G.275/WSSR- 332021 /2020-21

WORK STUDY TO REVIEW
THE STAFF STRENGTH
AT
SSE/C&W/HOM(HARBOUR OF MADRAS)
MAS-DIVISION

SOUTHERN RAILWAY

PLANNING BRANCH

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WORK STUDY TO REVIEW THE STAFF STRENGTH AT SSE/C&W/HOM(HARBOUR OF MADRAS) MAS- DIVISION

STUDIED BY

WORK STUDY TEAM

OF

PLANNING BRANCH

February 2021

(i)

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(ii)
AUTHORITY

Annual Programme of work studies for the year 2020-21

(iii)
TERMS OF REFERENCE

Work study to review the staff strength at SSE/C&W/HOM(Harbour of Madras) MAS - Division

(iv)
METHODOLOGY

The following methodology has been adopted while conducting the Study:

1. Collection of data.
2. Observation of present system of working.
3. Interaction with Officers, Supervisors and staff of C&W/HOM unit of MAS - Division.
4. Analyse the data collected and assessed the manpower requirement for C&W/HOM (Harbour of Madras)- MAS Division.
5. Applying Yardstick,Wagon Manual issued by Railway Board and Need basis

(v)

SUMMARY OF RECOMMENDATION

The following 10 posts are found excess to the requirement in SSE/C&W/HOM and the same may be surrendered and credited to the vacancy bank

Category	Grade Pay (Rs)	Pay Level	Surplus
Sr. Technician	4200	L 6	1
Technician I	2800	L 5	9
		Total	**10**

(Total 10Posts)

CHAPTER – I

1.0 INTRODUCTION:

1.1 **In Indian Railways** both the Goods Train (Wagons) and Passenger Train (Coaches) are maintained by Mechanical Department, which plays a vital role in Railways transportation. The Objective of Mechanical Department is to maintain Carriages/Coaches& wagons for their safe hauling. The Carriages/Coaches are used for transporting of passengers and Wagons are used for transporting Goods. The Indian Railway, the premier transport organization of this country is the largest Rail network in Asia.

1.2 **In Southern Railway,**the Mechanical branch operates Diesel-Electric Locos, Coaches, Wagons, DEMUs, EMUs and MEMUs in various sections. These assets are being maintained in good fettle by the Mechanical Branch to provide safe and reliable transportation of passengers and goods. In order to maintain these locomotives, coaches and wagons,Southern Railway has 3 major workshops, 4 Diesel Sheds, 18 Coach Maintenance Depots (BG-17 & MG-1), 9 Wagon Maintenance Depots, 3 EMU Sheds/ Shops.

1.3 **Chennai Railway division** is the railway division of the Southern Railway Zone of Indian Railways, Covering the district of northern Tamil Nadu and southern Andhra Pradesh. Currently it has a route length of over 697.42 KMs. Administrative Head Quarters is in Chennai,which is also happens to be the Headquarters of Southern Railways.

Chennai division is one of the major divisions in Southern Railway, operating with a greater number of Superfast Express, Mails and Suburban trains compared to other divisions. This division comprises of 8 sections and 1 MRTS. As shown below

Operating Sections

MAS – JTJMAS – MSBMAS – MSBAJJ – RU
MAS - GDRMS – VMCGL – AJJVLK – ANNG

MRTS (Mass Rapid Transit System)
MSB – VLCY

The entire section of Chennai Division has been electrified. Chennai is the headquarters of this division and operating trains to all the important cities in India and covers all over Tamil Nadu.

1.4 Mechanical department

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, the basic functions are,

- The maintenance and operation of Locomotives and Rolling stock
- Standardization of designs of Rolling stock and its components through continuous absorption of latest technology in the fields of maintenance and operation.
- Production of locomotives and coaches within the Railways and wagons from the Railway related industry.
- Maintenance and operation of breakdown cranes and restoration of traffic in case accidents by removing the infringing rolling stock.
- Management of workshops dealing with overhaul and rehabilitation of rolling stock and their components.
- Ensure timely examination and fitness of all trains
- To keep a watch over the detachment of sick wagons and to arrange for their early repair and fitness.
- Keeping a watch over availability of vital C&W components, like Air Hoses, Washers, Clamps etc. and efficient working of equipment & machines in C&W depot to avoid detention to trains.
- To keep a watch over placement of wagons in sick line and their release.
- To keep account of train detentions on C&W account & take remedial action

This study confines with the,**Harbour Of Madras (HOM)**

1.5 **HARBOUR OF MADRAS (HOM)**is presently called as **Chennai Port Trust (ChPT)**.

The little fishing village called ChennaPatnam, which was founded in 1639, became prominent during the early part of the 18th Century when the East India Company was active on the East Coast. In the absence of the Harbour, the Company ships were anchored about quarter mile offshore and the cargo to and from the ships were transported through small lighters called Masula boats. it was proposed to build a pier to berth larger crafts and an Iron screw pile pier was built in 1861 to a length of 1,100 feet., perpendicular to the shore during November 1881, due to violent cyclone over half a mile of breakwater was breached the equipment and human lives. Though there was a demand for relocating the entrance, the restoration was resumed in 1885. Sir Francis Spring, then the Chairman of Madras Port Trust in 1904 created a new North-Eastern Entrance after closing the original Eastern Entrance to control the siltation of the channel in front of the basin.

Itis the largest port in the Bay of Bengal also known as the Gateway of South India. It is an artificial and all-weather port with wet docks. Subsequently Quays were constructed at different periods from 1913 to 1985. **Chennai port has 3 docks and 24 Quays/berths** (Quay means Platform where goods and passengers are loaded on and off boats)

Dr. Ambedkar Dock is the oldest original dock more than 125 years old. It has 11 berths, with total quay length of around 2,308 m. The entrance width of the dock is 125 m. It also has two finger jetties which are presently used by the Navy and Coast Guard. These berths cater to automobiles, passengers, general cargo fertilizers and containers

Jawahar Dock was created during early sixties. It has 6berths;the basin dimension is 655 × 152 mts. The total quay length is around 2 × 650 mts with 3 berths each on either side. The entrance width of the dock is narrow and can permit only Panamax carriers

1.5.1 **Bharathi Dock** is a relatively new addition to the port having been constructed during the late sixties and early seventies.It has 7berths;it provides handling facilities for POL (Petrol, Oil & Lubricants), edible oil and containers. The entrance to the Dock is 350 m wide. The Bharathi Dock has three terminals, namely, container terminal, iron ore terminal, and oil terminal. It mainly handles containers, iron ore, and POL. In the Bharathi Dock, the traffic includes import of Coal & Coke (Cock- a grey, hard and porous fuel with high carbon content with few impurities)

1.5.2 Chennai Port is an emerging hub port in the East Coast of India has an ISO 14001:2004 and ISPS (**I**nternational **S**hip &**P**ort Facility **S**ecurity code) certification.It has become a main line port having direct connectivity to more than 50 ports around the world. Maritime trade started way back in 1639 on the sea shore Chennai. This plays a vital role in improving the national economy by means of import and export of Iron Ore, Containers, Oil, Food grains and General merchandise. The seaways and railways co-ordinate to exercise their roll for improvement of our country

1.5.3 As far as Railway is concern the Chennai Harbor complex is divided into two areas known as

Marshaling Yard (MYD - **Inner Harbour**)

Bharathi Dock (BD-**Outer Harbour**)

For handling Petroleum in 1972 and for mechanized handling of Iron Ore in 1974. The Bharathi dock has got four reception and four dispatch lines with a capacity of 58 BOXN wagons with tipping facilities. The Chennai port (ChPT) is one among the major ports having Terminal Shunting Yard and running their own Railway operations inside the harbour on the East Coast.

Chennai Port is served with two rail entry / exit arrangements connecting Indian Railway network

1. Connecting Chennai Beach Station to the Port Marshalling yard at the southern end
2. Connecting Royapuram Station with Bharathi Dock at the northern end.

Port Marshalling Yard is connected to the Southern Railway network through Chennai Beach station with a single line. This yard distributes the Railway traffic to the various docks inside the port. This yard is the feeding yard for the secondary container Terminals, likeJawahar Dock and CONCOR(**Con**tainer **Cor**poration) of India Ltd yards. In addition, this yard also handles loading / unloading of Port's.Other general cargo handled in Eastern and Western yards.

Incoming trains with electric Locomotives are received/released at the eastern end of the yard. Chennai Port has its own diesel locos to shunt the rakes to the various feeder yards like CONCOR yard or CITPL (**C**hennai **I**nternational **T**erminals **P**rivate **L**td) yard and for handling general cargo for placement. This marshalling yard consists of 4 lines in Eastern yard, 6 lines in Central Yard and one line in Western Yard.

Jawahar Dock East and West railway lines linked to the marshalling yard. Cargo are loaded/unloaded onto and from railway rakes at the dockyard siding. The secondary container terminal CITPL has 2 rail sidings in its yard; the containers are loaded on to the rail rakes from here. The loaded rakes are moved to the marshalling yard. A separate siding for CONCOR has been provided at the west of Ambedkar Dock. This siding can handle a full rake. CONCOR is the only operator handling rail bound container traffic of CCTPL (**C**hennai **C**ontainer **T**erminals **P**rivate **L**td), from its rail terminal and that of the yard sidings of CITPL. The total container traffic handled by CONCOR is onRailfrom its ICD (**I**nland **C**ontainer **D**epot)

1.5.4 **Railway Yard for Containers** The port is presently developing a common rail yard in the area, west of marshalling yard. The basic purpose of this yard is to aggregate the containers from both the terminals at one location to ensure faster turn-around of rakes. It will also allow in handling DFCC (**D**edicated **F**reight **C**orridor **C**orporation) rakes which will be double the length of the current rakes. This common railway yard is being executed by IPRCL (**I**ndian **P**ort **R**ail **C**orporation **L**td.).
HOM/ChPT, at present handling 3 to 4 rakes per day. The Port is linked to Southern Railway network through Chennai Beach Railway Station which

connects Chennai Port to Southern parts of Tamil Nadu and through Royapuram Station which connects Southern Railway Trunk line to Kolkata, New Delhi, Bangalore, Coimbatore etc. The Chennai Port Trust (ChPT) and the Railways work in perfect unison and carry out their work with full co-ordination and co-operation i.e., reception and dispatch of wagon rakes. This has an internal rail network of approximately 70 km length. Port railways interchange traffic with southern railway. In 1983, the port heralded the country's first dedicated container terminal facility.

1.6 MAINTENANCE PRACTICES FOR FREIGHT STOCK

Wagons normally do not run in defined link and run from one part of our country to another as per traffic requirements. The Wagon maintenance activities can be broadly classified into **P**eriodical **O**ver **H**auling (POH) and **R**outine **O**ver **H**auling (ROH) of Wagons. Unlike locomotives and coaches, wagons are not based at any depot. These are pooled stock and move all over Indian Railways and however, they are regularly checked for defects at train examination points.

The wagons are combined and formed into trains which are given "Intensive" and "Safe-to-run" examination before loading and after unloading. The life of a wagon is about 30 to 40 years. In view of keeping the wagons in good working condition, depending upon the type of wagons, POH is given at an interval 4 to 6 years.

POH and special repairs are attended in workshops and ROH of wagons is given at Depots equipped with sufficient facilities and nominated for taking up the ROH repairs.Except POH, all other ROH activities, terminal yard examinations and Sick Line activities are carried out in C&W depots of each Division of zonal Railways. Sick lines at wagon maintenance depot attend other repairs arising during intensive examination of the freight trains.

1.6.1 **Wagons:** Till 1990 Indian Railway had Four-wheeler Goods wagons and thereafter, these has been replaced by higher capacity 8-wheeler two bogie type wagons. Subsequently there was also a transition from Vacuum braking system to Air Braking system. So, all Freight / Goods wagons or Rolling Stock of IR are designatedas per their type and classification,

The following codes are used now for classifying freight cars. The classification scheme is not entirely systematic. But in general, an optional code is followed by a type code which is followed by an indication whether the wagon is air-braked.

1.6.2 **IdentifyingWagon type by code**

B: Bogie wagon	R: Rail-carrying wagon	FK: Flat car for container transport
O: Open wagon	V: Brake/parcel van	Y: Low/medium side walls
C: Covered wagon	H: Heavy load	LB: Low flat car with low buffer height
F: Flat car	C: Centre discharge	LA: Low flat car with standard buffer height
BV: Brake van	S: Side discharge	
T: Tanker	U/W: Well wagon	LAB: Low flat car, one end with low buffers, the other with high buffers
L: Low sided	FU: Well wagon	
X: Both center and side discharge also High sided		R: Rapid (forced) discharge, bottom discharge

1.6.3 **Wagons Classification by its types**

Open wagon, Covered wagon, Tanker wagon, Flat Wagon& Covered special carriers

a) **<u>Open wagon</u>**

BOX (Bogie Open high sided),
BOXN (Bogie Open high sidedwithAir Brake),
BOXN-HA (Bogie Open high sided withAir Brake with higher axle load fit for100 kmph speeds) for transporting ore, coal, steel etc.
BOXN-CR (Bogie Open high sided withAir Brake with corrosion resistant steel 3CR12 Stainless Steel)
BOXN-LW (Bogie Open high sided withAir Brake with Low tare weight)
BOXN-AL (Bogie Open high sided withAir Brake with Aluminium body)
BOXN-EL (Bogie Open high sided withAir Brake with Enhanced loading)
BOXN-HS (Bogie Open high sided withAir Brake with high speed bogie, speed to 100 KM/Hr.)
BOXN 25 M (Bogie Open high sided withAir Brake with25 ton axle load & higher carrying capacity, swing motion bogie)
BOST (Bogie open for finished steel products and high capacity)
BOY (Bogie open low sided)
BOB (Bogie open hopper for metal ballasting)

b) **<u>Covered wagon</u>**

BCX (Covered Bogie with water tight doors)
BCN (Covered Bogie with Air Brake)
BCNA (Covered Bogie with Air Brakewith higher axle load) for transportingfood grains, perishables etc.)
BCNHL (Covered Bogie Air Brakewith high capacity load),
BCCN (Covered Bogie Air Brakewith Cement carrier),
BCCNR (Covered Bogie single deck automobile carriers)

c) **Tankers**

BTPN (bogie tank wagon Petrol, Naphtha),
TK (tank Kerosene) and
TG (tank Gas) etc.
BVVN for transporting chilled Milk (at 4 deg) and water tankers. (There also special bogie stainless steel insulated tankers)
BTFLN (bogie tanker frameless for vegetable oils) and
BTPGLN (for liquified petroleum gas)

d) **Flat Open Bed**

BFR (bogie Flat for Rails),
BRH (plus High capacity),
BFK (for containers),
BFU (bogie flat with well),
BOM (bogie open Military)

e) **Covered Special Carriers**:

These are used for special purposes like Double decked Car carriers **BCACBN**, Ventilated Horse wagons, Military Ordinance carriers. Most of the Rolling stock are made of steel and special purpose tankers are made of stainless steel as mentioned earlier.

Later 2010 onwards, Aluminum wagons are also being produced to enhance the carrying capacity. These are designated as **BOBNAL** and **BOBRAL**. A typical rake with Aluminum wagons would be able to carry almost 250 tons extra haul.

1.7 Railways should notify the nodal examination points authorised to issue brake power certificates for running of air brake trains on **End-to-End, Premium** Examination and **Close Circuits** patterns. These nodal points should have adequate facilities like cemented pathways, welding points, proper lighting etc. for proper examination of air brake trains. The BPC shall be issued only from these nodal examination points.

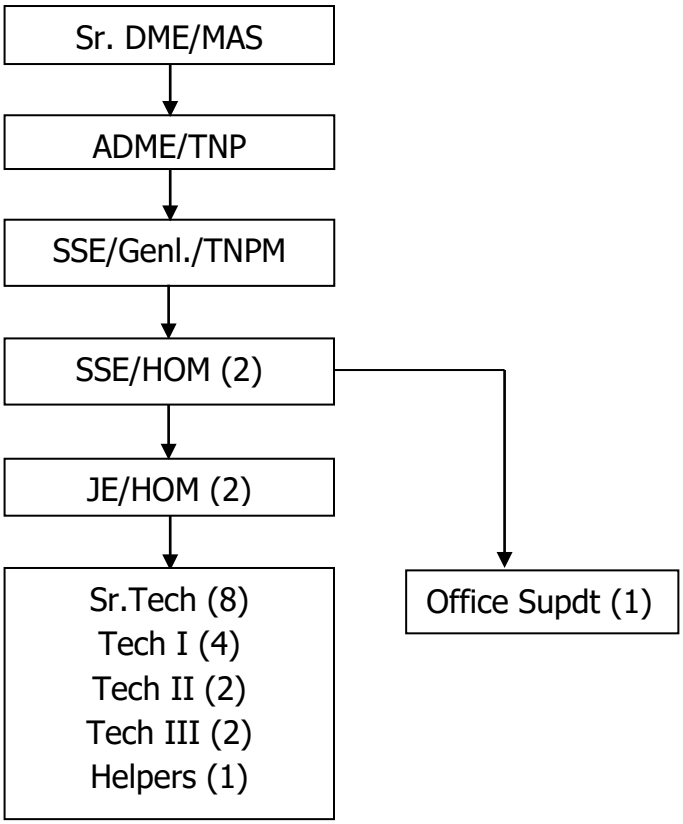
CHAPTER – II

2.0 PRESENT SCENARIO

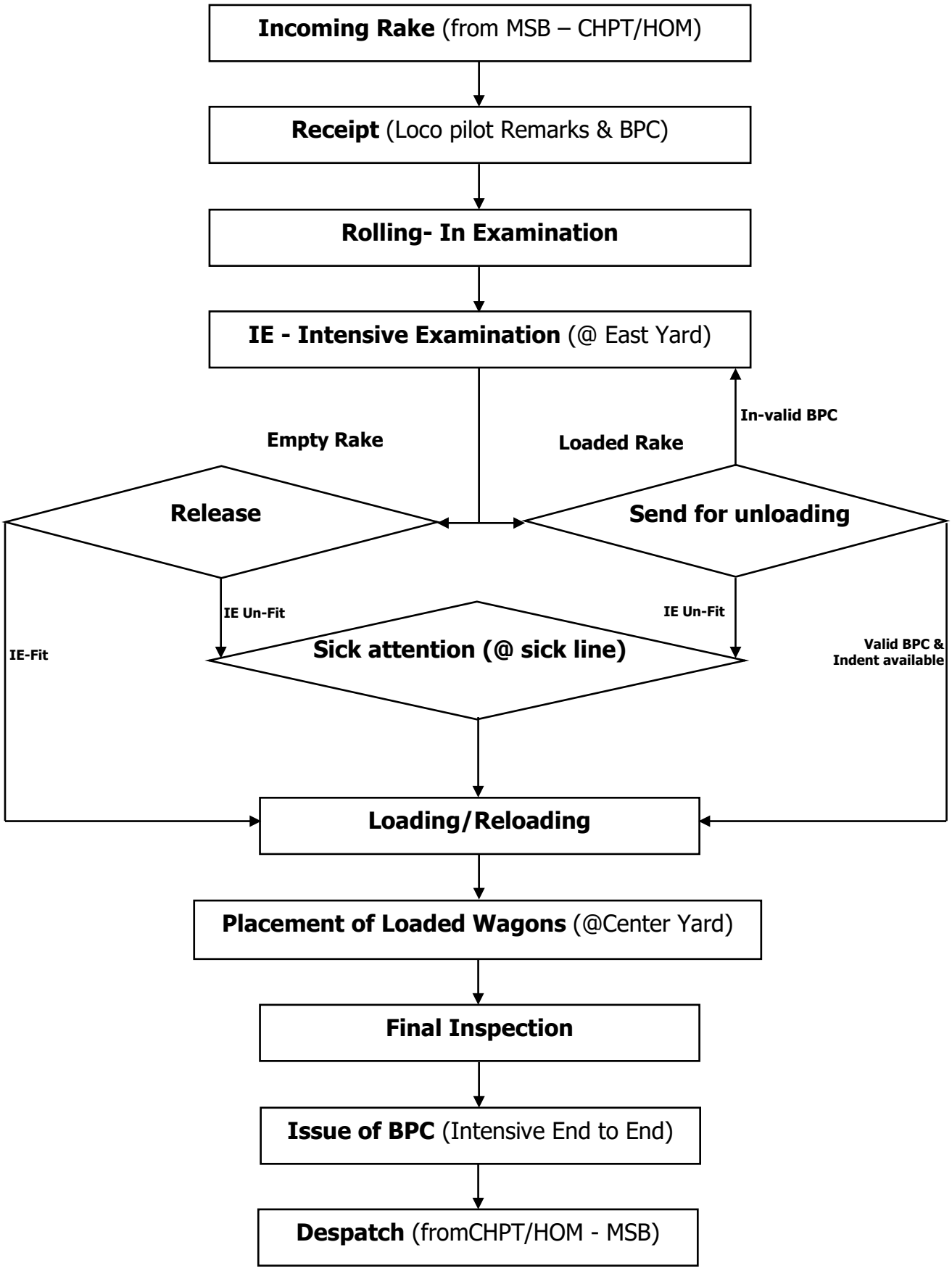
2.1 The Sanction, Actual, Vacancy and Excess Statement of SSE/C&W/HOM unit (Sanction as on 01.09.2020 & Actual as on 16.11.2020) - **Annexure I**

S. No.	Category	Sanction	Actual	Vacancy	Excess
1	SSE	3	2	1	-
2	JE	2	2	0	-
3	Office Supdt.	1	1	0	-
4	Sr. Tech/Fitter	8	7	1	-
5	Tech-I/Fitter	16	3	13	-
6	Tech-II/Fitter	3	2	1	-
7	Tech-III/Fitter	6	1	5	-
8	Sr. Tech/Welder	1	1	0	-
9	Tech-I/ Welder	1	1	0	-
10	Tech-II/ Welder	1	0	1	-
11	Tech-III/ Machinist	0	1	0	1
12	Helper	1	1	0	-
	Total	**43**	**22**	**22**	**1**

2.2 Organization Chart of SSE/C&W/TEN



2.3 **ActivityFlowChartof C&W/HOM**



2.3.1 The functioning of C&W staff at HOM

1. The wagon rake enters the HOM/ChPT from MBS (Chennai Beach Station)the BPC and remarks of loco pilot (RS-5 memo) from all incoming rakes are being collected

   Note: As per "Wagon maintenance manual chapter III of 305" The Freight Trains shall be subject to the following examinations:
   a) Rolling-in / Terminating examination.
   b) Intensive examination of originating trains including repairs, detachment of Damaged/sick wagons, brake testing, etc.
   c) Issue of Brake Power Certificate after ensuring brake continuity of the Formed load

2. **Rolling in examination** for all incoming rakes done

- All terminating trains should be given rolling-in examination while entering the yard.
- To carry out this examination the Train Examiner and his staff should take up positions on both sides of the lines, short of the normal halting place onwhich the train is to be received. The following inspection should be carried out
- In-motion inspection and observation of under gear of wagons for any loose or dangling components and flat places on wheels.
- Immediately after the train has come to a halt, all axle boxes should be felt. Temperature measurement taken with contact-less thermometers and those, which are found running at high temperature (more than 90°C), should be marked sick.
- Examination of any abnormal behavior of any of the vehicles or any other observation which may be related to the safety of the train.
- The rolling-in examination must be conducted to detect any skidded wheel.

3. After detaching loco, SM/ChPT issues advise note for incomingexamination and release. This was followed by Intensive examination

4 **INTENSIVE EXAMINATION**

- The rake should be protected at both the ends before undertaking the following examination and repair activities:
- Recording of all axle box temperature by thermo hunter
- Inspection and repairs of running gear fittings. Inspection and repairs of brake gear and suspension gears.
- Checking of safety fittings, safety brackets, safety loops, etc.
- Visual examination of underframe members, body, checking and proper securing of doors especially of covered wagons.
- Correct functioning and positioning of empty load device.

- Identifying any warm box Roller bearing stock found running at high temperature may be taken to sick lines for further attention.
- Looking for abnormal and unequal buffer heights, condition of shank wear plate knuckle, etc.
- Visualexaminationofthe bogies, side frames and bolsters to be visually examined for cracks and missing parts.
- All springs, snubbers, spigots, center pivots fastening, side bearers to be checked for defects, if any.
- Thorough check of Air brake components like brake cylinders, distributor valves, auxiliary reservoir control chambers and other pipe joints should be carried out to ensure that these are in proper working order.
- Isolating cocks and angle cocks to be checked for proper position.
- Brake cylinder should be released and checked for prescribed piston stroke for empty and loaded position.
- After brakes are released, the wheel profile should be examined visually.
- Check intactness of the pull and push rods with pins, washers, split pins and cotters, etc. Hand brakes must be checked for smooth and effective operation. Brake blocks should be replaced on reaching condemning thickness.
- Correct fitment of washers, bulb cotters and all brake gear pin to be ensured.
- Brake power should be tested and as per rake testing procedure.
- Examination of loaded stock and tank wagons should be done as per IRCA part-III.

5 **Movement to loading/Unloading/Sick line**

Empty wagons after intensive examination

- Ifit is fit, send for loading
- If the identified reject-able defectsare attended in the yard itself;the wagonmoved for loading
- If the identified reject-able defects could not be attended in the yard then the wagon is detached and moved to sick line attention
- Where a reject-able defect cannot be attended in the yard, in the case of loaded wagon, that wagon shall be moved for unloading then moved to sick line for defect attention. If it is an empty rake wagons moved to sick line
- Where a loaded rake with valid BPC that wagon shall be moved for unloading if indent available thenmoved to reloading
- Where a loaded rakewithinvalid BPC that wagon shall be moved for unloadingthen moved to yard for intensive examination

6 **Checking Advise Memo for Loaded Rakes**

- In coming empty rake or loaded wagons, after incoming released by C&W staff will be placed at loading or unloading lines / siding in two segments each comprising of 29 or 30 wagons by ChPT using their loco and staff.
- After loading or unloading each segment will be offered separately for safe to run examination. (The advice time for second segment will be taken as the handing over time of the rake by ChPT to Railways)

7 **Checking Loaded Rakes**

- Disconnecting the Brake pipes and feed pipe
- Changing of all load empty levers from empty position to loading position.
- Safe to run examination of running gear, Suspension system, draw and buffing gear & brake system after loading / unloading.
- Inspecting any fresh damages after loading /unloading.
- Ensuring any uneven load and door securing arrangement and advised to traffic for rake releasing through advice memo.
- Same procedure will be conducted for second segment also.

8 **Joint Check**

- In coming loaded trains offered for joint check after unloading for any fresh damage,
- Issuing memo if any fresh damages.

9 **Sick Line**

- Attending of sick wagons such as sick marked by yard staff and rejected by loading agent.
- All LR defects and certain HR defects will be attended in sick line.

10 **Damages Attending in Sick Lines At HOM/ChPT**

- Replacement of damaged broken CBC and CBC components.
- Missing/Shifting of coil spring.
- Flooring, Body repairs, doors.
- Body bulged.
- Adopter shifted and Elastomeric pad damages.
- Distributor valve replacement, replacement of broken dirt collector.
- Attending BP pipe broken.
- Salvaging and collecting scrap materials at yard & Sick line

11 **Out Going Trains**

- Once the wagons are loaded, they are placed in the Central Yard
- After attaching train Loco, SM/ChPT will inform C&W staff to make necessary examination for the rake to be despatched
- In-turn the C&W staff at HOM shall do the final inspection

- Connecting Train loco brake pipe with the formation and first 4 wagons separately checked for brake power.
- Ensuring proper locking of train loco CBC's with formation and also all wagons.
- All BLC trains container locking / seating arrangement to be ensured and BPC to be revalidated.
- In the cases of Steel coil loaded rake (BRN wagons),it is to be ensured for proper packing and latching.
- Ensuring of any air leakage in full formation upto brake van and checked continuity test with Guard and loco pilot.
- Verification of wagon numbers along with BPC and endorsement in BPC recording air continuity test, any attachment and detachment
- Preparation of LTM to outgoing trains.
- Recording of Individual wagon numbers in outgoing register.
- Handing over the BPC (Intensive End to End) to loco pilot.

12 **Preparation of Brake Power Certification for Goods Trains**

All freight trains after being subjected to thorough freight examination will be given a Brake Power Certificate (BPC). BPC for a goods train is issued after examination in goods checking yards by JE/SSE/C&W.

The brake power certificate shall be prepared in standard prescribed format and colour

Type of Rake	Colour of BPC	Brake power % for goods trains
End to End	White	End to end shall be 90%
Premium Rakes	Green	Premium rakes shall be 95%
Close Circuit Rakes	Yellow	Running in close circuits shall be 100 %

Brake pipe & Feed pipe pressure required in the train

No. of wagons	On Locomotive	Min. on last wagon
Up to 56	5.0 & 6.0 Kg/Cm2	4.8 & 5.8Kg/Cm2
Beyond 56	5.0& 6.0 Kg/Cm2	4.7&5.7 Kg/Cm2

13 As per "Wagon maintenance manual chapter III of 306-F (xiii)" The following procedure should be followed to issue the BPC after attachment of the locomotive:

- All BP and FP hoses/ hose pipes on the train should be coupled up. Theangle cocks in case of air brake stock at both ends of the wagon in brake pipe should be open. The angle cock at the end of brake van must be in closed position.
- Attach front wagon BP hose to BP hose & FP hose to FP hose of thelocomotive.

- Ensure firmness and tightness of hoses with palm ends coupling and clips.
- Ensure that all the cut off angle cocks on brake pipes are in open position.
- Attend to all leaks by replacing MU washer, leaky hoses and angle cockassembly, if requisite BP & FP pressure is not coming in the last vehicle.
- Inoperative or defective brake cylinders should be isolated by putting theisolating cock handle in closed position

(a) **Three types BPC for goods train available**

1. Intensive end to end BPC
2. Premium BPC
3. Closed circuit rake BPC

I **End to End Examination**As per "Wagon maintenance manual chapter III of 302(1)" The rake should normally be intensively examined in empty condition exceptwhen back loading of rake has to be done at stations/sidings. After such intensive examination, the empty rake should be moved to the loading station as per the requirement of traffic

- The BPC of empty rake may have no destination mentioned. However, after Loading the empty rake, the operating staff (commercial staff, if operating staffs not posted at that station) will ensure that the destination of the loaded train is clearly mentioned on the BPC and the same BPC will then become validupto such destination.
- No Loco pilot should move the loaded train from the loading point unless the Destination is clearly mentioned on the BPC. BPC of the loaded train without Destination will be considered as invalid.
- At the destination, after unloading, the rake must be examined once again in The empty condition and the above cycle repeats. In the absence of freight trainexamination facilities at the unloading point, the empty rake/back loaded rakemust be examined at the first freight train examination point in the direction ofmovement.

The End-to-End BPC shall remain valid provided:

i) The destination is mentioned on the BPC of the loaded train.
ii) Rake Integrity is not disturbed by more than 04 wagons (in case of BLCA and BLCB, the maximum limit of wagons which can be detached/replaced during run are 05, i.e. 01 unit = 05 wagons) and intensively examined wagons given fitness by train examining staff may be attached as replacement.

II **Premium Examination**As per "Wagon maintenance manual chapter III of 302(2)"The BPC of premium rakes shall have a validity of 12 days with 3 days additionalgrace period to facilitate examination in unloaded condition.

The following conditions have been prescribed for Premium rakes (vide Board'sletter No. 2005/ M(N)/951/13 dated 07/10. 04.2006):

a. Premium end to end rakes will be intensively examined in empty condition andcertified by examination points nominated by PCME &PCOM. Such premium examination points should either be 'A' category or upgraded to 'A' Category examination point
b. If any of the conditions, i.e. examination in empty condition or examination atnominated points is not satisfied, rake will not be certified as premium rake and willoperate as normal end to end rake.
c. Brake Power Certificate issued for such premium end to end rakes will be valid for 12days from the date of issue. During this 12-day period, the rakes will be allowed formultiple loading / unloading.
d. After each loading / unloading, the rake will be examined by Guard and Loco pilotbefore commencement of journey and observations will be recorded under therelevant columns of the Brake Power Certificate. In case of mechanized loading/unloading, examination by TXR is desirable.
e. The rakes will be turned out with minimum 95% Brake Power.
f. After the completion of 12 days, the rakes should be offered for next intensive examination at the first examination point in the direction of movement. To avoid examination in loaded condition, a grace period of 3 days shall be permitted. However, after expiry of the grace period, i.e. after completion of 15 days after the date of issue of BPC, even a loaded premium rake shall be offered for examination at the first TXR point in the direction of movement.

   Further, in no case, Premium rakes shall be offered for loading through bypass routes or through yards which are not nominated for examination. After examination, the rake will be certified as premiumRake subject to fulfillment of above-mentioned conditions, otherwise as conventionalend to end rake.

g. Movement of Premium rakes will be monitored thorough FOIS by Traffic and Mechanical departments.
h. The format for Brake Power Certificate for Premium end to end rakes (to be printed on good quality green colourpaper)

III **Close Circuit Rakes Examination** As per "Wagon maintenance manual chapter III of 302(3)"Railway must ensure that the infrastructural facilities at all the CC examination pointsare upgraded to 'A' category.

a) As far as possible, the close circuit air brake rakes should be formed from off-ROH and off-POH wagons.

b) The complete history of wagon and its components, i. e. Bogie, Draft gear,Coupler, AB System, Wheel & CTRB, etc. should be maintained by the BaseDepot.

c) The Originating Brake Power for air braked goods trains running in close Circuit, shall be 100% with adequate brake block thickness.

d) Further, Zonal Railways shall maintain detailed record with respect toenroutedetachments, brake power and detachments during examination of these rakes.The BPC of CC rakes shall be valid for 6000/7500 Kms or 30 days + 5 days,whichever is earlier. Grace period of 5 days is allowed if the rake is moving towards the base depot. The following stamp shall be provided on the BPC of CC rakes:

e) The BPC of CC Rake issued at the nodal point shall remain valid provided:

i. The kilometer has been logged in correctly and continuously (ifnot, the BPC will be deemed to be valid for 20 days only from the dateof issue). It is the responsibility of the crew to check that entriesregarding distance are clearly and continuously recorded.

ii. The rake integrity is not changed and only the listed wagons areincluded.

iii. The rake is running in the predefined circuit only as mentioned on theBPC. (Breaking the rake into parts and reforming the same parts, will not bedeemed to have broken the rake integrity).No intermediate examination of the Close Circuit rake is required. Itwould be the responsibility of the Loco pilot and Guard to check the unloadedCC rake at the unloading point and ensure brake continuity before starting.

f) Normally, all Close Circuit freight trains should be given intensiveexamination during day light hours. However, if Close Circuit freight trains are examined during night hours, minimum illumination level 100 to 150 Lux is required for under gear examination as well as repairwork of rake.

g) BPC issued after thorough freight examination in empty condition must be6+revalidated after loading. Revalidation includes conducting brake continuitytest, ensuring completeness/securing of brake gears and endorsing on intensiveBPC. No wagon shall be detached from the rake unless safety is affected.

CC rakes shall be subject to the following conditions:

i. CC Rakes should be maintained in the examination yards which have No lineof OHE Passing over the maintenance lines.

ii. CC rakes shall be monitored closely through FOIS by all Sr. DOMs to ensurethat these rakes are worked to their respective base depots before completionof stipulated KMs/ days. Rakes with invalid BPC shall normally not to bepermitted to run in service.

iii. All the cases of violation of this limit shall be analyzed by the concernedDivision / Zone where such rake gets detected, either on run or

duringsubsequent examination, for adequate corrective and/ or preventive action (ifnecessary).

iv. In case Km / Days limit is breached due to lack of monitoring or otherwise,and the rake is in empty condition, it shall be pushed to nearest TXR point forRevalidation and endorsement on BPC by TXR that the train is safe to run upto the base depot.

v. Such potentially unsafe rakes mentioned under "g" above, when detected inloaded condition, shall be subjected to GDR check and pushed to destination.After unloading, the empty rake shall be offered to the nearest TXR point forRevalidation and endorsement on BPC by TXR that the train is safe to run inempty condition upto its nominated base depot.

vi. The potentially unsafe rakes from the point of detection to the nearest TXRpoint will move on GDR check.

14 **Ministerial and Stores activities**

- Maintaining of time section records and stores, preparing salary bills, issuing of Pass and PTO's, maintaining LM 446 attendance register, monthly statements with stores and other letter correspondence.
- Preparation of Random Check Bills once in six months.
- Preparation of RS statement PCDO, MCDO and RS52 etc.
- Collecting of materials from TNPM and GSD/PER.
- Scraps disposal handover to GSD/PER.
- Maintaining of store documents and materials transactions.

15 After delivering the BPC to the loco pilot the wagon rakes, despatched fromHOM/ChPT through MBS (Chennai Beach Station) to its destination

2.4 Preventive Maintenance Schedules

Apart from all the above the Bogie wagons the following schedules are to be undertaken as a Preventive Maintenance to make the wagon run on rails without failures

2.4.1 **Rolling in Examination**Under gear of wagon for any loose or dangling components, Abnormal behavior of any vehicle, Skidded wheels, Incoming BPC to be collected by C&W Staff, All axle boxes to be felt within 20minutes of train arrival and all those are found running at high temperature should be marked for opening/checking at the time of examination.

2.4.2 **Examination of terminating** LoadsAxle boxes-record temperature, Wheels-tap wheels for dull sound, Brake rigging-examination of defects, release brakes, adjust brake rigging, replace brake blocks if required, Check suspension, draw and buffing gear.

2.4.3 **Examination of Train at originating station**Level of air brake power percentage, no wagon should have rejection-able defect, Wagons which have humped must be specially checked.

2.4.4 **Nursing of Axle Boxes**Plain bearing axle boxes which have been attended have greater tendency to develop higher temperature in 1st to 40 to 50Kms. of run after attention should be nursed.

2.4.5 **Intensive examination**through examination of trains after running of 4500Kms. Ensuring 100% rolling-in-examination for loose brake& gears skidding wheelsand hotaxle boxes.

The Railway Board have issued instructions to do away with Safe-to-run examination; i.e. only Intensive examination of goods trains to be done.
The availability target laid down for wagons is 96%, i.e. in-effective of 4% is permitted --1.5% on workshop account and 2.5% on open line repair account.

2.5 **StaffDuty Roaster at SSE/C&W/HOM**

Duty Type	Duty Period	Performed Hrs.
General Duty	08.00 To 16.30 Hrs	08.30 Hrs.
Morning Duty	07.00 To 13.00 Hrs.	06.00 Hrs.
Evening Duty	13.00 To 21.00 Hrs.	08.00 Hrs.
Night Duty	21.00 To 07.00 Hrs.	10.00 Hrs.

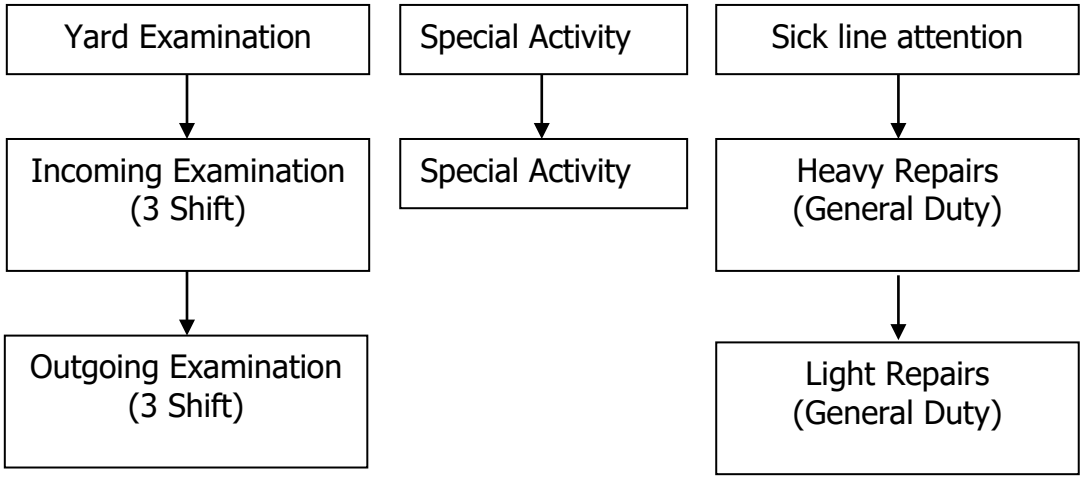
2.5.1 **Batch Availability**

Batch	Gang Strength
I	3
II	3
III	3
IV	3(1 from TNPM)
Sick line	5
Total	**17**

2.5.2 **Total staff as per SSE/C&W/HOM**

Details	Strength
SSE	1
SSE (from AJJ)	1
JE	2
Office superintendent	1
Staff	16
Staff (from TNPM)	1
Total	**22**

2.5.3 **Shift WiseActivity of SSE/C&W/HOM**



2.6 **Machine &Plants at SSE/C&W/HOM**

S.No	Description	In use	Total
1.	INDARC welding plant U.C.No.310522004	Yes	1
2.	INDARC welding plant U.C.No.310522001	No	1
3.	Gas Cutter	Yes	1
4.	Acetylene gas cylinders	Yes	1
5.	Oxygen gas cylinders	Yes	2
6.	10-ton Jack	Yes	1
7.	Welding cable (30 m)	Yes	1
8.	Welding cable (10 m)	Yes	1

2.7 Holding capacity of HOM in respect to the docks

At Bharathi Dock	
Sick line	
Holding Capacity in BOXN wagons	Working Capacity in BOXN wagons
08	06
08	06

Yard	
Incoming	
West yard 02	59
West yard 03	59
West yard 04	59
West yard 05	59
Outgoing	
East yard 02	59
East yard 03	59
East yard 04	59
East yard 05	59

Marshalling Yard	
Incoming	
East Yard 02	59
East Yard 03	59
East Yard 04	59
Outgoing	
Center Yard 02	59
Center Yard 03	59
Center Yard 04	59
Center Yard 05	59

2.8 **MaterialsLoaded into wagons**

Lime stone in BOXN
Dolomite in BOXN
Steel coils in BOST
Steel pipes in BRN
Fertilizers in BCN
Container in BLC

2.8.1 **Materialsun-Loadedfrom Wagons**

Cement clinkers in BOXN
Steel slag in BOXN
Steel coils in BOST
Steel Billets in BOST
Container in BLC

2.9 **Details of Intensive Examination at SSE/C&W/HOM**

Month	2016-17	2017-18	2018-19	2019-20	2020-21
April	07	07	06	16	07
May	07	01	03	18	13
June	11	01	12	15	18
July	11	14	01	14	31
August	14	11	16	23	10
September	07	13	13	12	03
October	05	25	11	08	06
November	06	17	17	13	05
December	06	12	17	06	-
January	05	08	30	06	-
February	13	05	23	03	-
March	29	03	14	11	-
Total/Year	121	117	163	145	93
Average/Month	10.08	9.75	13.58	12.08	11.63
Average/Day	0.33	0.32	0.45	0.40	0.39
Average Intensive Examined rake per Day (0.33+0.32+0.45+0.40+0.39=1.89/5 = 0.38)					
Average Intensive Examined Rakes perShift (0.38/3) = **0.127**					

2.9.1 **Details ofOther Examinationat SSE/C&W/HOM**

Month	**2016-17**	**2017-18**	**2018-19**	**2019-20**	**2020-21**
April	125	103	73	78	182
May	138	91	103	77	187
June	152	87	103	73	77
July	142	108	128	74	102
August	130	131	140	109	139
September	135	46	111	116	91
October	119	129	128	72	108
November	104	96	106	67	82
December	70	107	120	65	-
January	90	107	70	64	-
February	131	88	92	69	-
March	81	69	89	171	-
Total/Year	1417	1162	1263	1035	968
Average/Month	118.08	96.83	105.25	86.25	121.00
Average/Day	3.88	3.18	3.46	2.84	4.03
Average other Examination per Day (3.88+3.18+3.46+2.84+4.03=17.39/5 = 3.48)					
Average other Examined Rakes per Shift (3.48/3) = **1.16**					

2.9.2 **Details ofSick wagons attendedat SSE/C&W/HOM**

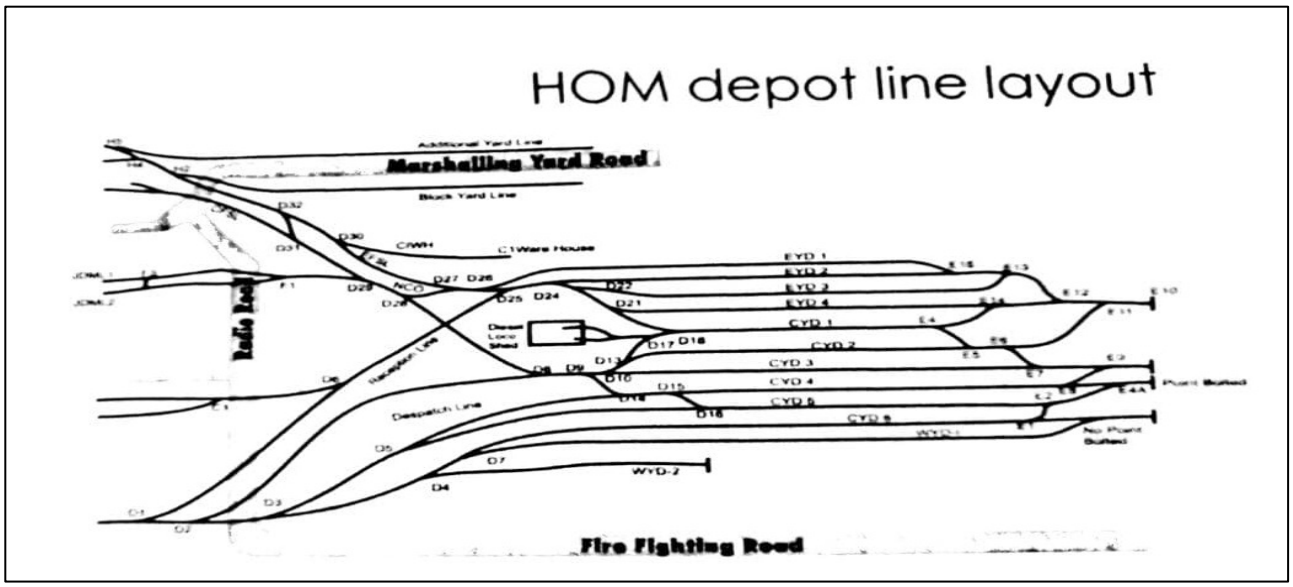
Month	**2016-17**	**2017-18**	**2018-19**	**2019-20**	**2020-21**
April	60	40	36	52	51
May	58	25	34	29	47
June	76	29	49	36	29
July	67	45	42	53	60
August	75	61	70	45	60
September	85	48	62	53	33
October	56	49	61	38	76
November	65	49	58	45	68
December	38	33	70	31	-
January	43	47	36	43	-
February	50	32	47	32	-
March	36	25	38	43	-
Total/Year	709	483	603	500	425
Average/Month	59.08	40.25	50.25	41.67	53.13
Average/Day	1.97	1.34	1.68	1.39	1.78
Average sick wagons attended per Day (No shift work at Sick line) (1.97+1.34+1.68+1.39+1.78=8.16/5) =**1.62**					

2.9.3 **Summary of Rakes examination**

Description	No of Rakes
Average Intensive Examined rake per Day(Ref table 2.9)	0.38
Average other Examined rakes per Day(Ref table 2.9.1)	3.48
Avg. Examined Rakes per day(Intensive + other)	3.86
Average Intensive Examined rake per Shift (Ref table 2.9)	0.13
Average other Examined rakes per Shift (Ref table 2.9.1)	1.16
Avg. Examined Rakes per Shift(Intensive + other)	1.29
Terminating rakes per Day (0.38+3.48)	3.86
Originating rakes per Day (0.38+3.48)	3.86

Description	No of Wagons
Average sick wagons attended per Month (Ref table 2.9.2)	48.88
Average sick wagons attended per Day (Ref table 2.9.2)	1.62
Average sick wagons attended per Shift	No Shift

2.9 **SSE/C&W/HOM Depot line Lay-out**



CHAPTER – III

3.0 CRITICAL ANALYSIS

3.1 The actual staff strength of SSE/C&W/HOM unit is 22 including 4 supervisory and 1 ministerial staff against the sanction strength of 43.

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 the unit cost which is an effective way to maximize the productivity/efficiency as well as the 'economy in operation' of Indian Railways.

3.1.2 To optimize the utilization of man power the study team has taken the staff requirement for the present workload for maintenance activities by

Latest Railway Board guidelines and strategy prevailingin RailwayBoard's Lr.No.2008/M(N)/951/13 CC Rakes the following changes have been approved by Board in freight train to reduce "Turn-round of freight stock"

i. The freight trains will be subjected to only intensive examination either for end-to-end Operation or for CC operation.Rolling-in examination as part of intensive examination (end to end or CC) be done except En-route rolling in examination of freight trains to be discontinued.

ii. Post loading examination by TXR staff may be discontinued for all type of stock.However, post-loading check will be carried out by guard and driver.

iii. In case 3 or more trains are being tippled**,** post tippling check will 'be done by skeleton TXR staff.

iv. It should be ensured that unexamined lead (after unloading before next TXR point) of trains running on end-to-end pattern does not exceed 400 kms.

3.1.3 The Numberof CC Goods rakes being moved are monitored with the help of Freight Operations Information System (FOIS)&Integrated Coaching Management Systems(ICMS) to contain their time loss. These facilities are available in HOM yard office which very helps to know in-coming Goods Traffic apart from C&W control.

3.1.4 Frequency of intensive examination for different stock:

a. All freight trains should be subjected to intensive examination in empty condition at originating stations.

b. In exceptional cases the back loaded freight trains can be examined as per instructions mentioned.

c. All freight trains shall be re-examined if stabled for more than 24 hours by SSE/JE (C&W) in yard and by guard and Loco Pilot in nonC&W station up to next C&W point in the direction of movement for examination, as per Railway Board's Joint Procedure Order.

d. Air brake stock shall run on end-to-end pattern as mentioned.

3.1.5 The intensive BPC shall remain valid provided:

i. The **destination is mentioned** on the BPC of the loaded train.

ii. The composition of the rake is not changed by **4 or more wagons.**

3.1.6 The No. of Wagons dealt and attended at HOM has drastically reduced due to;

- Due to the technological improvement in the braking system (air brake), trains are run with intensive / round / point to point Brake Power Certificate valid upto 6000 Kms. /7500Kms. or 30/35 Km. whichever is earlier.
- Coal loading is reduced since most of the loading shifted from HOM to AIP Port due to more mechanised system of unloading / loading. Moreover, Tamil Nadu State Government has formed another Thermal Power Station at Ennore apart from Mettur Thermal Power Station (MTDM).
- Almost 95% of the trains come to HOM with a return BPC.
- Almost all the rakes coming to HOM are of BOXN type fitted with Air Brake System and Tapered Cartridge Roller Bearings.
- IOH & ROH and other major sick wagons are attended at TNPM. Only Light Repair (LR) and Heavy Repair (HR) works are attended in sick lines at HOM.
- Concepts such as Close Circuit (CC) rakes with 30 days BPC and Premium rakes with 15 days BPC have brought down the average no. of goods train examinations per day.
- Introduction of Casnub bogies replacing conventional UIC (French word - **U**nion **I**nternationale des **C**hemins de fer) bogies, further modifications in the Casnub bogies towards better riding qualities with high speeds, incorporation of worn-wheel profile in the running gear and other such new technological improvements have considerably reduced sick arising in almost all the depots.

3.1.7 After introduction of Casnub bogies with Tapered Cartridge Roller bearing fitted with air brake, eliminating UIC bogies, using CBB brake blocks and introduction of worn-wheel profile, almost 50% of the fatigue was reduced.The Premium rake with 15 days BPC and CC rake with 30 days BPC concepts and Intensive examination of trains after Running of 7500Kms., have absolutely "reduced the average number of goods trains examination per day". And as such Goods train checking and workload in the Goods Yard is reduced. Hence, it requires right sizing of Manpower requirement appropriate to job on hand and average 15% is deduction from calculated manpower.

- By latest instructions of Railway Board vide Lr.No.2013/M(N)/951/22/CC Rakes Pt.2 issued in June'2015, the grace period of 45/+3 days for CC /premium Rakes is to be utilized by endorsing a stamp on to the BPC issued originally.
- By latest instructions of Railway Board vide Lr.No.2013/M(N)/951/22/CC Rakes Dt.23-03-2015, Round Trip BPC is valid for 2000Kms. /12days with only one loading between successive C&W examinations.
- By latest instructions of Railway Board vide Lr.No.2013/M(N)/951/22/CC Rakes Dt.26-02-2015, for CC Rakes examination shall be based on 6000/7500 km. or 30/35 days whichever is earlier.
  With improvements and workload prevailing at HOM has been reduced and in turn requirement of C&W staff is assessed on established yardsticks & on need basis.

3.2 The Standard gang for conducting intensive examination should consist of Two JEs, 10 Ten Fitters &two C&W Assistants &they will complete one intensive examination in 2 hours. However, wherever the density of train examination is less,(Zonal railways may however permit variation based on local conditions,typical characteristics prevailing at site and availability of infrastructural facilities) local conditions will prevail for formation of the gangs

Standard Gang for Conducting one Intensive Examination in 2 hours		
Junior Engineers	Fitters	C&W Asst.
2	10	2

3.3 Calculation forMan Power Requirement at SSE/C&W/HOM

3.3.1 Artisan staff For Yard Examination

Manpower required as per yardstick available in wagon manualfor **one Rake 2JE, 10Fitters& 2 C&W Asst=14 staff, sufficient to examine in 2hrs.**

The no. of rakes to be examined in a day of 24 Hrs. is (24÷2) = 12

In a Shift of 8 Hrs. the No. of rakes to be examined is (12÷3) = 4

From table 2.9.3 (Datum taken for 2016-17 to 2020-21) the total No. of Intensive & Others examination per day is 3.86rakes. Say 4 (Which is one-third of the Actual rakes to be examined) assuming the future, increase ofrakes to beexamined as 6and also the previous 5 years datum the study team allows **to examine, one Rake with**

1 JE, 5 Fitters &1 C&W Asstand a total of 7 staff,sufficient to examine in 4hrs.

Therefore,the No, of rakes to be examined in a day of 24 Hrs. is (24÷4) = 6

In a Shift of 8 Hrs. the No. of rakes to be examined is (6 ÷ 3) = 2

From the above, Staff requirement for Yard examination (Excl. Supervisors)

For one Shift (8 hours) is 6 Staff (5 Fitter + 1 C&W Asst.)

Therefore, For Three Shifts is (6 X 3)=18 Staff

(15 Fitter + 3 C&W Asst.) RG & LR Included

Man Power Requirement for Yard Examination **(18 Staff)**

3.3.2 Requirement for Sick line

1) As per yardstick the employment of the staff in sick lines should be 40 men per 1000 BG wagons, which will be inclusive of all schedules & unscheduled repairs, except corrosion & panel patch repair.

   Average No. of sick wagons attended per month 48.88 (Say 50)

   Therefore, No. of men required (50X 40) ÷1000 =2 staff

2) As per yardstick for corrosion & panel patch repair works 7 men for 1000 BG wagons held

   Average No. of sick wagons attended per month 48.88 (Say 50)

   Therefore, No. of men required (50 X 7) ÷ 1000 = 0.35 staff

But the study team allows 2 staff on need basis for corrosion & panel patch repairs

Requirement of staff in sick lines inclusive of all schedules & unscheduled repairs } 2 Staff

Requirement of staff in corrosion & panel patch repairs 2 Staff

Man Power Requirement for Sick line **(4 staff)**

3.3.3 **Requirement forAncillary Work (Welding/Painting)**

Minimum skeleton staff,are required for activities such as welding, riveting, painting etc. at SSE/C&W/HOM since the average sick wagon is less than 2 per day. Most of the Heavy repairs**/**Light repairs are due to "welding given up" or "rivets given up".TheYardstick for Ancillary staff has not been prescribed by Railway Board. This supporting ancillary staffs are also allowed on need basis for this unit, **1 each at Yard & Sick Line**

LR & RG to be managed with one more and thereby (2 + 1) = 3 Staff

Man Power Requirement for Ancillary work**(3 staff)**

3.3.4 **Requirementof Supervisory Staff**

Supervisor's requirement at C&W/HOM Depot is assessed according to the activities. Yardstick for Supervisors&Artisan Staff is 1:11 andfor (43-6=37)(3 SSE + 2 JE + 1 Ministerial staff)

By applying the ratio 1:11 the supervisor strength will be (37 ÷ 11 = 3.36).Say **4 Supervisors**.

At present, there are 4 supervisors available at C&W/HOM.

Their requirement is assessed based on need basis

Overall in-charge of HOM depot	=	1 SSE
Yard Maintenance (1 each/Shift)	=	3JE/SSE
RG & LR (Both Sick line & Yard)	=	1 JE/SSE
Requirement of Supervisory Staff		(**5 staff)**

3.3.5 **Requirementof Ministerial staff**

The Work load for OS Working in this SSE/C&W/HOM Depot is looking after the time section, personal matters, General Correspondence, time keeping, Preparation/maintenance of Pay Bill, Muster Roll leave, TA/DA, Pass, provident fund for staff, Making correspondence with other departments and Divisional offices Hence The sanctioned ministerial strength is allowed to continue

Requirement of Ministerial Staff (**1 staff)**

3.3.6 **Requirementfor Miscellaneous Activities;** It is noted that materials are brought from TNPM, GOC and GSD/PER, PWP/Shop for day-to-day requirement. Hence two staff are required to collect and arrange proper supplying of materials to sick line/depot, activities such as Stores, Office assistance, and Trainee Reserve

Requirement for Miscellaneous Activities (**2 staff)**

3.3.7 **Summary of Staff Requirements**

Area of Requirement	Ref No.	No of posts
Yard Examination	3.3.1	18
Sick line	3.3.2	4
Ancillary Work	3.3.3	3
Supervisory Staff	3.3.4	5
Ministerial staff	3.3.5	1
Miscellaneous Activities	3.3.6	2
	Total	**33**

Sanction VS Requirement

Sanction	Actual	Requirement	Surplus
43	22	33	10

Sanction Vs Requirementof Staff at SSE/C&W/HOM

Category	Sanction	Actual	Requirement	Vacancy
SSE	3	2	3	-
JE	2	2	2	-
Office Supdt	1	1	1	-
Sr. Tech/Fitter	8	7	7	1
Tech-I/Fitter	16	3	7	9
Tech-II/Fitter	3	2	3	-
Tech-III/Fitter	6	1	6	-
Sr. Tech/Welder	1	1	1	-
Tech-I/ Welder	1	1	1	-
Tech-II/ Welder	1	-	1	-
Tech-III/ Machinist	-	1	-	-
Helper	1	1	1	-
Total	**43**	**22**	**33**	**10**

SUMMARY OF RECOMMENDATION

The following 10 posts are found excess to the requirement in SSE/C&W/HOM and the same may be surrendered and credited to the vacancy bank

Category	**Grade Pay (Rs)**	**Pay Level**	**Surplus**
Sr. Technician	4200	L 6	1
Technician I	2800	L 5	9
		Total	**10**

(Total 10Posts)

CHAPTER – IV

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

The views of ADME/W/TNPM was received vide letter No.M/M.22/WS/HOM dated 10.02.2021. Based on the work study to review the staff strength @ HO/MAS (G.275/WSSR-332021/2020-21), the same is placed as Annexure II
The remarks of Planning Branch over the views of Co-ordinating Officer is appended below,

Co-ordinating Officer's Remarks 1

As per the study report of HOM depot a total of 33staff have been allotted to the depot. This figure is based on the calculation of manpower at point 3.3.1in the staff study report 6 staff (5fitter + 1C&W asst) have been allotted to each batch and 18 staff (6 staff/shift x 3 shifts) are allotted.

Since the depot is functioning round the clock(24 x 7) we require, having a separate rest giving batch (RG) which is not included in the above calculation. Further as per the work study the total number of artisan staff required for yard examination should be 18 (excluding supervisor) and we must also include the RG batch (6 staff) and the total staff thus work out will be 24 (excluding supervisor) for yard examination.

Planning Branch Remarks: Not Agreedto

(i) In Para 3.2 it is clearly given that "The Standard gang for conducting intensive examination should consist of Two JEs, 10 Ten Fitters & two C&W Assistants &they will complete one intensive examination in 2 hours. **However, where ever the density of train examination is less,**(Zonal railways may however permit variation based on local conditions,typical characteristics prevailing at site and availability of infrastructural facilities)**local conditions will prevail for formation of the gangs"**

(ii) **As per Para 3.3.1**"Manpower required as per yardstick available in wagon manualfor one Rake, 2JE, 10Fitters & 2 C&W Asst =14 staff, sufficient to examine in 2hrs.
The no. of rakes to be examined in a day of 24 Hrs. is (24÷2) = 12
In a Shift of 8 Hrs. the No. of rakes to be examined is (12÷3) = 4

From table 2.9.3 (Datum taken for 2016-17 to 2020-21) the total No. of Intensive & Others examination per day is 3.86rakes. Say 4 (Which is one-third of the Actual rakes to be examined per day)assuming the future, increase of rakes to be examined as 6and also the

previous 5 years datum, the study team allows to examine, one Rake with, 1 JE, 5 Fitters &1 C&W Asstand a total of 7 staff,sufficient to examine in 4hrs. Therefore, the No, of rakes to be examined in a day of 24 Hrs. is (24÷4) = 6 In a Shift of 8 Hrs. the No. of rakes to be examined is (6 ÷ 3) = 2

From the above, Staff requirement for Yard examination (Excl. Supervisors) For one Shift (8 hours) is 6 Staff (5 Fitter + 1 C&W Asst.) Therefore, For Three Shifts is (6 X 3) =18 Staff

(iii) **(15 Fitter + 3 C&W Asst) RG& LR Included**
Man Power Requirement for Yard Examination(18 Staff)

(iv) **The Present Roster showing the Gang strength at HOM/MAS**

Roster P: General/Day	G: Evening Duty	F: Morning Duty	E: Night Duty
08.00 To 16.30 Hrs.	13.00 To 21.00 Hrs.	07.00 To 13.00 Hrs.	21.00 To 07.00 Hrs.

Batch	Gang Strength	Supervisors	Sun	Mon	Tue	Wed	Thu	Fri	Sat
Sunday Rest	3	1	Rest	G	F	E	G	F	E
Monday Rest	3	1	E N/R	Rest	G	F	E	G	F
Tuesday Rest	3	1 (Sick line)	F 7-13	E 21-7	Rest	Sick Line	Sick Line	Sick Line	G
Saturday Rest	2 + 1 (TNPM)	1	G	F	E	G	F	E	Rest
HOM Sick line									
Sick line	5	1	REST	P	P	P	P	P	P

(v) The aim of work study is, **to optimize the utilization of man power**.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 the unit cost which is an effective way to maximize the productivity/efficiency as well as the 'economy in operation' of Indian Railways.

From the above, it is clear that

i. Where ever the density of train examination is less, local conditions will prevail for formation of the gangs

ii. (Datum received from HOM/MAS for 2016-17 to 2020-21) the total No. of Intensive & Others examination is 3.86 rakes per Day, Say 4. (Which is 1/3 of the Actual rakes to be examined)

iii. Identified staff strengthfor yard examinationis 18(inclusive of RG & LR)

iv. As per data received, the Present yard examination staff strength in HOM/MAS is 12, (inclusive of RG batch) but the study team had identified the

requirement as 18. By applying the statement"Where ever the density of train examination is less, local conditions will prevail for formation of the gangs" the RG Batch can be formed.

The separate Rest giving batch is not agreeable.

Co-ordinating Officer's Remarks 2

In addition to this a separate job writer is required for maintenance of records pertaining to sick line and Yard activities

Planning Branch Remarks: Not Agreedto

Already as per 3.3.6 in the account of miscellaneous activity, two staff are given on need basis "to collect and arrange proper supplying of materials to sick line/depot, activities such as Stores, Office assistance, and Trainee Reserve.
For maintenance of records pertaining to Sick line & yard activitiesthe above 2 staff can be effectively utilized.

Co-ordinating Officer's Remarks 3

On arrival of empty BOXN/BOXNHL/BCN wagons an average of more than 4 wagons arrive with defects like EM pads damage, adopter canter/twisted, OP rods bent, hand brake wheel bent etc. and are marked sick and are to be attended on the formation itself without detaching the sick wagons as otherwise the BPC will become invalid. An exclusive on rake attention gang is thus required for this purpose. In addition, wagons requiring heavy repair attention arriving by incoming empty rakes are necessarily to be detached from the train and booked to TNPM wagon depot for further attention. This makes the BPC invalid and HOM depot need to issue fresh BPC in such cases, which also requires additional man power. Hence a minimum of 4 staff are totally required at HOM depot and the 33 staff allotted to HOM depot by the work study team will not be sufficient.

Planning Branch Remarks:

From the data received from SSE/C&W/HOM the sick attended from 03.10.2020 to 31.01.2021 isas follows;

Sickcategory	Sick line Attention
Adopter Canted, Attended	19
Body Bulge / TNPM	4
Coil spring Missing Provided	1
Coil Spring shifted, Attended	1
Cut off angle cock defect, Replaced	1
Cut off angle cock heavy leakage, Replaced	1
Door channel broken, Welded	7

Door Defect, new RC door Provided	6
Door Hinges broken, Welded	5
Door Hinges cut, Welded	3
Door lock broken, Attended	1
Door Missing, new RC door Provided	46
Door rest bent, attended	1
DV repair, Attended	3
Elastomeric Pad Perished, Replaced	157
End body repair, Attended	2
Flooring repair, Attended	18
Foot step bend badly, Attended	3
Foot step broken, Attended	1
Hand Brake wheel bent, Attended	8
Heavy Flooring repair / TNPM	1
IC valve broken, Replaced	1
Operating lever rod bent, Attended	1
POH Due / TNPM	1
ROH Due / TNPM	3
Side Bearer worn out, Attended	2
Side Body Repair, Attended	7
Stanchion Rod Bend, Attended	2
T' Pipe puncture, Attended	1
York Support plate rivet missing, Attended	2
Grand Total	**309**

When we calculate, the average sick attended is 2.575 per day. (1 per shift)

More over as per **Chapter 3 of Yard maintenance Table 3.3 in wagon manual 2015, Categarisation of freight train examination points including Yard, Sick line & ROH depot as on 18.03.2015 in page 39 of 44 "the HOM depot only the examination yard and sick line.**
Both the Examination point and Sick line falls under the category of "F" which is listed below

Categorization of Examination point / Repair facilities

Category	Criteria for Categorization
A	(i) Having pucca pathways on more than 50% of the lines nominated for examination. (ii) Sufficient illumination facilities 150 lux. (iii) Sufficient material handling facilities. (iv) Sufficient welding facilities.
B	(i) Having pucca pathways on more than 50% of the lines nominated for examination. (ii) Sufficient illumination facilities. (iii) Sufficient material handling facilities.
C	(i) Having pucca pathways on more than 50% of the lines nominated for examination.

	(ii) Sufficient illumination facilities.
D	(i) Having pucca pathways on more than 50% of the lines nominated for examination.
E	No pucca pathway but some other facilities are available
F	**No facilities available.**

Categorization ofSickline

Category	**Criteria for Categorization**
A	(i)Berthing capacity under covered shed (ii) Heavy duty concrete flooring in working area. (iii) Availability of welding facility. (iv) Availability of Compressor/ Exhauster. (v) Availability of EOT crane
B	(i) Berthing capacity under covered shed. (ii) Heavy duty concrete flooring in working area. (iii) Availability of welding facility. (iv) Availability of Compressor/ Exhauster. (v) Synchronized whiting jacks.
C	(i) Berthing capacity under covered shed. (ii) Heavy duty concrete flooring in working area. (iii) Availability of welding facility. (iv) Hydraulic Jacks for lifting
D	(i) Berthing capacity under covered shed. (ii) Heavy duty concrete flooring in working area.
E	Berthing capacity under covered shed.
F	**Without any Berthing capacity under covered shed.**

In view of the above it is the day today mandatory work of SSE/C&Wdepot. Hence the recommendations given by the work study team stands good

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:

Category	Grade pay (Rs.)	Pay Level	No.of post	Money Value (Rs.)	Annual savings (Rs.)
Sr. Technician	4200	L 6	1	86,463	10,37,556
Technician Gr. I	2800	L 5	9	71,078	76,76,370
Total			**10**		**87,13,926**

Annexure I

DEPOT WISE STAFF POSITION Revised Book of Sanction as on 01.09.2020				
	HOM			
	S	A	VAC	EX
SSE	3	1	2	0
JE	2	2	0	0
SSE-Instructor	0	0	0	0
SE/S.Counsellor	0	0	0	0
JE Reserve			0	0
S Tech.F	8	6	2	0
Tech I F	16	3	13	0
Tech II F	3	1	2	0
TechIIIF	6	0	6	0
S.Tech C	0	0	0	0
Tech IC	0	0	0	0
Tech IIC	0	0	0	0
Tech III C	0	0	0	0
S.Tech P	0	0	0	0
Tech I P	0	0	0	0
Tech II P	0	0	0	0
Tech III P	0	0	0	0
S.Tech BS	0	0	0	0
Tech I BS	0	0	0	0
Tech II BS	0	0	0	0
Tech III BS	0	0	0	0
Sr.Tech Welder	1	1	0	0
Tech Welder HSI	1	0	1	0
Tech Welder HSII	1	1	0	0
Tech Welder HSIII	0	0	0	0
S.Tech R	0	0	0	0
Tech I R	0	0	0	0
Tech II R	0	0	0	0
Tech III R	0	0	0	0
Sr.Tech Trimmer	0	0	0	0
Tech I T	0	0	0	0
Tech II T	0	0	0	0
Tech III T	0	0	0	0
S.Tech Machinist	0	0	0	0
Tech I M	0	0	0	0
Tech II M	0	0	0	0
Tech III M	0	1	0	1
Tech I Mason	0	0	0	0
Tech II Mason	0	0	0	0
Tech III Mason	0	0	0	0
Tech I T&C Smith	0	0	0	0
Tech II T&C Smith	0	0	0	0
Tech III T&C Smith	0	0	0	0
Progress Chaser	0	0	0	0
Crane Driver	0	0	0	0
Saloon attendant	0	0	0	0
Khalasi - I&II	1	0	1	0
TOTAL	**42**	**16**	**27**	**1**
Office Supdt	1	1	0	0
Total	**43**	**17**	**27**	**1**

G.?
OS/mech cadre
15.9.2020