EASTERN RAILWAY

WORKSTUDY REPORT
ON
REVIEW OF STAFF STRENGTH VIS-À-VIS WORKLOAD OF CABIN MASTER, CABINMAN & LEVERMAN UNDER OPERATING DEPARTMENT OVER SDAH DIVISION CONSEQUENT UPON THE CHANGED SCENARIO OF WORKING.

(STUDY NO.WSER-08/19-20)

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ACKNOWLEDGEMENT

The study team is very much thankful to Sr. DOM/Sealdah and DOM/Sealdah for allowing the study team in conducting the subject work study successfully. The study team will also be thankful to TI/Plg/SDAH and TI/HQ/SDAH for their appropriate opinion and co-operation for conducting the subject work study.

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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 Cabinmaster, Cabinman & Leverman.
ii) Discussion with TI/Plg/SDAH and TI/HQ/SDAH.
iii) Studied the existing workload and deployment of staff.
iv) Studied the areas where modernization of interlocking system to EI/PI/RRI has been completed.

TERMS OF REFERENCE

As approved by the competent authority, the subject workstudy has been undertaken by the GM's Efficiency Cell of Eastern Railway in financial year 2019-20 under the following terms of reference:-

i) Evaluate the quantum of work.
ii) Examine the deployment of Cabinmaster, Cabinman & Leverman against workload.
iii) Scrutinize the involvement of Cabinmaster, Cabinman & Leverman after modernization of interlocking systems to EI/PI/RRI.

SUMMARY OF RECOMMENDATION

Sl. No.	***Recommendation***	***Para ref.***
1.	It is recommended by the Study Team that the existing vacancy of 40 posts of Cabin master may be surrendered immediately from the existing Sanctioned Strength of 64 posts of Cabin master under Operating Department over Sealdah division.	*2.10.1*
2.	It is recommended that the actual requirement of Cabinman and Leverman under operating department over SDAH division is assessed to 05 posts as against a total sanctioned strength of 46 posts thus rendering surplus of (46-05)=41 posts.	*2.12*

EXECUTIVE SUMMARY

Study Name & No.	Work study on review of staff strength vis-à-vis workload of Cabinmaster, Cabinman & Leverman under operating department over SDAH division consequent upon the changed scenario of working. (Work study No. WSER-08/19-20)		
Year of conducting the study:	2019-20		
Terms of reference:	i) Evaluate the quantum of work. ii) Examine the deployment of Cabinmaster, Cabinman & Leverman against workload. iii) Scrutinize the involvement of Cabinmaster, Cabinman & Leverman after modernization of interlocking systems to EI/PI/RRI.		
Methodology:	i) Collection of data in regard to workload of the Cabinmaster, Cabinman & Leverman. ii) Discussion with TI/Plg/SDAH and TI/HQ/SDAH. iii) Studied the existing workload and deployment of staff. iv) Studied the areas where modernization of interlocking system to EI/PI/RRI has been completed.		
	Cabinmaster	Cabinman	Leverman
Sanctioned Strength:	64	30	16
Existing Men on Roll:	24	17	03
Vacant post:	*40*	*13*	*13*
Proposed Surrender:	40	25	16
Total Proposed Surrender:	**40+25+16 = 81**		
Justification			
The assessment has been made based on the analysis of existing workload of Cabinmaster, Cabinman & Leverman which has became NIL due to modernization of Interlocking system from Lever mechanism to EI/PI/RRI system.			

CHAPTER-I

1.0 ***INTRODUCTION:***

1.1 IR is the single largest system of public transportation in India covering about 64460 route kilometers through high density urban areas as well as vast rural and forest areas. It provides services to 2.2 crore passengers and operates 11842 passenger trains daily. The sheer quantities of passenger operations put tremendous pressure on the existing infrastructure and calls for an effective system for maintenance of cleanliness and sanitation at stations and in trains. The requisite standards framed by the Government of India are required to be implemented for catering to the high passenger traffic density. This considerably impacts the environment on account of waste generation.

1.2 Operating Department in Railways is responsible for managing the smooth running of trains. From crew booking, running of trains, managing of Station premises are controlled by Operating Department.

1.3 Among them, the main objective of Operating Department is to operate smooth and safe running of trains. This is done through arrangement of signals, points and other appliances, operated from a panel or lever frame, so inter-connected by Mechanical locking or Electrical locking or both that their operation must take place in proper sequence to ensure safety. This process is known as ***Interlocking*** and is operated from Cabins situated at both ends of stations and various locations of points.

1.4 In Interlocking, points, signals and other units are usually, operated by means of levers and panels. Interlocking between these levers is accomplished either by mechanical or by electrical or electro-mechanical or electronic means. In the former method, some mechanical contrivance variously designed, controls the relation between one lever and the other. At less important stations the point, signal and other levers are interlocked by means of keys which are used to lock or release the levers, either in the normal or in the reverse position, as required. At other stations the levers are interlocked by means of tappets inside a box of the lever frame, which is normally kept covered and sealed.

1.5 With the advancement of technology, the system of Interlocking has changed drastically. Earlier Mechanical Interlocking was invoked in the system, but with time, phase-wise, Railway has adopted Panel Interlocking (PI) and Route Relay Interlocking (RRI) in large scale. With the introduction of new Interlocking systems of PI & RRI, the involvement of manpower reduced considerably and the operation of interlocking became smooth, safe and fast.

1.6 Types of Interlocking in Indian Railways:

i) *Mechanical Interlocking:*

The era of interlocking started with mechanical frames. In mechanical signaling, since the functions are operated by levers, the relationship that should exist between the functions can be transferred to exist between the levers. To ensure that the signal can be taken ‘OFF’ only after the point is correctly set, we can arrange

the interlocking between the signal lever and point lever to be such that the signal lever can be reversed only after the point lever is in the correct position, viz. 'Normal' or 'Reverse', as the case may be. As the size of yards & train movements increased, size of lever frames also increased. These lever frames not only increased in size occupying more space but also required intensive maintenance.

ii) *Electrical Interlocking:*

Electrical equipment of some kinds may be used even in the mechanical interlocking systems described above (e.g., electrical relays that operate slotting). However, the basic operation there remains mechanical in nature. In electrical interlocking, the fundamental mechanisms use electric control extensively. Electrical interlocking often goes hand in hand with power signaling, although there are or were installations with electrical interlocking provided for semaphore signals.

iii) *Panel Interlocking:*

With the advent of Electro-mechanical relays, lever frames gave way to relay interlocking based installations. This development resulted in relatively faster operation, failsafe operation and reduced size of buildings required for housing of interlocking installations. With further increase in traffic and expansion of railway network, panel Interlocking installations were commissioned.

iv) *Route Relay Interlocking:*

Route Relay interlocking is same as Panel Interlocking with Electro Mechanical Relays doing the Interlocking except that it can be employed for big yards. the interlocking is done between one route and another route. Another Important feature in terms of operating point of view is that the SM has to only press two buttons, Signal button & Route Button (entry-exit system). He doesn't have to individually operate the points to the required position.

v) *Solid State Interlocking (SSI):*

Computer based interlocking uses thousands of Electro-mechanical relays requiring complex wiring and Inter-connections. The wiring diagrams for such installations run into hundreds of sheets. Individual relays, wiring and interconnections along with thousands of shouldered joints are required to be physically examined and certified. This exercise requires traffic blocks of long durations and large manpower to manage the traffic during blocks.

1.7 The subject work study has been undertaken to review the strength of Cabinmaster, Cabinman & Leverman under the Operating department after modernization of Interlocking system from Lever mechanism to EI/PI/RRI system keeping in view the financial achievement.

CHAPTER-II

2.0 ***EXISTING SCENARIO & CRITICAL ANALYSIS:***

In the past days, the Mechanical Interlocking system was in vogue in Indian Railways which has already been discussed in the previous chapter. These Mechanical Interlocking systems were operated from End Cabins situated at both ends of the station.

The overall Incharge of the Cabin is Cabin Master who works with mutual co-ordination with Station Master. The other staff who works in Cabin under direct supervision of Cabin Master are Cabinman, Leverman and Pointsman. Presently, no cabin master is deployed where function of cabins has lost its utility due to introduction of route relay interlocking system. The existence of cabin master has been visible in the yards where PI/RRI has not been introduced till now.

2.1 All the Cabins of Sealdah division are under the overall control of Sr.DOM/SDAH and under direct control of concerned DOM & AOM. Each Cabin is functioning directly under Station Master.

2.2 The concept of Electrical Interlocking (EI), Panel Interlocking (PI) and Route Relay Interlocking (RRI) has already been introduced in different stations in Indian Railways since long back to extend smooth, better, safe and hazardless train movement. The said operational method based on modernized technology obviously control the movement the trains more effectively in comparison to previous system of working.

2.3 The existing infrastructure i.e. the organizational set up, present workload, work point and working system of Cabin Master, Cabinman & Leverman in Sealdah division under the control of Sr. DOM/SDAH is illustrated in paragraphs below.

2.4 There are altogether 108 cabin locations in Sealdah divisions. The list of Cabins with type of Interlocking system prevailing in it is tabulated as under:

S. No	***Stations***	***Type of Interlocking System***
1	Sealdah/South	(E.I)
2	Park Circus	(Block Cabin)(P.I.)
3	Ballygunge	(RRI)
4	Sonarpur	(P.I.)
5	Taldi	(E.I.)
6	Champahati	(P.I.)
7	GhutiariShariff	(E.I.)
8	Canning	(E.I.)
9	Baruipur	(End panel)(P.I.)
10	Dhapdhapi	(P.I.)
11	Gocharan	(P.I.)
12	DakshinBarasat	(P.I.)
13	JaynagarMajilpur	(E.I.)
14	Mathurapur Rd.	(E.I.)
15	Lakshmikantapur	(E.I.)
16	Nischindapur	(P.I.)

17	Kakdwip	(P.I.)
18	Namkhana	(P.I.)
19	Hotar	(P.I.)
20	Magrahat	(E.I.)
21	Deula	(E.I.)
22	Basuldanga	(E.I)
23	Diamond Harbour	(E.I.)
24	Mile-5/B (Block cabin)	(P.I.)
25	New Alipur	(P.I.)
26	Majherhat	(P.I.)
27	Brace Bridge	(P.I.)
28	Akra	(End Panel) (P.I.)
29	Nangi	(End panel) (P.I.)
30	Budge Budge	(E.I.)
31	PrincepGhat	(P.I.)
32	BBD Bag	(P.I.)
33	Bag Bazar	(P.I.)
34	Kolkata Terminal	(E.I.)
35	Chitpur /North panel	(Block cabin)(E.I.)
36	Sealdah/Main	(RRI)
37	Kankurgachi	(RRI)
38	Dum Dum Jn.	(RRI)
39	Belgharia	(P.I.)
40	Sodepur	(P.I.)
41	Titagarh	(P.I.)
42	Barrackpore	(P.I.)
43	Ichapur	(P.I.)
44	Shyamnagar	(P.I.)
45	Kankinara	(P.I.)
46	Naihati	(RRI)
47	Halisahar	(P.I.)
48	Kanchrapara	(P.I.)
49	Kalyani	(P.I.)
50	Madanpur	(P.I.)
51	Simurali	(P.I.)
52	Chakdaha	(P.I.)
53	Payradanga	(P.I.)
54	Ranaghat	(RRI)
55	Kalinarayanpur	(E.I)
56	Phulia	(E.I.)
57	Shantipur	(E.I.)
58	Aranghata	(P.I.)
59	Bagula	(P.I.)
60	Majdia	(P.I.)
61	Banpur	(P.I.)
62	Gede	(P.I.)

63	Birnagar	(P.I.)
64	Badkulla	(P.I.)
65	Krishnanagar	(E.I.)
66	Dhubulia	(E.I.)
67	Muragachha	(E.I)
68	Bethuadahri	(E.I)
69	Debagram	(E.I.)
70	Plassey	(E.I.)
71	Rejinagar	(E.I.)
72	Beldanga	(E.I.)
73	Sargachi	(HPL)
74	Berhampur Court	(HPL)
75	Cossimbazar	(E.I)
76	Murshidabad	(E.I)
77	Jiaganj	(E.I.)
78	Bhagwangola	(E.I.)
79	Krishnapur	(E.I.)
80	Lalgola	(E.I.)
81	Dum Dum Cantt.	(P.I.)
82	Birati	(P.I.)
83	Madhyamgram	(P.I.)
84	Barasat	(P.I.)
85	Bamangachi	(P.I.)
86	Duttapukur	(P.I.)
87	Bira	(P.I.)
88	Guma	(P.I.)
89	Ashoknagar	(P.I.)
90	Habra	(P.I.)
91	Machlandapur	(P.I.)
92	Gobardanga	(P.I.)
93	Thakurnagar	(P.I.)
94	Chandpara	(P.I.)
95	Bangaon	(E.I.)
96	Petrapole	--
97	Majhergram	(P.I.)
98	Sondalia	(P.I.)
99	Lebutala	(P.I.)
100	Harua Road	(E.I.Cabin)
101	Malatipur	(P.I.)
102	Champapukur	(E.I. Cabin)
103	Basirhat	(E.I. Cabin)
104	Madhyampur	(P.I.)
105	Hansnabad	Lever cabin / (P.I. is under process)
106	Bimanbandar	(P.I.)
107	Calcutta Goods	(Block Cabin)
108	Baranagar Rd.	(P.I.)

2.5 As per the terms and conditions of the subject work-study, the study team has assessed the existing workload of Cabin master; Cabinman & Leverman deployed in different Cabins and reviewed the requirement of above mentioned categories over Sealdah division. The Sanctioned strength and On-Roll position shown in annexure-I as on 01.04.2019 of Cabin master, Cabinman & Leverman provided by Sr.DPO/SDAH is tabulated as under:

Category of Staff	***Pay scale***	***Grade Pay***	***Sanctioned Strength***	***Men-On-Roll***	***Vacancy***
Cabin master	Rs. 5200-20200/- (Level-4)	Rs. 2400/-	64	26	38
Cabinman	Rs. 5200-20200/- (Level-4)	Rs. 2400/-	30	22	08
Leverman	Rs. 5200-20200/- (Level-2)	Rs. 1900/-	16	07	09
Total			***110***	***55***	***55***

2.6 The existing point-wise On-roll position shown in annexure II as on 23.05.2019 of Cabin Master, Cabinman and Leverman provided by Sr. DOM/SDAH is tabulated as under –

S. No.	***Station***	***Station Code***	***Present deployment of Cabin Master, Cabinman & Leverman in different stations under Operating Department over Sealdah Division***		
			Cabin Master	***Cabinman***	***Leverman***
1	Ichhapur	IP		02	
2	Sodpur	SEP			01
3	Halisahar	HLR			01
4	Belgharia	BLH			01
5	Nangi	NAI	03		
6	Titagarh	TGH	03	01	
7	Kankinara	KNR		02	
8	Shantipur	STB		01	
9	Barasat	BT	03	01	
10	Gobardanga	GBG		03	
11	Chandpara	CDP		01	
12	Baruipur Jn	BRP	02		
13	Basirhat	BSHT		01	
14	Hasanabad	HNB		03	
15	Kalyani	KYI	03	01	
16	Remodeling Unit	RMD			
17	Chitpur Yard	CYM/CP	01	01	
18	Kalinarynpur Jn	KLNP	02		
19	Akra	AKRA	04		
20	Sonarpur Jn	SPR	03		
TOTAL			***24***	***17***	***03***

2.7 The schedule of working of cabin man, Cabin master and Leverman is given below:-

2.7.1 The working of Cabinman is narrated below:

i) He must check all essential equipments made over by his relief and if any discrepancies are found report the same to the station master on duty.

ii) He must ensure that normal position of every fixed signal is 'ON' at all times except when taken off for a train and night back lights of signals are burning.

iii) Before permitting indoor ASM on duty under exchange of private numbers for ranting line clear for train to station in rear, he must ensure that conditions for granting line clear as laid down in rules are fulfilled.

iv) He must ensure that the reception or departure path is clear and free from obstruction, route is correctly set, facing points locked and level crossing are closed and locked against the rod traffic for reception/dispatch of trains.

v) He is responsible to ensure that the reception line is clear up to the adequate distance required under the rules before lowering signals or releasing a slot for the reception of a train.

vi) The cabin man will watch the safe passage of all trains leaving or arriving at the station. Should he notice any abnormality he shall inform the indoor ASM on duty at once.

vii) He shall not alert route under moving wheels.

viii) He will maintain register and will record all messages under exchange of private number with indoor ASM and gateman on duty to connection with train passing shunting closing of level crossing etc.

2.7.2 The activities catered by Cabin master is stated as under.

i) He shall be responsible for operation of block instrument and granting & asking line clear properly for receiving & dispatching of trains in case of defective track circuits. He will be responsible for checking of physical clearance from place of work of the concerned. He shall handle the control panel himself when on duty and shall not permit any unauthorized person to operate it.

ii) He shall maintain TSR and other connected record/documents in good shape & ensures that all entries are complete and are up to date.

iii) He shall keep SMs' control panel in his personal custody whenever he is require to leave his office even for short duration and also when danger from unauthorized person entering the cabin is apprehended.

iv) He shall attend the control phone & give arrival departure of trains promptly and shall carry out instruction given by superiors provided these do not violate safety rules & and procedures.

v) When on duty, he shall ensure that all points & signals are in good working order and all the registers, records, pertaining to train passage are completed in all respect before handling over the charge.

vi) He shall ensure that condition for taking off the reception signals are fulfilled & the clearance of the line under his jurisdiction is verified as per SWRs before actually pressing the relevant button for taking of the signals.

vii) He shall ensure from indications available in the control panel that the signals are burning brightly and are giving correct indications.

viii) He shall ensure that SR 5.19(vi) is complied with after reception of each train.

ix) He shall allow shunting in consultation with SM on duty between the arrival/departure of trains or during slack period as frequently as possible to maximum extent.

x) He shall come of duty after taking complete rest and shall not perform his duty under the influence of drugs or intoxicants.

xi) He shall keep his reference books up to date, posted with latest correction slips and shall keep himself fully conversant with the extant rules. He shall keep his books, readily available for inspection when asked to do so.

xii) He shall not absent himself from duty with out prior permission of his superiors. He shall not leave his duty unless properly relieved by his relief and shall not exchange his duty without prior permission from his superiors.

2.7.3 The activities catered by Leverman is stated as under.

i) Cleaning and maintaining the operational equipments provided at cabins.

ii) Operation of levers for setting of points, locks and opening/closing of barrier operated gates.

iii) Recording of messages/private numbers with entry in cabin log register for arrival/departure timings of trains.

iv) Exchanging private number through telephone with gateman/station master for movement of trains.

v) Exchanging all right signals and ensuring complete arrival of trains.

vi) Maintaining the charge diary for taking over/handing over of daily charge.

2.8 Aiming at the target of smooth, easy, safe and effective movement of train, the EI/PI/RRI system of working has been introduced phase-wise in all the stations except HNB station where PI is under process in Sealdah division. The function of cabins has lost its utility due to introduction of route relay interlocking system. The workload of Cabin master, Cabinman and Leverman in End cabins has become almost nil. As a result, posts of Cabin master, Cabinman & Leverman from the stations where EI/PI/RRI systems have been introduced, may be declared as surplus in phases. However, there are twenty (20) stations in Sealdah

division where the posts of Cabin master, Cabinman & Leverman still exist even after the introduction of panel interlocking systems.

2.9 It can be seen from the table of *Para 2.6,* that the 24 posts of Cabin master are presently deployed in 09 stations as against the sanctioned strength 64 posts lying vacant of 40 posts. Keeping the matter of point-wise/unit wise existing deployment of Cabin masters & its corresponding work load aside, the necessity of filling up of 40 vacant posts of Cabin masters have been scrutinized. After introduction of EI/PI & RRI system of working, there is no justification to retain 40 posts lying vacant since long which does not leave any scope to fill up. This would leave a scope of conducting a full fledged study in near future to assess the actual requirement of Cabin master against present MOR of 24 posts in 09 different locations over SDAH Division.

2.10 Through field observation and discussion with TI/Plg/SDAH, TI/HQ/SDAH and respective Station Masters it is learnt that the existing Cabin masters are mainly utilized to assist the Station Master in different cabins & stations due to shortage SM posts. Keeping the involvement Cabin master in 09 different stations/cabins, the necessity of existing deployment of Cabin master is justified as felt by study team even after the panel interlocking system. At this stage, the study team opines to declare 40 vacant posts of Cabin master as surplus and these posts are required to be surrendered as early as possible, consequent upon the implementation of the PI & RRI systems over Sealdah division.

2.10.1 **RECOMMENDATION:**

It is recommended by the Study Team that the existing vacancy of 40 posts of Cabin master may be surrendered immediately from the existing Sanctioned Strength of 64 posts of Cabin master under Operating Department over Sealdah division.

2.11 It is revealed that the operational time for setting points as well as giving signals for safe running of trains by means of panel interlocking system of working has become easy due to single point operation of both signals and points by operating switches of the panel board as per requirement. Earlier, Points and Crossing had been operated from cabins by the help of lever mechanism and it is operated by leverman & Chainman before movement of trains on railway truck. The present system of working based on PI type of operation would not leave any scope of continuing the previous process of lever frame operation which justifies the withdrawal of cabinman and Leverman from cabins. In view of above, the study team does not feel any necessity to retain the posts of cabin man & Leverman as there is little scope of utilization of cabin man and Leverman in SDAH division, while PI system has already been introduced all the stations except HNB station in SDAH division. Five (5) cabinman including LR & RG is required to be provided at HNB station as felt by the study team. Thus, the existing posts (i.e. the present MOR) of cabinman and Leverman may be redeployed somewhere else as per needs of the operating department.

2.12 Based on the analysis made in the para 2.11, the proposed on roll strength i.e. revised sanctioned strength of Cabinman and Leverman under operating department over SDAH division will be 05 in total due to introduction of panel interlocking system. Hence the revised sanctioned strength as against the existing sanctioned strength has assessed to 05 rendering surrender of 41 posts which is tabulated as under.

Category	**Existing Sanctioned Strength**	**Existing MOR**	**Vac**	**Proposed MOR i.e. Revised S/S**	**Recommended Surplus**	**Remarks**
Cabinman	30	17	13	05	25	As HNB station still has Lever cabin & PI system is under process.
Leverman	16	03	13	-	16	-
TOTAL	**46**	**20**	**26**	**05**	**41**	**-**

RECOMMENDATION:

It is recommended that the actual requirement of Cabinman and Leverman under operating department over SDAH division is assessed to 05 posts as against a total sanctioned strength of 46 posts thus rendering surplus of (46-05)=41 posts.

CHAPTER-III

3.0 ***FINANCIAL APPRAISAL***:

3.1 According to recommendation made in Para 2.10.1 & 2.12, the financial savings achieved on account of surrender of total 81 posts comprising the category of 40 posts of Cabin Master, 25 posts of cabinman and 16 posts of Leverman under Operating department over SDAH division is calculated based on lower scale as under:

Category	No. of posts	Scale of Pay	Mean pay	DA @ 12%	Monthly	Yearly
		Figures in Rs.				
Cabin Master, Cabinman & Leverman	81	Rs.19900-63200/- (Level-2)	41550	4986	46536	4,52,32,992/-

Thus, consequent upon implementation of recommendations the annual savings would be Rs.4,52,32,992/-.