requirement may be surrendered and credited to the vacancy bank. **(9 posts)**



CHAPTER – I

1.0 INTRODUCTION

1.1 BRIEF HISTORY OF LOCO WORKS/PERAMBUR

In the formative years of Madras & Southern Mahratta the steam loco POH was being done in the present Carriage Works complex. Due to the increase in the fleet strength of Locomotives, coaches and wagons, separate Loco Works was carved out at its present location in the year 1932 exclusively for overhauling Steam Locomotives and Travelling Steam Cranes of Madras and Southern Mahratta Railways.

Consequent upon the phasing out of steam locomotives in the early 80's, Loco Works was chosen for undertaking **POH of Electric Locomotives and Diesel Hydraulic Locomotives (Shunters) and Heavy Corrosion Repair cum POH of Coaches**. A small beginning was made and POH of 8 coaches were done in the year 1981-82. POH of 2 Diesel locomotives and 5 Electric locomotives were done in the year 85-86 by re-deploying and retraining the available staff who were engaged in Steam loco POH.

With the rapid technological changes taking place over Indian Railways, the Loco Works also adapted itself to the changing requirements. Today this has blossomed into an ISO 9001: 2000 (QMS), ISO 14001:2004 (EMS) & ISO 18000 (Safety, Health and Environment standard) workshop. This is one of the composite workshops undertaking POH of Electric Locos, Diesel Shunting Locos, Coaches, Diesel Electric Multiple Units and Self Propelled ARTs. This workshop has also carved a niche for itself by successfully manufacturing ICF and EMU bogies and Elastic Rail Clips. The role played by Loco Works in production of bio-diesel (pilot plant) is unique. 2007-2008 was platinum jubilee for Loco Works Perambur.

1.2 Some statistical data of Loco Works/PER:

Loco Works Built	1932
Total Area	216833 Sq. m
Covered area	64490 Sq. m
Number of Shops	9
Rail track length within the workshop	10 km
ISO 9002 Certification for the entire workshop	December 1998
Certification of ISO 9000:2000 version	March 2002
ISO 14001:2004 Certification (EMS)	November 2007
ISO 18000 (Safety, Health and Environment standard)	March 2009
Fairy Queen Steam Loco revival and entry in the Guinness Record	January 1998
Express Steam Loco revival and exhibition run.	August 2010

1.3 Present activities at Loco Works:

SL. No	Activity	Started in the year
1	POH-cum corrosion repairs of coaches	1981
2	POH of Electric locomotives	1985
3	Manufacture of ICF bogies for Zonal Railways	1992
4	Overhauling of Driving Power Car of DEMU	1999
5	Overhauling of Self Propelled Accident Relief Trains (SPART)	2003
6	Manufacture of EMU AC/DC bogies	2003
7	Manufacture of ERC (2003 to 2016)	2003
8	Production of Bio-Diesel (2004 to 2016)	2004
9	Tower Wagon POH	2018

1.4 About the present work study:

This present work study is to review the staff strength at the Paint shop at LOCOWORKS/PER. The shop is covered under the Chittaranjan Pattern Scheme of Incentive.

1.5 CHITTARANJAN PATTERN SCHEME:

Introduction

Piece work bonus systems were in existence in certain workshops like Jamalpur, Kancharapara and Perambur prior to Independence. The Railway board decided in 1949 to introduce some form of incentive scheme in Railway workshops to afford direct financial incentive to workers who exceed a minimum level of performance. The first formal incentive scheme was introduced in Chittaranjan Locomotive Works in December 1954. Time was the basis of this scheme and the time standards used were pre-determined after systematic work measurement.

The scheme was considerable success and it was extended to Integral Coach factory in 1960.

1.5.1 Salient Features of Chittaranjan Pattern of Incentive Scheme:

Under the incentive bonus scheme, the basic wages are guaranteed to all the works.

Time is yardstick for measuring work. The various operations in the workshops are subjected to time study measurement. The allowed time are so fixed that the workman of normal ability may earn 33-1/3% bonus over and above his basic wages in respect of period spent on piece-work jobs. This allowed time includes all allowances such as fatigue, general handling, and gauging and production bonus allowance.

The scheme is based on the concept that an average worker while working under non-incentive conditions is assumed to be working at a rating of 60 units. The same worker while working under incentive conditions would be expected to improve his ratings to 80 units i.e., 33-1/3% more. It is expected that an average worker would complete an operation in $\frac{3}{4}$ of the allowed time. The time saved/lost on the time allowed in each operation is calculated separately for each worker and the gain or loss cannot be carried over to the next month.

1.5.2 The various terms in use and their meaning is given below.

The incentive workers are classified as Direct, Essentially Indirect and Indirect Workers. Supervisors are directly responsible for idle time arising out of lack of work and lack of tools. Apprentices are not eligible for participating in the incentive bonus scheme.

DW - Direct workers:

They are so called because they play a direct role in producing output. 'Direct role' means that their role is confined to those mandatory operations that need to be performed as per 'CAMTECH' on the arising to produce the out turn.

It does not include ancillary activities such as procurement of materials, tools etc that need to be done to perform the operations. They earn bonus ranging from 1% to 49% based on the time saved on doing a particular operation.

EIW - Essentially Indirect Workers:

They supplement the efforts of the DWs in producing out turn by procuring materials, picking up tools, erecting implements etc. Since their role is not directly linked to the out turn and is only supplementary in nature, they are entitled to only 80% of the bonus earned by the DWs they assist.

IW – Indirect worker: Their role is confined to such of those activities that are in no way linked to the out turn, such as keeping the shop floor clean etc. They do not get any incentive.

Outturn: The results of incentive working will be determined on basis of the total quantity 'Passed' in respect of each operation, as recorded on the job card.

AT – Allowed Time:

As and when an arising rolls in to a work shop for POH, operations that need to be performed as mandated are determined and the time taken to complete such operations are computed based on the computation sheet that lists the time required to perform various operations. This is called as Allowed Time.

As such, AT denotes the workload of an incentive shop. AT is fixed based on time study and takes in to consideration various factors, such as infrastructure, skill set etc, that determine the capacity of a worker to produce an output.

Time Study:

AT for each operation is fixed through time study. It is a technique for determining, as accurately as possible, from limited number observations, the time necessary to carry out a given activity at a defined standard of performance. While carrying time study the actual time of each element is normalized depending upon the rating performed by the worker.

Rating:

Rating is the assessment of the skill and effort involved in each element. Every element should be rated individually. The principle of rating is that, an average worker, working at non incentive conditions, at such an effort just enough to earn the basic pay, is said to be working at a 60 rating.

This can be interpreted as saying that he is producing 60 units per hour. The same average worker when working under incentive conditions, is capable of working at an 80 rating and is said to be producing 80 units of work per hour so as to earn 33-1/3 % more $((80-60/60)\%)$.

TT – Time taken: This is the time actually taken by a DW to finish an operation as mandated.

TS – Time saved: $AT - TT = TS$.

Bonus %:

This is the percentage of bonus paid to the DWs based on the Chittaranjan pattern Scheme. This is equal to $TS \times 100 / TT$. While the scheme mandates that every DW should earn a bonus of 33.33%, it may vary anywhere between 0 to 50%. Bonus less than 33.33% indicates that AT of an operation is too less to save time and bonus more than 50% means that AT is too high that a worker could do the operation in much lesser time with consummate ease. In both the cases AT has to be reviewed.

slsl.

CHAPTER – II**2.0 PRESENT SCENARIO****2.1 The activities performed at the PAINTSHOP at LOCO WORKS**

Sl. No	Activity	LW
1	Washing – Coaches –Exterior and interior	Y
2	Painting – Coaches – Exterior and interior	Y
3	Painting – Coaches – End body	Y
4	Scrapping & Painting – Coaches – Under frame	Y
5	Scrapping & Painting – Coaches – Bogie	Y
6	Trimming	Y
7	Vynatile Laying	Y

2.2 The Workload managed, workforce utilized and the outturn produced at loco workshop, for the year 2020-21, are summarized below.

SI No	Designation	San	Act	Vac	Excess
Supervisory					
1	SSE	0	0	0	0
2	JE	1	0	1	0
Total "A"		1	0	1	0

SI No	Designation	Sanction	Actual	Vacancy	Excess
Artizans					
1	Sr Technician	21	20	1	0
2	Technician Gr I	41	21	20	0
3	Technician Gr II	4	9	0	5
4	Technician Gr III	13	12	1	0
Total 'B'		79	62	22	5
Grand Total (A+B)		80	62	23	5

NOTE: However, the actual given by paint shop differs from the SAVE statement given by the WPO/LW/PER.

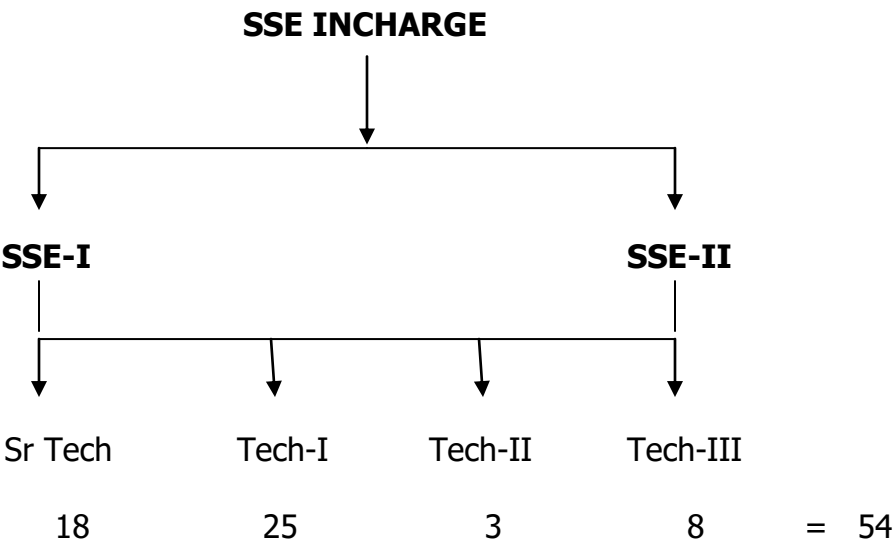
2.3 **DETAILS OF EMPLOYEES WORKING IN PAINT SECTION:**

CATEGORY	TOTAL
Painter Trade	36
Fitter Trade	08
Carpenter Trade	08
Black Smith	01
M & Pr	02

2.4 **DETAILS OF PAINTERS WORKING IN OTHER SECTION:**

SECTION	No of employees
CORROSION	03
TRIMMING & CF	11
AIR BRAKE	03
CARPENTRY	02
LIFT	01

2.5 **Total of staff distributed in the following manner:**



2.6 Staff list as per incentive booking for last two years 2018-19 & 2019-20

Month/Year	JE	Sr Tech	Tech-I	Tech-II	Tech-III	Helper	Total
2018-19							
Mar-Apr	0	20+1	21+4	12+2	6	8	74
Apr-May	0	21+1	22+4	10+2	6	8	74
May-June	0	21+1	22+3	10+2	6	8	73
June-July	0	20+1	25+3	8+2	5	8+1	73
July-Aug	0	20+2	25+3	8+2	5	8+1	74
Aug-Sep	0	20+1	26+3	8+2	5	8+1	74
Sep-Oct	0	20+1	27+3	7+2	5+1	8	74
Oct-Nov	0	18+1	26+3	7+2	5+0+1	7	70
Nov-Dec	1	19+2	25+2	7+1	5+0+1	7+1	70
Dec-Jan	1	19+2	27+3	4	6	5	67
Jan-Feb	1	19+2	29+3	1	15	0	70
Feb-Mar	1	19+2	29+3	2	13	0	69
2019-20							
Mar-Apr	1	18+2	29+3	2	12	0	67
Apr-May	1	18+2	30+3+1	1	13	0	69
May-June	1	18+2	30+3+1	1	13	0	69
June-July	1	18+2	28+2+1	1	13	0	66
July-Aug	1	18+2	26+3	1	12	0	63
Aug-Sep	1	18+2	25+3	2	11	0	62
Sep-Oct	1	18+2	24+3	2	10	0	60
Oct-Nov	1	16+3	23+2	2	10+1	0	58

Nov-Dec	1	18+1	24+2	2	11	0	59
Dec-Jan	0	18+1	24+2	3	10	0	58
Jan-Feb	0	18+1	24+4	3	10	0	60
Feb-Mar	0	18+1	24+4	3	10	0	60

2.7 Paint Section Incentive Performance from Apr 2018 to Mar 2020:

MONTH	AT	TT	TS	% Incentive Bonus
	(In Man Hours)			
2018-2019				
APR'18	19984.70	13372.15	6612.55	49.45
MAY'18	17658	11853.80	5804.20	48.96
JUNE'18	20515.75	13853.60	6662.15	48.09
JULY'18	17936.24	12788.85	5147.39	40.25
AUG'18	20356.28	13686.00	6670.28	48.74
SEP'18	19922.79	13392.40	6530.39	48.76
OCT'18	17612.56	12163.75	5448.83	44.80
NOV'18	17549.11	11841.60	5707.51	48.20
DEC'18	18398.62	12360.55	6038.07	48.85
JAN'19	12046.43	8044.60	4001.83	49.75
FEB'19	18502.16	12369.25	6132.91	49.58
MAR'19	16055.40	10748.20	5307.20	49.38
TOTAL	216538.06	146474.75	70063.31	47.83
2019-2020				
APR'19	14937.90	10010.80	4927.10	49.22
MAY'19	13668.69	9481.60	4187.09	44.16

JUNE'19	17312.77	11628.80	5683.97	48.88
JULY'19	16629.20	11245.00	5384.20	47.88
AUG'19	15444.23	10741.20	4703.03	43.78
SEP'19	15533.71	10412.80	5120.91	49.18
OCT'19	14397.41	9709.00	4688.41	48.29
NOV'19	14735.69	9850.40	4885.29	49.59
DEC'19	14537.43	9733.20	4804.23	49.36
JAN'20	10675.10	7881.85	2793.25	35.44
FEB'20	16053.92	10762.80	5291.12	49.16
MAR'20	14714.26	9835.15	4879.11	49.61
TOTAL	178640.31	121292.60	57347.71	47.28

2.8 ACTUAL & TARGET OF PAINT SHOP FOR THE YEAR 2018-19 & 2019-20 (COACHES Month wise)

2018-19				2019-20			
Month	W.Days	Target	Actual	Month	W.Days	Target	Actual
Apr	22.5	46	46	Apr	21.5	48	43
May	24	49	48	May	24	54	48
June	22.5	46	47	June	21.5	48	47
July	24	49	48	July	25	56	54
Aug	23	52	48	Aug	22.5	50	51
Sep	21.5	48	45	Sep	22	49	49
Oct	22	49	44	Oct	22	49	53
Nov	22	49	47	Nov	23.5	53	52
Dec	18	41	43	Dec	18.5	41	40
Jan	22	49	49	Jan	22	49	41
Feb	22	49	48	Feb	22.5	50	61
Mar	23.5	53	67	Mar	23	53	40
Total	267	580	580	Total	268	600	579

2.9 Outturn statistics at Loco Works, Perambur

Year	AC Loco POH+ POH RC		DEMU DPC/ SPART		Coach POH		IOH of Coach Bogie	TC/DTC of DEMU	
	Target	Actual	Target	Actual	Target	Actual		Target	Act.
2015-16	65	63 49 POH + 14 POH & RC	24	24 in 28 DPC units	540	545	350 Nos. (17.5 coach units)	74	54
2016-17	61	55 (43 POH+ 12 POH+RC)	31	32 POH + 2 SPL (33 DPC units)	540	610.5	409 Nos. (20.45 Coach units)	90	85
2017-18	63	58 (46 POH +12 POH+RC)	40	33 (35 DPC units)	540	612	423 Nos. (21.15 Coach units)	96	81
2018-19	63	63 (54 POH & 11 POH+RC)	36	32 DPC POH + 4 DPC MLR + 4 SPART + 1 TW + 1 SPART on OR	540	580	1112 Nos. (55.60 Coach units)	106	106
2019-20	74	72 (60 POH + 12 POH & RC)	42	28 DPC + 7 DPC MLR + 10 SPART + 3 (8W) + 6 (4W)	600	579 + 1 OR	1135 Nos. (56.75 coach units) + 98LHB (SS1)	91	91

2.10 POH TARGETS 2020-21 LW/PER:**Railway board's targets as per actual working days**

Month & year	No of working days	BG - Non-Ac coaches	Bg Electric Loco(Nos) POH+RC	BG DEMU DTC/TC	SPART	TOWER WAGON	
						Four wheeler	Eight wheeler
A	B	C	D	E	F	G	H
Apr'20	23	50	5+1RC	10	AS PER ARISINGS (NIL)	AS PER ARISINGS	
May'20	21.5	47	5+1RC	9			
June'20	24	53	5+1RC	10			
July'20	25	55	5+1RC	11			
Aug'20	23	50	5+1RC	10			
Sep'20	24	53	5+1RC	10			
Oct'20	23.5	52	5+1RC	10			
Nov'20	22.5	49	5+1RC	9			
Dec'20	19.5	43	4+1RC	7			
Jan'21	20.5	45	5+1RC	8			
Feb'21	22	48	4+1RC	9			
Mar'21	25	55	5+1RC	10			
TOTAL	273.5	600	58+12RC	113	NIL	1	2

2.11 The details of operations in painting section:

Sl . No	Sec ID	Operation ID	Operation	Unit	Total AT (In Man Hours)
1	094501	1094501701	Exterior & Interior washing (including roof) for all coaches	COACH	20.9
2	094501	1094501702	Post cleaning for all coaches removal of paint stains in full coach (including vynatile sheets / lavpans / washbasin/luggage compartment / dog box) before dispatch of all coaches	COACH	8.07
3	094501	1094501703	Surface preparation in 3 stages application, leveling of putty & rundown for all coaches	COACH	14.8
4	094501	1094501704	Painting of under coat for all coaches	COACH	24.19
5	094501	1094501705	Painting exterior Ist coat for all coaches	COACH	16.72
6	094501	1094501706	Painting exterior 2nd coat for all coaches	COACH	16.72
7	094501	1094501707	Painting of roof for all coaches	COACH	4.18
8	094501	1094501708	Painting of end body for all coaches	COACH	8.78
9	094501	1094501709	Painting of interior ceiling Ist coat for all coaches	COACH	16.72
10	094501	1094501710	Painting of interior ceiling 2nd coat for all coaches	COACH	10.72
11	094501	1094501711	Painting of interior & exterior touch-up –final despatch for all coaches	COACH	6.9
12	094501	1094501712	Painting of reservation chart area	COACH	1.67

13	094501	1094501713	Painting of interior bays, shutter, lav room, pipe fittings, main door painting for GS coach	COACH	62.28
14	094501	1094501714	Painting of interior bays, shutter, lav room, pipe fittings, main door painting for CN coach	COACH	81.97
15	094501	1094501715	Painting of interior bays, shutter, lav room, pipe fittings, main door painting for CZ coach	COACH	81.97
16	094501	1094501716	Painting of interior bays, shutter, lav room, pipe fittings, main door painting for WCB coach	COACH	55
17	094501	1094501717	Painting of interior bays, shutter, lav room, pipe fittings, main door painting for SLR/SLRD coach	COACH	63.27
18	094501	1094501718	Painting of GS picking/unreserved marking in 4 corners for GS coach	COACH	13.38
19	094501	1094501719	Painting of X marks in both ends for SLR/SLRD coaches	COACH	8
20	094501	1094501720	Painting of bogie for all coaches (2 nos)	COACH	11.70
21	094501	1094501723	Stencilling & letters complete (interior & exterior) GS coach	COACH	22.32
22	094501	1094501724	Stencilling & letters complete (interior & exterior) CN/CZ coach	COACH	31.77
23	094501	1094501725	Stencilling & letters complete (interior & exterior) WCB coach	COACH	19.91
24	094501	1094501727	Stencilling & letters complete (interior & exterior) SLRD coach	COACH	26.66
25	094501	1094501728	Colour scheme of coach (TC,DPC&DTC)	COACH	37.62

26	094501	1094501729	Painting of airbrake coach pipe line (FP&BP)complete	COACH	5.02
27	094501	1094501901	Interior painting NMG (floor area end/side/door way area & interior area -full coach	COACH	28.5
28	094501	1094501902	Interior painting VPU/VPH (floor area, end/side/door way area, interior area, racks-full coach	COACH	33.25
29	094501	1094501903	NMG/VPU/VPH picking	COACH	16.72
30	094501	1094501904	Jan shatabdi picking (non-ac)	COACH	28.5
31	094501	1094501905	Bolster axle spring colour code & painting stenciling	COACH	0.28
32	094501	1094501906	Emergency window red painting	COACH	0.52
33	094501	1094501907	Axle box cover aluminium painting	COACH	0.25
34	094501	1094501908	VPU,NMG,VPHX (exterior sign writing), VPH	COACH	11.7
35	094501	1094501909	Stenciling & lettering complete (interior and exterior)-SLR coaches	COACH	15.04
36	094501	1094501910	Under frame scrapping and cleaning	COACH	10.64
37	094501	1094501911	Painting of head stock, auxiliary head stock, telescope tube, cross bar, sole bar full length at both sides (Except trough floor)	COACH	6.84
38	094501	1094501912	Painting of turn under, battery box and auxiliary reservoir (except trough floor area)	COACH	3.53
39	094501	1094501913	Painting of trough floor area in full coach	COACH	9.12

2.12 Outsource activities in Paint Shop/CR/LW/PER:**A. Existing contract:**

1. Activity—Exterior PU painting of MLR DEMU
Value of contract : Rs 27, 77,603/-
Quantity : 24 DPC (diesel power car)
Duration : 2 years from 19.03.2019

2. Supply and application of PU paint system for ICF coaches (UTKRIsht Coaches)
Centralized contract by GOC shops.
Two firms : 1. Advance paints Pvt ltd.
P.O No 40185004101435 dt 2.4.2019.
Quantity : 84 coaches valid up to 07.09.2020.

3. Vibgyor paints
PO.No 40185004101596 dt 11.04.2019
Quantity: 127 coaches Valid up to 7.09.20.

B. Proposed contract in paint shop:

Cleaning and painting of under frame mowers in ICF coaches.

2.13 The data pertains to the year 2018-19 & 2019-20:

The men utilized, from amongst the workforce given in terms of DW, IW, EIW and Supervisors, The workload handled by this workforce in terms of Allowed Time, Time Taken and Time Saved, The output produced in terms of coaches / Wagons rolled out and the efficiency level of the workforce in terms of the percentage of bonus earned.

The efficiency level of the workforce in terms of the percentage of bonus earned is summarized below:-

Month	Men Utilized				Output produced	Workload Handled		Efficiency Indices	
	DW	EIW	IW	SUP	Out Turn	Allowed Time	Time Taken	Time Saved	Bonus earned %
						(In Man Hours)			
2018-19									
Apr	67	7	0	0	46	19984.70	13372.15	6612.55	49.45
May	67	7	0	0	48	17658	11853.80	5804.20	48.96
Jun	67	6	0	0	47	20515.75	13853.60	6662.15	48.09
Jul	66	6	1	0	48	17936.24	12788.85	5147.39	40.25
Aug	67	7	0	0	48	20356.28	13686.00	6670.28	48.74
Sep	67	7	0	0	45	19922.79	13392.40	6530.39	48.76
Oct	63	6	1	0	44	17612.56	12163.75	5448.83	44.80
Nov	63	6	1	1	47	17549.11	11841.60	5707.51	48.20
Dec	61	5	0	1	43	18398.62	12360.55	6038.07	48.85
Jan	64	5	0	1	49	12046.43	8044.60	4001.83	49.75
Feb	63	5	0	1	48	18502.16	12369.25	6132.91	49.58
Mar	61	5	0	1	67	16055.40	10748.20	5307.20	49.38
Total	786	72	3	5	580	216538.06	146474.75	70063.31	47.83
Avg	65.5	6	--	--	48.33	18044.84	12206.23	5838.61	

2019-20

Apr	62	5	1	1	43	14937.90	10010.80	4927.10	49.22
May	62	5	1	1	48	13668.69	9481.60	4187.09	44.16
Jun	60	4	1	1	47	17312.77	11628.80	5683.97	48.88
Jul	57	5	0	1	54	16629.20	11245.00	5384.20	47.88
Aug	56	5	0	1	51	15444.23	10741.20	4703.03	43.78

Sep	54	5	0	1	49	15533.71	10412.80	5120.91	49.18
Oct	51	6	0	1	53	14397.41	9709.00	4688.41	48.29
Nov	55	3	0	1	52	14735.69	9850.40	4885.29	49.59
Dec	55	3	0	0	40	14537.43	9733.20	4804.23	49.36
Jan	55	5	0	0	41	10675.10	7881.85	2793.25	35.44
Feb	55	5	0	0	61	16053.92	10762.80	5291.12	49.16
Mar	55	5	0	0	40	14714.26	9835.15	4879.11	49.61
Total	677	56	3	8	579	178640.31	121292.60	57347.71	47.28
Avg	56.4	4.7	--	--	48.25	14886.69	10107.72	4778.98	

2.14 Duty Hours

On Week days - 07.00 to 11.30 hrs. & 12.30 to 16.30 hrs.

On Saturdays- 07.00 to 12.00 hrs.

Rest on all Sundays.

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CHAPTER - III

3.0 CRITICAL ANALYSIS

3.1 Paint Shop @ LOCO Works / PER.

The activities at this shop are

- Exterior and interior Painting.
- Under frame Painting.
- Lettering and Stenciling.
- Miscellaneous Painting

3.1.1 The staff requirement for the section is critically analyzed in the following paragraphs.

3.2.1 In the discussions that follow, tabular column depicting the values for the terms defined in the previous paragraph, over a period of 2 years, has been taken as the basis. In the tabular column average of AT, TT per DW and bonus % also figure.

3.2.2 The significance of these indices and what their progression, over the years, mean is given below.

Average AT/DW/Month:

This figure indicates the workload per month per DW. As per the Chittaranjan Pattern Scheme (CPS), AT per DW should be at least 267 man hours per month. Values below this indicate that the workload is less than the potential of the work force.

Average TT/DW/Month:

This figure indicates the work actually performed by a DW in terms of man hours. For the sake of calculation as per the CPS, this should be 200 man hours. $(365 \times 8 \text{ man hours per day} - 52 \text{ (Sun)} \times 8 - 20 \text{ (Declared Holidays)} \times 8)/12 = 195 = 200 \text{ (Approx) Hrs per month per DW}$. Any figure less than this indicates

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3.2.4 Requirement:

Total Allowed time 2019-20	=	14886.69	→	A
Average man-hours a DW can put in an incentive workshop as per CPS	=	267	→	B
Number of DWs required	=	56	→	C=A/B
LR @ 12.5%	=	7	→	D=12.5% of C
Number of DWs including LR	=	63	→	E=C+D
EIW & IW %	=	10	→	F
No of EIWs and IW s required = 6 LR @ 12.5% for 6 = 1. So, 6+1=7	=	7	→	G=10% of E
Dws + LR + EIWs + Iws	=	70	→	H
No of Supervisors required @ 1 for every 18 workers	=	4	→	I=H/18
Total staff required	=	74	→	J

3.2.5 Outsourced Activities:

However, there is a contract in paint shop for Exterior PU painting of MLR DEMU (24 DPCs) for the value of Rs 27, 77,603/- for a period of two years.

So, the average value of one year comes to Rs 13, 88,802.

(Details of outsourced activities is given in 2.12)

Labour cost is 30% of contract value.

So, 30% of Rs 1388802 comes to Rs 416641.

So, per day value is $416641/291 = 1432$.

As per minimum wages act, the minimum wages is Rs 500.

So, No of persons we can save is $1432/500 = 2.87$ say 3

So, deducting the 3 persons saved through outsourcing, the No of men required for paint shop comes to $74-3=71$ rendering the surplus staff of $9(80-71)$.

3.2.6 Sanction Vs Requirement

SI No	Designation	Sanction	Actual	Requirement	Surplus
1	SSE	0	0	0	0
2	JE Gr I	1	0	1	0
Total "A"		1	0	1	0
1	Sr Technician	21	20	21	0
2	Technician Gr I	41	21	41	0
3	Technician Gr II	4	9	4	0
4	Technician Gr III	13	12	4	9
Total 'B'		79	62	70	9
Grand Total (A+B)		80	62	71	9

RECOMMENDATION No. 1:-

9 posts of Technician grade III over and above the requirement may be surrendered and credited to the vacancy bank. **(9 posts).**



CHAPTER – IV**4.0 PLANNING BRANCH REMARKS ON CO-ORDINATING OFFICER'S VIEWS**

The work study draft report was handed over in [person to the coordinating officer WM/D/LW/PER on 13.08.2020 to offer his remarks in order to finalize the work study report. But, till this date no remarks were offered by coordinating officer. Hence, the work study report is released without the remarks of the coordinating officer.

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CHAPTER – V**5.0 FINANCIAL SAVINGS**

5.1 If the recommendations made in the study report are implemented, the annual recurring financial savings will be as under:

Sl. No.	Category	Grade pay (Rs.)	No. of posts	Mean Pay (Rs.)	Total Annual savings (Rs.)
1.	Technician Grade III	1900	9	48614	52,50,312
Total			9		52,50,312

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San. Act & Vac position of LWPER as on 01.07.2020

Post	SSE		SE		Sub-Total	Sr. Tech		Tech Gr. I		Tech Gr. II		Arduous Work		Group D		TOTAL (Sum of all)	
	Ac	Va	Ac	Va		Ac	Va	Ac	Va	Ac	Va	Ac	Va	Ac	Va	Ac	Va
San	4000		4300			6300		2800		2400		1800					
Painter	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PN	13	10	3	4	2	17	12	5	30	29	2	58	46	8	8	0	0
Total	13	10	3	4	2	17	12	5	30	29	2	58	46	8	8	0	0

* Permanent posts of Tech III/CR/Painter have been surrendered vide this office Surrender Memorandum dated 22.07.2020

RADHAKR
ISHNAN A
को सुद्धे वने ए.जे.ए.ए.
For CWM/LWPER

DETAILS OF EMPLOYEES

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DETAILS OF EMPLOYEES WORKING IN PAINT SECTION

CATEGORY	TOTAL
Painter Trade	36
Fitter Trade	08
Carpenter Trade	08
Black Smith	01
M & Pr	02

SF

Sundarraji Ji Fr

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DETAILS OF PAINTERS WORKING IN OTHER SECTION

<u>SECTIONS</u>	<u>TOTAL</u>
CORROSION	03
TRIMMING&CF	11
AIR BRAKE	03
CARPENTRY	02
LIFT	01



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DETAILS OF PAINTERS WORK ORGANISATIONAL SETUP C STAFF LIST AS PER INCE X

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MONTH	JE	Sr.Techn	Techn I	Techn II	Techn III	Helper	Total
Mar-Apr 2018	0	20 1	21 4	12 2	6 0	8 0	74
Apr-May 2018	0	21 1	22 4	10 2	6 0	8 0	74
May-Jun 2018	0	21 1	22 3	10 2	6 0	8 0	73
Jun-July 2018	0	20 1	25 3	8 2	5 0	8 0	73
July-Aug 2018	0	20 2	25 3	8 2	5 0	8 0	74
Aug-Sep 2018	0	20 1	26 3	8 2	5 1	8 0	74
Sep-Oct 2018	0	20 1	27 3	7 2	5 1	8 0	74
Oct-Nov 2018	0	18 1	26 3	7 2	5 1	7 0	70
Nov-Dec 2018	1	19 2	25 2	7 1	5 0	7 1	71
Dec-Jan 2018-19	1	19 2	27 3	4 0	6 0	5 0	67
Jan-Feb 2019	1	19 2	29 3	1 0	15 0	0 0	71
Feb-Mar 2019	1	19 2	29 3	2 0	13 0	0 0	70
Mar-Apr 2019	1	18 2	29 3	2 0	12 0	0 0	68
Apr-May 2019	1	18 2	30 3	1 0	13 0	0 0	69
May-June 2019	1	18 2	30 3	1 0	13 0	0 0	69

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June-July 2019	1	18 2	28 2 1	1 0	13 0	0 0	66
July-Aug 2019	1	18 2	26 3	1 0	12 0	0 0	63
Aug-Sep 2019	1	18 2	25 3	2 0	11 0	0 0	62
Sep-Oct 2019	1	18 2	24 3	2 0	10 0	0 0	60
Oct-Nov 2019	1	16 3	23 2	2 0	10 1	0 0	58
Nov-Dec 2019	1	18 1	24 2	2 0	11 0	0 0	59
Dec-Jan 2019-20	0	18 1	24 2	3 0	10 0	0 0	58
Jan-Feb 2020	0	18 1	24 4	3 0	10 0	0 0	60
Feb-Mar 2020	0	18 1	24 4	3 0	10 0	0 0	60

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DETAILS OF PAINTERS WORK
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#	Sec ID	Operation ID	Operation	Unit	EXT	Prn Qty
1	094301	1094301701	EXTERIOR & INTERIOR WASHING (INCLUDING ROOF) FOR ALL COACHES	COACH	20.9	
2	094301	1094301702	POST CLEANING FOR ALL COACHES REMOVAL OF PAINT STAINS IN FULL COACH (INCLUDING VEHICLE SHEETS, LAYPANS, WASHBASIN, LUGGAGE COMPARTMENT, DOG BOX, BEFORE DESPATCH OF ALL COACHES)	COACH	8.07	
3	094301	1094301703	SURFACE PREPARATION IN 3 STAGES APPLICATION, LEVELLING OF PUTTY & RUNDOWN FOR ALL COACHES	COACH	14.793	
4	094301	1094301704	PAINING OF UNDER COAT FOR ALL COACHES	COACH	24.192	
5	094301	1094301705	PAINING EXTERIOR 1ST COAT FOR ALL COACHES	COACH	16.72	
6	094301	1094301706	PAINING OF EXTERIOR 2ND COAT FOR ALL COACHES	COACH	16.72	
7	094301	1094301707	PAINING OF ROOF FOR ALL COACHES	COACH	4.18	
8	094301	1094301708	PAINING OF END BODY FOR ALL COACHES	COACH	8.778	
9	094301	1094301709	PAINING OF INTERIOR CEILING 1ST COAT FOR ALL COACHES	COACH	16.72	
10	094301	1094301710	PAINING OF INTERIOR CEILING 2ND COAT FOR ALL COACHES	COACH	10.72	
11	094301	1094301711	PAINING OF INTERIOR & EXTERIOR TOUCH UP - FINAL DESPATCH FOR ALL COACHES	COACH	6.9	
12	094301	1094301712	PAINING OF RESERVATION CHART AREA	COACH	1.672	
13	094301	1094301713	PAINING OF INTERIOR BAYS, SHUTTER, LAUNDRoom, PIPE FITTING, MAIN DOOR PAINING FOR G8 COACH	COACH	62.282	
14	094301	1094301714	PAINING OF INTERIOR BAYS, SHUTTER, LAUNDRoom, PIPE FITTING, MAIN DOOR PAINING FOR C9 COACH	COACH	81.97	
15	094301	1094301715	PAINING OF INTERIOR BAYS, SHUTTER, LAUNDRoom, PIPE FITTING, MAIN DOOR PAINING FOR C2 COACH	COACH	81.97	
16	094301	1094301716	PAINING OF INTERIOR BAYS, SHUTTER, LAUNDRoom, PIPE FITTING, MAIN DOOR PAINING FOR WCB COACH	COACH	55	
17	094301	1094301717	PAINING OF INTERIOR BAYS, SHUTTER, LAUNDRoom, PIPE FITTING, MAIN DOOR PAINING FOR SLR - SLID COACHES	COACH	63.27	
18	094301	1094301718	PAINING OF G8 PICKING UNRESERVED MARKING IN 4 CORNERS FOR G8 COACH	COACH	13.376	
19	094301	1094301719	PAINING OF X MARKS IN BOTH ENDS FOR SLR SLID COACHES	COACH	8	
20	094301	1094301720	PAINING OF BOGIE FOR ALL COACHES (2 NO)	COACH	11.704	
21	094301	1094301721	STENCILLING & LETTERS COMPLETE (INTERIOR AND EXTERIOR) G8 COACH	COACH	22.322	
22	094301	1094301724	STENCILLING & LETTERING COMPLETE (INTERIOR AND EXTERIOR) C9 C2 COACHES	COACH	11.768	
23	094301	1094301725	STENCILLING & LETTERING COMPLETE (INTERIOR AND EXTERIOR) WCB COACHES	COACH	19.914	
24	094301	1094301727	STENCILLING & LETTERING COMPLETE (INTERIOR AND EXTERIOR) SLR SLID COACHES	COACH	26.66	

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#	Sec ID	Operation ID	Operation	Unit	TAT	Pre Qty
26	094501	1094501729	PAINING OF AIRBRAKE COACH PIPE LINE (FP & BP) COMPLETE	COACH	5.016	
27	094501	1094501901	INTERIOR PAINTING - NMG / FLOOR AREA, END, SIDE, DOOR WAY AREA, INTERIOR AREA - FULL COACH	COACH	28.5	
28	094501	1094501902	INTERIOR PAINTING - VPU / VPH (FLOOR AREA, END / SIDE / DOOR WAY AREA, INTERIOR AREA, RACKS - FULL COACH)	COACH	33.25	
29	094501	1094501903	NMG / VPU / VPH PICKING	COACH	16.72	
30	094501	1094501904	JAN SHATABDI PICKING (NON-AC)	COACH	28.5	
31	094501	1094501905	BOLSTER & AXLE SPRING COLOUR CODE & PAINTING STENCILING	COACH	0.279	
32	094501	1094501906	EMERGENCY WINDOW REED PAINTING	COACH	0.523	
33	094501	1094501907	AXLE BOX COVER ALUMINIUM PAINTING	COACH	0.25	
34	094501	1094501908	VPU, NMG, VPHX (EXTERIOR SIGN WRITING), VPH	COACH	11.7	
35	094501	1094501909	STENCILLING & LETTERING COMPLETE (INTERIOR AND EXTERIOR)- SLR COACHES	COACH	15.04	
36	094501	1094501910	UNDER FRAME STRAPPING AND CLEANING	COACH	10.64	
37	094501	1094501911	PAINTING OF HEAD STOCK, AUXILIARY HEAD STOCK, TELESCOPE TUBE, CROSS BAR, SOLE BAR FULL LENGTH AT BOTH SIDES (EXCEPT TROUGH FLOOR)	COACH	6.84	
38	094501	1094501912	PAINTING OF TURN UNDER, BATTERY BOX, AND AUXILIARY RESERVOIR (EXCEPT TROUGH FLOOR AREA)	COACH	3.53	
39	094501	1094501913	PAINTING OF TROUGH FLOOR AREA IN FULL COACH	COACH	9.12	

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INDIAN AIR FORCE

CR SHOP - PAINT SECTION INCENTIVE PERFORMANCE FROM Apr 2018 - Mar 2019

MONTH	AT	TT	TS	% INCENTIVE BONUS
Apr'18	19964.70	13372.15	6612.55	49.45
May'18	17658.00	11853.80	5801.20	48.98
Jun'18	20515.75	13853.00	6602.15	48.09
Jul'18	17938.24	12788.85	5147.39	40.25
Aug'18	20356.28	13686.00	6670.28	48.74
Sep'18	19922.79	13392.40	6530.39	48.78
Oct'18	17612.56	12103.75	5443.83	44.30
Nov'18	17549.11	11841.60	5707.51	48.20
Dec'18	18398.62	12360.55	6038.07	48.85
Jan'19	12046.43	8044.60	4001.83	49.75
Feb'19	18502.16	12369.25	6132.91	49.56
Mar'19	16055.40	10748.20	5307.20	49.38
TOTAL	216538.06	146474.75	70063.31	47.83

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TOTAL 218538.06 140474.73 70033.31 47.03

Sheet1

CR SHOP – PAINT SECTION INCENTIVE PERFORMANCE FROM
Apr 2019 – Mar 2020

MONTH	AT	TT	TS	% INCENTIVE BONUS
Apr'19	14937.90	10010.80	4927.10	49.22
May'19	13668.69	9481.60	4187.09	44.16
Jun'19	17312.77	11628.80	5693.97	48.88
Jul'19	16629.20	11245.00	5384.20	47.88
Aug'19	15444.23	10741.20	4703.03	43.78
Sep'19	15533.71	10412.80	5120.91	49.18
Oct'19	14397.41	9709.00	4688.41	48.29
Nov'19	14735.69	9850.40	4885.29	49.59
Dec'19	14537.43	9733.20	4804.23	49.36
Jan'20	10675.10	7881.85	2793.25	35.44
Feb'20	16053.92	10762.80	5291.12	49.16
Mar'20	14714.26	9835.15	4879.11	49.81
TOTAL	178640.31	121292.60	57347.71	47.28

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