



भारत सरकार / **GOVERNMENT OF INDIA**
रेल मंत्रालय / **Ministry of Railways**
दक्षिण रेलवे / **Southern Railway**

वी.जी. भूमा / **V.G. BHOOMA**
वरिष्ठ.उप महाप्रबंधक एवं मुख्य सतर्कता अधिकारी
SDGM/ CVO

प्रधान कार्यालय/ **Headquarters Office**
योजना शाखा / **Planning Branch**
चेन्नै/ **Chennai - 600 003**

D.O. No.G.275/WSSR-371920/2020-21

Dated: 10.11.2020

My dear Ajay Kumar,

Sub: Work study to review the staff strength at SSE / C&W / VM – TPJ Division.

Ref: (i) SDGM's D.O. letter No.G.275/ANNUAL PROG. /2019-20 dated 22.05.2019.

(ii) Sr.DME/TPJ's letter No. T/M/Work study / PF / TPJ & VM dated 05.07.2019.

A work study on the above subject was conducted by Headquarters Planning Branch and a report on the same is enclosed.

As the report is to be finalized within eight weeks, I request you to take expeditious action and advise action taken.

A copy of the work study report may be given to organized labour.

With Best wishes,


Yours sincerely,

(**V.G. BHOOMA**)
वी.जी.भूमा

Shri. **AJAY KUMAR,**
DRM / TPJ

Copy to: PCME / MAS
(Encl: One copy of the study report)

The Director (E&R)/Rly.Bd/NDLS for information.
(e - copy of the study report)

	<p>WORK STUDY TO REVIEW THE STAFF STRENGTH AT - SSE/ C&W/ VM TPJ DIVISION</p>
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SOUTHERN RAILWAY

PLANNING BRANCH

G. 275 / WSSR-371920 / 2019-20

**WORK STUDY TO REVIEW THE
STAFF STRENGTH AT - SSE / C&W / VM
TPJ DIVISION**

STUDIED BY

**WORK STUDY TEAM
OF
PLANNING BRANCH**

NOVEMBER 2020



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(i)

ACKNOWLEDGEMENT

The work study team gratefully acknowledges the valuable guidance of DRM/TPJ, ADRM / TPJ, Sr.DME/TPJ, DEnHM/TPJ (Co-ordinating Officer), CDO/VM and Co-operation rendered by SSE/C&W/VM (Co-ordinating Supervisor) other Supervisory, Ministerial and C&W staff of SSE/C&W/VM Depot for completing the work study.

(ii)

AUTHORITY

Annual programme of work studies approved by SDGM for the year 2019-20.

(iii)

TERMS OF REFERENCE

Work study to review the staff strength at SSE/C&W/VM – TPJ Division.

(iv)

METHODOLOGY

- 1) Collection of Data
- 2) Observation of present working system.
- 3) Interaction with Officers, supervisory officials, Depot officials and staff.
- 4) Analyze the data to arrive the requirement of man power based on Railway Board revised Yard stick and on need base.



(v)

SUMMARY OF RECOMMENDATIONS**RECOMMENDATION No.1**

One post of JE/CW in Grade Pay Rs.4200/- sanctioned and kept vacant may be surrendered and credited to the bank of surplus posts. (1)

RECOMMENDATION No.2

One post of Welder Gr.I in Grade Pay Rs.2800/- and **One** post of Welder Gr.II in Grade Pay Rs.2400/- (**Total – 2**) sanctioned and kept vacant may be surrendered and credited to the bank of surplus posts. (2)

RECOMMENDATION No.3

One post of Carpenter Gr.I in Grade Pay Rs.2800/- sanctioned and kept vacant may be surrendered and credited to the bank of surplus posts. (1)

RECOMMENDATION No.4

Two posts of OS in Grade Pay Rs.4200/- and **One** post of Sr.Clerk in Grade Pay Rs.2800/- (**Total – 3**) sanctioned and kept vacant may be surrendered and credited to the bank of surplus posts. (3)

(Total – 7 posts)slk slk

1.0 INTRODUCTION

- 1.1 TPJ Division is one of the six Divisions in Southern Railway, geographically situated in the middle of TN, having 1026 route kilometers and serves for Tamilnadu and Union Territory of Puducherry.
- 1.2 Among the important branches in Indian Railways, the Mechanical branch functions under the overall control of PCME at Zonal level and Sr.DME at Divisional level, maintaining the diesel locos, coaches, wagons, ARTs and ARMEs.
- 1.3 A lot of technical advancements are introduced in C&W stocks in the recent past in a rapid manner and the long experience, the examination pattern; policies are made drastic changes in C&W maintenance activities.
- 1.4 Villupuram is the capital of Villupuram District and a legislative assembly constituency in Tamil Nadu. Villupuram Jn is one of the important, top five junctions of Southern Railway. Villupuram Jn serves as distribution point of Rail traffic from Chennai towards the Southern part of Tamil Nadu and Puducherry.
- 1.5 Villupuram Jn is located at the outermost end of TPJ division in north. It is located 167 km from TPJ and 162 km from MSB. Villupuram is a prominent junction and earned the status of an “A” grade station and distributes the rail traffic in five directions ie. VM-MS, VM-TPJ, VM-MV, VM-KPD & VM-PDY.
- 1.6 VM is also a busiest junction, 136 including weekly trains are dealt in a day of 24 hours and around 308 coaches of superfast, long distance, express and passenger trains are maintaining at SSE/C&W/VM.
- 1.7 This work study is initiated to review the staff strength at SSE/C&W/VM. An attempt has been made to study the present workload, working system and to right size the man power requirement.

- 1.8 In the process, the bench marking norms for maintenance staff provision for coaching maintenance prescribed by Rly.Bd. vide letter No.2000/MO/143/5 dated 24.12.2001 and the revised yardstick for Coach maintenance – Mechanical letter No.E(MPP)2019/1/12 dated 30.09.2019 (Copy enclosed) is taken into consideration to arrive the man power requirement as well as on need base.

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2.0 PRESENT SCENARIO

2.1 The C&W Depot / VM is functioning under the direct control of CDO/VM. SSE/C&W/VM is overall in-charge of this depot. There are 9 supervisors, 4 ministerial staff, 53 C&W Technicians, 44 Khalasis and 3 Ancillary staff (Total 113) staff are working against the sanctioned strength of 114. The sanction, actual, vacancy and excess statement is enclosed as **Annexure-I**.

2.2 MAJOR ACTIVITIES AT C&W /DEPOT/ VM:

1. Pit line activities – primary, secondary and sick line maintenance activities of coaches.
2. IOH schedule attention at Sick line
3. Platform turn-round and pass through examination of trains.
4. Maintenance and operation of ART & ARME.
5. Maintenance of M & Ps
6. Stores activities/Maintenance and material collection/on line indenting.
7. Contract management for OBHS, Linen, BT AMOC & Pest Control etc.
8. AMC management for limited M&P items.
9. Goods train releasing/noting axle box temperatures and dispatching for power change.
10. Maintenance of 4 hydrant line valves of 1100 nos and valve replacement against defective/broken one.
11. Attention to out station sick wagon/coach.
12. Date base maintenance to coaching stock & Maintenance of RCD receipts/issues and accountal.
13. Attending to Public complaint and replying to complaint.
14. Platform OEA for special trains.
15. Trouble shooting/remedial attention to en-route trains at PF.
16. Goods train rolling in/ rolling out examination.

2.3 PITLINE / YARD ACTIVITIES:

The Primary, Secondary maintenance and Sick line attention of coaches are carried out in pit line of CAMTECH Design with cat walk facility to a length of 630 m and capacity of 27 coaches. The pit line is provided with all facilities like Tower lights, Cat walk lights on both sides, inside pit lights for both sides, watering hydrant valves, carriage washing hydrants, hot & cold High Pressure jet cleaning machine, welding, gas cutting equipments and all other 230V & 440V Machineries and Plants. Some of the normal activities carried out during pit line Maintenance are;

- ✓ Under gear attention
- ✓ Brake gear attention with air testing
- ✓ Rolling gear attention
- ✓ Suspension checking
- ✓ Coupler checking
- ✓ Schedule A,B
- ✓ Intensive cleaning / moping of coaches
- ✓ Cleaning of lavatory and wash basins
- ✓ Watering and washing
- ✓ Checking of water pipes, flush pipes etc to ensure free flow of water
- ✓ Thorough distinction of all compartments
- ✓ Draw gear attention, buffer attention
- ✓ Coach sweeping
- ✓ Inside panel cleaning etc

2.4 PITLINE ACTIVITIES AT SSE/C&W/ VM DEPOT:

SI.No.	Description	No.of Coaches
1.	Total No. of Primary maintenance of Super Fast / Express Train Coaches (4 Rakes)	68
2.	Total No. Primary maintenance of (8 Rakes) Passenger Coaches	76
3.	Total No. of Secondary Maintenance of (2 Rakes) Super Fast / Express Train Coaches	46

Total No. of coaches maintained at pit line = 308 on once in 4 day basis.

2.5 MAINTENANCE OF SICK, ART & ARME COACHES :

The SSE/C&W/VM Depot is being attended the sick coaches as well as to up keep the BD/MRME & ART vehicles and maintaining the tools & equipments in the above said specials.

IMPORTANT EQUIPMENTS IN ART VEHICLES:-

- i) Hydraulic Re-railing Equipments
- ii) Supervisor, staff – cum – Kitchen & Guard Van
- iii) Generator cum – Signal & Communication
- iv) Engineering tool Van
- v) Engineering Materials.
- vi) Engineering Rails
- vii) OHE Mast and
- viii) OHE Tools & Guard Van

Apart from the above ART, SSE/C&W/VM is also maintaining & upkeep the ARME contains two coaches of Auxiliary Tool van and Medical cum Guard van.

2.6 SICK /IOH COACH ATTENDANCE PARTICULARS:

(a) SICK COACHES:

Year	No.of Sick coaches
2017	83
2018	137
2019	112
Total	332
Avg.per year $332 \div 3$	110.66
Avg.per month $110.66 \div 12$	9.22
Avg.per day $9.22 \div 30$	0.31

(b) IOH COACHES:

Year	No.IOH coaches
2017	7
2018	24
2019	18
Total	49
Avg.per year $49 \div 3$	16
Avg.per month $16 \div 12$	1.36
Avg.per day $1.36 \div 30$	0.04

2.7 **BD/MRME/ART MOVEMENT PARTICULARS FOR THE 2017 TO 2019:****(a) ART TRAIL RUNS:**

Sl. No.	Date	No. of staff	Departure (Hrs)	Arrival (Hrs)	Departure (Hrs)	Arrival (Hrs)
			VM	VRI	VRI	VM
1.	24.04.17	12+1	11.12	12.05	12.30	13.30
2.	24.06.17	10+2	11.28	12.12	13.20	14.22
3.	12.09.17	6+1+1	11.20	12.10	13.10	14.00
4.	28.11.17	8+1	12.52	13.40	14.20	15.10
5.	23.04.18	8+1	11.10	11.56	12.32	13.20
6.	17.05.18	7+1	16.15	17.10	17.50	18.40
7.	10.08.18	9+1	11.00	12.23	13.00	13.50
8.	03.01.19	8+2	10.40	11.27	12.10	13.05
9.	09.05.19	8+2	13.08	13.52	14.35	15.20
10.	16.09.19	-	14.25	14.50	15.40	16.00

(b) ARME TRAIL RUNS:

S. No.	Date	No. of staff	Departure (Hrs)	Arrival (Hrs)	Departure (Hrs)	Arrival (Hrs)
			VM	PDY	PDY	VM
1.	18.02.17	7+1	15.25	15.15	16.00	16.50
2.	28.06.17	9+1	15.25	15.15	16.00	16.50
3.	02.09.17	6+1	14.25	15.21	16.05	16.50
4.	24.11.17	5+2	14.16	15.05	16.00	16.50
5.	29.01.18	11+2+1	14.15	15.05	16.00	16.50
6.	09.04.18	7+2	14.20	15.05	16.00	16.50
7.	22.06.18	13+2+1	14.25	15.20	16.00	16.50
8.	24.08.18	17+1+1	14.20	15.30	16.00	17.00
9.	02.11.18	5+2	14.15	15.15	16.03	17.05
10.	04.01.19	9+2	14.15	15.08	16.02	16.53
11.	10.03.19	13+1	14.28	15.25	16.07	17.05
12.	13.05.19	8+1	14.15	15.15	16.05	17.00
13.	17.07.19	3+1	14.15	15.15	16.12	17.01
14.	15.09.19	3+1	14.00	14.50	14.55	16.55

(c) DETAILS OF MOVEMENT OF ART FOR RESTORATION/ACCIDENT WORK FROM THE YEAR 2017 TO 2019:

Sl. No.	Date	From Hrs	To hrs	Remarks
1.	08.12.17	11.15	17.15	Restoration work at ICG siding for derailment of one BOXNMI wagon
2.	31.01.18	19.50	21.10	Gate Accident at 205/20 km (ULU)
3.	08.02.18	04.45	09.30	Restoration work at PUC as the loco hit the dead end
4.	03.05.18	1030	1900	Restoration work at CLN-SY section as the BOBRN wagon hot axle at mid section.
5.	16/17.05.18	10.53/ 16.5.18	10.30/ 17.5.18	Restoration work at PRL-AGMY section for derailment of one BCNA wagon
6.	11.06.18	12.00	14.52	T.No.16724 Exp. TE held up due to locked axle at km 164/2.
7.	26.6.18	16.05	17.45	Release of lock wheel of IOC Loco No.WDM-3A 16830-WR
8.	08/09.07.18	15.15/0 08.7.18	03.30/ 09.7.18	Derailment of Diesel Loco 11001 WDM7 at Olakur.
9.	13.10.18	11.10	12.40	Restoration of GSLRD 01743 of T.No.16862/06010

2.8 PEST CONTROL & LINEN MANAGEMENT:-

Pest control for the entire Primary maintenance coaches, linen management for AC coaches, Bio-toilet AMOC and OBHS are outsourced.

2.9 YARD ARRANGEMENTS:-

The Villupuram Junction is provided with 8 running lines. Road No. 1 to 6 is meant for dealing of up & down Receipt & Dispatch of all Pass / Exp. Trains. Road No. 7 & 8 is meant for dealing of Up & Down receipt & Dispatch of Goods Trains only. Road No. 5 is main line and the remaining lines are loop lines. Road No. 1 to Road 6 is provided with high level Platform. Road No. 9 is coach stabling line and Road NO. 10 are provided with pit line with a capacity of 27 ICF / 24 LHB coaches (630 mt. long). CAMTECH Design with Catwalk facility is provided at the pit line. Two Sick lines are provided with 265 mtr length.

2.10 THE MAIN ACTIVITIES AT PLATFORM:

PF activities are classified as

- (i) PFTR,
- (ii) Originating Trains
- (iii) Terminating Trains.
- (iv) Pass through trains
 - Train checking Rolling in and Rolling out Exam.
 - Attention to brake binding
 - Releasing of brakes,
 - Power changing,
 - BPC issuing / receiving
 - Application of thermo hunter
 - Goods release & dispatch
 - Coach watering
 - Cleaning of coaches and Lavatory
 - Destination Board changing

2.11 PF STAFF DUTY HOURS:

- 1) 07 – 13.00 hrs (I shift).
- 2) 13 – 21.00 hrs. (II shift).
- 3) 21 – 00 – 07.00 hrs ((III shift).

2.12 WORK LOAD AT PLATFORM:

Sl. No.	Description of work	No. of Trains per day
1	Total No. of PF Roads (1 to 6)	6
2	Total No. of Goods Train dealt at Road No. 7 & 8	$\frac{3}{4}$
3	Total No. of Originating Passenger trains	10
4	Total No. of terminating Passenger Trains (PFTR)	10
5	Total No. of originating SF. Exp. Trains per week	3
6	Total No. of Terminating SF & Exp. Trains per week	3
7	Total No. of trains dealt per day	136
8	Total No. of power change trains per day	10 to 12
9	Total No. of en-route nominated trains/coaches for watering inclusive of non daily train & PFTR pass. Train.	47
10	Total No. of nominated trains for Rolling In / Out Examination inclusive of non daily trains & PFTR Pass. Trains.	66+66

2.13 IMPROVED CARRIAGE WATERING SYSTEMS:

Villupuram Junction is dealing with 136 trains in a day of 24 hrs, of which around 47 trains including PFTR passenger trains are nominated for watering point.

Quick watering system is installed at VM by providing Booster Pump arrangements in the existing Carriage Watering System commissioned on 22.10.2013 to a total cost of Rs. 29.5 lakhs.

2.14 SALIENT FEATURES:

- Four Booster Pumps of 40 HP Motor with flow rate of 250 M³/hr. connected in parallel.
- Automatic operation of pumps, depending upon the water discharge, subsequent pumps start automatically.
- Changing of sequence of starting of pumps
- Controlled through PLC panel
- Whole system can be switched over to manual in case of any fault.
- Remote control switch is provided at PF for operating the system from the PF itself.
- Dry running protection of pumps.
- Variable flow / speed control & energy saving
- Provided solenoid operated Butterfly valves at every distribution branch (PF main pipe line).

Normally the time taking for fill the empty water tanks of 24 Coach train and the time taken for complete filling of all coaches is approximately 10 minutes, which is very less compared to the time required in conventional system.

This system considerably reduces the difficulties in watering of 20 – 24 coach train within the available halt time.

2.15 NORMAL DISTRIBUTION OF STAFF FOR PLATFORM ACTIVITIES:-

1. Train checking / rolling Exam / releasing (TPJ End) – 2 per shift
2. Train checking / Rolling Exam / releasing (MS end) – 2 per shift
3. BPC/DVR/Locker/receiving / Goods release - 2 per shift
4. Carriage watering - 3* per shift.
5. Carriage sweeping & lavatory cleaning - 2* per shift.

Total - 11 staff /shift

*Act apprentice staff are trained and utilized for these purpose.

2.16 RCD / VM

- The express, passenger and goods trains with Diesel locos are passing through Villupuram Junction especially the trains from Chennai Egmore bound for MV, KMU, TJ, KIK and SA section are working with Diesel traction. For these trains, Villupuram is the en -route fuelling station.
- There are two storage tank is available in which one tank is having the capacity of 230 KL and another one is 340 KL totaling of 570 KL storage capacity.
 - ❖ Average daily receipt of Diesel for decanting to the storage tanks is 35 KL.
 - ❖ An average daily issue of Diesel from the storage tank for decanting is 34 KL for the locos of Express, Passenger and Goods Trains.
 - ❖ RCD/VM is working in three shifts, 00 – 08, 08 – 16, 16 – 24 hrs.
 - ❖ The fuel receipt and accounting is being maintained by one clerk (OS) with 2 C&W staff, one is at PF fueling point and the other one is at pump operator (motor man) in each shift. In total 1 OS and 13 C&W staffs are working.
 - ❖ One supervisor (SSE) is acting as overall in-charge to look after the RCD/VM duties.

2.17 ACTUAL DEPLOYMENT OF STAFF @ RCD / VM.

For Fuel issue in

8 - 16 hrs. – I shift	=	2
16 – 24 hrs – II shift	=	2
00 – 08 hrs- III shift	=	3

Total staff in 3 shifts	=	7
RG	=	1
LR	=	1
Decanting cum RCD maintenance	=	1
RG – LR for clericals, Clericals work	=	2
Office maintenance	=	1

Total	=	13 staff per day
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2.18 ACTUAL STAFF DEPLOYMENT AT VM/ C&W/ DEPOT ON 14.01.2020

Sl. No.	Allocation of works	No. of staff.
1	Pit line attention / Batch 'A' for 122 coaches / week	21
2	Pit line attention/ Batch 'B' for 123 coaches / week.	21
3	Staff for Pit line / sick line / LR / ART / ARME attention	12
4	For PF activities for 136 trains (Average)	28
5	Staff for OBHS/Linen/PC/BT	4
6	For office work	2
7	Stores Distribution	2
8	For RCD maintenance/decanting and issue of Diesel	13
9	Supervisors – 6 SSEs, 3 JEs	9
10	Ministerial staff / OS	4
Total		116

By keeping all the above information, an analysis has been made to review the staff strength at SSE/C & W/VM.

3.0 CRITICAL ANALYSIS

- 3.1 The actual staff working at SSE/C&W/VM depot is 113 as against the sanction strength of 114.
- 3.2 The C&W / VM Depot is carrying out primary, secondary, IOH and sick line activities at pit line / yard.
- Pest control and linen managements are being done by contract staff.
 - Interior cleaning, exterior washing, under frame attention, watering are carrying out at pit line.
 - Maintenance of one ART contains 8 vehicles and maintenance of one
 - ARME contains two vehicle are also carried out.
 - For platform train, Rolling / out examinations, brake releasing, power changing, dispatching, ETR / through train attention, turn round attention, cleaning coach and lavatory, watering and goods releasing & dispatch are regularly performed according to the requirement and nomination.
 - Maintenance of RCD, receipt & decanting and issue of Diesel & accounting is also carried out. .
 - Maintenance and up keeping of one ART and ARME is also attended.
- 3.3 Indian Railway is the biggest transportation service Industry owned by the Government of India and the operation ratio is not sufficient to take up expansion works to meet the growing demand. In order to maintain the financial viability of the Railway Organization, it is to be ensured that its existing resources especially its man power is to be utilized at optimum level.

Since, the man power is the biggest and the most important prime tool of the expenditure of Indian Railways. The rightsizing of man power is the best way to reduce unit cost which is an effective way to maximize the productivity / efficiency as well as the 'economy in operation' of Indian Railways.

To optimize the utilization of man power, the study team has taken the Railway Board's "Bench marking norms for maintenance staff provision for coaching maintenance" vide letter No. 200/M(C)/143/5 dated 24.12.2001 and the revised yard sticks for coach maintenance issued by Railway Board vide letter No.E(MPP)2019/1/12 dated 30.09.2019 (placed as **Annexure II**).

Keeping this objective in view, the work study team has assessed the requirement of man power vis-à-vis actual work load at SSE/C&W/Depot/VM and the same is analyzed as follows:

3.4 SHIFTWISE COACH MAINTENANCE ACTIVITY & RAKE PLACEMENT FOR PM & SM AT PIT LINE:-

Sl. No.	Day	Shift	Rake / Train No. attended	Train Type SE/Exp/Pass	Total Rake/Coaches	From hrs	To Hrs
1	Sun	8-16	56862/884+56881/877	Pass.	2R/19C	0930	1530
2	Mon	8-16	56862/884 +56881/877	Pass	2R/19C	0930	1530
		14-22	16858/22604	Exp	1R/17C	1600	2200
3	Mon/Tue	22-06	56885/56873	Pass	1R/9C	2200	0400
4	Tue	8-16	16862/22606 + 56862/884	Exp/Pass	2R/27C	0930	1530
		14-22	12867/12868	SF(SM)	1R/23C	1600	2200
5	Tue/Wed	22-06	22404/22403	SF(SM)	1R/23C	2300	0500
6	Wed	8-16	06010/06043 + 56862/884	SF/Pass.	2R/27C	0930	1530
7	Wed/Thu	22-06	22605/16855 + 56885/873	SF/Pass	2R/26C	2200	0400
8	Thu	8-16	56862/884 +56881/877	Pass	2R/19C	0930	1530
9	Fri	8- 16	56862/884 +56881/877	Pass	2R/19C	0930	1530
10	Fri /Sat	22-06	22603/22606+ 56885/873	SF/Pass.	2R/26C	2230	0430
11	Sat	8-16	06044/06010 + 56862/884	SF/Pass.	2R/27C	0930	1530
12	Sat/Sun	22-06	22605/16861 + 56885/873	SF/Pass	2R/26C	2200	0400

3.5 NO. OF SHIFTS IN A WEEK:

Days	No.of Shifts
Sun	One
Mon	Two
Tue	Three
Wed	Two
Thu	One
Fri	Two
Sat	Two

3.6 DETAILS OF PM & SM COACHES ATTENDED:

a) PRIMARY MAINTENANCE COACHES PER WEEK: (EXP TRAINS)

1. 22604/03/06/05

16855/56/57/58- 2 Exp Rakes - $17 \times 2 = 34$ Coaches

2. 22606/05/16861/62 – 1 Exp Rake - $17 \times 1 = 17$ Coaches

3. 06044/43/06010/09 – 1 Exp Rake - $17 \times 1 = 17$ Coaches

Total Exp coaches maintained per week = 68 Coaches

Total Avg. Exp coaches maintained per day = $68/7 = 9.71$ Coaches

b) PRIMARY MAINTENANCE COACHES PER WEEK: (PASS TRAINS)

1. 56862/56884 – 4 Rakes - $10 \times 4 = 40$ Coaches

2. 56881/56877 – 2 Rakes - $9 \times 2 = 18$ Coaches

3. 56878/56873 - 2 Rakes - $9 \times 2 = 18$ Coaches

Total Pass coaches maintained per week = 76 Coaches

Total Avg. Pass coaches maintained per day = $76/7 = 10.85$ Coaches

c) SECONDARY MAINTENANCE COACHES PER WEEK: (EXP TRAINS)

1. 22404/22403 - 1 Rake - $23 \times 1 = 23$ Coaches

2. 12867/12868 - 1 Rake - $23 \times 1 = 23$ Coaches

Total Exp coaches maintained per week = 46 Coaches

Total Avg. Exp coaches maintained per day = $46/7 = 6.57$ Coaches

Note: The above coaches are maintained at pit line once in 4 day basis.

3.7 SICK LINE ATTENTION:

The coaches marked as sick were detached from the formation and moved to sick line yard for various repair works of brake binding, wheel binding, V Belts, door repairs, Bolster spring etc.

One sick line is provided with Pit and the other sick line is not provided with pit and each sick line is having the capacity of two coaches. The C&W sick line is in covered shed provided with all facilities like 25 Ton E.O.T Crane with pendent operation. 25 TON lifting jacks, Battery operated PF Truck, Fork lift of 3 Ton capacity, Tool post grinders, portable inverter type welding plants, electrical and Diesel air compressors, single car testing Rig, car washer and gas cutting equipments are also provided.

The summary of Sick/IOH coaches attended and released at sick line from the year 2017 to 2019 were 332. (Ref.para 2.6 (a) & b)

- Averages of 9.22 sick coaches attended per month.
- Averages of 0.31 coaches attended per day.
- **It means an average of 2.3 sick coaches are attended once in a week.**
- IOH activity is undertaken at sick line itself.
- Averages of 16 IOH coaches attended per year.
- An average of 1.36 IOH coaches attended per month.
- An average of 0.04 IOH coaches attended per day.
- **It means an average of 1.36 IOH coach is attended per month.**

As per Rly.Board's revised yardstick issued vide Lr.No.E(MPP)2019/1/12 dated 30.09.2019, the requirement of man power to attend the sick coaches is 0.12 man per coach. The primary coaches holding at SSE/C & W/VM is 144.

Hence, the requirement of staff to attend the sick coaches and IOH is $144 \times 0.12 = 17.28$ **(Say 17 staff)**. As per yardstick, the sick line staff has to attend IOH and sick coaches.

However, as per the statistics, the average IOH coaches attended at this depot is 0.04 coaches/ day and sick coaches' 0.31/day which is showing comparatively less workload.

The present deployments of staff to attend the Sick/IOH coaches are 12. Hence, the same strength is allowed by the work study team to attend the sick/IOH coaches.

3.8 **PARTICULARS OF PFTR/ROLLING IN/ROLLING OUT TRAINS:**

- Total rolling in/ rolling out Examinations for pass through trains in a day are around 66 trains. (As per Rake link book let No.59)
- Terminating + Originating ETR Trains = $55+55+10+10+2 = 132$
- A total number of 10 passenger trains consist of 84 coaches are nominated for watering, sweeping, Toilet cleaning, dusting, shuttering, locking, unlocking and deodorant spraying.
- Total No. of trains dealt per day in 24 hrs are 136 trains. (Including weekly trains)
- Brake releasing for three terminating express trains.
- Brake checking and issue of BPC for three originating / dispatching express trains.
- Total power changing is required for 12 trains.
- Average goods train release per day is 10.
- All the PF activities are carried out by three Supervisors with 28 staff in three shifts. .

3.9 **MINISTERIAL STAFF:**

- There are four Ministerial staff (O.S) working in SSE/C&W/VM Depot.
- One O.S is working in RCD as fuel keeper.
- One O.S is working in SSE/C&W/VM Office management in General shift.
- One O.S is looking after the duties to issue of Pass/PTO and TA/DA to staff and retired employees.
- One O.S. is working in store of SSE/C&W/VM.

3.10 THE REQUIREMENT OF MAN POWER FOR PRIMARY/SECONDARY MAINTENANCE OF COACHES IS AS FOLLOWS:

The revised Railway Board's Yard Stick for Coach Maintenance:

Type of maintenance	Type of coach	Allowed man power
Primary Maintenance	ICF/LHB stock	0.85 with interior amenity attention to be outsourced
Terminal attention under RPC-4	ICF/LHB stock	0.3 Man/coach

Total Exp coaches maintained per week = 68 Coaches

Total Avg. Exp coaches maintained per day = $68/7$

= 9.71 Coaches

Total Pass coaches maintained per week = 76 Coaches

Total Avg. Pass coaches maintained per day = $76/7$

= 10.85 Coaches

Total coaches maintained per day (9.71 + 10.85) = 20.56 Coaches

(A) REQUIREMENT OF MAN POWER FOR PRIMARY MAINTENANCE OF COACHES:

At SSE/C&W/VM, all the Primary maintained coaches are ICF stock. As per the revised yard stick, the requirement of man power for maintenance of primary coaches are **$20.56 \times 0.85 = 17.47$ (Say 18 Staff)**

SECONDARY MAINTENANCE COACHES PER WEEK:

Total Exp coaches maintained per week = 46 Coaches

Total Avg. Exp coaches maintained per day = $46/7 = 6.57$ Coaches

At SSE/C&W/VM all the Secondary maintained coaches are ICF stock. As per the revised yard stick, the requirement of man power for maintenance of Secondary coaches are **$6.57 \times 0.3 = 1.97$ (Say 2 Staff)**

3.11 THE REQUIREMENT OF MAN POWER FOR PRIMARY/SECONDARY MAINTENANCE FOR C&W / VM DEPOT:-

1. PIT LINE:

i)	For primary maintenance	=	18
ii)	For secondary maintenance	=	02

	Man power required for PM & SM Maintenance	=	20
	Add 16.66% RG	=	3.33

	Total	=	23.33
	Add 12.5 % LR	=	2.92

**Total Man power required for PM & SM coaches = 26.25
(Say 26 staff)**

3.12. PLATFORM ACTIVITIES:

As per the revised yard stick, the requirement of staff for PF return trains nominated for Rolling in Examination plus Clean train station etc., is as follows:

1. Type of stock - ICF/LHB coaches
2. Revised yardstick for PFTR - 0.2 Man/Coach
3. No. of PFTR Trains - 10 Pass. Trains
4. No. of coaches - 84
5. **Requirement of man power for PFTR
Rolling in Examination plus Clean train
Station etc.(84 x 0.2 Man/coach) - 16.8 (Say 17 staff)**

3.13 AS PER THE REVISED YARD STICK, THE FOLLOWING ACTIVITIES HAVE TO BE OUTSOURCED:

- a. All coach cleaning and watering activities including en-route watering.
- b. Coach amenity attention including carpentry, welding, trimming, plumbing/pipe fitting and provision of items like window glass, mirror, bottle holder, snack table, taps and faucet etc.
- c. Linen washing and distribution
- d. Attention to fire extinguishers.

3.14 WATERING OF COACHES:

A sample direct observation for watering to T.No.16795 Ex.MAS to TPJ with CDO / VM was conducted on 14.01.2020 and the report is enclosed in **Annexure -II.**

Based on this observation, it was noticed that, for watering to each coach is required minimum of 2 minutes. On the particular date, 12 No. of staff with 3 supervisors have been nominated for watering for the particular train. The total time taken to complete the watering for T.No.16795 (24 coaches) was 9 minutes. The observation of work study team to the stopping of en-route and other trains with number of coaches for watering on weekly days is as follows:

Day	Daily trains		Other trains		Total	
	No.of Trains	No.of Coaches	No.of Trains	No.of Coaches	Trains	Coaches
Sun	19	395	6	113	25	508
Mon	18	374	4	80	22	454
Tue	18	374	4	83	22	457
Wed	19	398	2	37	21	435
Thu	19	383	2	37	21	420
Fri	18	374	8	150	26	524
Sat	18	374	6	113	24	487

3.15 STOPPING TIMINGS OF THE ABOVE TRAINS AT VM JUNCTION:

No. of Trains				Total
Less than 5 min.	6 to 10 min.	11 to 20 min.	More than 20 min.	
12	11	16	8	47

3.16 STOPPING TRAINS IN SHIFT WISE AT SSE/C&W/VM:

Shift Time	No. of Trains
07.00 to 13.00 hrs	12
13.00 to 21.00 hrs	11
21.00 to 07.00 hrs	24
Total	47

- 3.17 From the above en-route stopping trains and number of trains received in shift hrs shows that, the punching of trains is more in 21.00 to 0700 hrs shift than the other two shift timings. Out of 47 en-route stopping trains for watering, only 12 trains are having less than 5 minutes stopping time. These 12 trains are normally daily trains starting either from MS or from the south stations of Tamil Nadu.

On direct observation with CDO/VM on 14.01.2020, total time required to complete the watering activities for 24 coaches of T.No.16795 requires 9 minutes with 12 staff. Detailing 12 staff with 3 supervisors not warranted for 35 en-route watering trains which are having more than 5 minutes stopping time at VM junction.

Hence, 4 staff each in I and II shifts , 5 staff in III shift are allowed **(Total 13 staff)**.

- 3.18 **THE DISTRIBUTION OF MAN POWER REQUIRED FOR WATERING IS ARRIVED AS FOLLOWS:**

Sl.No	Description of activity	Staff/ shift	Per day
1.	Carriage watering for I and II shift	4 x 2	8
2.	Carriage watering for III shift	5 x 1	5
Total			13

- 3.19 **SUMMARY OF REQUIREMENT OF STAFF FOR PLATFORM ACTIVITIES:**

1.	Requirement of man power for PFTR Rolling in Examination plus Clean train Station etc. (84 x 0.2 Man/coach)	-	17
2.	For Watering of coaches (4 x 2 + 5 x 1)	-	13
Total		-	30 staff

Total Man power required per day for PF activity= 30 staff.

(RG/LR for these staff is provided from the Sick line /IOH staff).

NOTE : As per the Railway Board New Yard stick, All coach cleaning and watering including en-route watering , Coach amenity attention including carpentry, welding, trimming, plumbing/pipe fitting etc., are to be out sourced. At present the staff allowed for watering of coaches, cleaning and coach amenity work (Total- 13) PLUS RG/LR may be surrendered after outsourcing these activities.

3.20 RCD/VM

Man power required for RCD activities are arrived on need basis based on the existing working pattern daily in 08-16 hrs, 16-24 hrs and 00-08 hrs shifts for decanting, issuing and accounting of fuel.

- | | |
|----------------------------------|--|
| ➤ For Sat, Sun and Mon | - 4 staff |
| ➤ For other days | - 3 staff (Each one for
South,North and FP) |
| ➤ For RG/LR and other casualties | - 4 staff |
| ➤ At RCD depot | - 2 staff |

Total - 13 staff

- | | |
|----------------------|-----------|
| ➤ Over all in-charge | - 1 (SSE) |
|----------------------|-----------|

3.21 REQUIREMENT OF STAFF FOR OBH, LINEN MANAGEMENT, PEST CONTROL, BIO-TOILET ETC.

At present 4 staff have been detailed for OBH, Linen Management, Pest Control (PC), Bio-Toilet (BT) and 2 staff have been detailed for stores, Material Collection and for office duties **(Total -6)**. Due to spread of Novel Corona **(COVID 19)**, the linen management has been stopped in all AC coaches. Hence, the staff deputed for linen management is not required. Excluding the staff deputed for linen management, net requirement of staff to do the above said activities is 4.

3.22 REQUIREMENT OF STAFF FOR ART/ARME:-

On discussion with CDO/VM, to maintain the ART/ARME on daily basis as well for the safety purpose, on normal days, he requires 4 staff in General shift. As per CDO/VM demand, 4 staff in General shift is allowed.

3.23. REQUIREMENT OF MINISTERIAL STAFF:-

At present Four ministerial staff (OS) are working at SSE/O/C&W/VM against the sanction strength of six OS and two Sr.Clerks **(Total – 8)**. They are distributed as two OS for office work at SSE/C&W/VM office, one OS for looking after store duties and the other one OS for RCD depot. On need base the requirement of Ministerial staff is arrived as follows:

- i) For RCD depot = 2
- ii) For Office maintenance work = 2
- iii) For Store maintenance = 1

Total ministerial staff required for VM/C&W Depot = 5 staff

3.24 NORMS FOR ART/ACCIDENT RELIEF FOR C&W / VM DEPOT:

The norms for ART & ARME are as follows:

S.No.	Type of staff	Staff required to be deployed
1.	SSE/SE	1
2.	JE	1
3.	Technicians	2
4.	Fitters (Including Kitchen man)	8
5.	Welders	2
6.	Khalasis	8
7.	Welder Khalasi	1
Total		23

3.25 THE NORMS FOR ARME FOR C&W / VM DEPOT:

Sl. No	Type of staff	Work Distribution	Staff required to be deployed
1.	SSE/SE	Supervision	1
2.	Fitters (Including Kitchen man)	Rescue Operation	3
3.	Welders	Cutting work	2
4.	Khalasis	Loading/unloading work	6
5.	Welder Khalasi	To assist Welder	1
Total			13

The above staff are required when the ART/ARME is moving for trail, accident/derailment and for other restoration work, required staff on these occasions may be pooled from the other activities area like sick line, pit line etc.

3.26 SUPERVISORS:

There are Six SSEs and three JEs (Total –9) are working in C&W/O/VM/Depot for supervising duties at Pit line, Platform, ART/ARME and RCD maintenance activities. The portfolios / deployment of supervisory staff are allowed to continue as it is.

3.27 THE SUMMARY OF STAFF REQUIRED FOR VM/C&W/DEPOT IS AS FOLLOWS:

SL. NO.	ACTIVITY AREA	REQUIREMENT OF STAFF	REFER.PARA NO.
1.	Pit line activities for PM/SM work	26	3.11
2.	Platform activities	30	3.19
3.	RCD activities	13	3.20
4.	For Sick Line/IOH	12	3.7
5.	For ART/ARME	4	3.22
6.	For OBH, PC/BT	4	3.21
7.	For Office Duties	2	2.18
8.	For Stores Office & Material collection	2	2.18
9.	Supervisors (1 : 11)	9	3.26
10.	Ministerial staff	5	3.23
Total		107	

3.28 SANCTION Vs REQUIREMENT:

Sanction	Actual	Requirement	Surplus
114	113	107	7

3.28 SUMMARY OF SURPLUS STAFF AT SSE/C & W/VM:

Sl.No.	Designation	Sanction	Requirement	surplus
1.	SSE/JE	10	9	1
2.	Technicians	61	61	0
3.	Helpers(Khalasis)	28	28	0
3.	Ancillary Staff "C"	7	4	3
4.	Ministerial staff	8	5	3
Total		114	107	7

RECOMMENDATION No.1

One post of JE/CW in Grade Pay Rs.4200/- sanctioned and kept vacant may be surrendered and credited to the bank of surplus posts. (1)

RECOMMENDATION No.2

One post of Welder Gr.I in Grade Pay Rs.2800/- and **One** post of Welder Gr.II in Grade Pay Rs.2400/- (**Total – 2**) sanctioned and kept vacant may be surrendered and credited to the bank of surplus posts. (2)

RECOMMENDATION No.3

One post of Carpenter Gr.I in Grade Pay Rs.2800/- sanctioned and kept vacant may be surrendered and credited to the bank of surplus posts. (1)

RECOMMENDATION No.4

Two posts of OS Gr.II in Grade Pay Rs.4200/- and **One** post of Sr.Clerk in Grade Pay Rs.2800/- (**Total – 3**) sanctioned and kept vacant may be surrendered and credited to the bank of surplus posts. (3)

(Total – 7 posts)

4.0 PLANNING BRANCH'S REMARKS ON CO-ORDINATING OFFICER'S VIEWS

The draft work study report was handed over to the Co-ordinating Officer (CDO/VM) on 06.02.2020. So far, no reply has been received. The remarks has to be submitted to Planning Branch within 15 days of receipt of the Draft Work study Report.

Since no remarks are offered by the Co-ordinating Officer, the report is released without the remarks of the coordinating officer.

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	Total Pay (Rs.)	Annual Financial Savings (Rs.)
1.	JE/CW	4200	1	86463	10,37,556
2.	Welder Gr.I	2800	1	71078	8,52,936
3.	Welder Gr.II	2400	1	62361	7,48,332
4.	Carpenter Gr.I	2800	1	71078	8,52,936
5.	OS	4200	2	86463	20,75,112
6.	Sr.Clerk	2800	1	71078	8,52,936
Total			7		64,19,808

ANNEXURE – I

**SANCTION, ACTUAL AND VACANCY POSITION OF GROUP “C & D” STAFF
AT SSE / C&W / VM - TPJ DIVISION**

Sl. No.	Category	Grade Pay (Rs)	Sanction	Actual	Vacancy	Excess
1	SSE	4600	6	6	0	0
2	JE	4200	4	3	1	0
3	OS Gr.I & Gr.II	4200/2400	6	4	2	0
4.	Sr.Clerk	2400	2	0	2	0
4	Sr.Tech	4200	15	17	0	2
5	Tech.Gr.I	2800	35	14	21	0
6	Tech.Gr.II	2400	5	12	0	7
7	Tech.Gr.III	1900	6	10	0	4
8	Helpers	1800	28	44	0	16
9	Welder Sr.Tech	4200	1	1	0	0
10	Welder Gr.I	2800	1	0	1	0
11	Welder Gr.II	2400	1	0	1	0
12	Painter Gr.I	2800	1	1	0	0
13	Carpenter Gr.I	2800	2	0	2	0
14	Carpenter Gr.III	1900	1	1	0	0
Total			114	113	30	29



GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS
RAILWAY BOARD

No. E(MPP)2019/1/12.


New Delhi, Dated. 30/09/2019

The General Managers,
All Indian Railways, including Production Units and
Others

Sub: Revision of Yardsticks.

An action plan was formulated by Board for Manpower Management, wherein, it was decided that yardsticks of O&M activities of various departments be revised taking into account technology Upgradation, Outsourcing experience and Benchmarking standards set by different Railways.

2. Accordingly, the yardsticks of certain activities have been revised and enclosed as an Annexure.
3. Henceforth, the requirement of Manpower for the said activities should be calculated based on the revised Yardsticks. The Manpower strength for the existing assets should be reviewed, based on the revised Yardsticks and excess posts be surrendered.
4. All the clarifications/queries/references, if any, regarding revised yardsticks are to be made to respective Directorates.
5. This issues with the concurrence of Finance Directorate of the Ministry of Railways.
6. This supersedes all earlier instructions on the Yardsticks of the respective activities, specified in the annexure enclosed.
7. Please acknowledge receipt.


30/9/19
Ajay Jha
Joint Director E(MPP)
Railway Board

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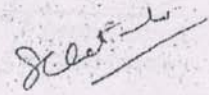
Annexure - 13

No. E(MPP)2019/1/12.

Dated. 30/09/2019

Copy forwarded for information to:

1. PFAs, All Indian Railways and Production Units, DG/RDSO, DG/NAIR, Dir/CTIs.
2. The Dy. Comptroller & Auditor General of India (Railways), Room No.224, Rail Bhawan, New Delhi. (with 40 spares).



For Finance Commissioner/Railways.

5. Coach Maintenance - Mechanical

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Dnnenne-5

Primary Maintenance	ICF/LHB STOCK	0.85/Coach (ICF&LHB) with Interior amenity attention to be outsourced
Terminal attention under RPC-4	ICF/LHB STOCK	0.3 Man/Coach
PF return trains nominated for Rolling In Examination + Clean Train Station etc.	ICF/LHB STOCK	0.2 Man/Coach
Sick Line		0.12 Man /Coach
Inspection Carriages	Per IC holding	1.76 Man/IC holding
Staff training (Requirement of trainer)		As per training norms
<ul style="list-style-type: none"> • ART & Accident relief; • Mill Wright, • Welfare measure, • Ancillary staff 		<ul style="list-style-type: none"> • Existing norms for ART & Accident relief • Balance activities to be on need basis.
Linen Management	Per AC coach holding	0.18/AC Coach holding* * Zonal Railways to consider outsourcing this activity.

Note:

1. Leave reserve & rest givers may be provided as applicable in addition to above yardstick
2. The norm does not cover Ministerial staff and Divisional Control staff.

Activities to be outsourced:

1. All coach cleaning and watering activities including en-route watering (Already identified for outsourcing).
2. Coach amenity attention including carpentry, welding, trimming, plumbing/pipe fitting and provision of items like window glass, mirror, bottle holder, snack table, taps and faucet etc.
3. Attention to fire extinguishers (Already outsourced).
4. Linen washing and distribution (Already outsourced on most of the depots)
5. New amenity/security activities like PAPIS, CCTV & infotainment etc.

32/11/19
30/11/19

S.R.

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Annexure - IV

DIRECT OBSERVATION FOR T.No.16795 MAS TO TPJ CHOLEN EXPRESS WITH CDO/VM BY CHIEF WORK
STYDY INSPECTOR, G. JAYA KUMAR/MAS ON 14.01.2020 ARRIVED AT PF.No.5 AT VM JN.

- Train Arrival Time : 10:40 AM
- Hose pipe insertion for Watering to Compartment starts : 10:41 AM

A detail of Watering to Coaches is as follows (9 Coaches)

Coach No.	Type of coach	Started Time	Completed Time	Time Taken
18055 C	HI	1041	1043	2 minutes
13001C	AI	1041	1042	1 Minute
15063C	A2	1044	1046	2 minutes
14080C	A3	1041	1043	2 minutes
16121C	B1	1043	1045	2 minutes
17144C	B2	1046	1048	2 minutes
18112C	B3	1049	1051	2 minutes
13121C	B4	1052	1055	3 minutes
15125C	B5	1045	1047	2 minutes

- Watering started 10:42 using 5 mts watering setup at a pressure of 4 kg/cm².
- One staff is detailing watering for two coaches
- Time taken for on/off of the valve requires 1 minute
- Time require to move between coaches to attend inserting of hoses ½ to 1 minute
- To insert the pipe and taken out from the coach is require ½ minute.
- Total composition of coaches 24.
- No. of staff detailed 12 no for watering at site, 3 supervisors and 1 staff at location to switch on and off (using mobile ,communication facility to be provided)
- Total time taken to complete the watering of Train No 16795 ,24 coaches is 9 mts.
- Train arrival 10.40Hrs, left 11.10 Hrs Power change from AC to DSL in PF 5.
- Completed watering 10.50 using 5 Mts watering setup at a pressure of 4 Kg/cm².
- Bunching of train is also to be considered
- In the same time T.No.16127 Guruvayur Express is also there in platform 1.
- 11.00 Hrs arrival and 11.10 Departure.

G. J. K.
Chief Work Stydy Inspector
14/1/2020.

G. J. K.
14/1/2020