WORK STUDY REPORT

ON

REVIEW OF STAFF

WORKING IN ELECTRICAL WORKSHOP, DAYABASTI

2020-21

WORK STUDY TEAM

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DATE OF START: 17.01.2020
DATE OF COMPLETION: 07.04.2020

GUIDANCE BY
SH. ASHOK KUMAR AGARWAL- SWSO

NO.16-CP/02/WS/2020-21

CENTRAL PLANNING CELL
NORTHERN RAILWAY
BARODA HOUSE
NEW DELHI.

EXECUTIVE SUMMARY

This study was allotted to Central Planning Cell, HQ Office to identify redundant/unproductive activities and to suggest improved methods of working due closure of certain activities in the Electric Workshop,Dayabasti.

STAFF POSITION

The total sanctioned and on roll strength of staff working in Electrical Repair Workshop, Dayabasti is detailed below:-

S.No.	Category	S/S	O/R	Var.
1	SSE	02	01	-
2	JE	04	01	01
3	COS	01	03	+02
4	O.S.	03	-	03
5	Sr. Clerk	02	-	02
6	Sr. Technician	27	25	02
6	Technician-I	53	18	35
7	Technician-II	08	08	-
8	Technician-III	09	05	04
9	Asstt. Cook/Wash boy	02	02	-
11	Helper	22	18	04
12	Peon	01	01	-
13	Safaiwala	03	01	02
	Total	137	84	53

No. of posts identified surplus and recommended for surrender.

Group 'C' = 26 posts

Group 'D' = 07 posts

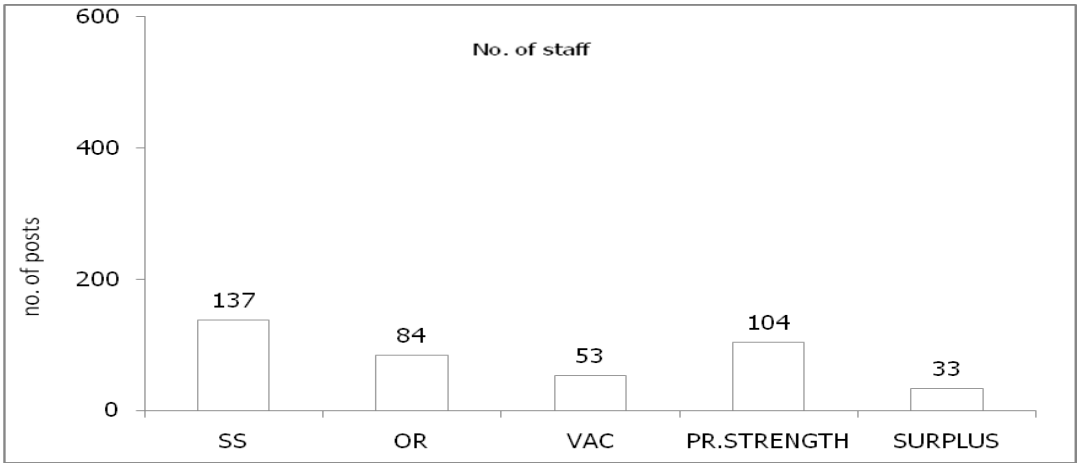
Total = 33 Posts

FINANCIAL IMPLICATIONS

Anticipated recurring saving = ₹ 141.54 lacs per annum

Capital Saving = Nil

Total recurring saving = ₹ 141.54 Lacs per annum.



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SYNOPSIS

The Indian Railway is among the largest rail network in the world. The Indian Railways deals with passenger and goods/parcel traffic throughout the country with great safety, punctuality and reliability. By virtue of modernization and day to day advancements in the every sphere of the railway working resulted into the closure of wasteful/unproductive activities. With outsourcing of certain activities in railways, there is need for rightsizing of man power commensurate with the existing workload.

Keeping in view of above, SDGM/NR directed Central Planning Cell HQ to conduct a review of Electric Workshop, Dayabasti with a view to optimize the manpower due to advancements/modernization. The work study team suggested certain improved methods in working to increase the productivity. The team also kept in view the local working conditions and held discussions at various levels before assessing the requirement of manpower.

Finally, the team is of the opinion that if the recommendations made in the report are accepted and implemented in toto, a net recurring saving to the tune of ₹ 141.54 lacs per annum is likely to be achieved after surrendering of 33 posts identified as surplus.

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SUMMARY OF RECOMMENDATIONS

<table>
<tr><th>Rec No</th><th>Recommendations</th><th>Refer para no.</th><th>Accepting/ Implementing authority</th></tr>
<tr><td>1</td><td>It is proposed that 33 posts are identified as surplus from Electric Workshop,DBSI and recommended for surrendered.
<table>
<tr><th>Category</th><th>Grade Rs.</th><th>No. of posts</th></tr>
<tr><td>OS/Sr. Tech.</td><td>9300-34800-4200</td><td>04</td></tr>
<tr><td>Sr. Clerk/Tech.-I</td><td>5200-20200-2800</td><td>17</td></tr>
<tr><td>Tech.-II</td><td>5200-20200-2400</td><td>02</td></tr>
<tr><td>Tech.-III</td><td>5200-20200-1900</td><td>03</td></tr>
<tr><td>Helper/safaiwala staff</td><td>5200-20200-1800</td><td>07</td></tr>
<tr><td colspan="2">Total</td><td>33</td></tr>
</table></td><td>2.8</td><td>CELE/NR, WEE/DBSI</td></tr>
</table>

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ACKNOWLEDGEMENT

The work study team is highly grateful to Shri Naveen Gulati,CEE/Mobility/N.Rly, Baroda House, New Delhi, Shri B.S.Rao/WEE/Dayabasti and other functionaries for giving valuable guidance and extending their full co-operation for providing requisite data/information during the conduct of study.

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1.0 INTRODUCTION

1.1 After Independence, there were no centralized workshop for repairing the Electrical equipments in Northern Railway and repairing of electrical equipments was done by the individual units. This had not given good results and no prolonged life of equipments. A need was felt to provide a centralized facility for repairing of electrical equipments which can give better results than the individual units. In this concept, the Electrical Repair Workshop, Dayabasti came into existence in 1949 at Lothian Bridge, Delhi main.

During the remodeling of yard of Delhi Main Railway station, this workshop was shifted to Dayabasti in the year 1987. As per CEGE/NR/BH letter no. CEE/Misc/2015-16/5001 dt. 02.05.17, all activities of repairs/rewinding of TL and general service equipments had to stop immediately and this repairs/rewinding work will be dealt by the divisions itself. It was also decided that Electric Workshop, DBSI will function under the administrative and technical control of CELE/NR instead of CEGE/NR and the powers have been further delegated to WEE/EWS/Dayabasti to look after the entire working of workshop with the administrative control. The workshop will only do the activities related to Electric Loco Shed/GZB, LDH, DSL Shed,TKD & KJGY.

The general working of the Workshop is to repair/rewinding and over hauling of auxiliary motors/machines of conventional as well as three phase locomotive. These auxiliary motors are:-

S.No.	Description of the motor/machine
1	Traction motor blower(TMB)
2	Traction motor blower(MVMT-Conv.)
3	Oil cooling blower(OCB)
4	Air compressor motors(MCP-conv.)
5	Transformer Oil cooling Radiator Blower(MVRH)
6	Machine Room Blower(MRB)
7	Blower for silicon Rectifier(MVSI)
8	Transformer Oil Pump Motor(MPH)
9	Auxiliary motor of compressor(MCPA-DC)
10	TM Blower Scavanger(TMSQ)
11	MR Blower Scavanger(MRSQ),
12	Traction Converter oil Pump (SROP).
13	Air compressor motors(MCP- 3phase)
15	TFP
16	Blower motor
17	Cabin fan

1.2 The main functions of Electrical Workshop, Dayabasti are to provide the necessary overhauling/rewinding of the auxiliary motors of Electric locos of Northern Railways.

1.3 Keeping in view of above, SDGM/NR directed to conduct the "Review of Gr.'C' & 'D' staff working in Electrical Workshop, Dayabasti" to eliminate wasteful expenditure and to optimize utilization of assets and manpower. It was also emphasized that unproductive/obsolete activities be eliminated to increase productivity.

1.4 TERMS OF REFERENCE

The work study has been conducted under the following terms of reference: -

i) To review staff strength vis-à-vis workload.
ii) To suggest ways and means to identify redundant/unproductive activities to eliminate wasteful expenditure.
iii) To suggest ways and means to improve the system economically in view of modernization and systems development.

1.5 METHODOLOGY ADOPTED

The following method study and work measurement techniques were adopted to conduct the study: -

i) Data collection and its critical analysis.
ii) Work sampling, analytical estimation, spot observations, physical checks and yardstick in vogue, if any, to assess the performance of staff.
iii) Held discussions at various levels.

2.0.0 BRIEF DESCRIPTION, STAFF POSITION, WORKLOAD, CRITICAL ANALYSIS, REQUIREMENT OF STAFF, RECOMMENDATIONS & OBSERVATIONS

2.1.0 BRIEF DESCRIPTION

There was no centralized facility for repairing the electrical equipments in Northern Railway and the reparing was done by the individual units, which did not give good results and prolonged life of the equipments. Thus a need was felt to provide a centralized facility for repairing the electrical equipments which could give better results. The Electrical Repair Workshop came into existence in the year 1949 at Lothian Bridge, Delhi. Later during remodeling of Delhi yard, the workshop was shifted at Dayabasti, Delhi in 1987. At that time the work assigned to this workshop was to repair, testing and calibration of energy meters, 3 phase AC motors measuring instruments, HT relays, repair of stabilizers, overhauling of water coolers, ACs, refrigerators and ceiling fans etc.

At present the above mentioned repairs of TL/general services equipments have been discontinued and now the Electric workshop is overhauling/rewinding the auxiliary motors of conventional as well as 3 phase AC Electric locos. The shop wise repairing activities carrying out at Electric workshop/DBSI are as follows:-

S.N	Name of shop/ Section	Activity/manufacturing
1	Auxiliary-I	This section overhauls the auxiliary motors which are less than 10 HP namely TMB,MVMT-conv.,OCB, MCP-Conv. & 3 phase,MVRH.
2	Auxiliary-II	This section overhauls the auxiliary motors which are more than 10 HP namely MRB, MVSI, MVSL,MPH,MCPA-DC, TMSQ,MRSQ,SROP
3	Winding Section	This section rewinds the auxiliary motors namely TMB,MVMT(Conv.), OCB, MCP(Conv.) & 3 phase,MVRH,MRB, MVSI, MVSL,MPH,MCPA-DC, TMSQ,MRSQ,SROP
4	Electro Pneumatic Contractor(EPC)	This section overhauls EPC of conventional locomotives. After overhauling of EPC, it is checked and tested on EPC test bench and parameters are recorded.
5	Machine	In this section misc. machining work is being carried out which helps in the overhauling of auxiliary motors of locos.

2.2 STAFF POSITION

The team collected the staff position of Group 'C' and 'D; staff working in Electrical Workshop, DBSI which is placed as Annexure-I in the report and summarized position is tabulated as under:-

S.No.	Category	S/S	O/R	Var.
1	SSE	02	01	-
2	JE	04	02	01
3	Ch.OS	01	03	+02
4	O.S.	03	-	03
5	Sr. Clerk	02	-	02
6	Sr. Technician	27	25	02
6	Technician-I	53	18	35
7	Technician-II	08	08	-
8	Technician-III	09	05	04
9	Asstt. Cook/Wash boy	02	02	-
11	Helper	22	18	04
12	Peon	01	01	-
13	Safaiwala	03	01	02
	Total	137	84	53

The above table reveals that the total sanctioned strength of Group 'C' & 'D' staff is 137 and on roll strength is 84 which shows that 53 posts of different categories are lying vacant.

2.4 CRITICAL ANALYSIS

The team adopted method study and work measurement techniques after collecting the available data in terms of man
hours consumed for completing the job over hauling and rewinding of auxiliary motors of locos for northern Railway in Electric Workshop/DBSI. The activities of this workshop changes in 2017 from repairing of TL/General service electric equipments, over hauling/rewinding of auxiliary motors of locos. The team consider the work load of the year 2018-19 for calculating the manpower.

2.5 WORK LOAD

The team collected the data in terms of no. of auxiliary motors which have been overhauled/rewinded for the last three years i.e.

Table No. I

S.No.	Year	No. of auxiliary motors	
		Overhauled	Rewinded
1	2017-18	1638	173
2	2018-19	2161	235
3	2018-Oct'2019	1357	187

2.6 MEASURING TECHNIQUE

The work study team deeply observed the working of different sections and held discussions at various levels in regards to uneconomical activities which are being carried out in Electric Work/DBSI.
Keeping in view above, the team is of the opinion that review of staff is required to assess the actual requirement as per existing workload. The team assessed the requirement on the basis of actual work done and time taken. After deducting 52 Sundays, 26 Saturday, 16 gazetted holidays including and 08 CLs, total=102 days from 365 days, the total working days came 263 in a year. One man has to performs 8 hrs duty so he has to work for 263x8=2104 hrs in a year. The team collected the allotted man hours fixed by the workshop administration for overhauling/rewinding of auxiliary motors which have been depicted as below:-

S.No.	Types of auxiliary motor	Allotted man hours(in hours)	
		For rewinding	For overhauling
1	MRSQ	40	08
2	MVSI	40	16
3	MVSL	40	16
3	MRB	48	16
5	TMSQ	40	16
6	MCP(Three phase)	144	16
7	MCP(Conventional)	128	32
8	TMB	160	40
9	MVMT	128	40
10	OCB	160	32
11	MCPA	64	16
12	TFP	48	24
13	SROP	96	24
14	MVRH	128	24
15	MPH	48	24
16	Blower motor	08	04
17	Cabin fan	08	04

2.8 PROPOSED REQUIREMENT OF STAFF

The team has visited each section and interacted with section in charges to know the factual status of each section. The manpower requirement is calculated on the basis of actual work done/out put and allowed man hours.

2.8(i) Proposed requirement of Artisan for overhauling/rewinding activity:-

The team calculated the requirement of artisan staff for overhauling/rewinding activities on the basis of allotted man hours for different type of auxiliary motors fixed by the workshop administration. The team considered the year 2018-19 as base year for calculation and which has been depicted blow:-

Table No. II

S. No.	Type of motor	Allotted time in hours for over hauling	No. of auxiliary motors overhauled in 2018-19	Total work done in hours in 2018-19 i.e. allotted hours x no. of motors
1	MRSQ	08	197	1576
2	MVSI	16	170	2720
3	MRB	16	209	3344
4	MVSL	16	177	2832
5	TMSQ	16	196	3136
6	MCP(Three phase)	16	147	2352
7	MCP(Conventional)	32	167	5344
8	TMB	40	189	7560
9	MVMT	40	169	6760
10	OCB	32	196	6272
11	MCPA	16	87	1392
12	TFP	24	34	816
13	SROP	24	112	2688
14	MVRH	24	38	912
15	MPH	24	46	1104
16	Blower motor	04	8	32
17	Cabin fan	04	19	76
		(a) Sub total	**2161**	**48916**
Rewinding of auxiliary motors in 2018-19				
1	MRSQ	40	36	1440
2	MVSI	40	11	440
3	MRB	40	29	1160
4	MVSL	48	19	912
5	TMSQ	40	21	840
6	MCP(Three phase)	144	5	720
7	MCP(Conventional)	128	14	1792
8	TMB	160	3	480
9	MVMT	128	8	1024
10	OCB	160	57	9120
11	MCPA	64	1	64
12	TFP	48	1	48
13	SROP	96	5	480
14	MVRH	128	-	-

15	MPH	48	-	-
16	Blower motor	08	13	104
17	Cooling fan	08	12	96
		(b) Sub total	**235**	**18720.00**
Total work done **(a+b)** in terms of hours in 2018-19 of overhauling and rewinding of auxiliary motors				**67636.00**

The requirement of artisan staff for overhauling/rewinding activities= Total work done in hours in the year 2018-19/No. of hours a man has to perform in one year i.e. 67636/2104=32.14 or say 32 staff.

2.8.(ii) Section wise requirement of artisan staff

S.No.	Name of sections/activities	Total no. of staff
1	Auxiliary-I & II and Rewinding	32
2	Electro Pneumatic Contractor(EPC)	04
3	Machine	03
4	Dismantling	03
5	Testing	03
6	Electrical maintenance of Workshop	03
7	Sub total	48
8	Add 12.5% on 48	6.00
	Sub Total	54
Additional artisan staff for overhauling and rewinding activities as per CELE/HQ office letter no. 230-Elect/TRS/159 dt. 28.08.19 in which it is stated that the current loco holding will be about 1000 in next 3 to 5 years.		20
	G.Total	74

The total requirement of artisan staff for Electric workshop comes to 74. The sanctioned strength of artisan staff is 97. So 23 posts of artisan staff are identified as surplus and recommended for surrender.

2.8(ii) Proposed requirement of Helper

The category of helper plays a vital role to assist the artisan staff during Overhauling/rewinding work. During the conduct of study it was observed that a special gang is required for loading/unloading of incoming auxiliary machines and out auxiliary machines while receiving /sending to the concerned loco sheds. A TATA 407 No. UP-14 FJ-9429 has been hired by the Electric workshop for this purpose. Keeping in view the above a gang of 04 helpers is being provided.
The total requirement of helper staff has been depicted in the table.–III

S.No.	Section/Location	No. of staff proposed	Remarks
1	Auxiliary-I	04	
2	Auxiliary-II	04	
3	Winding Section	03	
4	Electro Pneumatic Contractor(EPC)	01	
5	Loading/unloading	04	
	Sub total	16	
	Add 12.5% on 16	2.00	
	Total	18 staff.	

The total requirement of helper staff for Electric workshop comes to 18. The sanctioned strength of helper staff is 22. So 04 posts of helper staff are identified as surplus and recommended for surrender.

2.8(iii) Proposed requirement of supervisors

The sanctioned strength of supervisor staff is 06 while 03 are on roll with 03 vacant posts.

S.No.	Category	Description	Proposed no. of staff
1	SSE/G	Over all supervision and coordination with WEE.	01
2	SSE	Over all incharge of over hauling and rewinding sections.	01
3	JE	TA to WEE, conduct daily production and failure meetings, preparation of PCDO and failure reports.	01
4	JE	Incharge of rewinding section.	01
5	JE	Incharge of Auxiliary section-I	01
6	JE	Incharge of Auxiliary section-I & EPC section.	01
		Total	06

The total requirement of supervisor staff for Electric workshop comes to 06. The sanctioned strength of supervisor staff is also 06.

2.8(iv) Proposed requirement of ministerial staff

The sanctioned strength of ministerial staff is 06 while 03 are on roll with 03 vacant posts.

S.No.	Category	Description	Proposed no. of staff
1	COS	Over all incharge	01
2	COS	Time Office	01
3	COS	Store & Receipt and dispatch.	01
		Total	03

The total requirement of ministerial staff for Electric workshop/DBSI comes to 03. The sanctioned strength of supervisor staff is also 03. So 03 posts of ministerial staff are identified as surplus and recommended for surrender.

2.8(v) Proposed requirement of other Gr 'D'staff.

The sanctioned strength of other Group 'D' staff is 06 while 04 are on roll with 02 vacant posts.

S.No.	Category	Description	Proposed no. of staff	Remarks
1	Safaiwala	Engaged in other activities.	-	House keeping work is outsourced.
2	Peon	WEE Office	01	-
3	Canteen staff	For canteen	02	-
		Total	03	

2.8(vi) CATEGORIES WISE SUMMARY OF EXISTING AND PROPOSED STAFF

S.N.	Category	S/S	O/R	Proposed strength	Identified surplus
1	SSE	02	01	02	-
2	JE	04	02	04	-
3	Ministerial & allied staff	06	03	03	03
4	Sr.Tech.	27	25	25	02
4	Tech.-I	53	18	37	16
5	Tech.-II	08	08	06	02
6	Tech.-III	09	05	06	03
7	Canteen staff	02	02	02	-
8	Helper-I/ Peon/Safaiwala/ canteen staff	26	20	19	07
Total		137	84	104	33

Recommendation No.1

It is proposed that total 33 posts are identified as surplus in different categories from different sections/locations of Electric Workshop, DBSI and recommended for surrender

S.N.	Category	Grade Rs.	No. of posts
1	Office superintend/Sr. Technician	9300-34800-4200	04
2	Sr. Clerk /Tech.-I	5200-20200-2800	17
2	Tech.-II	5200-20200-2400	02
3	Tech.-III	5200-20200-1900	03
4	Helper-I/Safaiwala	5200-20200-1800	07
Total			**33**

3.0.0 FINANCIAL IMPLICATIONS

3.1.0 The annual expenditure as per 7th CPC on staff working in Electric Workshop, DBSI is as under:-

S.N.	Category	Grade Rs.	S/S	Monthly value per post	Monthly expenditure (in Rs.)	Annual expenditure (in Rs.)
1	SSE/COS	9300-34800-4600	03	60548	181644.00	2179728.00
2	JE/OS/ Sr. Tech.	9300-34800-4200	34	47736	1623024.00	19476288.00
3	Sr.Clerk/Technician-I	5200-20200-2800	55	39371	2165405.00	25984860.00
4	Technician-II	5200-20200-2400	08	34398	275184.00	3302208.00
5	Technician-III	5200-20200-1900	09	26852	241668.00	2900016.00
6	Helper/ Office peon/Safaiwala / Canteen staff	5200-20200+1800	28	24278	679784.00	8157408.00
		Total	137			62000508.00

The above table reveals that the annual expenditure being incurred on 137 sanctioned posts of staff working in Electric Workshop, DBSI is Rs. 62000508.00

4.2.0 The annual expenditure as per 7th CPC on the proposed strength of staff for Electric Workshop, DBSI is as under:-

S.N	Category	Grade Rs.	Monthly value Per post	Prop. Strgth	Monthly Expndtr. (in Rs.)	Annual Expndtr (in Rs.)
1	SSE/COS	9300-34800-4600	60548	03	181644.00	2179728.00
2	JE/ Sr. Tech.	9300-34800-4200	47736	30	1432080.00	17184960.00
3	Technician-I	5200-20200-2800	39371	38	1496098.00	17953176.00
4	Technician-II	5200-20200-2400	34398	06	206388.00	2476656.00
5	Technician-III	5200-20200-1900	26852	06	161112.00	1933344.00
6	Helper/ Office peon/Canteen staff	5200-20200-1800	24278	21	509838.00	6118056.00
		Total		104		47845920.00

The above table reveals that the annual expenditure on the proposed 104 posts for Electric Workshop, DBSI will be reduced to Rs. 47845920.00 instead of Rs. 60325712.00 and the net recurring saving will be Rs. 14154588.00

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3.3.0 ANTICIPATED RECURRING SAVING

SN	Category	Grade Rs.	Refer Recom. No.	No. of posts identified as surplus	Monthly value per post	Annual expenditure (in Rs.)
1	OS/Sr.Tech.	9300-34800 - 4200	2.5.16.	04	47736	2291328.00
2	Sr. Clerk/Tech.-I	5200-20200 - 2800		17	39371	8031684.00
3	Tech-II	5200-20200 - 2400		02	34398	825552.00
	Tech-III	5200-20200 - 1900		03	26852	966672.00
4	Helper/Safaiwala	5200-20200 - 1800		07	24278	2039352.00
Total				33		14154588.00

No. of posts identified as surplus: -

Group 'C' = 26 posts

Group 'D' = 07 posts

Total = 33 posts

Anticipated recurring saving = ₹ 141.54 lacs per annum

Capital saving=Nil

Total saving = ₹ 141.54 lacs per annum

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WORK STUDY REPORT DETAILED CHART

Department: - Electrical

Name of study: - Review of staff working in Electric Workshop/Dayabasti.

Activity Centre:- Electric Workshop/Dayabasti.

SN	Sub activity	Brief description of workload	Actual staff deployed	Work Study recommendation	Representative workload
1	Electric workshop, Dayabasti of Northern Railway is functioning for overhauling/re winding of auxiliary Electric motors of loco for Northern Railway	The layout of Electric Workshop/DBSI is divided into different shops/ sections viz.Auxiliary-I, Auxiliary-II, Rewinding, EPC & Machine section.	The entire strength of Gr.'C' and Gr.'D' staff working in Electric Workshop/ DBSI as under SS=137 OR=84	The work study team recommended that 33 posts in different categories and grades have been proposed for surrender.	Overhauling/ rewinding of auxiliary motors of Electric locos.

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LIST OF ANNEXURES

S.N.	Description	Annex. No.
1	Statement showing staff position of Electric Workshop/DBSI.	I
2	Letter of C.P.Cell to initiate the work study No. 16-CP/02/WS/20-21 dt.04/11/19	III

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Annexure-I

Statement showing staff position of Electrical Workshop, Dayabasti.

S.No.	Category	S/S	O/R	Var.
1	SSE	02	01	-
2	JE	04	02	01
3	Ch.OS	01	03	+02
4	O.S.	03	-	03
5	Sr. Clerk	02	-	02
6	Sr. Technician	27	25	02
6	Technician-I	53	18	35
7	Technician-II	08	08	-
8	Technician-III	09	05	04
9	Asstt. Cook/Wash boy	02	02	-
11	Helper	22	18	04
12	Peon	01	01	-
13	Safaiwala	03	01	02
	Total	137	84	53