

# **EASTERN RAILWAY**

## **WORK STUDY REPORT**

**ON**

**Review of Workload vis-a-vis staff Strength of “Tool & Template Shop,”  
under CWM / Kanchrapara Workshop**

**(STUDY NO. WSER-18/19-20)**

*(Study Report Submitted on 05/02/2020)*

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**BY**

**GM'S EFFICIENCY CELL**

**EASTERN RAILWAY**

**KOLKATA**

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## **ACKNOWLEDGEMENT**

The Work-study team express its sincere gratitude to CWM/KPA/ER for his co-operation, Dy.CME/G/KPA/ER, WPO/KPA/ER for their valuable suggestions and guidance in steering the work-study and framing the report towards a distinct direction.

The study team is also thankful to Sr. SEs of Shop (TTS), Sr.SEs/ Planning / Loco and other associated SSEs of TTS Shop for active co-operation, furnishing relevant data, facts & figures pertaining to Workload vis-a-vis Manpower of Shop (TTS). In this way, the relevant personnel extended their assistance to conduct the Work Study & formulate the study report.

## **TERMS OF REFERENCE**

- i) To assess the quantum of Workload of Tools& Template Shop /Loco /Kanchrapara.
- ii) To examine the particulars of staff deployment at Tools& Template Shop /Loco /Kanchrapara, to cater the associated workload.

### **SUMMARY OF RECOMMENDATION**

<b>Sl. No.</b>	<b>Recommendation</b>	<b>Para ref.</b>
<b>1</b>	<i>The study team <b>recommended</b> that '<b>51 Posts</b>' of Tools and Template <b>Shop</b> / Kanchrapara Workshop to be declared as '<b>Surplus Posts</b>' and <b>Surrendered</b> right away from the respective Book of sanction.</i>	<b>2.42.0</b>

### **EXECUTIVE SUMMARY**

Study Name & No.	<p>“Review of Workload vis-a-vis staff Strength of Tool &amp; Template Shop,” under CWM / Kanchrapara Workshop.</p> <p>(Study No. <b>WSER-18/19-20</b>)</p>
Year of conducting the study	<b>2019-20</b>
Terms of reference:	<ol style="list-style-type: none"> <li>1. To assess the quantum of Workload of Tools &amp; Template Shop /Loco /Kanchrapara.</li> <li>2. To examine the particulars of staff deployment in Tools&amp; Template Shop / Loco / Kanchrapara, to cater the associated workload.</li> </ol>
Methodology:	<ol style="list-style-type: none"> <li>1. Collection of relevant data / documents pertaining to Sanctioned Staff Strength, Men-On-Roll (MOR), Output as well as workload in Tools &amp; Template Shop / Loco / Kanchrapara.</li> <li>2. Comprehensive Discussion with Dy.CME/G/KPA/ER, along with other relevant personnel in connection with Staff matters &amp; existing work practice, etc. of Tools &amp; Template Shop / Loco / Kanchrapara.</li> <li>3. Critical analysis of available facts, figures &amp; data, pertaining to Workload of Tools &amp; Template Shop / Loco / Kanchrapara vis-à-vis Staff deployment thereon.</li> </ol>
Existing Sanc. strength	154
Existing Men on Roll	63
Vacant post	91
Proposed requirement of Manpower	103

Proposed Surrender	51
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## **CHAPTER-I**

### **1.0.0. INTRODUCTION:**

**1.1.0.** On 1862, the Sealdaha - Kusthia Broad Gauge Railway Line, on 1863, one locomotive workshop having area 1,32,000 m<sup>2</sup> and a Railway Station on the northernmost tip of Bizpur Mouza of erstwhile 24-Paragana District, were taken place by the then Assam Bengal Railway (later Bengal Assam Railway). Subsequently, Eastern Bengal Railway Company acquired the above Railway company and founded a combined Locomotive and C&W (Carriage & Wagon) Shops.

**1.2.0.** On 1st July, 1884, during the period of East India Company, management was taken over by the State itself.

On October 12 of 1914, C&W Shops were shifted to the present site and started functioning separately as an independent unit. The workshop has the distinction of serving the defence department for repairs of Air craft and manufacture of armoured cars and grenade shells during World War II.

The second 5-year plan brought about drastic changes with diesel and electric traction. Electrification on the Railway system in the eastern region necessitated major repair and overhaul facilities for Electric Loco, EMU Rolling Stock from early 60's. Kanchrapara Workshop was selected to take part the key role in these spheres. In 1962, a decision was taken for re-modelling Kanchrapara Workshop in order to make it a base workshop for Electric Locos, Electrical Multiple Unit (EMU) stock of Eastern and South Eastern Railways.

**1.3.0.** Indian Railway is the largest public sector undertaking of Govt. of India with staff strength of about 11.53 lakhs employees. The Railways in India are not only a mere transport agency, but also have deep social obligations to serve efficiently and fully the increasing needs of the countrymen.

**1.4.0.** Indian Railways is facing the financial burden of 7th Pay Commission implementation. The 'Operating Ratio' of Indian Railway is gradually in increasing trend. Though Indian Railway is not a profit seeking business organization but to survive, it is essential to make the organization in profit mode i.e. The 'Operating Ratio' should be less than 100.00.

The Performance Efficiency Index is shown in the Corporate Plan booklet published by Eastern Railway. The numerical figures of "Operating Ratios" from the F.Y. 2016-17 to F.Y. 2019-20 are tabulated below –

<b>Sl. No.</b>	<b>Financial Year</b>	<b>Operating Ratios</b>
1.	2016-17	165.25%
2.	2017-18	181.15%
3.	2018-19	185.98%
4.	2019-20	159.65% (Proposed)

- 1.1.0.** In view of the above, Rly Board issued nos. of circulars, orders, etc. to minimize Expenses and increase Earnings. The Zonal Railways also implement various measures for imposing financial discipline.
- 1.2.0.** At this juncture, the role of Railway Efficiency & Research Directorate is also very important in connection with 'Benchmarking', 'Rationalizing of Man-Power', etc. without hampering normal progress and activities in Indian Railway.
- 1.3.0.** The subject work-study has been undertaken by GM's Efficiency Cell/E. Rly. to improve the productivity index of the Railway. As per terms of reference, the study team has thoroughly observed the activities of Tools & Template Shop No. 7 of Kanchrapara Railway Workshop and critically analyzed the involvement of staff in different activities to ascertain their optimum utilization and thus to find out the need based requirement of work force.

## **CHAPTER-II**

### **2.0.0.     EXISTING SCENARIO& CRITICAL ANALYSIS :**

**2.1.0.**     The Tools & Template Shop / Loco / Kanchrapara Workshop has four under-mentioned functional areas, viz.-

1. Machine Sections / Tools & Template Shop,
2. Fitting Sections / Tools & Template Shop,
3. Sub-Store / Tools & Template Shop,
4. Office of Sr. Section Engineer / Tools & Template Shop.

Based on the functional aspects, the Machine Section&Fitting Section are further sub-divided, which are elaborated below -

**2.1.1.**     The 'Machine Sections' perform different kinds of machine operations i.e. Turning, Shaping, Milling (to machine teeth of Gears & Pinions, Keyways on Shaft, etc.), Grinding (for sharpening of cutting tools, etc.).

The Machine Section / Tools & Template Shop is a set of under mentioned associated sections which are appended below -

- (A) Lathe & Tip Tool Section i.e. Light Lathe Machine Section(307/03).
- (B) Gauge Turning Section i.e. Machine Section for Gauge Turning (307/04).
- (C) Shaping & Milling Section i.e. Shaping & Milling Machine Section (307/05).
- (D) Tool Grinding Section i.e. Grinding Machine Section (307/06).

**2.1.2.**     The 'Fitting Sections' are involved in POH / Reconditioning jobs i.e. Repair & Maintenance of Various Pneumatically operated Drill Machines, Grinding Machines, POH of Shock absorber, Recondition of Installation Lever, etc.

The Fitting Section / Tools & Template Shop is a set of under mentioned associated sections which are appended below -

- (A) Pneumatic Tools Repair Section i.e. Pneumatic Section (307/01).
- (B) Shock Absorber Section Re-conditioning Section (307/02).
- (C) Gauge & Template Section (307/08).
- (D) Small Tools Section (307/09).
- (E) Mill Wright Section i.e. Machine Maintenance Section (307/10).

**2.2.0.** The activities and other particulars of Tools & Template Shop No. 7/ Loco / Kanchrapara Workshop is tabulated below -

SL. No.	Sub-Section (With Code)	Activities of Sub-Section	Remarks
1.	PNEUMATIC SECTION (307/01)	Repair & Maintenance of Various Pneumatically operated Drill Machines, Grinding Machines, etc.	Pneumatically operated machines are maintained by Pneumatic Section.
2.	SHOCK ABSORBER RECONDITIONING SECTION (307/02)	<u>POH of 'Shock Absorbers':</u> The 'Shock Absorbers' are fitted in 'Bogies having Coil Spring' (600 Kg. & 900 Kg. Shock Absorbers respectively) and 'Bogies having Air Spring' (300 Kg. Vertical & 200 Kg. Lateral Shock Absorbers respectively).	<u><b>Type of Shock Absorber undergone POH</b></u>  600 Kg. Shock Absorber 900 Kg. Shock Absorber 300 Kg. Vertical Shock Absorber 200 Kg. Lateral Shock Absorber
3.	LATHE & TIP TOOL SECTION (307/03)	Manufacturing of Gear Blank, Turning of different kinds of shafts, etc. needed while attending Breakdown Maintenance of machineries & cranes.	-----
4.	GAUGE TURNING SECTION (307/04)		-----
5.	SHAPING & MILLING MACHINE SECTION (307/05)	Manufacturing of Gear, Shaft Key-way machining, associated machining of spares needed for Plant & Machineries maintenance job.	-----
6.	TOOL GRINDING SECTION (307/06)	Grinding Operation on different kinds of Cutting Tools, viz. Saw Cutter, Gear Cutter, etc.	-----
7.	GAUGE & TEMPLATE SECTION (307/08)	Manufacturing of Drilling Jigs & Fixture, Re-conditioning of Installation lever, required in Air-Spring Suspension Bogie	-----
8.	SMALL TOOLS SECTION (307/09)	Periodic Overhauling (POH) of Levelling Valve and Duplex Check Valve, components of Air Spring Suspension unit of Bogies.	<u><b>Items undergone POH</b></u>  Levelling Valve Duplex Check Valve
9.	MILL WRIGHT SECTION (307/10)	Maintenance of Machines of Shop Nos. 7, 2, 9 & 14 /Loco /Kanchrapara Workshop.	<u><b>Nos. of Machines under Departmental Maintenance Proposal : 64 Nos.</b></u>
10.	STORE SECTION	Receive & Issue of different Stock, Non - Stock Items, Disposal of Scrap Items. Issue of Measuring Instruments, Cutting Tools to Shop No. 2, 7, etc.	Ministerial Staff are Deputed to cater the Work
11.	Office of Sr. SE / TTS/Shop No. 7	Various official work i.e. issue of Pass/PTO, maintaining of Leave Records and Establishment matter, Office correspondence, etc. of TTS Shop.	

- 2.3.0.** The present section-wise deployment of departmental staff during November, 2019 in Tools & Template Shop (TTS) Shop No.7 / Loco / Kanchrapara, is tabulated below -

SL No.	Month	Section/Sub-Section of Shop No. 7 (TTS)	Nos. of Artisan Staff, Helpers, etc.
1	November-2019	PNEUMATIC SECTION (307/01)	01
2		SHOCK ABSORBER RECONDITIONING SECTION (307/02)	19
3		LATHE & TIP TOOL SECTION(307/03)	01
4		GAUGE TURNING SECTION(307/04)	01
5		SHAPING & MILLING MACHINE SECTION (307/05)	03
6		TOOL GRINDING SECTION (307/06)	01
7		GAUGE & TEMPLATE SECTION (307/08)	02
8		SMALL TOOLS SECTION(307/09)	05
9		MACHINE MAINTENANCE SECTION (307/10)	10
Total nos. of Artisan Staff & Helper in Shop-7 (TTS) →			43
10		STORE SECTION	00
11		OOFFICE OF SR. SSE / TT SHOP NO. 7	03
Grand Total of Artisan, Helper & Ministerial Staff working at Shop-7 (TTS)			46

- 2.4.0.** As per the Monthly Staff position of November, 2019 in Tools & Template Shop / Loco / Kanchrapara, it is learnt that 09(Nine) nos. Artisan Staff of TTS/Shop are working in other shops. Category-wise & Shop –wise break-up of those 09(Nine) nos. Artisan Staff is tabulated below –

Category → Shop nos. ↓↓	Sr. Tech.	Tech. I	Tech. II	TOTAL
Shop No. 1/KPA	04	01	NIL	05
Shop No. 10/KPA	NIL	02	NIL	02
Shop No. 26/KPA	NIL	NIL	02	02
<b>Grand Total →</b>	<b>04</b>	<b>03</b>	<b>02</b>	<b>09</b>

- 2.5.0.** The present Staff position of Mechanical Fitter, Machinist, Rigger- Cum-Gunner, Ministerial Staff in Tools & Template Shop (Shop No.7) vide WPO/ER/KPA's office letter nos. PB/Misc/OS(P)/Pt. IV, dated 03.10.19& 04.10.19 (Annexure 1 & 2 respectively) is tabulated below -

Shop	Trade /Category	Grade	Sanc. Strength	Men-On-Roll (MOR)	Vacancy	Reference			
Tools & Template Shop (Shop No.7)	Mechanical Fitter	Sr. Tech.	20	20	0	WPO/ER/KPA's office letter no. PB/Misc/OS(P)/Pt. IV, dated 03-10-2019.			
		Tech-I	39	11	28				
		Tech-II	06	04	02				
		Tech-III	08	01	07				
	Machinist	Sr. Tech.	14	13	01		WPO/ER/KPA's office letter no. PB/Misc/OS(P)/Pt. IV, dated 03-10-2019.		
		Tech-I	28	07	21				
		Tech-II	05	01	04				
		Tech-III	03	02	01				
	Rigger cum Gunner	Sr. Tech.	0	0	0			WPO/ER/KPA's office letter no. PB/Misc/OS(P)/Pt. IV, dated 03-10-2019.	
		Tech-I	01	0	01				
		Tech-II	0	0	0				
		Tech-III	0	0	0				
		Helper	20	01	19				
	TOTAL→		144	60	84				WPO/ER/KPA's office letter no. PB/Misc/OS(P)/Pt. IV, dated 03-10-2019.
	Ministerial Category	Ch. OS	01	0	01	WPO/ER/KPA's office letter no. PB/Misc/OS(P)/Pt. IV, dated 04-11-19.			
		OS	06	03	03				
		Sr. Clerk	02	0	02				
		Clerk-II	01	0	01				
	TOTAL→		10	03	07		WPO/ER/KPA's office letter no. PB/Misc/OS(P)/Pt. IV, dated 04-11-19.		
GRAND TOTAL→		154	63	91	WPO/ER/KPA's office letter no. PB/Misc/OS(P)/Pt. IV, dated 04-11-19.				

- 2.6.0.** The section-wise monthly output of Tools & Template Shop No. 7 are summarized in Out-Turn Statement (OTS) and produced to Sr.SE/Inspection Wing of Loco Production Control Organisation (PCO) by Sr.SE / Tools& Template Shop. Sr.SE/Inspection Wing after carrying out thorough item-wise inspection/verification of the offered Job(both quality & quantity-wise), passed/failed the same and endorsed the submitted OTS accordingly.
- 2.7.0.** In the next stage, all the duly passed OTSs are submitted to Rate-fixer / Planning Section to allocate activity-wise 'Allowed Time' based on pre-fixed individual Time study in Man-Hrs. and finally evaluate section-wise 'Allowed Time'.
- 2.8.0.** Work Study team has gone through the TTS / Shop no. 7 associated data pertaining to Incentive Booking, monthly Working Hrs., Sectional Time Taken (T/T) and Allowed Time (A/T) in Man-Hrs., etc. for a period of 40 consecutive months (F.Y. 2016-17, 2017-18, 2018-19 and 2019-20 upto September, 2019).Particulars in this regard were furnished by SSE/Planning/Loco. Study team gone through, collected extract and analysed the same to compose a understandable picture of Workload vis-a-vis deployed man power of TTS/Shop.

**2.9.0.** To understand the deployment trend of section-wise man-power and respective workload during 3 and ½ years time, the maximum monthly output of 9 sections each, in every 12 months block period are taken into consideration separately.

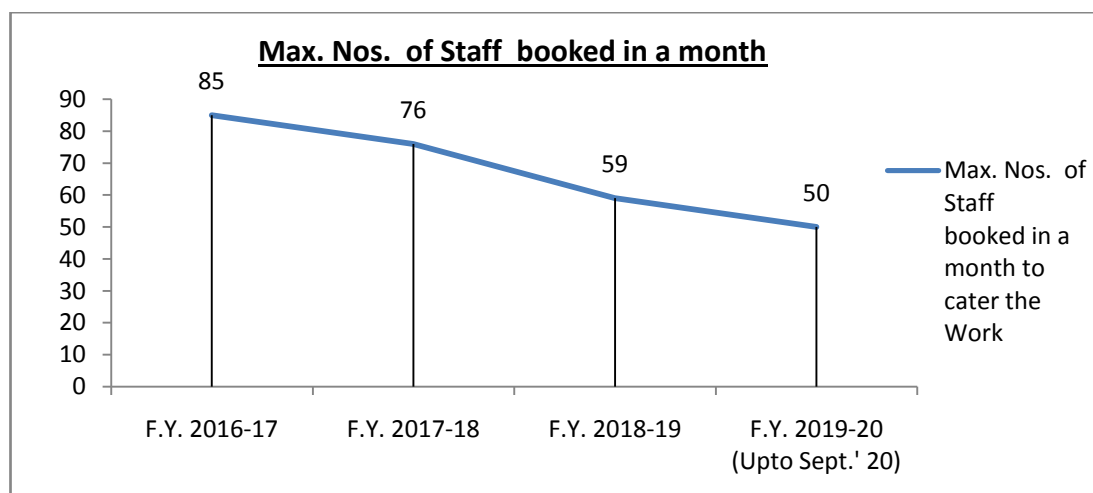
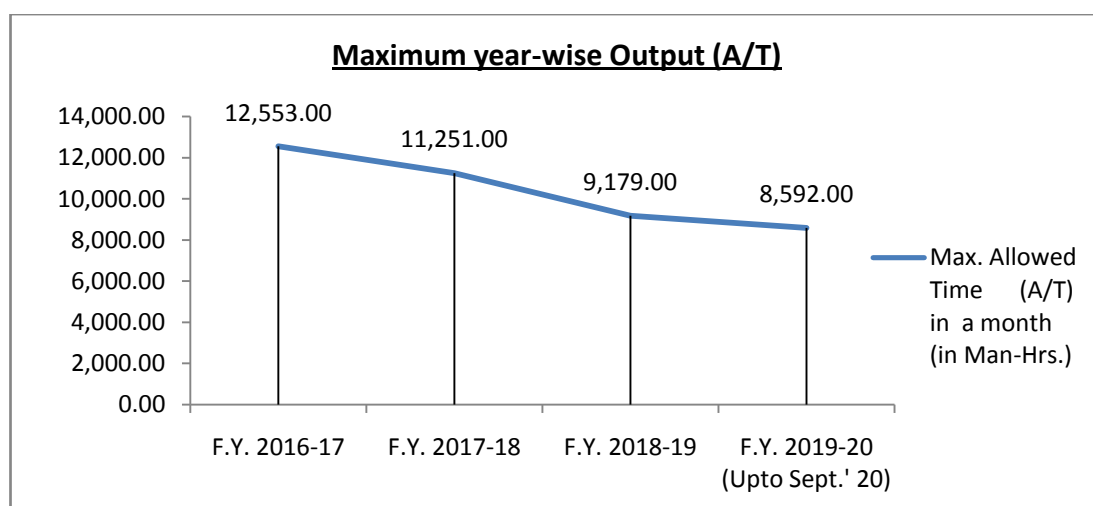
The output of sections is measured in terms of 'Allowed Time (A/T)' (In Man-Hrs). The available facts & figures as per the office records of SSE/Planning/Loco are tabulated below -

Year →	F.Y. 2016-17		F.Y. 2017-18		F.Y. 2018-19		F.Y. 2019-20 (Upto Sept.' 20)	
Sections ↓	Max. Allowed Time (A/T) in a month (in Man-Hrs.)	Max. Nos. of Staff booked in a month to cater the Work	Max. Allowed Time (A/T) in a month (in Man-Hrs.)	Max. Nos. Of Staff booked in a month to cater the Work	Max. Allowed Time (A/T) in a month (in Man-Hrs.)	Max. Nos. of Staff booked in a month to cater the Work	Max. Allowed Time (A/T) in a month (in Man-Hrs.)	Max. Nos. of Staff booked in a month to cater the Work
Pneu.-Tools Rep. (307/01)	273.00	1	263.00	1	-	0	-	0
Shock Absorber/ Re-Conditioning (307/02)	4,634.00	24	5,871.00	24	5,529.00	26	5,182.00	25
Lathe & Tip Tool (307/03)	743.00	3	505.00	2	297.00	2	247.00	1
Gauge Turning (307/04)	780.00	3	474.00	2	294.00	1	279.00	1
Shaping & Milling (307/05)	1,703.00	7	1,202.00	6	955.00	5	763.00	3
Tool Grinding (307/06)	1,307.00	5	746.00	3	524.00	2	532.00	1
Gauge & Template (307/08)	1,619.00	8	990.00	5	521.00	2	505.00	2
Small Tools (307/09)	1,494.00	8	1,200.00	7	1,059.00	5	1,084.00	5
Mill -Wright (307/10)	-	26	-	26	-	16	-	12
<b>Total →</b>	<b>12,553.00</b>	<b>85</b>	<b>11,251.00</b>	<b>76</b>	<b>9,179.00</b>	<b>59</b>	<b>8,592.00</b>	<b>50</b>

As for example, in Re-Conditioning Section (307/02), 4634.00 Man-Hrs. is the best monthly output among the 12 month-wise output of F.Y. 2016-17. Similarly, to cater the sectional workload, during the same period (i.e. F.Y. 2016-17), maximum 24 nos. departmental staff were booked in a month among 12 month-wise staff booking. Same procedure was followed in F.Y. 2017-18, 2018-19 & 2019-20 (Upto September' 2019) for all the sections of TTS/Shop No. 7. In this way, the above table was formed for 9 sections of TTS/Shop No.7 with maximum month-wise output vis-a-vis maximum month-wise staff deployment to cater sectional work. The figures are thus obtained may be considered as the maximum possible section-wise out-turn and out-turn of TTS/Shop No. 7 as a whole.

**2.10.0.** As described in the previous table, Year-wise best output of each section vis-a-vis man power deployment thereof, is shown. In this manner, year-wise maximum achievable monthly out-put of each section and TTS/Shop as a whole, is evaluated and re-produced below :

Year →	F.Y. 2016-17		F.Y. 2017-18		F.Y. 2018-19		F.Y. 2019-20 (Upto Sept.' 20)	
Tool & Template Shop	Max. Allowed Time (A/T) in a month (in Man-Hrs.)	Max. Nos. of Staff booked in a month to cater the Work	Max. Allowed Time (A/T) in a month (in Man-Hrs.)	Max. Nos. of Staff booked in a month to cater the Work	Max. Allowed Time (A/T) in a month (in Man-Hrs.)	Max. Nos. of Staff booked in a month to cater the Work	Max. Allowed Time (A/T) in a month (in Man-Hrs.)	Max. Nos. of Staff booked in a month to cater the Work
<b>Total →</b>	<b>12,553.00</b>	<b>85</b>	<b>11,251.00</b>	<b>76</b>	<b>9,179.00</b>	<b>59</b>	<b>8,592.00</b>	<b>50</b>



**2.11.0.** Besides the above out-turn particulars of Tools & Turning Shop No.7, Study team also explored the production related data as available at TTS shop end. The data, obtained so, is stated below -

**2.12.0. Pneumatic Tools Rep. (307/01) was assigned the jobs as follows -**

- i) Wheel change of Pneumatic machines.  
Planned Work Load : 30 units per month.
- ii) Maintenance & Repair of Pneumatic machines.  
Planned Work Load : 15 units per month.

Study team noted from the office records of both SSE/TTS/Shop No. 7 & SSE/Planning/Loco that no Job was taken over by Pneumatic Tools Rep. section and therefore, no incumbents are booked therein since 01/11/2017. However, to meet any exigency, 01 incumbent is kept in hand.

**2.13.0. Shock Absorber Reconditioning Section (307/02): Outturn Summary from Nov. 2018 to Nov. 2019**

Description	Nov'18	Dec'18	Jan'19	Feb'19	Mar'19	Apr'19	May'19	Jun'19	Jul'19	Aug'19	Sep'19	Oct'19	Nov'19	Monthly Avg. Qty.	Unit A/T	Monthly Avg. A/T
	(In Nos.)														(in Man-Hrs.)	
Shock Absorber 200kg	138	148	142	148	158	56	72	66	58	66	68	80	66	97.385	10.28	1001.11
Shock Absorber 300kg	58	48	56	58	56	118	96	92	80	90	146	48	56	77.077		792.35
Shock Absorber 600kg	278	268	282	278	286	325	229	248	248	269	258	268	248	268.077		2755.83
Shock Absorber 600kg	64	74	66	56	52	24	38	38	32	32	31	94	48	49.923		513.21
<b>Total →</b>	<b>538</b>	<b>538</b>	<b>546</b>	<b>540</b>	<b>552</b>	<b>523</b>	<b>435</b>	<b>444</b>	<b>418</b>	<b>457</b>	<b>503</b>	<b>490</b>	<b>418</b>	<b>492.462</b>		<b>5062.50</b>

**2.14.0. Lathe & Tip Tool Section (307/03): Job completed from Aug.'19 to Nov.'19.**

JOB PARTICULARS	QTY.	Unit A/T	Total A/T	Monthly Avg. A/T
		(in Man-Hrs.)		
Socket for ICF bogie	40 nos	10.07	402.67	100.67
Enlarging of bush for bogie	10 nos	3.07	30.67	7.67
Side lower bolt	40 nos	5.07	202.67	50.67
Monthly Average out-turn of Lathe & Tip Tool section (307/03) during Aug.2019 to Nov.2019.				<b>159.00</b>

**2.15.0. Gauge Turning Section (307/04): Job completed from Aug.'19 to Nov.'19**

JOB PARTICULARS	QTY.	Unit A/T	Total A/T	Monthly Avg. A/T
		(in Man-Hrs.)		
Pinion shaft (overhead crane)	08 nos	25.13	201.07	50.27
Long shaft (-do-)	04 nos	30.13	120.53	30.13
Gear blank	08 nos	20.13	161.07	40.27
Worm wheel blank	06 nos	10.13	60.80	15.20
Axle box putter (threaded shaft)	04 nos	25.13	100.53	25.13
-do- (Nut)	04 nos	16.13	64.53	16.13
Crane wheel (for overhead crane)	12 nos	25.13	301.60	75.40
Monthly Average out-turn of Turning section (307/04) during Aug.19 to Nov.'19.				<b>252.53</b>

**2.16.0. Shaping & Milling Section (307/05): Job completed from Aug.'19 to Nov.'19**

JOB PARTICULARS	QTY.	Unit A/T	Total A/T	Monthly Avg. A/T
		(in Man-Hrs.)		
Cutting of welding piece	276 nos.	4.13	1140.80	285.20
Axle Box puller frame	06 nos.	30.00	180.00	45.00
Pinion	08 nos.	40.00	320.00	80.00
Keyway for pinion, Shaft	26 nos.	6.00	156.00	39.00
Worm wheel	06 nos.	7.00	42.00	10.50
Spur gear	08 nos.	40.00	320.00	80.00
Spring plate for Loco	48 nos.	12.00	576.00	144.00
Lock for Horn	200 nos.	3.13	626.67	156.67
Bevelling of Test pieces	250 nos.	4.00	1000.00	250.00
Monthly Average out-turn of Shaping & Milling section (307/05) during Aug. 2019 to Nov. 2019.				<b>1090.37</b>

**2.17.0. Tool Grinding Section (307/06): Job completed from Aug.'19 to Nov.'19**

JOB PARTICULARS (Sharpening of Tools after metal cutting)	QTY.	Unit A/T	Total A/T	Monthly Avg. A/T
		(in Man-Hrs.)		
Grinding of Drill	360 nos	1.50	540.00	135.00
Grinding of Tap	40 nos	4.75	190.00	47.50
Grinding of Gear Cutter, Saw Cutter	40 nos	15.00	600.00	150.00
Monthly Average out-turn of Tools Grinding section (307/06) during Aug.19 to Nov.'19.				<b>332.50</b>

**2.18.0. Gauge & Template Section (307/08): Outturn Summary from Nov.'18 to Nov.'19**

Description	Nov'18	Dec'18	Jan'19	Feb'19	Mar'19	Apr'19	May'19	Jun'19	Jul'19	Aug'19	Sep'19	Oct'19	Nov'19	Monthly Avg. Qty.	Unit A/T	Monthly Avg. A/T
	(In Nos.)														(in Man-Hrs.)	
Installation lever	32	42	46	42	48	42	46	42	50	44	108	55	30	48.230	3.5	168.805
Monthly Average out-turn of Gauge & Template section (307/08) from Nov.18 to Nov.'19.																

**2.19.0. Small Tools Section (307/09) Outturn Summary from Nov.'18 to Nov.'19**

Description	Nov'18	Dec'18	Jan'19	Feb'19	Mar'19	Apr'19	May'19	Jun'19	Jul'19	Aug'19	Sep'19	Oct'19	Nov'19	Monthly Avg. Qty.	Unit A/T	Monthly Avg. A/T
	(In Nos.)														(in Man-Hrs.)	
Levelling Valve	207	146	156	146	152	154	175	84	158	110	186	148	165	152.85	5.066	774.338
Duplex Valve	23	51	48	56	62	23	-	34	45	15	106	55	40	42.93	3.00	128.79
Monthly Average out-turn of Small Tools section (307/09) from Nov.18 to Nov.'19.															<b>903.128</b>	

**2.20.0. Mill Wright Section (307/10) :**

The Mill Wright Section of Shop No.7 is utilised for Mechanical Maintenance of M&Ps (except EOT Crane) functioning in Shop Nos. 2, 7, 9 & 14 / Loco / Kanchrapara Workshop.

There are total 64 nos. of M&Ps which are under departmental maintenance proposal.

No direct out –turn is available from this section as machine maintenance work is not a job of direct out – put in nature.

#### **2.21.0. Office & Sub-Store of SSE/TTS :**

The Office & Sub-Store associated work of TTS Shop is catered by Ministerial Staff under SSE/TTS Shop. Particulars of their workload, etc. are stated below :

##### **Workload for Ministerial Staff**

##### **A) Establishment Work:**

- 1) Daily record of Physical attendance of artisan staff and sent to time office/ Loco.
- 2) Regular updating of leave position in the leave register for associated staff.
- 3) Issue of Pass, PTO, MCTO, etc. of TTS Shop staff.
- 4) Record of Leave particulars (LAP, LHAP & CL) of staff and sent necessary Leave statement to WPO/KPA, STK/Loco twice in every month.
- 5) Official correspondence regarding Training of staffs, ORS duty, Railway Quarters, etc. pertaining the staff of TTS Shop.
- 6) Preparation of monthly statement regarding unauthorised absent, staff strength (both Trade wise & Categorise) and sent the same to Dy.CME(G)/KPA & PE/KPA every month.
- 7) Official Correspondence regarding DA cases, promotion cases, transfer cases are carried out by the office of TTS Shop.
- 8) Up-keeping all the necessary records related to Medical identity card, Identity card for all the staff of TTS Shop.

##### **B) Sub-Store Related work:**

- 1) Processing of Stock requisition for 92 stock items every month for procurement of the same from HLR & KPA Store depot.
- 2) More or less 2nos.Non- Stock requisitions are initiated every month by shop no.7.
- 3) Approval / Technical Recommendation of stock or non-stock items for its procurement by HLR & KPA Store Depot.
- 4) More than 50 types of Cutting Tools item are issued and received every month regularly. (e.g. – Drill, Tap, Cutters are issue daily)
- 5) Issue & Receipt Records of total 92 stock items and 2000 (approx.) non-stock, items are maintained in the sub-store of TTS Shop.
- 6) Various measuring instruments (like Micrometers, Vernier Calliper, and various Gauges etc. are issued and return daily.
- 7) Up-keeping measuring instruments Calibration Records of nearly 400 items in TTS Shop.

**2.22.0.** Study team, vide para 2.9.0., tabulated data pertaining to section-wise maximum Out-turn (A/T) vis-a-vis deputed man power as available in the office record of SSE/Planning/Loco.

Later on, vide para nos. 2.12.0. to 2.21.0., available data in TTS Shop related to Work load catered by Shop vis-a-vis deputed manpower is tabulated.

The facts and figures thus available, are summarised and re-produced below:

Year →	F.Y. 2016-17	F.Y. 2017-18	F.Y. 2018-19	F.Y. 2019-20 (Upto Sept.' 20)	During recent past one year					
Sections ↓	Data, as available from SSE/Planning/Loco								Data, as available from SSE/TTS/Shop No.7	
	Max. Allowed Time (A/T) in a month (in Man-Hrs.)	Max. Nos. of Staff booked in a month to cater the Work	Max. Allowed Time (A/T) in a month (in Man-Hrs.)	Max. Nos. of Staff booked in a month to cater the Work	Max. Allowed Time (A/T) in a month (in Man-Hrs.)	Max. Nos. of Staff booked in a month to cater the Work	Max. Allowed Time (A/T) in a month (in Man-Hrs.)	Max. Nos. of Staff booked in a month to cater the Work	Avg. Out-turn (A/T) in man-Hrs.	Man-Power deputed
Pneu.-Tools Rep. (307/01)	273.00	1	263.00	1	-	0	-	0	0	01
Re- Conditioning (307/02)	4,634.00	24	5,871.00	24	5,529.00	26	5,182.00	25	5,062.50	19
Lathe & Tip Tool (307/03)	743.00	3	505.00	2	297.00	2	247.00	1	159.00	01
Gauge Turning (307/04)	780.00	3	474.00	2	294.00	1	279.00	1	252.53	01
Shaping & Milling (307/05)	1,703.00	7	1,202.00	6	955.00	5	763.00	3	1090.37	03
Tool Grinding (307/06)	1,307.00	5	746.00	3	524.00	2	532.00	1	332.50	01
Gauge & Template (307/08)	1,619.00	8	990.00	5	521.00	2	505.00	2	168.805	02
Small Tools (307/09)	1,494.00	8	1,200.00	7	1,059.00	5	1,084.00	5	903.128	05
Mill -Wright (307/10)	-	26	-	26	-	16	-	12	0	10
Total →	12,553.00	85	11,251.00	76	9,179.00	59	8,592.00	50	7,968.83	43

**2.23.0.** The above table shows that the figures pertaining to section-wise & month-wise maximum workload (A/T) and average workload (A/T) during last one year period are more or less tallied with each other. Minor difference in the obtained figures are due to nature of data i.e. while one set data are '**maximum value**' (i.e A/T = 8,592.00 Man Hrs. & manpower involved = 50 during F.Y. 2019-20 upto Sept. 2019) and the other set are '**average value**' (i.e A/T = 7,968.83 Man Hrs. & manpower involved = 43 during last one year). It is quite usual that '**maximum value > average value**'.

So far as man-power deployment is concerned, it is seen that on an average 43 Artisan Staff was actually deputed to get A/T of 7,968.83 Man Hrs. while to achieve maximum out-turn of 8,592.00 Man-Hrs., 50 Artisan staff were necessary to involve.

**2.24.0.** Besides the Artisan staff, 03 Ministerial staff is deployed at TTS Shop to cater different ministerial workload of the shop.

**2.25.0.** Thus, 43 Artisan Staff & 03 Ministerial staff i.e. 46 nos. of staff are presently deployed at TTS/TTS Shops.

**2.26.0.** Vide Para 2.4.0., it is noticed that 09 staff of Shop No.7 are presently posted at other shops. Thus, while they are enjoying the sanctioned posts of TTS / Shop No. 7, but working at some other shops. Therefore, it is very much clear that those 09 Artisan Staff have no contribution in the output of TTS / TTS Shop at all.

**2.27.0.** While conducting the work-study at TTS Shop, study team learned from the office record that the shop had a infrastructure for calibrating different kinds of precision measuring instruments & gauges like varieties of Micrometers, Bevel Protector, wheels distance gauge, etc.

In this connection, the under mentioned precision instrument & machines are available in the shop.

- i) Shadow Master Machine for checking different angles from 1° to 360°.
- ii) Precision Metric Slip Gauge Box with 87 slips.
- iii) Different Outside Micrometer measuring upto 1000 mm.
- iv) Precision Inside Micrometers measuring upto 1000 mm.

**2.28.0.** Previously, the shop was assigned the job of in-house calibration of gauges and measuring instruments used by different shops of Loco & Carriage Workshop / Kanchrapara. Apart from that, this shop also carried out similar type of calibration job for divisional maintenance sheds of Eastern and other Zonal Railways.

**2.29.0.** Since last three years, aforesaid calibration work of gauges and measuring instruments has been outsourced and thus offloaded from Tools & Template Shop.

In ref. to para 2.27.0. & 2.28.0., SSEs of TTS / KPA stated that the aforesaid complete and ready to use infrastructure for in-house calibration of gauges and measuring instruments may be utilized for the said 'Calibration Job', without deployment of additional Manpower and without hampering present outturn of TTS Shop / KPA.

**2.30.0.** In Ref. to para 2.9.0. & 2.10.0., tables were created and graphical presentation was shown with the data pertaining to maximum monthly work load carried out by each sub-section and respective man-power involved of Shop No. 7 (For the period of F.Y. 2016-17, 2017-18, 2018-19, 2019-20 upto September, 2019).

From the graphical presentation of the above tabulated data, it is also clear that the maximum workload of TTS Shop gradually decreased upto 31.55% annually from 2016-17 to 2019-20 (Ref. Para 2.10.0.)

- 2.31.0.** In Ref. to para 2.22.0., the last column, pertaining to section-wise monthly average out-turn of recent past one year is enclosed with the Table of Para 2.9.0. Accordingly, total Out-turn in terms of A/T vis-a-vis Man-power is evaluated. Thus, section-wise average monthly out-turn vis-a-vis average monthly out-turn of TTS Shop as a whole, is evaluated.
- 2.32.0.** In Ref. to para 2.22.0., it is seen that **maximum out-turn of 8952.00 Man-Hrs. needed 50 incumbents** having Artisan Staff and Helper designation, during the period of 2019-20 and **average out-turn of 7968.83 Man-Hrs. needed 43 incumbents** having Artisan Staff and Helper designation, during the period of approximately last one year.
- 2.33.0.** It is worthwhile to mention here that study team considered the maximum catered workload out of 12 monthly out-turn figure in every F.Y. of each section, not the average out-turn figure of every F.Y. The logic behind the same is, in suitable infrastructure, man-power to be provided and the system should be designed based on the maximum, not the average workload.
- 2.34.0.** Therefore, the questions of considering average out-turn of 7968.83 and respective deployment of 43 incumbents having Artisan Staff and Helper designation does not arise.
- 2.35.0.** Study team also reluctant to reach any conclusion based on maximum out-turn of 8952.00 Man-Hrs. & 9179.00 Man-hrs. and respective manpower of 50 & 59 incumbents having designation of Artisan Staff and Helper, during the period of F.Y. 2019-20 & 2018-19 respectively. The reason behind that is, the system of out turn may undergo such a temporary downfall during this short period of about 18 months and it may regain its previous status in future.
- 2.36.0.** Thus, study team consider maximum out-turn of 11,251.00 Man-Hrs. and respective man-power of 76 incumbents having designation of Artisan Staff, Helper & 03 incumbents of Ministerial category, totalling **79 incumbents** were booked during the period of F.Y. 2017-18 as index of Tools and Template Shop.
- 2.37.0.** At this stage, Study team considered additional 15% allowance in staff strength so that the system can withstand any future up-surge of workload. Therefore, the system is designed based on the above figures of Workload vis-a-vis manpower.
- 2.38.0.** Thus, Study team evaluated 'Bare Requirement' of man power in the categories of Artisan Staff and Helper plus Ministerial Staff to run the Tools and Template Shop:

Artisan Staff and Helper	:	79 Incumbents
Ministerial Staff	:	
Allowance in staff strength @ 15% of 79	:	11.85 incumbents

Bare Requirement→	:	90.85 Incumbents
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Additional nos. of Posts are needed to be taken into consideration as 'Leave Reserve' is 12.50 % of 'Bare Requirement' posts.

**Thus, 'Leave Reserve' = 12.5% of 90.85 posts i.e. 11.356posts.**

**2.39.0.** Revised &evaluated Man-Power = 'Bare Requirement' + 'Leave Reserve'  
i.e. Revised sanctioned strength of  
TTS/Shop No.7/KPA = 90.85 Posts + 11.356 posts  
= **102.206 Posts ≈ 103 Posts**

**2.40.0.** Hence, in a nutshell, all the staff strength associated data of TTS/TTS Shop /KPA is tabulatedbelow:-

Sl.	Elements	Artisan Staff & Helper(In Nos. of Posts)[Col. 1]	Ministerial Staff (In Nos. of Posts) [Col. 2]	Total (In Nos. of Posts) [Col. 1 + Col. 2]
(A)	<b>Present Sanctioned Strength (As certified by WPO/ER/KPA)</b>	<b>144</b>	<b>10</b>	<b>154</b>
(B)	Present Men-On-Roll (As certified by WPO/ER/KPA)	60	03	63
(C)	<b>Present Vacancy (As certified by WPO/ER/KPA) [Sl. (A) – Sl. (B)]</b>	<b>84</b>	<b>07</b>	<b>91</b>
(D)	<b>Evaluated and Proposed Sanctioned Strength (As evaluated through Work Study) -----→</b>			<b>103</b>
(E)	<b>Evaluated and Proposed Surplus Posts (As evaluated through Work Study) -----→ [Sl. (A) – Sl. (D)]</b>			<b>51</b>

**2.41.0. RECOMMENDATION :**

*It is **recommended** that the evaluated '51 Posts' of Tools and Template Shop / Kanchrapara Workshop to be declared as 'Surplus Posts' and **surrendered** right away from the respective Book of sanction.*

### CHAPTER-III

#### 3.0.0. FINANCIAL APPRAISAL:

3.1.0. According to recommendation made in para-2.42.0., approximate financial savings achieved on account of surrendering of 51 Posts from *Tools and Template Shop / Kanchrapara Workshop* is calculated based on lower Grade pay.

<i>Level</i>	<i>Grade Pay (In Rs.)</i>	<i>Scale of Pay (In Rs.)</i>	<i>Mean Pay (In Rs.)</i>	<i>D.A. @ 17%</i>	<i>Total monthly Pay/Staff (In Rs.)</i>	<i>Nos. of Posts Surplus</i>	<i>Monthly Savings (In Rs.)</i>	<i>Minimum Annual Savings (In Rs.)</i>
1	1,8000.00	18,000 - 56,900/-	37,450.00	6,366.50	43,816.50	51	22,34,641.50	2,68,15,698

3.2.0. Thus, consequent upon implementation of recommendation, **approx.annual savings would be Rs.2.68 Crore(Approx.).**