



WORK STUDY REPORT  
ON  
REVIEW OF ARTISAN Gr 'C' & 'D'  
STAFF WORKING  
IN  
DIESEL SHED LUDHIANA  
OF  
FIROZEPUR DIVISION  
2017-18

WORK STUDY TEAM

SH. LALIT KUMAR	: AWSO	LEADER
SH. RAM PARSHAD	: CWSI	MEMBER
SH. YOGESH BADHWAR	: CWSI	MEMBER

DATE OF START : 05.04.2017  
DATE OF COMPLETION : 18.04.2017

GUIDANCE

BY

SH. ASHOK KUMAR AGARWAL- SWSO

NO.16-CP/02/WS/2017-18

CENTRAL PLANNING CELL,  
NORTHERN RAILWAY,  
BARODA HOUSE,  
NEW DELHI.

## EXECUTIVE SUMMARY

The study was allotted to the Central Planning Cell, HQ office on the directive of SDGM/NR to identify redundant activities with a view to eliminate wasteful expenditure and to improve manpower productivity of Diesel Shed LUDHIANA.

### STAFF POSITION

The total sanctioned and on roll strength of Group "C" & "D" Artisan staff working in Diesel Shed LDH is given below:-

S.N.	Description	S/S	O/R	(-) Vac. (+) Excess
1	Group 'C' staff	896	705	(-) 191
2	Group 'D' staff	232	290	(+) 27
Total		1129	995	(-) 134

No. of posts identified as surplus and recommended for surrender: -

Gr. 'C' = 61 posts

Gr. 'D' = 14 posts

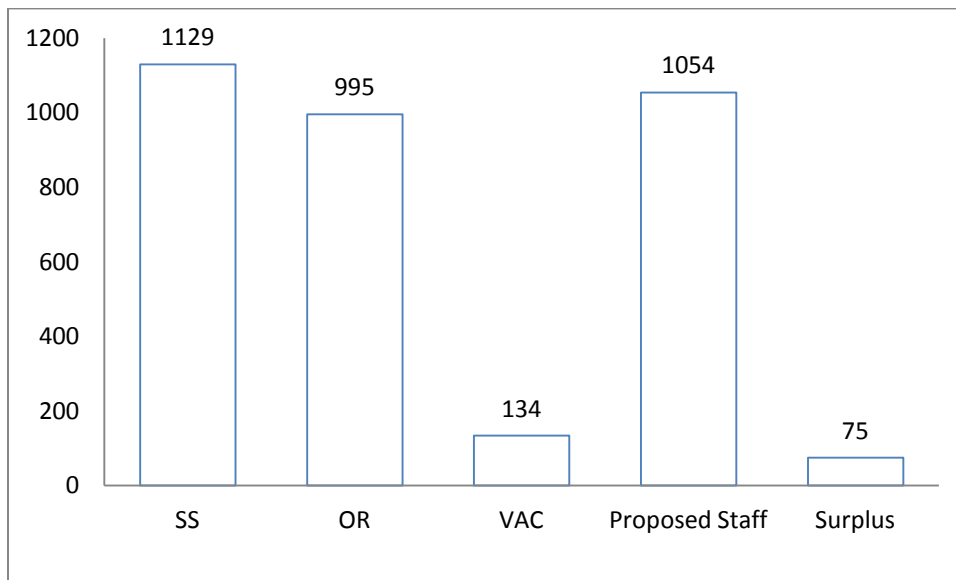
Total = 75 posts

### FINANCIAL IMPLICATIONS:

Anticipated recurring savings = ₹ 374.40/- lakh per annum.

Capital savings = Nil

Total savings = ₹ 374.40/- lakh per annum



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## SYNOPSIS

Locomotive is one of the important parts of a train which hauls the train at a desired level of speed. In past, steam locomotives were used in railway to transport the passengers as well as freight traffic from one point to another. In 60's the dieselization of traction were introduced on busiest routes with a view to improve the speed of railway transport. In the year 2000, the steam locos were totally phased out and now a day's all the trains are hauled by Diesel or Electric locomotives. In 1962, India imported 72 WDM-4 diesel locomotives from General Motors, USA and homed at diesel shed Mugalsarai for providing necessary maintenance to these locomotives. But due to reduction of steam locos and increase in railway traffic, requirement of diesel locomotives were increased. To meet this goal, Indian Railway introduced state manufactured diesel locomotives WDM-2 at Diesel locomotives works, Varanasi. This study deals with Review of Diesel Loco shed activities which are essentially required for maintenance and upkeep of these locomotives. The maintenance of diesel locomotives are carried out by different diesel loco sheds over the entire Indian Railways.

Due to various innovations/modernizations and system developments, the various maintenance activities need to be streamlined with a view to effect economy in expenditure with improved manpower productivity. Consequently SDGM/NR desired to conduct a work study on "Review of 'C' & 'D' Maintenance Staff working in Diesel Loco shed LUDHIANA."

The team visited the shed and critically examined its workload. The team kept the periodicity of various maintenance schedules, modifications being incorporated, geographical conditions, existing working conditions and bench mark/norms as laid down by Railway Board into consideration while assessing the requirement of manpower. Keeping in view of above, the team identified **75** (Gr 'C'-61 & 'D'-14) posts as surplus and recommended for surrender. After acceptance and implementation of the report in toto a net recurring saving to the tune of ₹ 374.40/- lakh per annum will be achieved by the railway administration.

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## SUMMARY OF RECOMMENDATIONS

Rec No	Recommendations	Refer para no.	Accepting/ Implementing authority
1	<p>It is proposed that <b>75</b> posts of Tech.III staff are identified as surplus from diesel shed LDH and recommended for surrender.</p> <p>Tech.III Gr. ₹ 5200-20200-1900 = 61  Gr 'D' = 14  Total = 75</p>	2.1.4	ADRM/FZR Sr.DME/DSL/LDH Sr.DPO/FZR

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## ACKNOWLEDGEMENT

The work study team is highly grateful to Sh. Ashutosh Pant, ADRM/FZR, Sh. Yusuf Kabir DPO/C/FZR, Sh. Rakesh Kumar, SR.DME/Dsl. Shed LDH and Sh. Kuldeep Rai, DME/ Dsl Shed LDH for giving their valuable guidance during the conduct of the study. The team is also thankful to SSE/CTA, SSE/G, COS/G and other functionaries for providing relevant data/information and extending their full co-operation during the conduct of study.

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## **1.0.0 INTRODUCTION**

1.1.0 Diesel Loco Shed LDH is one of the biggest shed on the Northern Railway. The entire rail network of FZR division comprises of both electric and diesel locomotives. The trains are hauled by diesel/Electric locos towards Amritsar, Jammu Tawi, Ambala, Moradabad and Delhi direction.

1.2.0 The Diesel loco shed LDH provides reliable diesel locos for hauling mail/exp, passenger and freight trains over Northern Railway. To keep the of diesel locos in good running condition, this shed carried out inspection as well as periodic schedules and out of course repairs. The periodicities of maintenance schedules have been enhanced and notable innovations/modifications are being incorporated in design feature of diesel locos along with replacement of components/parts. This has resulted in lesser maintenance efforts and more reliability but the staffing pattern has not been changed yet.

1.3.0 Consequently, SDGM/NR has assigned a work study on "Review of Gr 'C' & 'D' maintenance staff working in Diesel Loco shed Ludhiana." with a view to eliminate wasteful expenditure without hampering the smooth functioning of Diesel loco shed.

## **1.4.0 TERMS OF REFERENCE**

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

- i) To review staff strength vis-à-vis workload.
- ii) To suggest ways and means to identify redundant/unproductive activities to eliminate wasteful expenditure.
- iii) To suggest ways and means to improve the efficiency and productivity of the system.

## **1.5.0 METHODOLOGY ADOPTED**

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

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

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2.0.0 BRIEF DESCRIPTION, STAFF POSITION, WORKLOAD, CRITICAL ANALYSIS, EXISTING AND PROPOSED STAFF, GENERAL OBSERVATIONS AND RECOMMENDATIONS

2.0.1 BRIEF DESCRIPTION

The Diesel Shed LDH was set up in 1977, Northern Railway for undertaking maintenance periodic schedules and repair of diesel locomotives.

2.0.2 No doubt that all efforts are being made by the administration to effect the economical maintenance by avoiding all wastages and improve the system of working. It is well known that the cost of manpower is highly expensive and directly affects the economical balancing which needs to be economized to improve manpower productivity.

2.0.3 The locos of diesel shed LDH are hauling most of the Mail/Express and Freight trains on non electrified routes. This shed meet expectation of the Railway Administration as well as in the public interest it cares for the reliability, safety and availability of diesel locomotives well in time to run the nominated trains.

2.0.4 During the maintenance of Diesel locomotives a lot of allied activities are also initiated for which no more skills are required but having equal importance for exceeding repairs it has to be met with. In the present scenario, Railway Administration has taken the revolutionary steps by contracting the uneconomical activities to avoid wasteful expenditure and the same has been initiated in most of the locomotives sheds over Northern Railway.

2.0.5 The loco holding of this shed is **184** locos.

Maintenance practices have been reviewed and after technical up-gradations, some old activities have been dispensed with, which has resulted in substantial savings of manpower as well as material. This shed has covered area of 12577 sqm.

2.0.6 SYSTEM IMPROVEMENT OF DIESEL LOCO SHED LDH.

- a) Horn relocation: in 115 locos have been covered.
- b) A drive for disabling of VCD button functioning in non-working control stand (ALP side) in all locos.
- c) Modification for BP gauge tapping completed in all locos.
- d) Pasting of National Flag in all ALCO locos.
- e) Provision of sanding gear system in all locos.
- f) The average outage was (+) 14.05 loco and the average set outs were 21.18 locos during the last financial year 2016-17 which have



improved by 14.04 % and 7.71 % respectively as compared to F.Y. 2015-16.

- g) Marked reduction in lube oil consumption: -  
2.29 liters per hundred EKM F.Y. 2016-17 against 2.46 liters per hundred EKM F.Y. 2015-16, which is 6.91% improved.
- h) SFC: -  
Average SFC/1000 GTKM 1.84 during the FY 2016-17 which is same i.e. 1.84 as compared to last FY 2015-16.
- i) Yearly Schedule per month:-  
Average yearly schedule was 4.2 during FY 2016-17 as compared to 4.1 during last FY 2015-16.
- J) Half Yearly Schedule per month:-  
Average Half yearly schedule was 6.5 locos during FY 2016-17 as compared to 6.8 locos during last FY 2015-16, which is 4.4 % less than the previous FY 2015-16.
- K) Qtly Schedule per month:-  
Average Qtly schedule was 25 locos during FY 2016-17 as compared to 25 locos during last FY 2015-16.
- l) Motorized equipment for running out the bogie: -  
Motorized system for running out the bogies of diesel loco has been developed.
- m) Portable floor washing plant: -  
Portable washing plant has been developed to mechanize the working of shed floor. A water pump with a motor and a tank of 500 liters are mounted on a trolley, which can be taken to any place for floor cleaning wherever required.
- m) Provision of sun film on look out glass in driver's cab: -  
Provision of about 8" sun film at the top of look out glass will prevent direct sunlight in driver's eyes which will help in more concentration while running the locomotives.
- n) Development of fixture for testing of high-pressure tubes: -  
The alignment of high-pressure pipeline connecting the fuel injection pump to injector is very critical as it injects the fuel at a pressure of 4000 psi. Earlier the alignment used to be ensured visually. With the help of this fixture, the HP tubes, whose alignment is satisfactory, are only fitted on the locomotive.
- o) Development of RTTM blower testing stand: -

Earlier there was no facility for testing the RTTM blower in diesel shed due to which the overhauled RTTM blowers were fitted on locomotive without testing. Diesel shed Ludhiana has developed a RTTM blower-testing stand. The RTTM blower is made to run at 2900 RPM (higher than the engine RPM) on this stand.

## 2.0.7

## STAFF POSITION

The team collected detailed staff position of Group 'C' & 'D' maintenance staff from COS/DSL Shed/LDH which is placed in the report as Annexure-II, the summarized staff position is tabulated as under:-

S.N.	Category	S/S		O/R		Vac.	
		Gr C	Gr D	Gr C	Gr D	Gr C	Gr D
1	Ancillary Staff	157	73	95	104	-62	+31
2	Operating Staff	26	02	09	01	-17	-01
	Training School	14	10	09	07	-05	-03
	Canteen Staff	04	05	01	05	-03	Nil
	Lab	22	13	13	11	-09	-02
	Artisan staff	673	85	578	125	-95	+40
	Misc	--	45	--	37	--	-08
	Total	896	233	705	290	191	+57
	Grand Total Gr c + D	<b>1129</b>		<b>995</b>		<b>-134</b>	

The above table reveals that the on roll strength of Gr 'C' & 'D' maintenance staff of Diesel Shed LDH is **995** against the sanctioned strength **1129** and **134** posts are lying vacant.

2.0.8 The Following are the main sections in DSL shed LDH:-

<b>S. No.</b>	<b>Section</b>
1	Air Brake
2	ALF Office
3	Battery
4	Bogie and sand section
5	Calibration cell
6	Canteen
7	Car Body
8	Technical Cell
9	Confidential Room
10	Cylinder Head
11	Development
12	Trg. School
13	Drawing and Inspection
14	Electrical Yearly
15	Turbo
16	Fuel Office
17	Gasket Room
18	Half Yearly Electrical
19	Half Yearly Mechanical
20	LMS
21	Loco Wash
22	Machine and Plant
23	Machine Shop
24	Mail Electrical
25	Mail Mechanical
26	Mail Lab
27	Material Room Mechanical
28	Mech. Yearly
29	NDT Lab.
30	Oil Room
31	OOO Goods Elect.
32	OOO Goods Mech.
33	Fire Ext.+ Tool room
34	Wheel Lathe
35	Radiator
36	RDI
37	Relay Room
38	Shift Lab.
39	Small Motor
40	Spare Cell
41	Speedometer
42	Sr.DME Office
43	T.M. Section

## 2.0.9

## WORKLOAD

The main function of diesel loco shed LDH is to maintain diesel locomotives by carrying out various schedules like T-1, T2, M2, M4/M8/M16/M20, M12, M24/M72, M48 & IOH (Minor & Major schedules) for home shed locos and repairs of foreign shed locos whenever required. The total number of different types of locos based for maintenance in this shed is **184**. The failures of diesel loco occur during run due to various reasons despite of good maintenance practices in shed/shops. The out of course repairs given to such locomotives either of home shed or of other sheds vary both in quantity as well as in frequency.

The loco holding of this shed is **184** locos. The bifurcation is given as under-

a) WDM-3A	107
b) WDG-4D	13
c) Shunting Loco	15
d) WDG-3A	49
Total	<u>184</u>

The out turn of minor and major schedules carried out in diesel shed LDH for the last one year i.e. APR'2016 to MAR' 2017 is placed as Annexure No. III in the report. The summarized position of the same is given below:-

Out turn of APR'2016 to MAR' 2017	Types of schedules						Comm of POH/RB locos	Comm of New locos
	T-1	T2	M	Qtly	H Y	Yearly		
No. of locos	1932	626	412	307	81	48	31	13
Avg./Month	161	52.16	34.33	25.58	6.75	04	2.58	1.08

**Outage as referred by HQ'S letter No 516/M/301/outage/ML-III dt 07.04.2017 :**

Total Loco holding	: 184
Ineffective locos @ 7% of LH	: 13 locos
Deleted locos	: 02
Effective Holding	: 169
Major Schedule @ 9.5%	: 16.15
Mail link Loco	: 91
Balance locos	: 61.85
Minor schedules @ 8.84%	: 5.47
Goods outage	: 56.40
Total outage (Mail + Goods)	: <b>147.4</b>

### 2.1.0 CRITICAL ANALYSIS

The maintenance system of diesel locomotive shed LDH has a vast network of Mechanical and Electrical maintenance in the system of maintenance. The various other ancillary/allied activities are also generated during maintenance procedure, which also require immediate maintenance side by side to achieve out turns. In the present scenario after modernization/innovations being incorporated in Diesel Loco sheds, the performance of loco shed has improved a lot. During visit, it was discussed /observed that some activities are outsourced.

S. no	Name of Work	Value of Contract in Rs.	Agreement no.	Agency	Date of start	Time of completion.
1	AMC of Medha make Microprocessor based control system (Medha make, Model MEP-660) fitted on ALCO Locomotives of Diesel Shed, Ludhiana Quantity – 16505 Locos	Rs. 3,64,96,587/-	<b>DSL/LDH/E-27/AMC MEP660/2016-17 &amp; 2017-18</b> Dated: - 25/01/2017 (Agreement yet to be signed)	M/S MEDHA SERVO DRIVERS PVT. LTD. P-4/5B, IDA Nacharam Hyderabad – 500076	<b>01.02.17</b>	<b>31.10.18</b>
2	CAMC for CNC Under floor Wheel Lathe (BG) for five Years at Diesel shed LDH for a period of Five years	Rs. 10482570/-	. DSL/LDH/AMC of CNC lathe m/c/2016 Dated – 12/11/2016 (Agreement yet to be signed)	<b>M/s HYT Engineering Company PVT. LTD, Pune.</b>	<b>20.11.16</b>	<b>19.11.21</b>
Total of Contract		<b>46979157/-</b>				

### 2.1.1 NORMS FOR ASSESSING MANPOWER.

After incorporation of certain modifications/innovations in system development and improvisations of diesel loco shed LDH. The existing bench marking norms of diesel loco shed (Holding more than 80 locos) is being considered to assess the required manpower.

## BENCH MARKING NORMS

The IR benchmarking norms compiled in Feb'17 for diesel loco shed over IR is as under:-

- a) Current IR average : **4.51 men per loco**
- b) Current IR least BM : 3.17 men per loco (UBL of SWR & MLY of SCR)
- c) Current LDH Dsl shed BM : 6.86 men per loco

The benchmarking is based in dynamic and comparative analysis and thus is a very useful tool to manage efficiency deployment of staff and monitor effects of improvement in working practice, use of new technologies and level of outsourcing. *Railway Board therefore directs all the units to achieve average of the Indian Railway Benchmark.*

### 2.1.2 EXISTING STAFF, PROPOSED REQUIREMENT OF STAFF AND RECOMMENDATIONS

#### 2.1.3 EXISTING STAFF

The staff position of maintenance staff Gr 'C' & 'D' working in Diesel loco shed LDH is tabulated as under:

S.N.	Cadre	S/S	O/R	Vac.
1	Skilled/Artisan 'C'	896	705	191
2	Unskilled Gr. D	233	290	+57
Total		<b>1129</b>	<b>995</b>	<b>-134</b>

The above table reveals that the sanctioned strength of maintenance Gr 'C' & 'D' staff in Diesel shed LDH is 1129 whereas 995 are on roll with 134 vacant posts.

### 2.1.4 PROPOSED REQUIREMENT OF STAFF AND RECOMMENDATIONS

The requirement of staff has been assessed on the basis of bench marking norms given in para 2.1.1 of the report. The details of loco holdings for diesel loco shed AMV, LKO is as under:-

- 1. WDM-3A 107
- 2. WDG-4D 13
- 3. Shunting Loco 15
- 4. WDG-3A 49

Total **184**

#### A. APPLIED BENCH MARKING NORMS/YARDSTICK

Current IR average BM norms **4.51 men per loco** have been considered for assessing the requirement of Group C & D maintenance staff for Diesel shed LDH. During the conduct of study the team collected different types of schedules carried out by this shed.

Proposed requirement of staff as per current IR average Bench marking norm as under:-

S. No.	Type	No. of locos	Current IR average BM Norm	Proposed requirement of staff
1	WDM3-A, WDP1, WDG-3A, WDP4-B,D	184	4.51 man per loco	184*4.51= 829.84 Say <b>830</b> men

#### REQUIREMENT OF STAFF

The requirement of staff for 184 locos as per average IR BM norm	: 184x4.51= 829.84 say 830
Requirement Artisan Gr 'C' and Gr 'D'	: 830 men
For Out Of Course repair in Running Goods	: 15
For Out Of Course repair in Mail section	: 15
A gang for Misc work	: 24
For set out Locos Mail & Goods	: 20
For Out station call	: 10
For Loco control room	: 15
For gasket room	: 10
For spare cell, CTA cell, Planning cell etc	: 20
For Pit cleaning and washing of locos	: 50
For RDI & fuel section	: 15
For Store management	: 20
For office work & DAK courier	: 10
Total	: 1054

The proposed requirement comes to 1054 men against the sanctioned strength of 1129, and 75 posts in different categories and grades identified as surplus under the administrative control of Sr. DME/DSL LDH and recommended for surrender.

#### RECOMMENDATION NO.1

It is proposed that 75 posts in different categories and grades identified as surplus under the administrative control of Sr. DME/DSL LDH and recommended for surrender as follow:

S No	Category	Grade	No of Surplus posts
1	Gr 'C'	Rs. 5200-20200-1900	61
2	Gr 'D'	Rs. 5200-20200-1800	14
Total			<b>75</b>

## 2.2.0 GENERAL OBSERVATIONS

2.2.1 During the course of study the team was apprised that certain activities like shed cleaning, loco washing, bogie frame over hauling, radiator cleaning etc. have been out sourced in some of the sheds in railways. Out sourcing is beneficial to the administration both in terms of efficiency and economy. In diesel shed Ludhiana the shed cleaning activity is still being carried out by departmental manpower by deploying 25 safaiwala staff. This matter was discussed at various levels. The team is of the opinion that the shed cleaning activity and loco washing should be outsourced so as to economize expenditure and improve manpower productivity.

## RECOMMENDATION NO.2

It is suggested that the shed cleaning activity and loco washing be out sourced so as to economize expenditure and improve manpower productivity.

## 3.0.0 **FINANCIAL IMPLICATIONS**

3.1.0 Sanctioned strength: The total annual expenditure on Group 'C' & 'D' (Maintenance staff) working in Diesel Shed, LDH is as under:-

S. No.	Category	Pay Scale + Grade Pay	Monthly value per posts	Sanctioned strength	Monthly expenditure	Total annual expenditure
1	Tech-III	5200-20200-1900	42381/-	61	2585241/-	31022892/-
2	Unskilled (Gr 'D')	5200-20200-1800	38199/-	14	534786/-	6417432/-
Total				75	3120027/-	37440324/-

No. of posts identified as surplus: -

Group 'C'= 61 posts

Group 'D'= 14 posts

Total = 75 posts

Anticipated recurring saving = ₹ 374.40/- lakh per annum  
 Capital saving = Nil  
 Total saving = ₹ 374.40/- lakh per annum



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**4.0.0 PRODUCTIVITY**

**4.1.0** The total annual expenditure on the sanctioned strength working at Diesel Shed, LDH under the administrative control of Sr. DME/DSL/LDH is tabulated as under:-

S N	Category	Pay Scale + Grade Pay	Monthly value per posts	Sanctioned strength	Total annual expenditure
1	CI,CLI,CMS	9300-34800-4600	95523/-	24	27510624/-
2	MCM	9300-34800-4200	75378/-	143	129348648/-
3	Gr.-I	5200-20200-2800	61965/-	370	275124600/-
4	Gr.-II	5200-20200-2400	54366/-	193	125911956/-
5	Gr.-III	5200-20200-1900	42381/-	166	84422952/-
6	Gr. D	5200-20200-1800	38199/-	233	106804404/-
Total				1129	749123184/-

**4.1.2.** The annual expenditure on the proposed staff working at Diesel Shed, LDH under the administrative control of Sr. DME/DSL/LDH is tabulated as under:-

S N	Category	Pay Scale + Grade Pay	Monthly value per posts	Proposed staff	Total annual expenditure
1	CI,CLI,CMS	9300-34800-4600	95523/-	24	27510624/-
2	MCM	9300-34800-4200	75378/-	143	129348648/-
3	Gr.-I	5200-20200-2800	61965/-	370	275124600/-
4	Gr.-II	5200-20200-2400	54366/-	193	125911956/-
5	Gr.-III	5200-20200-1900	42381/-	105	53400060/-
6	Gr. D	5200-20200-1800	38199/-	219	100386972/-
Total				1054	711682860/-

The above table reflects that after the implementation of the work study report, the annual expenditure on the proposed staff will come to ₹711682860/- Therefore the annual expenditure will be reduced from ₹749123184/- to ₹711682860/-

## WORK STUDY REPORT DETAILED CHART

Department : - Mechanical

Name of study: - Review of 'C' & 'D' Maintenance Staff working in Diesel Loco shed  
Ludhiana

Activity Centre: - Diesel shed Ludhiana.

S N	Sub activity	Brief description of workload	Actual staff deployed	Work Study recommendation
1	To carry out various schedules (Minor & Major) for upkeep of diesel locomotives of home shed locos repairs of foreign shed locos	Maintenance of total loco holding of 184 locos WDM-3A- 107 WDG-4D - 13 Shunting Loco- 15 WDG-3A - 49 Total- 184	S/S = 1129 O/R = 995 Vac = 134	S/S = 1129 Proposed Staff= 1054 Surplus = 75 (Gr 'C'-61, Gr 'D'-14)

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LIST OF ANNEXURES

S.N.	Description	Annex. No.
1	Letter No. 16-CP/02/WS/17-18 for "Review of 'C' & 'D' Maintenance Staff working in Diesel Loco shed Ludhiana."	I
2	Statement showing staff position Gr 'C' & 'D' (Maintenance staff) of Diesel Loco Shed LDH.	II
3	Out turn of minor and major schedules carried out in diesel shed LDH	III
4	Bench mark issued from Railway Board.	IV

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## Annexure-II

Statement showing staff position Gr 'C' & 'D' (Maintenance staff) of Diesel Loco Shed LDH.

S.N.	Category	S/S		O/R		Vac.	
		Gr C	Gr D	Gr C	Gr D	Gr C	Gr D
1	Ancillary Staff	157	73	95	104	-62	+31
2	Operating Staff	26	02	09	01	-17	-01
4	Training School	14	10	09	07	-05	-03
5	Canteen Staff	04	05	01	05	-03	Nil
6	Lab	22	13	13	11	-09	-02
7	Artisan staff	673	85	578	125	-95	+40
8	Misc	--	45	--	37	--	-08
Total		896	233	705	290	191	+57
Grand Total Gr c + D		<b>1129</b>		<b>995</b>		<b>-134</b>	

## Annexure-III

The out turn of minor and major schedules carried out in diesel shed LDH for the last one year i.e. APR'2016 to MAR' 2017 is given below:-

Out turn of APR'2016 to MAR' 2017	Types of schedules						Comm of POH/RB locos	Comm of New locos
	T-1	T2	M	Qtly	H Y	Yearly		
No. of locos	1932	626	412	307	81	48	31	13
Avg./Month	161	52.16	34.33	25.58	6.75	04	2.58	1.08

**Outage as referred by HQ'S letter No 516/M/301/outage/ML-III dt 07.04.2017 :**

Total Loco holding	: 184
Ineffective locos @ 7% of LH	: 13 locos
Deleted locos	: 02
Effective Holding	: 169
Major Schedule @ 9.5%	: 16.15
Mail link Loco	: 91
Balance locos	: 61.85
Minor schedules @ 8.84%	: 5.47
Goods outage	: 56.40
Total outage (Mail + Goods)	: <b>147.4</b>

**Description of schedules**

Type of schedule	Description
T-1	Trip schedule of 15 days
T-2	Trip schedule of 30days
M-2	60 days(Monthly)
M-4	04 months(Quarterly)
M-12	12 months(Half yearly)
M-24	24 months (Yearly), with 100% cylinder liner and piston change.
M-48	48 months(Three yearly)
M-72	Schedule shall be the same as M-24.
POH	It is conducted after an interval of eight years(M-96) or 10,00000 kms. Whichever is earlier.

The berthing capacity of diesel shed LDH is for **24** locos, whereas total loco holding of this shed is **184** locos.

1. WDM-3A	107
2. WDG-4D	13
3. Shunting Loco	15
4. WDG-3A	49
Total	<b><u>184</u></b>