GOVERNMENT OF INDIA/ भारत सरकार
MINISTRY OF RAILWAYS/ रेल मंत्रालय
(RAILWAY BOARD)

No.2018/E&R/10(10)/5 New Delhi, Dated 22.07.2020

The General Manager All Indian Railways/PUs, NF/Con., CORE
DG/RDSO, DG/NAIR
CAO DMW/Patiala, RWP/Bela, IROAF, WPO/Patna, COFMOW/NDLS,
Director/IRICEN, IRISET, IRITM, IRIMEE, IRIEEN

Subject: 'Good Work done' practices reported by Railway units (01.01.20 to 31.05.20)

Ref: i. CRB's D.O. letter no. 2018/ Transf. Cell/ Good Works Portal dt. 16.01.2018
ii. PED(Transformation)'s letter no. 2018/Transf. Cell/Good Works Portal dt. 17.01.2018

Vide reference (i) above, ZRs, PUs, RDSO and CTIs have already been instructed for active sharing of the "Good Works" being done by Railway units on 'Rail Good Work Portal' hosted on the website of IR. The website link for the same is:
https://www.indianrailways.gov.in/railwayboard/InnIdeas/HomePage.jsp

During the period from 01.01.2020 to 31.05.2020, a total of 248 entries have been received from 11 Zonal Railways.

Out of these 248 entries, 15 Good Work practices have been identified for initial mass scale implementation across Railway units wherever applicable. The breakup of these entries is as:

SN	Category	ER	NCR	NWR	SCR	SECR	SWR	WCR	WR	Total
1.	Asset Management & Maintenance			2					3	**5**
2.	Cost Reduction				1		1			**2**
3.	Digital Initiatives	1								**1**
4.	Revenue Enhancement	1								**1**
5.	Safety Improvement	3	1			1		1		**6**
	Grand Total	**5**	**1**	**2**	**1**	**1**	**1**	**1**	**3**	**15**

Details of these 15 'Good Work Practices' are enclosed as Booklet in 72 Pages and other entries can be seen at 'Rail Good Works Portal' on IR website.

It is requested that these identified 15 'Good Work Practices' may be widely circulated among the Railway units. It is further requested that implementation report of these above mentioned practices may please be furnished to E&R directorate in 03 months time, with details of the units where implemented and a feedback on the actual benefits or problem faced, if any.

KULDEEP SINGH
Digitally signed by KULDEEP SINGH
Date: 2020.07.22 18:07:11 +05'30'

(Kuldeep Singh)
Director (E&R)/ME
Email: erdirectorate@gmail.com

Good Works Done

(01.01.2020 to 31.05.2020)

SN	Rly	Bubject	Title	Page No
1	ER	Digital Initiatives	Fully Automatic App Based Valve System	1-4
2	ER	Revenue Enhancement	Restaurant on Wheels	5-11
3	ER	Safety Improvement	ASM-LC Communication System at Asansol Division	12-15
4	ER	Safety Improvement	Height Gauge Protection System at Asansol Division	16-18
5	ER	Safety Improvement	Gateman Alertness System at Asansol Division	19-21
6	NCR	Safety Improvement	At Data logger Control/ALD, Automatic announcement system has been introduced with visual alarm as Relay/IPS Room door opens or occurrence of IPS & EI failure	22-24
7	NWR	Asset Management & Maintenance	Innovative measures, taken by NWR to avoid unwanted extra cutting, in Crossing portion of Turn-outs; while doing deep screening with BCM- RM 80 Series.	25-29
8	NWR	Asset Management & Maintenance	Motorised fixture cum manipulator for LHB bogies.	30-35
9	SCR	Cost Reduction	Convergence of Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS) with Railways	36-42
10	WCR	Safety Improvement	Smart IR Emergency Network (SIREN) - Complete Solution	43-50
11	WR	Asset Management & Maintenance	Flasher Light modification in MEMU DMCs	51-53
12	SECR	Safety Improvement	Bulk Head Flap with Spring System	54-57
13	SWR	Cost Reduction	Online monitoring system for Wheel slide protection system status in LHB coaches	58-60
14	WR	Asset Management & Maintenance	Highlighting design defect in M/s Schunk make High Rise Pantograph on Electric Locomotives during Current Collection test	61-68
15	WR	Asset Management & Maintenance	Replacement of Lead Acid Batteries with VRLA type of Batteries in MEMU DMCs (MEMU Car shed Vadodara)	69-72

Fully Automatic App Based Valve System

ER

Railway	Eastern Railway
Subject	Digital Initiatives
Name of Good Work	FULLY AUTOMATIC APP BASED VALVE SYSTEM
Summary	FULLY AUTOMATIC APP BASED VALVE SYSTEM

Detailed Description

To scrap the requirements of valve man for valve operation and to minimize the water loss through manual valve operation, the concept of automatic valve operation system has been developed. In this system, sensor based valve are installed on each pipe going to specific railway colony and station which will be operated through app and opening/closing time of valve can also be fixed through app .Installation cost:- approx 3.5 lakh, Installation location:- Jamtara railway station and colony

Impact/Benefits

1) Savings of manpower (valve man): 2 Valveman for day night duty at Jamatara station and colony. 2) Saving of money (in terms of valve Man expenses borne by railway) and time. 3) Minimize the water loss which occur through manual valve operation. 4) It can be operated through GSM mobile signals and through internet from anytime and anywhere. 5) Current valve status can be checked through app at any time.

Uploaded Support documents/photographs/diagram

FULLY AUTOMATIC APP BASED VALVE SYSTEM.pdf

Open Document (../InnIdeas/uploads/1588354599062_FULLY AUTOMATIC APP BASED VALVE SYSTEM.pdf)

Contact Person Name	Sri Neeraj Verma
Contact Person Designation	Sr. DEN-II/ASN
Contact Number	9002023201

ASANSOL DIVISION: EASTERN RAILWAY

FULLY AUTOMATIC APP BASED VALVE SYSTEM

OBJECTIVE: To scrap the requirements of valve man for valve operation and water distribution in colonies and stations, the concept of APP based automatic valve operation system has been developed. In this system, sensor based valve are installed on each pipe going to specific railway colony and station which will be operated through app and opening/closing time of valve can also be fixed through app.

WORKING TECHNOLOGY: This system has been installed at Jamtara railway station & colony in which 6 valves are installed for different water pipe lines for water distibution in addition to conventional type valves. All valves are connected through one software based main control board which can be operated through GSM based signals or through any internet service. The system is connected through inverter (10 W batteries) for 24 hr unintrepted power supply.

Valve operation could be done through app far from the location at any time or a fixed time could be set.

ADVANTAGE OF THE SYSTEM:

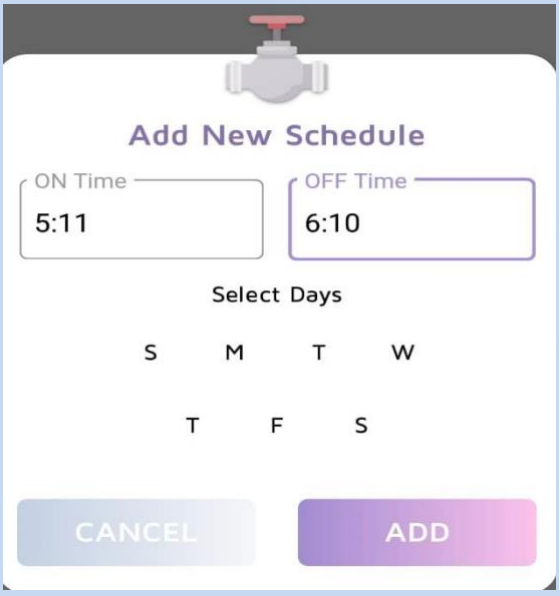
- Savings of manpower (valve man): 2 Valveman for day night duty at Jamatara station and colony.
- Saving of money (in terms of valve Man expenses borne by railway) and time.
- Minimize the water loss which occur through manual valve operation
- It can be operated through GSM mobile signals and through internet from anytime and anywhere.
- Current valve status can be checked through app at any time.

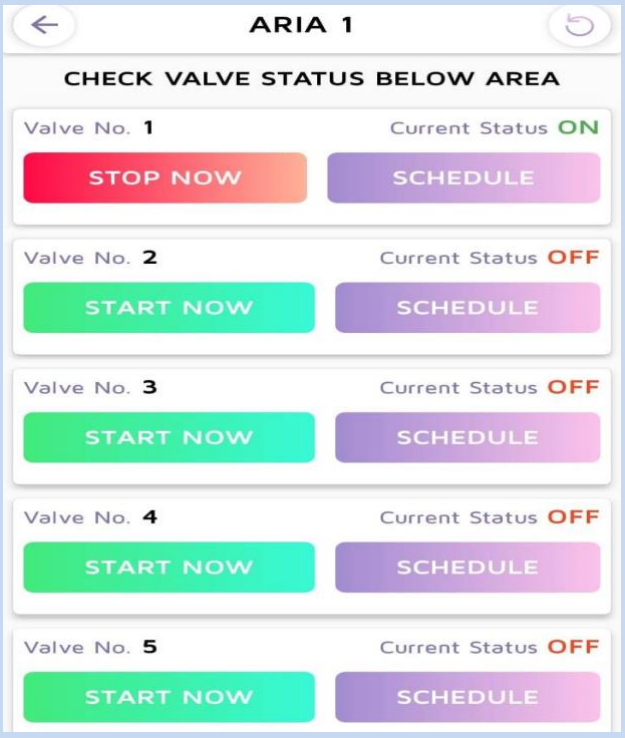
INSTALLATION COST: Approx Rs. 3.5 lakh for Jamtara (6 valves + control board+ inverter)

INSTALLATION LOCATION: Jamtara railway station & colony.






Add New Schedule
ON Time
5:11
OFF Time
6:10
Select Days
S M T W
T F S
CANCEL
ADD


ARIA 1
CHECK VALVE STATUS BELOW AREA
Valve No. 1
Current Status ON
STOP NOW
SCHEDULE
Valve No. 2
Current Status OFF
START NOW
SCHEDULE
Valve No. 3
Current Status OFF
START NOW
SCHEDULE
Valve No. 4
Current Status OFF
START NOW
SCHEDULE
Valve No. 5
Current Status OFF
START NOW
SCHEDULE

Restaurant on Wheels

ER

Railway	Eastern Railway
Subject	Revenue Enhancement
Name of Good Work	Restaurant on Wheels
Summary	Restaurant on Wheels

Detailed Description

Two MEMU coaches after completed there codal life were converted into India"s first ﷺRestaurant on Wheelsﷺ. By this initiative NFR earning of Rs. 7 lakh is generated per year. It has been highly appreciated by Honﷺble MR and many media houses and also attracted the attention of Railway commuters. Shri Babul Supriyo, Hon"ble MP and Honﷺble Minister of State, for Environment, Forest & Climate Change, Govt. of India inaugurated "Restaurant on Wheels" at Asansol station on 26.2.2020.

Impact/Benefits

Uploaded Support documents/photographs/diagram	1.jpeg	Open Document (../InnIdeas/uploads/1588508576024_1.jpeg)
	2.jpeg	Open Document (../InnIdeas/uploads/1588508576024_2.jpeg)
	3.jpeg	Open Document (../InnIdeas/uploads/1588508576024_3.jpeg)
	4.jpeg	Open Document (../InnIdeas/uploads/1588508576024_4.jpeg)
	5.jpeg	Open Document (../InnIdeas/uploads/1588508576024_5.jpeg)

Contact Person Name	Shri Chittaranjan Jha
Contact Person Designation	Senior Divisional Commercial Manager, Asansol
Contact Number	9002023950


तिलोत्तमा
TILOTTAMA
B.K.1


PURE
Veg
KHAYALON
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UPSHUP
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CHAYALON
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CHAI


GUPSHUP
CHAI
PURE
Veg


WOW! BHOJAN
OF ASANSOL DIVISION, EASTERN RAILWAY
wow! Bhojan
A UNIT OF CHATTERJEE GROUP

ASM-LC Communication System at Asansol Division

ER

Railway	Eastern Railway
Subject	Safety Improvement
Name of Good Work	ASM-LC Communication System at Asansol Division
Summary	ASM-LC Communication System at Asansol Division

Detailed Description

ASM-LC Communication System : At interlocked LC gates sometimes Station Master forgets to provide information to close gate or sometimes gateman ignores the same. In both cases train looses punctuality. Currently ASM and LC gateman talk and exchange information over megneto telephone. Whether SM informed about approching train to gateman or not is not recorded. An information exchange device "ASM-LC Communication system" has been designed and developed to resolve issue. The purpose of this device has to provide audio visual indication to both ASM and gateman. All information is stored in cloud, which can be easily monitored from any location & time. Both devices are connected through Internet via GPRS technology. Whenever station master presses UP/DOWN line push button to provide information to LC"s about incoming train, he"ll get same information in his device through visual indication. And same time all connected LC"s will get notification about incoming train with Visual and audio indicators. After receiving information gateman will acknowledge the information by pressing acknowledge button, and visual and audio indication stops. Meanwhile ASM"s unit Indicators will also extinguish after receiving acknowledgment receipt. This system was installed at Shankarpur Station (In main line section under AEN/MDP.). Approx Cost of the device is Rs. 78000.00/-.

Impact/Benefits

Uploaded Support documents/photographs/diagram

ASM-LC Communication System.pdf

Open Document (../InnIdeas/uploads/1577948486616_ASM-LC Communication System.pdf)

Contact Person Name	Sri Neeraj Verma
Contact Person Designation	Sr. DEN-II/ASN
Contact Number	9002023201

Eastern Railway: Asansol Division

ASM-LC Communication System

Objective: It has been seen that at interlocked LC gate sometimes Station Master forgot to provide information to close gate or sometimes gateman ignore the same. In both the cases train lost the punctuality. Currently ASM and LC gateman both talk and exchange information over the megneto telephone. No information is recorded in such phone whether SM infomed about approching train to gateman or not.

Proposed Solution: An information exchange device "ASM-LC Communication system" has been designed and developed to resolve issue. The prime moto of the device has to provide audio visual indication to both ASM and gateman. All information of devices is store in cloud, which can be easily monitor from any point of time and place. Both devices connected through Internet via GPRS technology. From this technology many LC unit can be directly connected to single ASM unit. It will enhance alertness of ASM & Gateman both due to that we can enhance punctuality of train we lost due to late information of gate closing. The acknowledge time by ASM & Gateman could be recorded through this device.

Working: Whenever station master will pressed UP/DOWN line push button to provide information to LC's about the incoming train. He'll get same information in his device through visual indicators. And same time all connected LC's will get notification about incoming train with Visual and audio indicators. After receiving information gateman will acknowledge the information by pressing acknowledge button, same time visual and audio indicator will stop. Meanwhile ASM's unit Indicators also will glow down after receiving acknowledgment receipt.

Installation Location: ASM Unit: Shankarpur Station LC Unit: LC26
In main line section under AEN/MDP.

Approx Cost: Rs. 78000.00/-









6:39 HD 4G HD 19%

Search:

S No.	Date	ASM Time	Line	ACK Time
1	16-12-2019	18:09	up	18:11
2	16-12-2019	18:02	down	18:04
3	16-12-2019	17:48	down	17:48
4	16-12-2019	17:47	up	17:47
5	16-12-2019	17:27	down	17:27
6	16-12-2019	16:27	up	16:27
7	16-12-2019	16:12	up	16:13

Height Gauge Protection System at Asansol Division

ER

Railway	Eastern Railway
Subject	Safety Improvement
Name of Good Work	Height Gauge Protection System at Asansol Division
Summary	Height Gauge Protection System at Asansol Division

Detailed Description

Height Gauge Protection System : Height gauges are erected at LC gates to prevent entering of ODC which can damage the OHE and also harm road vehicles. Height gauge protection system has been developed to detect such ODC vehicles well in advance and set off a signal to stop. It also generates the alarm and visual signals when an oversized vehicle come nearer to the height gauge and alerts the vehicle driver as well as gateman that the vehicle is oversized and can not pass the height gauge. This device was installed at LC20 on main line under AEN/MDP. Approx Cost of the device is Rs. 98000.00/-.

Impact/Benefits

Uploaded Support documents/photographs/diagram

Height Gauge Protection System.pdf

Open Document (../InnIdeas/uploads/1577948573393_Height Gauge Protection System.pdf)

Contact Person Name	Sri Neeraj Verma
Contact Person Designation	Sr. DEN-II/ASN
Contact Number	9002023201

Eastern Railway: Asansol Division

Height Gauge Protection System

Objective: At level crossing, for OHE safety, height gauges are erected to prevent ODC from entering at LC which can damage the OHE as well as harmful for road vehicle also. automated warning system needed in this situation. However it has been noticed that many times due to ODC these height gauges has been damaged.

Proposed Solution: Height gauge protection system has been developed to detect such ODC vehicles well in advance and set off a signal to stop. This system generate the alarm and visual signals as an when an oversized vehicle come nearer to the height gauge and alert the vehicle driver as well as gateman that the vehicle is oversized and can not pass the height gauge. So we can protect the dashing of height gauge and damaging of OHE as well as vehicle too.

Installation Location: At LC20 in main line under AEN/MDP

Approx Cost: Rs. 98000.00/-





Gateman Alertness System at Asansol Division

ER

Railway	Eastern Railway
Subject	Safety Improvement
Name of Good Work	Gateman Alertness System at Asansol Division
Summary	Gateman Alertness System at Asansol Division

Detailed Description

Gateman Alertness System : Gatemans at LC gates should always be alert & attentive. Hence gate keepers are not attentive sometimes and many also sleep at night hours. The device named ﷺGateman Alertness Systemﷺ has been developed which generates alarm at intervals (30 minutes) to alert gateman which have to be acknowledge by pushing a button by gateman. If the gateman fails to acknowledge beyond delay of 10 sec, alarm will stop and restart in 30 sec. If gate keeper pressed ackn button then ok and alarm will reset for next fix time duration. But if he again fail to press it, the device will automatically start calling respective Sectional PWI & In-charge PWI one by one and after all device will be reset itself. This system has also one more feature that any PWI or Officer can directly call to device to talk gatekeeper. This device was installed at LC20 in main line under AEN/MDP. Approx Cost of the device is Rs. 45000.00/-.

Impact/Benefits

Uploaded Support documents/photographs/diagram

LC Gateman Alert System.pdf

Open Document (../InnIdeas/uploads/1577948649106_LC Gateman Alert System.pdf)

Contact Person Name	Sri Neeraj Verma
Contact Person Designation	Sr. DEN-II/ASN
Contact Number	9002023201

Eastern Railway: Asansol Division

Gateman Alertness System

Objective: Level crossing gate play very important role in between Rail line and roads. No error can be tolerated here. So gateman should be attentive every time of second. But it is seen that gate keeper not attentive and sometime keep sleeping in the night hours. Due to the same there might be chances to occurrences of some mis-happening or accident also. A solution needed to avoid such kind of circumstances.

Proposed Solution & its working: The device named "Gateman Alertness System" has been developed which generate alarm at an interval (30 minutes) to alert gateman and in each case generated alarm have to acknowledge by pushing a button by gateman. If the gateman failed to acknowledge it till 10 sec by any reason, alarm will stop and restart in 30 sec. now if gate keeper pressed ackn button then ok, alarm will reset for next fix time duration. But if he again fail to press it, the device will automatically start calling respective Sectional PWI & In-charge PWI one by one and after all device will be reset itself. This system has also one more feature that any PWI or Officer can directly call to device to talk gatekeeper.

Installation Location: LC 20 in main line under AEN/MDP.

Approx Cost: **Rs. 45000.00/-**





Automatic announcement system with visual alarm on Relay/IPS Room door opens or ocuurence of IPS & EI failure

NCR

Railway North Central Railway

Subject Safety Improvement

Name of Good Work

At Data logger Control/ALD, Automatic announcement system has been introduced with visual alarm as Relay/IPS Room door opens or ocuurence of IPS & EI failure

Summary

A theft case of relays & IPS battery was occurred in RH-3 of KCN BEP auto section led to heavy railway assets & puntuality loss. To check & prevent such type of theft cases, the Automatic Alarm System is introduced in Relay/IPS room. It will create not only panic to miscreants but also alert nearby RPF staff, Trackman & other field staff in case of opening of Relay/IPS room. It is also connected with Data logger Control Center, Allahabad where an audio alarm will play along with blinking POP UP message. It will improve monitoring of Relay room opening. To prevent puntuality loss, IPS failure and EI system failure are also loinked with this system

Detailed Description

Theft of railway assets such as relays, IPS battery etc. from remot signalling installation leads to failure of Up & Dn working of signalling system. Its restoration which involves arrangement of materials takes long duration. This causes heavy puntuality loss of running train. To end the happening of such possibilities S&T department has introduced the the Automatic Announcement System in Datalogger Control Allahabad. As the relay room opens, an audio alarm ....lSD&#xfffd;ku esa fjys :e [kqy x;k&#xfffd; will play along with blinking POP UP message. This alarm is acknowledged by on duty staff in Datalogger Control Center and is verified by S&T Sectional Control. This alarm alerts the sectional staff and check & prevent possible theft cases. Also, Failures related EI & IPS affects puntuality of trains very badly. So, for this also, an automatic announcement system is introduced. On occurrence of such failures , an audio alarm &#xfffd;IPS/EI failed at ...&#xfffd;. Section network&#xfffd; will play along with blinking POP UP message. Prompt message reduces the down time and saves the division from heavy puntuality loss.

Impact/Benefits

This innovation will not only improve monitoring of Relay room open/close, IPS failure and EI system failure but also saves loss of railway assets. It also ensures safety & puntuality of running trains

Uploaded Support documents/photographs/diagram

Innov S&T.jpg Open Document (../InnIdeas/uploads/1579516254139_Innov S&T.jpg)

Innov S&T 2.jpg Open Document (../InnIdeas/uploads/1579516254139_Innov S&T 2.jpg)

Innov S&T pdf.pdf Open Document (../InnIdeas/uploads/1579516254139_Innov S&T pdf.pdf)

Contact Person Name Saurabh Srivastava

Contact Person Designation Sr. DSTE/Co/ALD

Contact Number 9794837800

UPLOAD IMPLEMENTED GOOD WORK

Railway: NCR/ALD

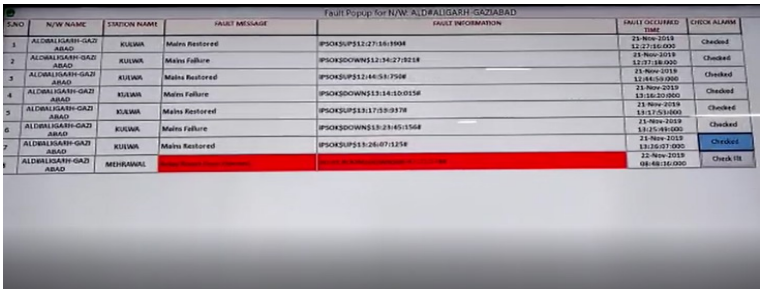
Subject: Automatic announcement system with visual alarm.

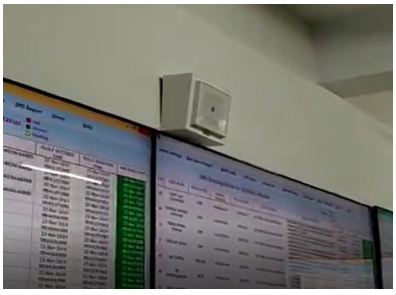
Name of Good Work: At Data logger Control/ALD, Automatic announcement system has been introduced with visual alarm as Relay/IPS Room door opens or ocuurence of IPS & EI failure.

Summary: **A theft case of relays & IPS battery was occurred in RH-3 of KCN – BEP auto section led to heavy railway assets & puntuality loss.** To check & prevent such type of theft cases, the Automatic Alarm System is introduced in Relay/IPS room. It will create not only panic to miscreants but also alert nearby RPF staff, Trackman & other field staff in case of opening of Relay/IPS room. It is also connected with Data logger Control Center, Allahabad where an audio alarm will play along with blinking POP UP message. It will improve monitoring of Relay room opening. To prevent puntuality loss, IPS failure and EI system failure are also loinked with this system.

Detailed Description: Theft of railway assets such as relays, IPS battery etc. from remot signalling installation leads to failure of Up & Dn working of signalling system. Its restoration which involves arrangement of materials takes long duration. This causes heavy puntuality loss of running train. To end the happening of such possibilities S&T department has introduced the the Automatic Announcement System in Datalogger Control Allahabad. As the relay room opens, an audio alarm **"…….सैक्शन में रिले रूम खुल गया"** will play along with blinking POP UP message. This alarm is acknowledged by on duty staff in Datalogger Control Center and is verified by S&T Sectional Control. This alarm alerts the sectional staff and check & prevent possible theft cases. Also, Failures related EI & IPS affects puntuality of trains very badly. So, for this also, an automatic announcement system is introduced. On occurrence of such failures , an audio alarm **"IPS/EI failed at ……. Section network"** will play along with blinking POP UP message. Prompt message reduces the down time and saves the division from heavy puntuality loss.

Impact/Benefits: This innovation will not only improve monitoring of Relay room open/close, IPS failure and EI system failure but also saves loss of railway assets. It also ensures safety & puntuality of running trains.





Contact Person name: Sh. Saurabh Srivastava
Contact person Designation: Sr. DSTE/Co/ALD
ContactNumber:9794837800

Innovative measures, taken by NWR to avoid unwanted extra cutting, in Crossing portion of Turn-outs; while doing deep screening with BCM- RM 80 Series.

NWR

Railway North Western Railway

Subject Asset Management & Maintenance

Name of Good Work

Innovative measures, taken by NWR to avoid unwanted extra cutting, in Crossing portion of Turn-outs; while doing deep screening with BCM- RM 80 Series.

Summary

The sag caused in cutter bar assembly of BCM due to slackness in the various links while in working, results into unwanted extra depth of cutting of formation especially in the crossing portion to the extent of 300 mm. This extra cutting depth , damages the formation and cause maintenance problems. Steps taken to get rid of the problem are: 1. Welding of 150 X 75 X 10 mm (thick) strips on underside of the cutter bar extension pieces. 2. Welding of spherical washer on the top corners of the cutter bar extension pieces for additional support. 3. Use of mechanical Tensor to hold the Elbow and Trough in tight position.

Detailed Description

(A) Statement of Problems : Due to longer sleepers in lead and crossing portion of Turn-outs, additional extension pieces are required to be attached with the cutter bar to cover up whole width under the sleepers for deep screening of the ballast. There remains little play in the links to accommodate the connecting pins. During service, these links get elongated and results into development of sag in the cutter bar assembly in the extended portion due to self weight of the extension pieces. During working, Chain trough of BCM machine is connected with cutter bar & extension pieces with the help of an elbow. This elbow bears the heavy load of cutter bar & extension pieces. During service, holes of elbow get elongated and the elbow tilts downwards, which further adds to formation of sag in the assembly and creation of pit in the track formation. This sag causes extra cutting depth to the extent of 600mm, particularly in crossing portion, where three to four extension pieces, of 500mm length each, are added to the cutter bar. This extra depth of cutting damages the formation and there becomes local pit of irregular shape, which turns to be potential source for poor drainage and end result is poor running quality and more maintenance efforts even after undergoing the deep screening of the ballast by mechanical means. (B) Innovative Solutions Adopted : To get rid of this problem, NWR has taken quite an innovative measure, with available material and at negligible cost. Under this arrangement, following improvements have been done in the assembly: 1. 150 mm X 75 mm X 10 mm (thick) strips have been welded under the cutter bar and extension pieces to support each other. These strips prevent the cutter bar assembly to penetrate downwards in the formation due to load sharing. 2. Additional support has been given to the extension pieces by bolting them on the top by welding the spherical washer base at the connecting ends. This arrangement provides a second point for load distribution and it prevents elongation of connecting link. 3. A mechanical Tensor have been used between Elbow and the trough to hold them tight and it prevents sag in the assembly.

Impact/Benefits

With these small but important measures, unwanted extra cutting depth in crossing portion was avoided. Thus damage to formation & hence resultant requirement of maintenance efforts can be reduced.

Uploaded Support documents/photographs/diagram

Innovation by TMC Organisation of NWR.pdf

Open Document (../InnIdeas/uploads/1583386878930_Innovation by TMC Organisation of NWR.pdf)

Contact Person Name Shri Pankaj Soin

Contact Person Designation Sr. DEN/ West/ Ajmer

Designation

Contact Number 9001196201

Innovative measures, taken by NWR to avoid unwanted extra cutting, in Crossing portion of Turn-outs; while doing deep screening with BCM- RM 80 Series.

(A) Statement of Problems :

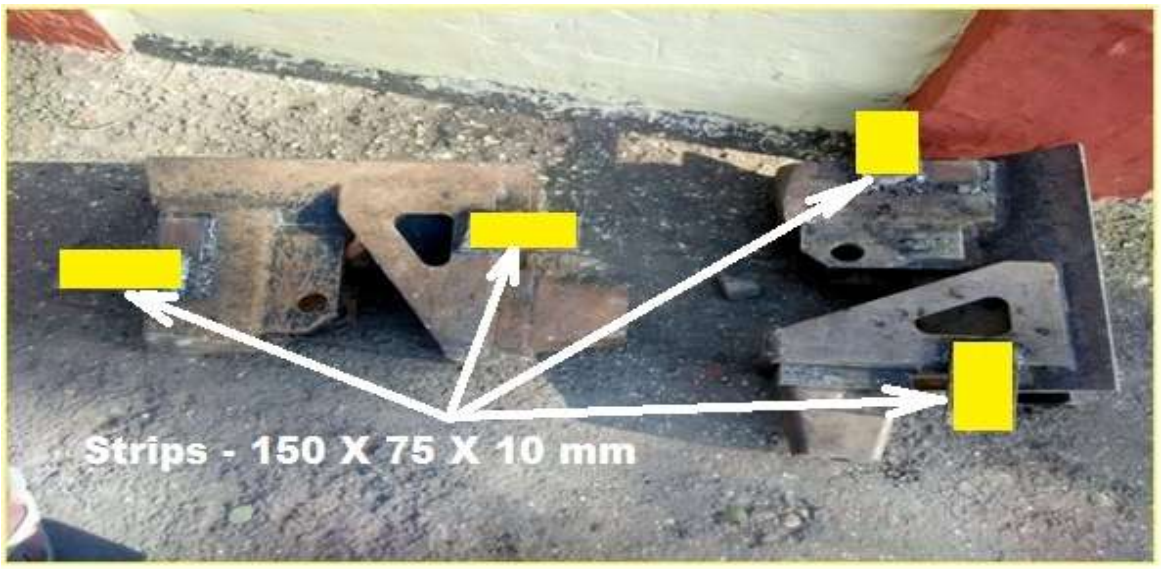
Due to longer sleepers in lead and crossing portion of Turn-outs, additional extension pieces are required to be attached with the cutter bar to cover up whole width under the sleepers for deep screening of the ballast. There remains little play in the links to accommodate the connecting pins. During service, these links get elongated and results into development of sag in the cutter bar assembly in the extended portion due to self weight of the extension pieces. During working, Chain trough of BCM machine is connected with cutter bar & extension pieces with the help of an elbow. This elbow bears the heavy load of cutter bar & extension pieces. During service, holes of elbow get elongated and the elbow tilts downwards, which further adds to formation of sag in the assembly and creation of pit in the track formation.

This sag causes extra cutting depth to the extent of 600mm, particularly in crossing portion, where three to four extension pieces, of 500mm length each, are added to the cutter bar. This extra depth of cutting damages the formation and there becomes local pit of irregular shape, which turns to be potential source for poor drainage and end result is poor running quality and more maintenance efforts even after undergoing the deep screening of the ballast by mechanical means.

(B) Innovative Solutions Adopted :

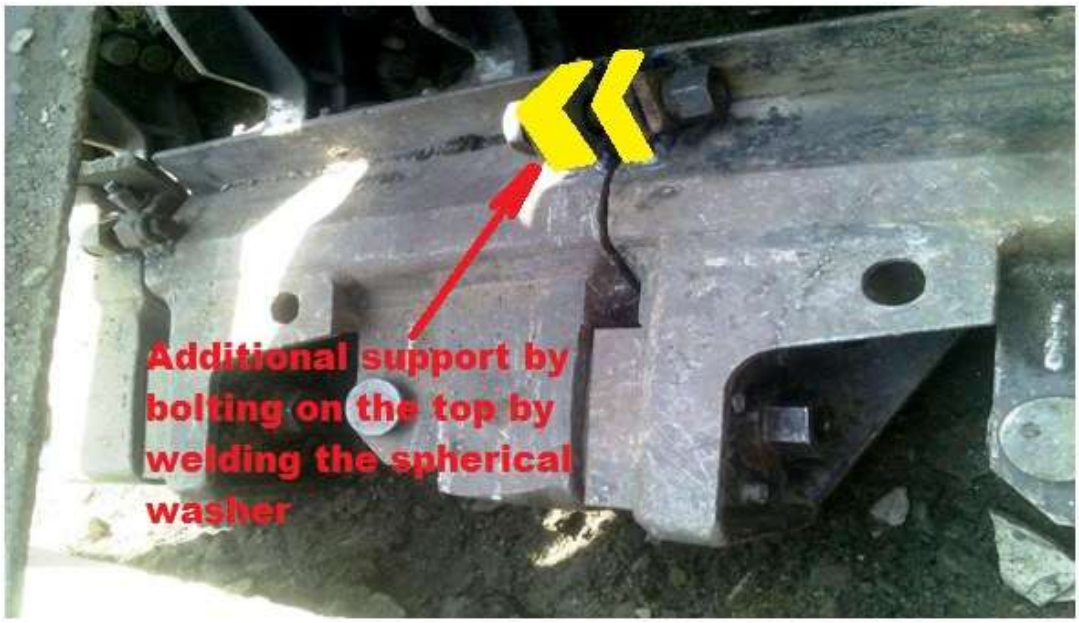
To get rid of this problem, NWR has taken quite an innovative measure, with available material and at negligible cost. Under this arrangement, following improvements have been done in the assembly:

1. 150 mm X 75 mm X 10 mm (thick) strips have been welded under the cutter bar and extension pieces to support each other as shown in the photograph-1. These strips prevent the cutter bar assembly to penetrate downwards in the formation due to load sharing.



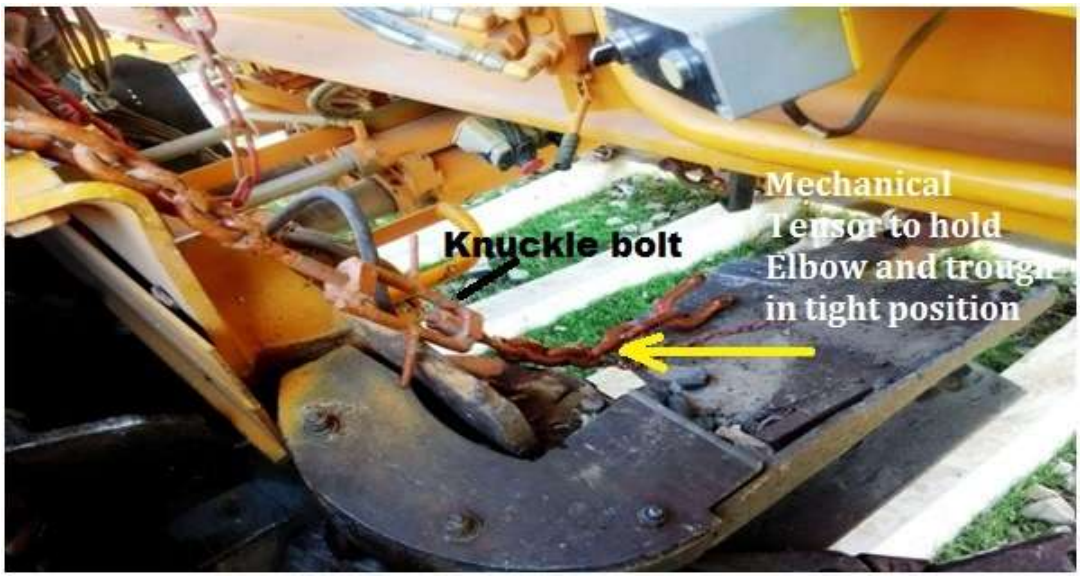
Photograph-1

2. Additional support has been given to the extension pieces by bolting them on the top by welding the spherical washer base at the connecting ends as indicated in the attached Photograph-2. This arrangement provides a second point for load distribution and it prevents elongation of connecting link.



Photograph-2

3. A mechanical Tensor have been used between Elbow and the trough to hold them tight and it prevents sag in the assembly. This arrangement is indicated in Photograph-3.



Photograph-3

(C) <u>Result obtained :</u>

With these small but important measures, unwanted extra cutting depth in crossing portion was avoided. Thus damage to formation & hence resultant requirement of maintenance efforts can be reduced.

(D) Cost involved : Approximate Rs. 2000/-

(E) Team : Sh. Narendra Pal, SSE/ZMC/AII.
Sh. Pankaj Soin, Dy. CE/TMC-II/AII.

For more details, please refer the article published in the journal of IPWE issued during International Seminar held at Goa on 28th & 29th of February-2020.

Motorised fixture cum manipulator for LHB bogies.

NWR

Railway	North Western Railway
Subject	Asset Management & Maintenance
Name of Good Work	Motorised fixture cum manipulator for LHB bogies.

Summary

Motorised fixture cum manipulator for LHB bogies. due to this equipment, necessary repairs were made by overturning.

Detailed Description

Motorised fixture cum manipulator for LHB bogies. due to this equipment, necessary repairs were made by overturning.

Impact/Benefits

Due to this fixture, Railway revenue will be saved and possible accidents will also be avoided.

Uploaded Support documents/photographs/diagram

motorized fixture cum manipulator for LHB bogie.pdf

Open Document (../InnIdeas/uploads/1584084754731_motorized fixture cum manipulator for LHB bogie.pdf)

Contact Person Name	Shri R A Yadav
Contact Person Designation	Dy.CME/Ajmer Workshop
Contact Number	9001196452

विषय: **कैरिज कारखाना, अजमेर द्वारा माह अगस्त, 2019 में किया गया नवाचार।**

1. **सामान्य विवरण** -

वर्तमान में भारतीय रेल में आधुनिक तकनीकी के एलएचबी कोचों का प्रचलन दिन-प्रतिदिन बढता जा रहा है इसलिए एलएचबी प्रकार के कोच कारखाने में विभिन्न Shop Schedule में मरम्मत के लिए प्राप्त हो रहे हैं जिसमे बोगी के मरम्मत के लिए मैन्युअल तरीके से बोगी को पलट कर आवश्यक मरम्मत की जाती थी। इस प्रक्रिया में कर्मचारियों के दुर्घटनाग्रस्त होने की संभावना बनी रहती थी इसलिए कारखाने के मिलराईट विभाग के कर्मचारियों द्वारा कारखाने में ही उपलब्ध संसाधनों से एलएचबी बोगी को पलटने की लिए मोटोराइज फिक्सचर का निर्माण किया है जिससे आसानी से एलएचबी बोगी को पलट कर आवश्यक मरम्मत सुगमता से की जा सकती है। इस फिक्सचर के निर्माण से कार्य सुगमता से होने के कारण रेल राजस्व में बचत होगी तथा संभावित दुर्घटनाओं से भी बचा जा सकेगा।

2. **कार्य विधि** -

एक पुराने लिफ्टिंग टेकल का उपयोग करते हुए बोगी को होल्ड करने के लिए दोनों तरफ क्लेम्पिंग डिवाईस लगाई गई है जो आसानी से लग एवं खुल जाती है। क्लेम्पिंग डिवाईस में एक तरफ फिक्स करते हुए दूसरी ओर की क्लेम्पिंग डिवाईस को रोटेट किया जा सकता है। बोगी को रोटेट करने के लिए दो हॉर्सपॉवर की मोटर एवं Worm & Worm Wheel type Reduction Gear Box लगाया गया है। गियर बॉक्स एवं रोटेटिंग डिवाई को रोटेट करने हेतु चेन स्प्रोकेट का उपयोग किया गया है। रिडक्शन गियर बॉक्स से बोगी को 180^0 तक 90 सेकण्ड में घुमाया जा सकता है। मोटर को चलाने हेतु पेन्डेंट लगाया गया है जिसे दूर खड़े होकर आसानी से ऑपरेट किया जा सकता है।

इससे बोगी पीओएच के समय गुणवत्तापूर्ण एवं सुरक्षित ढंग से कार्य किया जा सकता है तथा किसी संभावित दुर्घटना को भी टाला जा सकता है।

उक्त नवप्रवर्तन से रेल राजस्व की बचत होने के साथ-साथ कारखाने की उत्पादकता वृद्धि में भी सहायक होगा एवं कार्य भी गुणवत्तापूर्ण एवं सुरक्षित ढंग से संपन्न किया जा सकेगा।

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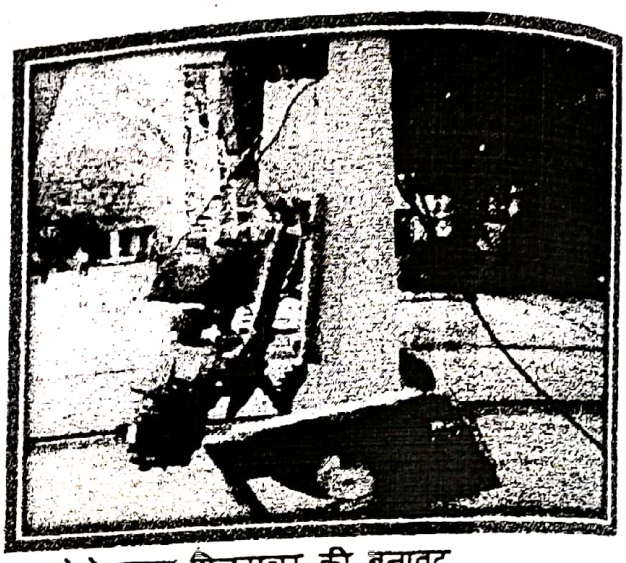
उ.पु.रे

N.W.R

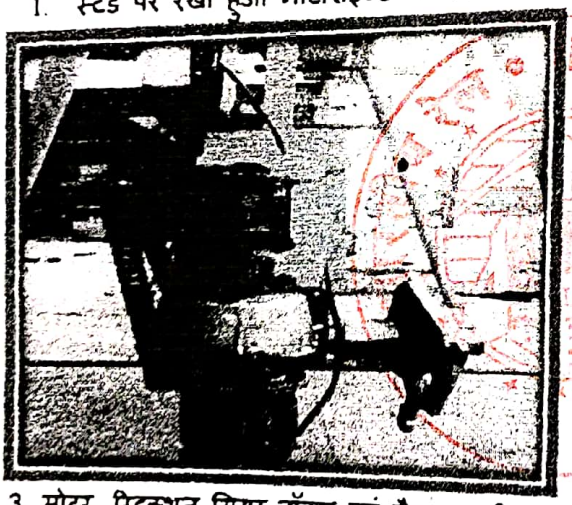
3. <u>संलग्न</u> - नवाचार के चार छायाचित्र।



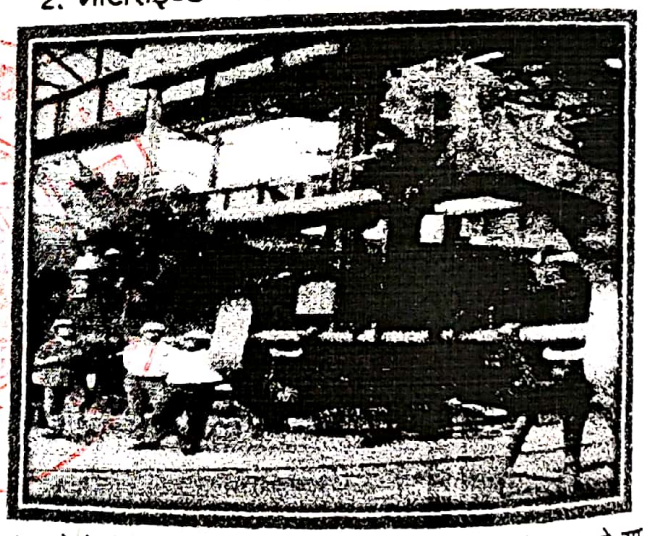
1. स्टैंड पर रखा हुआ मोटोराइज्ड फिक्सचर



2. मोटोराइज्ड फिक्सचर की बनावट



3. मोटर, रिडक्शन गियर बॉक्स एवं चैन प्रणाली



4. मोटोराइज्ड फिक्सचर से LHB bogie को पलटते हुए

04/09/19

उप मुख्य यांत्रिक इंजिनियर/कोरिज

Scanned with CamScanner

Good Work Done
By
Carriage Workshop, Ajmer (NWR)

MOTORIZED FIXTURE CUM MANIPULATOR FOR LHB BOGIES

1. Brief of conventional working

The turning of LHB bogie frame is an essential part of bogie overhauling during various schedules of LHB coaches. Conventionally, the LHB bogie frame is turned with the help of a chain slings and EOT crane. The whole process is carried out very cautiously and slowly so as to ensure that the operation is executed safely.

The main concern in this process is that there is always an element of safety concern to be kept in mind. Any lack of attention may result in untoward incident.

2. The Brief of innovative mechanism

In order to address this problem, a team of supervisors from Executive department, Millwright department and Electrical department thoroughly deliberated and worked out a very simple mechanism which involved following features :–

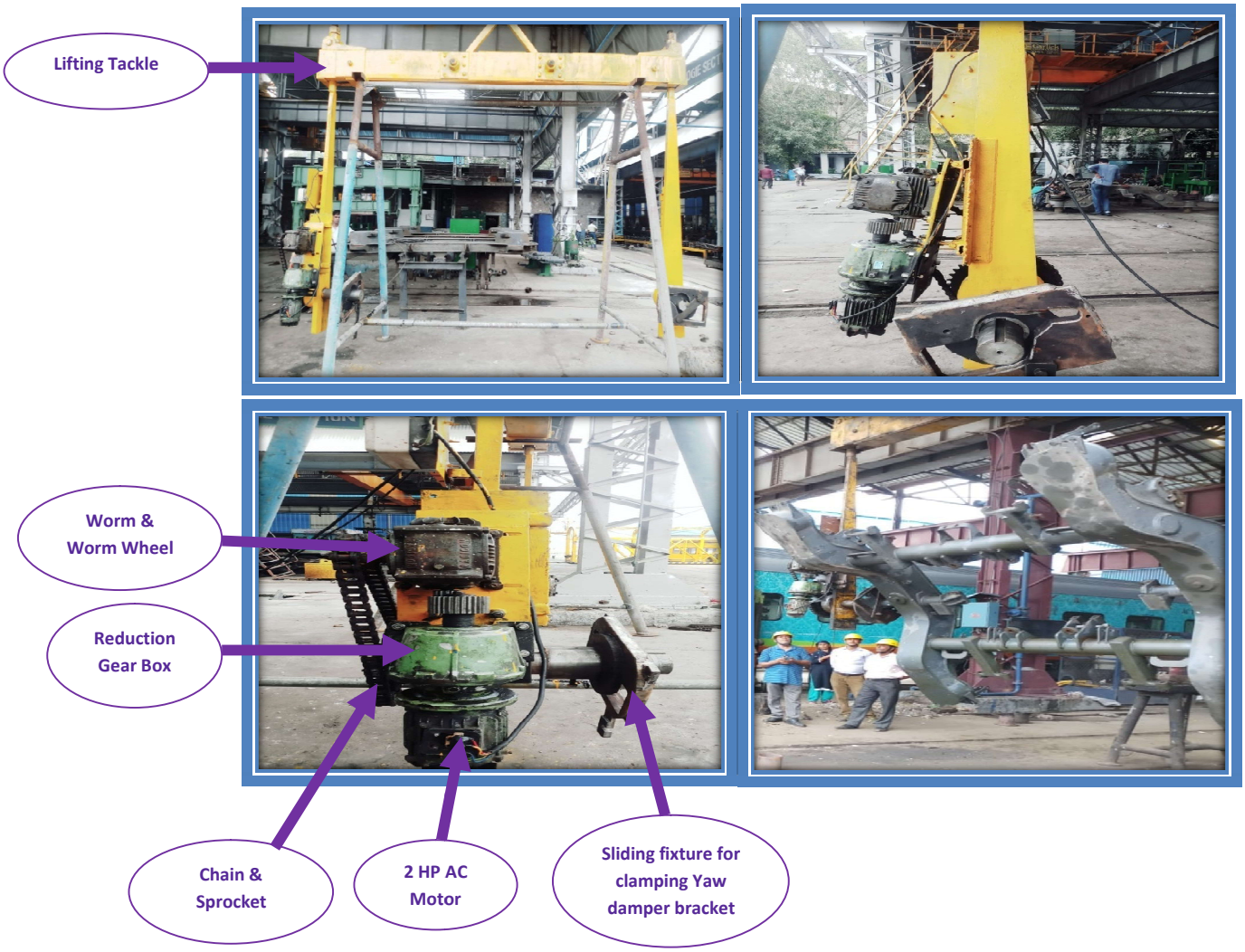
i) A pair of lifting tackle presently being used for lifting of coaches is used to accomplish this task. One of the arms of this lifting tackle is provide with a key-way shaft, the one end of which houses a roller bearing. The other end of shaft is fitted with a fixture sliding on key-way. This sliding fixture is used for holding one of the yaw dampers brackets of LHB bogie frame. After holding of yaw damper bracket, it is properly clamped and secured.

ii) The other arm of the lifting tackle is a driven end. At this end, the basic attachment provided on the other arm is similar in nature. In addition; this end is provided with a 2 HP AC motor along with reduction gear box and worm & worm wheel drive. The chain & sprocket mechanism is used to rotate the bogie frame with the help of this mechanism.

iii) The whole mechanism can be operated by a pendant drive at an adequately safe distance from the bogie frame.

iv) It can be utilized for lifting of bogie frames from wheels, rotating it by 180° and placing it on another wheel set after completion of overhauling work. The turning of LHB bogie frame by 180° can be accomplished in less than two minutes.

3. Photograph of Motorized fixture cum manipulator



Dy.CME/Carriage/Ajmer

Convergence of Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS) with Railways

SCR

Railway South Central Railway

Subject Cost Reduction,Digital Initiatives,Innovative Financing

Name of Good Work

Convergence of Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS) with Railways

Summary

Utilisation of State Government funds under MGNREGS to execute Railway Works.

Detailed Description

Since 2014 till 2018, there have been exchange of 10 letters between the two ministries trying to finalise the type of works which could be undertaken under the Convergence Scheme. Also communication was in progress to finalise the financing of this scheme and the guidelines for execution of the same. Finally, in 2018, a letter was issued from the Ministry of Panchayati Raj number DO # J-11017/42/2013-MGNREGA (UN) dt. 06.04.2018 which set the scheme in place. Since this was a letter issued from the ministry, guidelines from the corresponding state government need to be issued in order to enable the corresponding state officials to act on the same. South Central Railway managed to secure the same via letter no. Memo.No. 28028/152/RD.II/A1/2018 dated 10.09.2018 issued by the government of Andhra Pradesh. The surprising part was that though the circular was issued by Government of Andhra Pradesh, the corresponding state government functionaries were not aware of it at all. I now began the exercise of informing each and every individual of the state about the circular. To understand the structure of MGNREGS, the same is given below State Council Principal Secretary, Rural Development Commissioner, Rural Development Director, NREGS District Program Coordinator (DPC) District Collector Addl. DPC, CEO, Zila Parishad Addl. DPC, PD, DWMA Mandal Parishad Development Officer (MPDO) EGS Engineer Panchayat Secretary Program Manager Technical Assistants Field Assistant Program Officer I met close to 150 officials spread over 2 districts. I also attended meeting conducted by Gram Panchayat, Zila Parishad and Block Development Officer wherein i represented the Railway Administration. During the course of my working, I realized that two most important interface of the citizens with the government are the Bus stand and Railway Station. Attached below are a number of photos elucidating my meeting with the officials. During the course of my meetings with numerous officials, I developed a good rapport with one official Mr Jameel Ullah. He was posted as Mandal Parishad Development Officer at Singarayakonda Mandal. Since this scheme was to be implemented for the first time on Indian Railways, hence I was a bit apprehensive about its applicability. Also safety aspect is of paramount aspect in Indian Railways, I knew that any mishap would have shut down this scheme instantly and hence I undertook a pilot project wherein I got allotment of 168 labour for 3 weeks (by the support of Shri Jameel Ullah) to test the applicability of the 6 listed works in Memo no. 28028. Before commencing such works, I held a safety seminar wherein all workers were lined up and were counseled on safe working beside the track. They were split into 3 groups 1. 50 nos. were deployed for desilting of Bridge no 525A which is an RUB located at km. 265/6-8. 2. 18 nos. were directed for jungle clearance. 3. 100 nos. were instructed to conduct cess repair work. Among the 6 listed works, the top 2 required policy formulation which is under progress. The next 3 works could be undertaken with ease. The last listed work of Protection work of existing Railway embankments/cuttings/bridges could not be undertaken as the work required hard physical labour which could not be undertaken by such workforce. The challenges and learning s during conducting such works are as follows 1. This is a voluntary and untrained work force whose work ethics and discipline are very different from the Railway working. They need to be not only counseled but trained a great deal which will involve practical demonstrations before they can be put to work for safety related works. 2. They are generally illiterate and are in tremendously large numbers and hence lot of supervision is required to manage them during their work. 3. They are not at all aware of any safety rules and I found them to be resting/sitting on the track as it is on an elevation and enjoying the panoramic view of the area. This was the first milestone in the quest for achieving Convergence of MGNREGS with Railways. I documented the entire exercise and brought it to the notice of other state officials of all other mandals. After witnessing the works conducted, I got a green signal from all the mandals and thereafter began the exercise of conducting joint surveys with state officials of my

entire section on trolley. During inspection of the section, realization came that new type of works could be undertaken. On conversing further with state officials, I became privy to a lot of their d

Impact/Benefits

1. The most important benefit from this scheme is that there has been BETTER UTILISATION OF PUBLIC MONEY. The funds being spent now benefit 2 departments and their objectives are being fulfilled simultaneously. Railway is saving money and that too under the Revenue Maintenance head. The wonderful part of this scheme is that once the work is offloaded to MGNREGS Department, they will take up this work every year resulting in perpetual saving to Railway. Every year, each ADEN is spending crores of rupees in Cess work, desilting of bridges, bitumen road construction at LCs and Station Approaches etc. which will now be taken up by NREGS department. 2. The work of trench cutting has resulted in reduced number of cattle run over cases as trenches are acting as natural barriers to trespassing. 3. Level crossing closure can be obtained with ease as close liasoning with state government officials and villagers results in better cooperation for the same. In my section itself, I was able to att

Uploaded Support documents/photographs/diagram

1.jpg Open Document (../InnIdeas/uploads/1578654915431_1.jpg)

7.jpg Open Document (../InnIdeas/uploads/1578654915431_7.jpg)

8.jpg Open Document (../InnIdeas/uploads/1578654915431_8.jpg)

5.jpg Open Document (../InnIdeas/uploads/1578654915431_5.jpg)

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Contact Person Name Pratham Agrawal

Contact Person Designation ADEN/OGL

Contact Number 9701373216

Convergence of MGNREGS with Railways

Pratham Agrawal, Executive Engineer, Construction, Ahmednagar, Central Railway

Nothing is more powerful than an idea whose time has come and time of Convergence with MGNREGS has come

The modalities of this scheme have been under works at the board level for the past 5 years i.e. from 2013 to 2018. South Central Railway pioneered the implementation of this concept in the year 2018 with Ongole Sub-division spearheading it. Through my persistent efforts, a new policy was formulated on 24.11.2018 identifying 9 type of works which could be undertaken in Railway jurisdiction. They are –

1. Desilting of water ways of bridges/RUBs/Pipe culverts/Box culverts.
2. Strengthening/widening of Railways embankment.
3. Trench cutting along Railway boundary.
4. Desilting of Open Wells.
5. Recharge structures to functioning bore wells/dried up bore wells.
6. Block plantation.
7. Village parks in Railway colonies.
8. Linear Plantation.
9. Connecting roads to level crossings up to BT level (90:10).

Currently 4 types of works (S. No. 1 to 4) are under progress. The amount sanctioned for the same stands at Rs. 37.86 crores as of today and till date Rs 2.09 crores worth of work is under progress. A few photos of the same are attached –









An exclusive head of Railway Project has been created in the main webite -http://www.nrega.ap.gov.in/Nregs/ (Official website of NREGA for the state of Andhra Pradesh which is being managed by TCS).

The sanctioned, in progress and completed list of works under convergence scheme can be monitored via the link given below. It is pertinent to note that monitoring system under MGNREGS is online which makes overseeing transparent and easy.http://www.nrega.ap.gov.in/Nregs/FrontServlet?requestType=AssetregRH&actionVal=WorkCatergory&id=Railway%20Project$&type=&Atype=-1

The potential of this scheme is tremendous with Rs 600 crores of sanctions awaited in this financial year itself. All the works listed above are of maintenance nature. Once offloaded, the freed up funds of railways can be diverted towards capital asset creation.

More so, the activities of plantation and other works listed above are pursued by state government in a better manner than railways as it is their core activity. E.g. plantation policy under MGNREGS states a 3 year maintenance period with a mandatory clause of 80% survival rate. A watcher is deputed for regular watering and protecting it against cattle. The above stated policy guidelines are pursued with all seriousness. In consultation with the state and forest department, plant species have been chosen which after maturity can be cut and can fetch railways non-fare revenue. To that effect, local pulp and paper industry has been roped in for the same and signing of an MOU is under way.

Similarly, the work of trench cutting along railway boundary will help in mitigating cattle run over cases. The trench will also serve as rain water harvesting pits. Adjacent to the railway boundary, farm fields are there and the farmers have expressed happiness over the same. After securing their trust, I am in the process of securing closure approval for 7 level crossings.

I have also managed to secure financing for some of the construction projects partly via MGNREGS funds and partly via centrally sponsored scheme. E.g. The Construction of Cement Concrete Approach Road to Singarayakonda station was undertaken with labour cost being financed under MGNREGS and material cost being financed under Rurban (a centrally sponsored scheme). Similarly, Construction of public wash toilet and approach road street lighting was also undertaken in 2 stations falling within my jurisdiction.

The applications of this scheme are tremendous and I feel that I could only scratch the surface of this scheme during the time I had. Railway is the 24th department to secure convergence. Last year budget under MGNREGS for the state of Andhra Pradesh stood close to Rs. 10,000 crores. My vision is to secure a lion's share of this funding for railways and for that I have undertaken activities to strengthen worksite facilities like –

1. Providing toilets at all Level Crossing Gates (38 nos.) and Stations (9 nos.) in my jurisdiction.
2. Providing water facility at all Level Crossing Gates (38 nos.) and Stations (9 nos.) in my jurisdiction.
3. Providing first aid safety kit boxes alongwith ORS (Oral Rehydration Solution) at all Level Crossing Gates (38 nos.) and Stations (9 nos.) in my jurisdiction.

The magnitude of this exercise could be appreciated from the fact that all the above facilities were initially present at every 10 kilometers which I have managed to bring it down to every 1.5 kilometers. This translates to greater accessibility to such basic amenities. The district administration along with all the workers have tremendously appreciated my work and a healthy environment has been generated resulting in improved quality and pace of execution of works in my jurisdiction.









The photos above are geo tagged displaying the daily progress of works in my section.

The future depends on what we do in the present – Mahatma Gandhi

Smart IR Emergency Network (SIREN) - Complete Solution

WCR

Smart IR Emergency Network (SIREN)

Ajay Kumar Tamrakar, IRSME'05
Sr. DME (O&F), Bhopal Division, West Central Railway
Mobile: 9752416401, Email: ajay.tamrakar@gmail.com

Bhopal division has implemented an innovative cloud-based system for online monitoring and management of accident relief trains (ARTs, ARMVs and SPART) that covers all major aspects of day-to-day working and has advanced beneficial features. The system is titled as Smart IR Emergency Network (SIREN), interestingly giving a feel of emergency related work.

Smart IR Emergency Network (SIREN) is a cloud-based web-application, exclusively designed for online monitoring and management of accident relief trains (ARTs, ARMVs, SPART/SMARMV). This unified platform enables unit-wise independent working for updating the information and centralised monitoring of various activities/indices, reports and compliances at divisional level. The system covers all major aspects of day-to-day activities related to management and monitoring of relief trains, such as schedules & movements, inspections, rolling stock schedules, nominated staff, AMCs, standard list, rolling stock, etc.

The system has many useful and smart features:

(1) **Online monitoring** of the status and compliances of essential items, such as forecasting of due activities, compliance of standard list, staff nominations, material positions with essential details like codal life, availability, store locations, stock entry, etc. The system works on cloud and has *responsive design*, thus can be accessed through smart devices (mobile/tablet) from anywhere anytime with login credentials.

(2) **Barcode-based tracking** of standard list items (store) and their locations (making the units *5S compliant* automatically with little inputs). The system itself generates barcode labels for tools and locations with essential details to identify the item and location easily. Relief units are provided with a bar-code scanner using which the system immediately displays relevant details of an item or location. *For example, when the barcode of a location is scanned, the system displays a detailed list of all the items available in that location.*

(3) **Automated emergency voice calls and SMS** to nominated staff (enhancing the efficiency) whenever a relief train is ordered to rescue & relief works. For this, the divisional C&W controller is given a panel of the system where he/she has to just select the relief unit from the dropdown and click the SOS button. Mobile number of nominated staff is directly taken from the staff nomination fed by respective relief units.

(4) **System-generated dashboards and information sheets** for display inside the coaches, such as rolling stock list, standard list of tools with

compliance, nominated staff list (with photographs, contacts), rolling stock schedules & movement board (with forecast), etc. Unit in-charge of each unit can edit/view these details on a real time basis and the same is accessible to the divisional office for centralised monitoring but without editing power.

(5) **Saving of time and resources** by avoiding redundant & repeating activities and reducing the paper works, and providing correct and updated information at any time.

All relief units of the Bhopal division are brought under the ambit of SIREN, the first in IR to establish such a state-of-art of technology platform for improving the readiness and efficiency of relief units.

Note: This work is uploaded in IR's Good Works Portal.

For more details, please contact:

Ajay Kumar Tamrakar, IRSME'05
Sr. DME (O&F), Bhopal Division, West Central Railway
Mobile: 9752416401, Email: ajay.tamrakar@gmail.com

Screenshots of the working system are as follows:

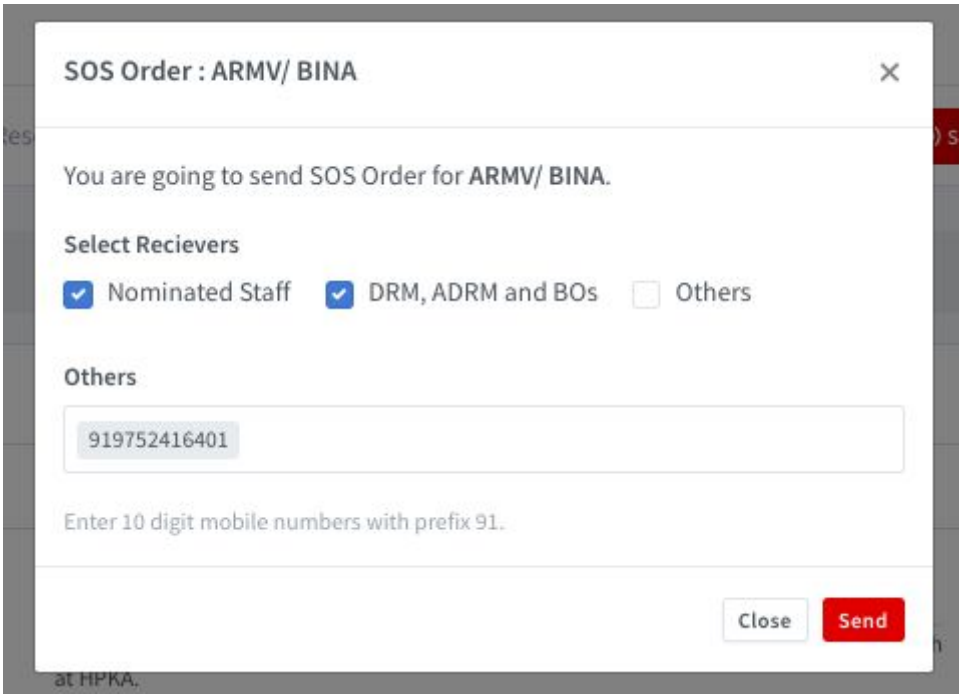
Divisional Dashboard - Schedules & Movements

Inspection & Movements

NO	UNIT	STATION	JOINT INSPECTION		ACTUAL RUN	MOCK DRILL		TRIAL RUN	
			DONE	DUE	DONE	DONE	DUE	DONE	DUE
1	ARMV	BINA	27-04-2020	26-07-2020	15-10-2019	09-02-2018	14-04-2020	08-05-2020	26-09-2020
2	ART	BINA	27-04-2020	26-07-2020	10-07-2020	22-02-2018	09-01-2021	28-02-2020	09-10-2020
3	ARMV	BPL	24-06-2020	23-09-2020	13-02-2020	15-11-2019	12-08-2020	04-06-2020	03-09-2020
4	ART	BPL	24-06-2020	23-09-2020	25-05-2020	15-11-2019	24-11-2020	21-03-2020	24-08-2020
5	ARMV	ET	01-07-2020	30-09-2020	28-12-2017	12-05-2018	11-11-2018	09-07-2020	08-10-2020
6	ART	ET	24-04-2020	23-07-2020	03-04-2020	12-05-2018	02-10-2020	20-07-2020	19-10-2020
7	SPART	GUNA	28-05-2020	27-08-2020	24-11-2019	09-02-2018	23-05-2020	01-07-2020	31-07-2020

C&W Control: Automated Emergency Calls & SMS





Relief Unit: Inspection & Movements, Rolling Stock

Inspection & Movements

NO	UNIT	STATION	JOINT INSPECTION		ACTUAL RUN	MOCK DRILL		TRIAL RUN	
			DONE	DUE	DONE	DONE	DUE	DONE	DUE
1	ARMV	BPL	24-06-2020	23-09-2020	13-02-2020	15-11-2019	12-08-2020	04-06-2020	03-09-2020

Rolling Stock (2)

NO.	CLASS	RLY	STOCK NO	MAKE	BIOTOILET	USE	BUILD	CODAL LIFE	POH DONE	POH DUE	IOH/ROH DONE	IOH/ROH DUE	RACKS	STORES
1.	RHV	WCR	98410	ICF	Biotoilet	Auxiliary Van	1998	0	06-Sep-2017	01-Apr-2021	09-Jun-2020	08-Dec-2020	60	242
2.	RH	WCR	93406	ICF	Biotoilet	Medical Van	1993	0	08-Nov-2017	01-Jun-2021	09-Jun-2020	08-Dec-2020	0	0

Relief Unit: Movements

Movements (19)

Show 10 entries Search:

NO	DATE	MOVEMENT	SECTION	TRAVEL (KM)	TRIAL RUN	REMARK
1	04-06-2020	Trial Run	BPL -BHS	100	Yes	CWC/47/BPL Dt. 03.06.2020 at 10:55
2	03-03-2020	Trial Run	BPL-BIN	278	Yes	CWC/27/BPL Dt-02.03.2020 AS PER CHC/C/BPL/03/06
3	13-02-2020	Actual Run	BPL STATION			CHC/C/BPL/02/115 & CWC 73/BPL ON 13.02.2020 at 9.20 ARME Orderd for BPL station PF No. (
4	19-11-2019	Trial Run	BPL - ET		Yes	
5	15-11-2019	Mock Drill	BPL-SHRN			Message received that one bus dashed with goods train at LC No. 114, near SHRN station.
6	12-08-2019	Trial Run	BPL-BIN	278	Yes	Trial Run BPL-BIN
7	07-05-2019	Trial Run	BPL-BIN	278		Trial Run BPL-BIN
8	30-06-2018	Trial Run	BPL-BINA	278	Yes	Trial Run
9	23-02-2018	Mock Drill	SUW			Joint excersise with NDRF
10	15-09-2017	Trial Run	BPL-BIN		Yes	Trial Run

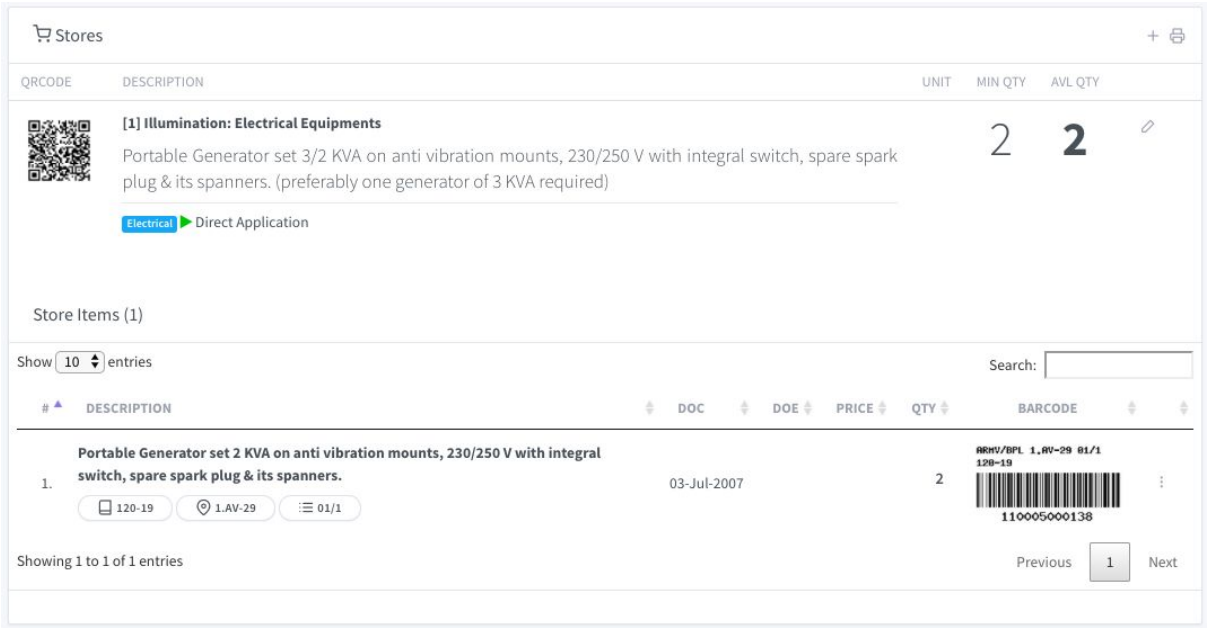
Showing 1 to 10 of 19 entries Previous 1 2 Next

Relief Unit: Standard List of Equipments

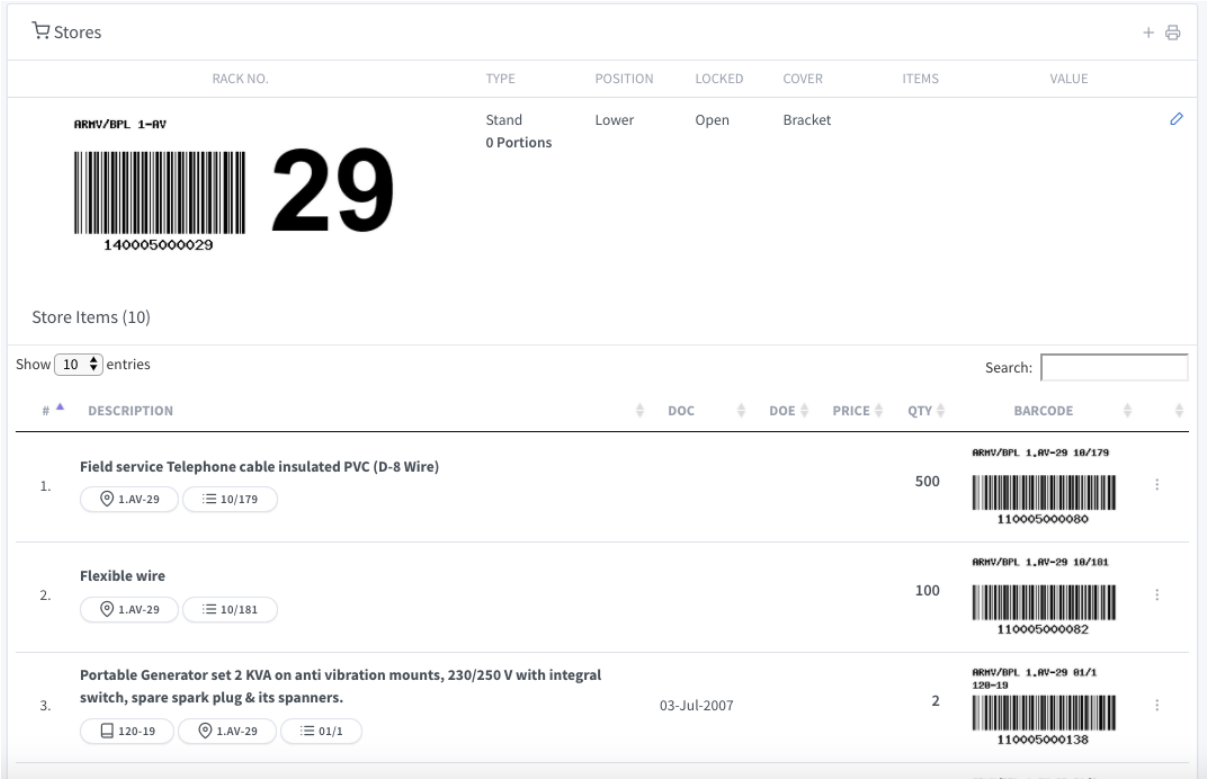
Standard Tools (224)

NO.	DESCRIPTION	UNIT	DEPARTMENT	MIN QTY	AVL QTY	LOCATION	CODE
[1]	**Illumination: Electrical Equipments (15)**						
1.	Portable Generator set 3/2 KVA on anti vibration mounts, 230/250 V with integral switch, spare spark plug & its spanners. (preferably one generator of 3 KVA required)		Electrical	2	2	1-AV-29	
2.	Main cable fixing from DG set to terminal board, 3 core cable 10 sq.mm PVC insulated	meters	Electrical	100	100	1-AV-29	
3.	Tool kit for maintenance of portable generator set as per make of Gen. Set		Electrical	2	2	1-AV-29	
4.	Portable Switch board with 4 water proof Industrial Sockets each capable of taking 500 watt load & 5 Mtrs. 5/15 Amp Cap. PVC insulated copper lead with plug on one end.		Electrical	4	4	1-AV-40	
5.	Stand flood light 1.8/2.5 meter high.		Electrical	6	6	1-AV-40	
6.	120 Watt LED Flood light fitting, IP65 protection suitable for 240 V single phase AC supply with 50 mtrs PVC insulated copper leads with plug at one end and suitable arrangement for keeping cable OR 500 Watt Halogen lamp with water proof fitting, 200 met		Electrical	6	6	1-AV-40	
7.	Hand lamp with Electrical cable.		Electrical	5	5	1-AV-40	

Relief Unit: Details of Standard List Item



Details of Location (upon scanning or direct opening)



QR Code For each Standard List Item

(By scanning this, users can see details of items available against the standard list item)

Barcode Labels: Store Items

(By scanning this, users can see details of store item, e.g. type, dead stock no, value, age, working, location)

ARMV/BPL 1.AV-29 01/1
120-19

110005000138

Barcode Labels: Locations

(By scanning this, users can see details of a location, e.g. items available, total counts, value, etc.)

ARMV/BPL 1-AV

140005000029

29

Staff Nominations

Team

Show 10 entries Search:

BIO	DESIGNATION	DEPARTMENT	MOBILE	DOB	DOJ	ADDRESS
Alok Malveey Shoes 8, Shirt L, 5.60 ft, 65.00 kg	SSE/General/BPL	Electrical	9425300256			Not available, /Bhopal Private
Vinod Lam Kuche	Tech/General/BPL	Electrical	7566213762	23-02-1978	25-05-2011	RB-II/166/SF/C, East railway Colony, BPL, /Bhopal 462010
Vijay Singh Meena	Tech/General/BPL	Electrical	8602971288	05-08-1983	25-05-2011	RB-II/169/GF/D, East Railway colony, BPL, /Bhopal 462010
Moka Prabhakar	Tech/General/BPL	Electrical	9893719784			Not available, /Bhopal Private
Manoj Tiwari ARMV/BPL, ART/BPL	Helper/General/BPL	Electrical	8461006984	02-12-1991	20-06-2017	Hno 6 Thala khushipura chandbarh bhopal, BPL, /Bhopal 462010 4 km Private
Milind Biddua Shoes 8, Shirt XL, 5.90 ft, 68.00 kg	SSE/C&W/BPL	Mechanical	7752015683	14-01-1990	13-05-2017	MG-67 Indus state kararia farm, Near crws, /Bhopal 462010 2 km Private
Sudhakar Hari Shoes 8, Shirt L, 5.70 ft, 72.00 kg	SSE/C&W/BPL	Mechanical	7869111516	10-10-1964	30-06-1987	RB-IV- 09, East Railway Colony, /Bhopal 462010 1 km
Dharmesh Kumar Jha Shoes 9, Shirt XL, 5.10 ft, 80.00 kg	SSE/C&W/BPL	Mechanical	9039141783	12-12-1969	29-12-1994	kohe fiza, BHOPAL, /Bhopal 462010 5 km Private
						H/39 green park Ashoka garden,

Staff Nominations: Display

Nominated Staff of ARMV/BPL

Electrical Department (5)

Alok Malveey
SSE/General/BPL
9425300256

Vinod Lam Kuche
Tech/General/BPL
7566213762

Vijay Singh Meena
Tech/General/BPL
8602971288

Moka Prabhakar
Tech/General/BPL
9893719784

Manoj Tiwari
Helper/General/BPL
8461006984

Mechanical Department (54)

Milind Biddua
SSE/C&W/BPL
7752015683

Sudhakar Hari
SSE/C&W/BPL
7869111516

Dharmesh Kumar Jha
SSE/C&W/BPL
9039141783

Ashok kumar Singh
SSE/C&W/BPL
9109110487

N.p. Sahu
SSE/C&W/BPL
9109110493

Vinod Kumar Gupta
SSE/C&W/BPL
9752416428

P.n. Kushwaha
SSE/C&W/BPL
9755893825

Sanjeev Kumar
SSE/C&W/BPL
9770648903

Bhoopendra narayan Prajapati
JE/C&W/BPL
7389673871

Sachin Malviya
JE/C&W/BPL
7566668282

Sunil Namdeo
Tech/C&W/BPL
7415734405

Gopal Dayaram
Tech/C&W/BPL
7869673278

Bhola Prashad
Tech/C&W/BPL
7869863250

Rajendra Raikwar
Tech/C&W/BPL
8109371285

Yogesh Kishor
Tech/C&W/BPL
8318552601

Ravi prakash Yadav
Tech/C&W/BPL
8602580915

Ishtiyak Khan

Narendra Kumar

Mahesh Bhaiyalal

Abdul Razzak

Flasher Light modification in MEMU DMCs

WR

Railway	Western Railway
Subject	Operations Improvement,Asset Management & Maintenance
Name of Good Work	Flasher Light modification in MEMU DMCs

Summary

During heavy rain & monsoon season, there were cases of flasher light failure due to the ingress of moisture in flasher light hood. To avoid the collection of moisture in flasher light hood and protect it from direct rainwater flasher light hood was shifted inside DMC above desk panel, the flasher light unit was previously fitted outside in front of DMC.

Detailed Description

Flasher light is one of the important safety equipment fitted in front of DMC and is used by motorman in case of emergency to alert motorman of train passing from opposite direction. Thus non-working of flasher light causes detention of MEMU rake. During monsoon season there were cases of flasher light failure due to moisture deposition in flasher light hood as flasher light hood was fitted outside in front of DMC and rain water was directly getting in hoodcausing non-working of flasher light.After detailed analyses and in-depth study of failures and design aspect of flasher light hood and its location modification was done to avoid the collection of moisture in flasher light hood and protect it from direct rainwater. Flasher light hood was shifted inside DMC previously fitted outside in front of DMC.

Impact/Benefits

After the modification, there are ﷺNILﷺ cases of flasher light failure due to moisture. Thus by the implementation of this modification reliability of MEMU trains is increased and an effective solution to halt flasher light failure due to ingress of moisture has been achieved.

Uploaded Support documents/photographs/diagram

Flasher light.jpg | Open Document (../InnIdeas/uploads/1589549153267_Flasher light.jpg)

Contact Person Name	Kallaram Meena
Contact Person Designation	DEE-MEMU-BRC
Contact Number	9724091309

Before Modification	After Modification
	

Bulk Head Flap with Spring System

SECR

Railway South East Central Railway

Subject Operations Improvement,Materials Management,Safety Improvement

Name of Good Work Bulk Head Flap with Spring System

Summary

light weight bulk head flap for absorbing impact and to restrict the movement of panel rails.

Detailed Description

To restrict the movement of panel rails and to absorb impact load of Rails, protection rails are provided on bulk head wagons. The same is being modified departmentally by providing 3 nos. coil spring on each flap to absorb impact load of Rails. This modification eliminates the need of manpower for fitment of rails on bulk head wagons and missing of protection rails after unloading at site. There is weight reduction at bulk head location (from 850 kg to 350 kg) and no chances of drooping of sole bar.

Impact/Benefits

Saving of man hours by avoiding sick detachment of coach. i. This modification eliminates the need of manpower for fitment of rails on bulk head wagons and missing of protection rails after unloading at site.

Uploaded Support documents/photographs/diagram

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New Bitmap Image2.jpg

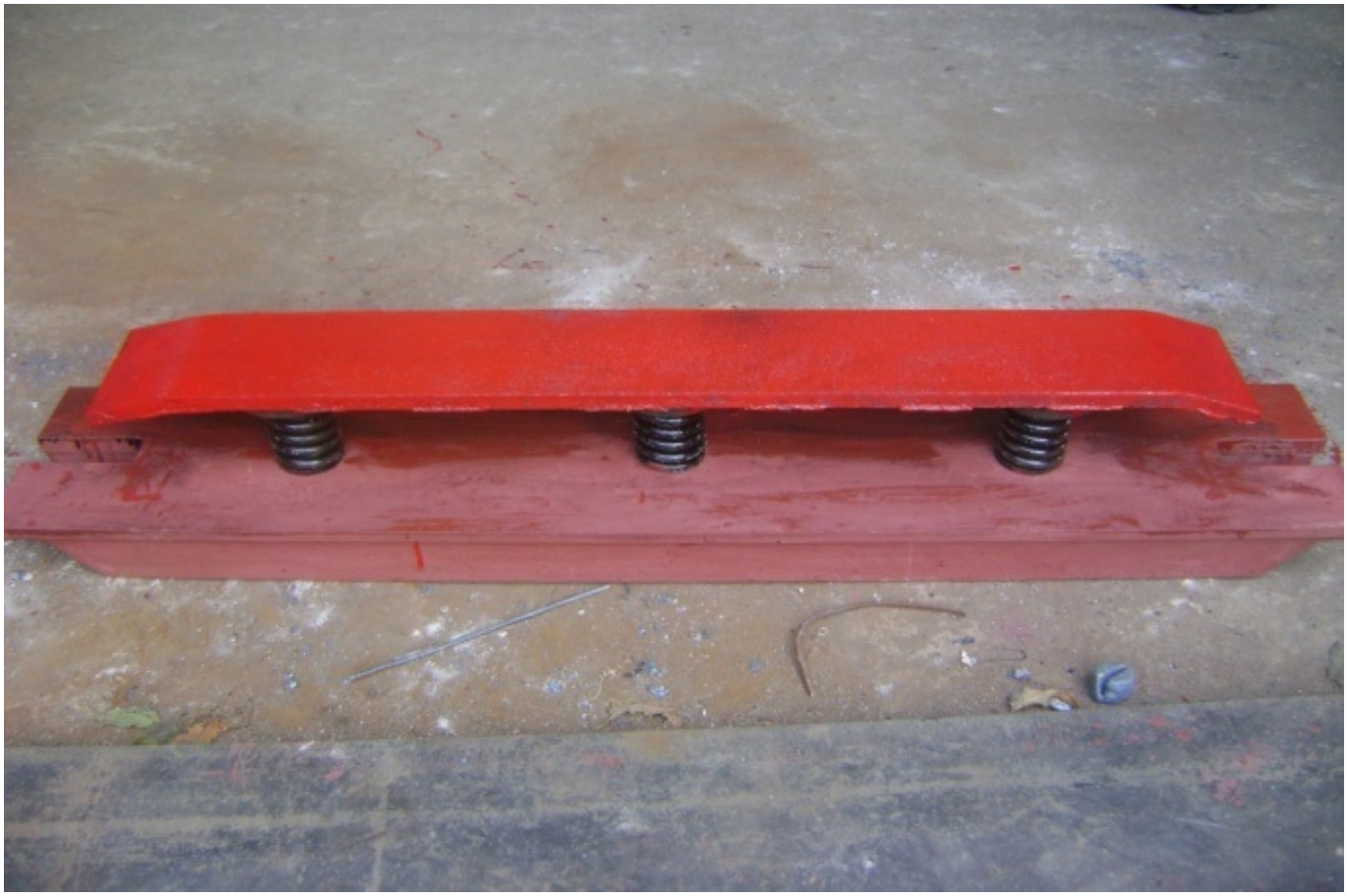
Open Document (../InnIdeas/uploads/1579519097506_New Bitmap Image2.jpg)

Contact Person Name C.K Lal

Contact Person Designation SSE/C&W/BIA

Contact Number 975287484





Online monitoring system for Wheel slide protection system status in LHB coaches

SWR

Railway South Western Railway

Subject Cost Reduction

Name of Good Work

Online monitoring system for ﷺWheel slide protection systemﷺ status in LHB coaches

Summary

Online monitoring system for ﷺWheel slide protection systemﷺ status in LHB coaches to monitor and record the status remotely while the coach is on run.

Detailed Description

An online monitoring and WSPD status recording system is developed in house. A prototype circuit is developed to read the status of WSPD in Faiveley Make coach. With the help of sensors, this circuit will read the WSP status from ST card in WSPD panel. Three different status are recorded, WSP off (Code 0), WSP in fault mode (code 72), WSP OK (Code99). The microcontroller will take the data from the sensor and upload to cloud server though Wi-Fi modem. The WSPD status is updated to cloud once in every 15 seconds. The WSPD status is recorded in the cloud server with time stamp, i.e. date and time is recorded along with the status code. Therefore,if any fault occurs exact time of fault will be recorded in the server. In addition, how long the WSPD system was in fault mode, can be determined. In addition, this WSPD status can be monitored through any smartphone or computer with internet access in real time. So data can be monitored online and if a fault is recorded then the same can be informed to next TXR point or escorting staff. Some minor faults such as cards loosened due to vibration or cable loose, can be attended. If any serious faults are present, decision may be taken by concerned to send the coach in isolation to prevent wheel shelling.

Impact/Benefits

1) Remote Monitoring: WSPD status is recorded continuously while the coach is running, and the same can be monitored remotely though a mobile or computer. If WSPD fault is logged, then correctiveaction can be taken enrouteif feasible, to prevent wheel shelling. 2) Data Recording and accessibility: The WSPD status is recorded with a time stamp. The data can be viewed in excel sheet and WSPD status and faults can be analyzed. WSP status history can be viewed through any smartphone or computer. Easy access to failure history will enable maintenance engineers to analyze the root cause for WSP faults and wheel shelling. 3) No interference to existing system: The sensors are which senses status from WSP ST Card are non-contact type. In addition, there is no physical or electrical interference by this system to WSPD. Therefore, it will not cause any hindrance to normal working of WSPD. 4) Cost Effective: Cost of the total system was approximately Rs. 1800. An open source cloud server was use

Uploaded Support documents/photographs/diagram

image003.jpg Open Document (../InnIdeas/uploads/1583305890753_image003.jpg)

Contact Person Name Mr. Rakesh Prabhu

Contact Person Designation Sr.CDO/SBC

Contact Number 9731666406


SWKP AS 20 R
72

Highlighting design defect in M/s Schunk make High Rise Pantograph on Electric Locomotives during Current Collection test

WR

Railway Western Railway

Subject Asset Management & Maintenance

Name of Good Work

Highlighting design defect in M/s Schunk make High Rise Pantograph on Electric Locomotives during Current Collection test

Summary

The issue of poor current collection at speed above 80 kmph which was a cause of serious concern in high rise OHE sections. CRS had granted sanction with speed restriction of 80 kmph due to poor current collection. The team of WR & RDSO took up the challenge and did extensive trials in high-rise OHE sections. OHE adjustments were done meticulously to weed out doubts about OHE adjustments. The following inference were drawn from tests: 1. Current Collection Tests is not satisfactory in both the directions. M/s Shunk) to carryout necessary improvements in design to ensure satisfactory current collection. 2. We may provide 2 high rise pantos in mail/ express locos and counsel crew to use panto of leading cab in case of locos provided with one Shunk make pantographs. 3. Extensive trials need to be conducted with other make of pantographs viz Faively and Contrasys in high rise territory in both direction before clearing the design.

Detailed Description

detailed current collection test report on high rise panto, issues and remedies are attached

Impact/Benefits

Heavy sparks during current collection in Knee Leading direction (Panto of rear cab raised) were observed which is dangerous to OHE and Pantograph. This imposed speed restriction of 80 kmph in all high rise OHE sections and making operation of electric traction unwelcome due to defective design of M/s Schunk Make Panto. This lead to review in design of high rise panto. The following inference were drawn from tests: 1. Current Collection Tests is not satisfactory in both the directions. M/s Shunk) to carryout necessary improvements in design to ensure satisfactory current collection. 2. We may provide 2 high rise pantos in mail/ express locos and counsel crew to use panto of leading cab in case of locos provided with one Shunk make pantographs. 3. Extensive trials need to be conducted with other make of pantographs viz Faively and Contrasys in high rise territory in both direction before clearing the design.

Uploaded Support documents/photographs/diagram

current collection report.pdf

Open Document (../InnIdeas/uploads/1580449375954_current collection report.pdf)

Contact Person Name Sanjiv Bhutani

Contact Person Designation PCEE WR

Contact Number 9004490300

Report on Current Collection with High Rise Pantograph in Ahmedabad Division, WR

Sanjiv Bhutani, PCEE/WR
A.Sundaresan, SrDEE/TRD/ADI

1. Introduction

High-rise OHE has been designed for haulage of double stack container trains with stock height of 6809 mm on electric traction. The standard contact wire height is kept at 7570 mm and suitably regulated below overhead structures FOB/ROB to 7166 mm to maintain short & long term clearances. Complete DFCCIL network including all the feeder routes have accordingly been planned with high-rise OHE. On Western Railway, the section from Pipava to Surendernagar – Viramgam – Mahesana – Palanpur is being provided with high rise OHE. Double stack containers are moving upto Delhi/Rewari on this route and as such, high rise OHE has been erected for working of freight & mail/exp trains on electric traction.

Indian Railways, being the first Railway in the world to implement high-rise OHE design, proving the pantograph interaction in high rise section to validate the design was critical for success of this project. The prototype tests on pantograph viz wind tunnel tests were conducted at IIT Kanpur but it was done at about 2 m height only as wind tunnel facilities were not available for testing high rise design upto 3.4m. Since, panto has to be raised to a height of about 3.4m above loco roof for current collection from high-rise OHE, satisfactory current collection posed a serious challenge to success of this endeavour.

On completion of the work of 25 kVac high-rise OHE, various sections viz Mehsana-Palanpur, Viramgam-Sabarmati, Mehsana-Viramgam, Rajkot-Hapa were offered for CRS inspection. As ill luck would have it, very heavy sparks were observed during all the CRS trials at high speed i.e above 80 kmph in all the sections. As such, CRS sanction were either withhold or granted at restricted speed ranging from 60 to 80 kmph only. Various locations of the high sparks as recorded by OLIVER G were attended by removing kinks, twist & profile adjustment etc but still there was no perceptible improvement in the current collection. Though, Railway had made huge investment in erection & commissioning of high-rise OHE, yet ***electric traction could not be introduced*** in these sections. The matter was of grave concern & anxiety as it posed serious doubts about the design of high-rise OHE, which could have snowballed to severe criticism if not addressed without delay.

2. Testing of Pantograph

The CRS inspection of Rajkot-Hapa (76 Rkm) section on Rajkot division of WR was done on 09.09.19 and during current collection test with OLIVER-G, large number of heavy sparks were observed. As such, trials were conducted at reduced speed of 60 kmph only and CRS sanction not granted. Initially, poor current collection was suspected to be on account of defect & deficiencies in OHE especially adjustments/profiling etc. However, a doubt arose about the poor contact force in high rise pantograph of Schunk make as well. Extensive tests were conducted in static condition in electric Loco Shed, Vadodara, wherein it came to notice that

contact force drops substantially as soon as panto is raised above the height of 3.4 m. The matter was reported to RDSO, CLW & Rly Bd vide WR letter no. EL 91/7/13 dtd 24.12.2019. RDSO examined the matter and issued Alt.3 to the pantograph specification to ensure satisfactory performance of panto upto height of 3.6m. For existing pantographs supplied by M/s Schunk, it was advised to provide a ring of about 80mm below panto base insulators to raise the height of panto so as to obtain satisfactory performance upto raised height of 3.6m. However, these measured didn't resolve the issue and in Dec.'19, with the introduction of passenger train (59049/59050) in the Ahmedabad-Viramgam section, large number of high & medium sparks were observed at 100 kmph as tabulated below.

Sparks	Max Speed	High	Medium	Low	Total
22.12.19/ 37287/ WAP7 Train - 59049	102 kmph	222	75	148	445

The issue of poor current collection with high rise OHE was highlighted to RDSO and Railway Board vide WR letter dated 24.12.19, wherein it was insisted to conduct instrumentation in dynamic condition to investigate the root cause of poor interaction between panto & OHE. In the meantime, on completion of high-rise OHE work, CRS inspection of Mehsana-Viramgam was done on 06.01.20, wherein once again more than 250 high spark locations were observed during CRS trial. As a result, CRS sanction was granted at maximum speed of 80 kmph only.

Considering the gravity of this crisis, RDSO team along with M/s Schunk visited Ahmedabad and current collection was done in their presence by increasing the contact pressure to 8.1 kg as suggested by them, the results were still far from satisfactory, as indicated below :

Sparks	Max Speed	High	Medium	Low	Total
09.01.20/ 30074/ WAP5 Train - 59049	110 kmph	289	103	194	586

By now, this issue had assumed a catastrophic proportion and as such, meeting was held in Railway Board on 14.01.2020. M/s Schunk was directed to involve their principals in Austria to get the investigations done and suggest modifications to improve current collection with their pantographs. Further trials were conducted in Ahmedabad-Viramgam section by increasing the pantograph contact pressure to 10 kg. The current collection results were somewhat better but still far from satisfactory as summarised below :

Sparks	Max Speed	High	Medium	Low	Total
17.01.20/ 30758/ WAP7 Train - 59049	111 kmph	81	49	196	326

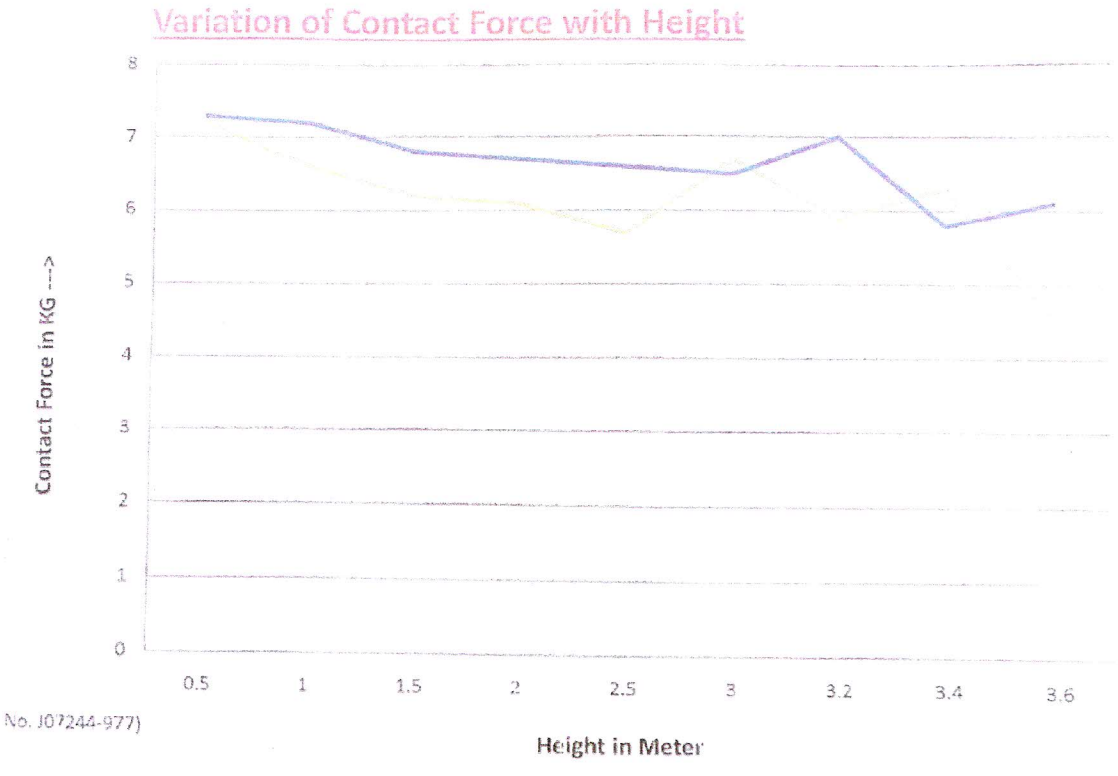
Following conclusions were drawn based on the above trials conducted jointly by RDSO, WR & firm's representatives:

- Most of the sparks were in high rise section
- Heavy sparks were observed at speeds above 80 kmph.
- Increasing of static contact force to 10 kg reduced sparks but still not satisfactory.
- Higher contact force will result in higher wear rate of panto carbon strip
- OHE push up will be more with higher contact force, which can result in panto entanglement at turnouts/crossovers

As per IEC 62486 static contact force is specified as 70 N -10/+20 N corresponding to force of 6 kg to 9 kg. Thus it would not be advisable to keep the static force at 10 kg as it can result in severe panto pan wear and also lead to panto entanglement especially in crossover and turn out.

3. Failure Analysis by WR

There were many variables in pantograph as well as high-rise OHE which could result in unsatisfactory panto-OHE interaction, thereby poor current collection. As such, finding the actual reason/cause was a herculean task nonetheless need of the hour considering introduction of high speed mail/exp trains on electric traction in Ahmedabad-Delhi route by Apr.'20 or so. Whereas, lot of time was spent in carrying out minute adjustments in OHE profile, kink removal etc, the panto also had many issues viz the contact force of panto changed disproportionately with setting of PRV and sharp drop in contact force above height of 3.4m, as can be observed from graph below :



No. J07244-977)

HEIGHT (IN METER)	(PT SR No. J07244-977) PRV setting 4.1	(PT SR No. J07244-934) PRV setting 4.2
	CONTACT FORCE (IN KG)	CONTACT FORCE (IN KG)
0.5	7.2	7.3
1	6.6	7.2
1.5	6.2	6.8
2	6.1	6.7
2.5	5.7	6.6
3	6.7	6.5
3.2	5.9	7
2.4	6.3	5.8
3.6	4.5	6.1

JE /TRS

SSE /TRS

ADEE /TRS-1

M/s Schunk was provided all the details and advised to expedite investigation, take corrective measures to set right defects in the pantographs. They were also directed to arrange for instrumentation to measure contact force in dynamic condition. This was likely to take substantial time and we were running out of time as mail/exp trains had been introduced in the high-rise sections progressively and large number of high sparks posed a very serious threat as it could have resulted in OHE breakdown also. At this juncture, team of WR officers & supervisors lead by PCEE/WR took up the challenge to investigate and mitigate this serious threat, which engulfed the very concept of high-rise OHE. Extensive trials were conducted in many high-rise OHE sections with pantos calibrated at different contact force. OHE adjustments were done meticulously to weed out doubts about OHE adjustments. At present, only one high rise pantograph is provided in each loco. The standard practice in electric loco operation is to raise the pantograph of the rear cab and current collection is also done in rear cab so as not disturb the crew in train operation. All these trials were done in this manner i.e the knee of pantograph was in trailing condition. A doubt arose about the wind tunnel effect above 80 kmph in either direction i.e it was expected to exert down thrust in one direction and up thrust in opposite direction. Therefore, it was decided to conduct trials with wrong panto i.e knee trailing in same section for comparison and to confirm whether defect is in OHE design or pantograph design. The trails were conducted in Mehsana-Viramgam single line section with same loco in up and then in dn direction. The results were much better than expected, ***almost all the high spark locations vanished and there was substantial reduction in medium & low spark locations with wrong panto raised i.e knee trailing position.***

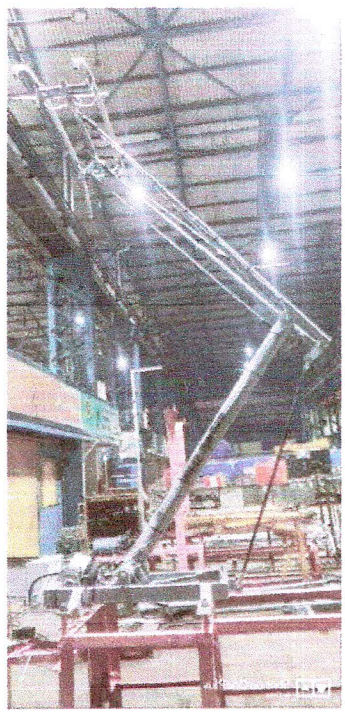
The comparative current collection with pantograph knee leading and trailing position is summarised below :

Current Collection in Viramgam-Sabarmati section

Max Speed 110 kmph Contact Force = 8 kg	Date - 09.01.20 Loco 30074/ WAP5 Train - 59049	Date 18.01.20 Loco 39014/ WAP7 Train - 59049
Pantograph Knee Position	Knee Leading (Panto of rear cab raised)	Knee Trailing (Panto of driving cab raised)
High Spark	289	1
Medium Spark	103	1
Low Spark	194	9
Total	586	11

Pantograph Knee Position with reference to Direction of motion and effect on current collection

Knee Leading (Panto of rear cab raised)



Direction of Movement

Current Collection Highly unsatisfactory at speed above 80 kmph in High Rise OHE

Knee Trailing (Panto of driving cab raised)



Direction of Movement

Current Collection Satisfactory at speed of 110 kmph in High Rise OHE

In the case of knee leading, there is net aerodynamic down thrust resulting in reduced contact force due to wind tunnel effect while moving at speed above 80 kmph and the phenomenon reverses when the knee of the pantograph is trailing resulting in net aerodynamic up thrust. As a result, current collection with knee leading is quite unsatisfactory and highly satisfactory with knee trailing. Extensive trials were conducted in Ahmedabad-Mehsana-Palanpur section and Viramgam-Mehsana section with knee leading and knee trailing position, the observations made are summarised below :

Current Collection in Viramgam-Mehsana section

Max Speed 110 kmph Contact Force = 7 kg	Date 21.01.2020 Loco 30059/WAP5 Light Engine	Date 21/22.01.2020 Loco 30059/WAP5 Light Engine
Pantograph Knee Position	Knee Leading (Panto of rear cab raised)	Knee Trailing (Panto of driving cab raised)
High Spark	404	1
Medium Spark	150	0
Low Spark	218	1
Total	772	2

Current Collection in Mehsana-Palanpur high rise OHE section

Max Speed 110 kmph Contact Force = 7 kg	Date 22/23.01.2020 Loco 30064/WAP5 Train - 12490	Date 24.01.2020 Loco 30064/WAP5 Train 12960
Pantograph Knee Position	Knee Leading (Panto of rear cab raised)	Knee Trailing (Panto of driving cab raised)
High Spark	569	1
Medium Spark	54	1
Low Spark	116	3
Total	739	5

4. Conclusion

The results firmly established that the poor current collection has been on account of ***design deficiencies in pantograph of Schunk make*** and there is no major defect in high-rise OHE attributing to unsatisfactory panto-OHE interaction. The findings of the trials have been furnished to RDSO and M/s Schunk for taking further necessary action to address this design defect in high rise pantographs.

The inference drawn and action plan proposed is as under -

1. As per IEC 60494-1 para 6.11 Current Collection Tests must be satisfactory in both the directions. Thus issue must be taken up with firm (M/s Schunk) to carryout necessary improvements in design to ensure satisfactory current collection is achieved in both the directions. Firm shall replace all the defective pantographs if same can't be attended/ modified in shed. Since, mail/exp. trains shall be introduced in ADI-NDLS section having high rise OHE shortly, this needs to be resolved expeditiously.
2. In locos provided with High rise pantographs of M/s Schunk, the current collection is satisfactory when knee of pantograph is in trailing direction i.e. leading cab pantograph is raised. As an interim solution, it is suggested to provide both high rise pantographs in passenger locomotives and counsel crew to use the pantograph of the leading cab.
3. Extensive trials need to be conducted with other make of pantographs viz Faively and Contrasys in high rise territory in both direction before clearing the design and giving approval for bulk supply.

Replacement of Lead Acid Batteries with VRLA type of Batteries in MEMU DMCs (MEMU Car shed Vadodara)

WR

Railway Western Railway

Subject Operations Improvement,Asset Management & Maintenance

Name of Good Work

Replacement of Lead Acid Batteries with VRLA type of Batteries in MEMU DMCs (MEMU Car shed Vadodara)

Summary

MEMU DMCs were provided with the conventional Lead-Acid type of battery bank which needed frequent top-up, less battery life, and chance of leakage. Thus as a part of system improvement, increase in reliability, and reduction in cost it was decided to replace Lead Acid batteries whose life was near condemnation with VRLA type Batteries.

Detailed Description

As a part of constant effort to improve efficiency, reliability, and reduce cost it was decided to Replace Lead Acid Batteries with VRLA type of Batteries. Due to obvious advantages of VRLA type batteries over conventional batteries like LESS MAINTENANCE, BETTER LIFE CYCLE, LESS PRONE TO FAILURES and REDUCTION IN MAN-POWER COST existing Lead-acid battery banks fitted in MEMU DMCs are under replacement in a phased manner and as on date 15 number of DMCs are fitted with VRLA type batteries which were previously fitted with Lead Acid batteries. Battery trolley accommodating the lead-acid battery was modified by cutting the existing partition and then re-welding as per the size of VRLA batteries. All the above modification work was done completely in-house without any extra expenditure.

Impact/Benefits

Due to the replacement of battery banks with VRLA type of batteries, there is saving in in form maintenance manpower as VRLA type batteries do not require any top-ups. Also, there are benefits like reduction in failure, more life, and improved reliability.

Uploaded Support documents/photographs/diagram

Contact Person Name Vishal Yadav

Contact Person Designation ADME-MEMU-BRC

Contact Number 9725200437

Replacement of Lead Acid Batteries with DRY type of Batteries

Railway: Western Railway

Unit: MEMU Car Shed, Vadodara, Vadodara Division.

Subject: Replacement of Lead Acid Batteries with DRY type of Batteries.

Name of Good Work: Replacement of Lead Acid Batteries with DRY type of Batteries.

Summary:
MEMU DMCs were provided with the conventional Lead-Acid type of battery bank which needed frequent electrolyte top-up, leakage, are more maintenance intensive and also less battery life. Thus as a part of in-house system improvement to increase in reliability of battery, and reduction in cost it was decided to replace Lead Acid batteries whose life was near condemnation with VRLA type Batteries in MEMU Driving Motor Coaches (DMCs).

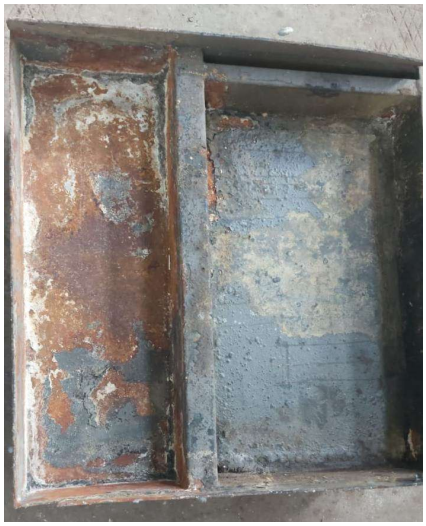
Detailed Description: As a part of constant effort to improve efficiency, reliability, and reduce cost it was decided to Replace Lead Acid Batteries with VRLA type of Batteries. There are numerous advantages of VRLA type batteries over conventional batteries like LESS MAINTENANCE, BETTER LIFE CYCLE, LESS PRONE TO FAILURES and REDUCTION IN MAN-POWER COST. So replacement of existing old Lead-acid battery banks fitted in MEMU DMCs is undertaken in a phased manner and as on date 15 numbers of DMCs are fitted with VRLA type batteries which were previously fitted with Lead Acid batteries. Lead acid batteries were having issues of leakage and less battery life. Also during schedule maintenance while topping up of batteries it was necessary to place DMCs outside maintenance pit lines so as to get easy access to Battery trolley, which lead to increases in time taken in maintenance as time required on pit line is increased and also required increased man power. As in conventional Lead acid batteries liquids are involved in topping up process spilling of liquid on trolley is very common, thus causing sulphation and rusting of trolley. Prior study and analysis of DMCs was conducted so as to find battery sets which were nearing there life cycle so they can be replace by better technological available options of VRLA dry batteries. This pre-analysis have saved under-utilization of existing battery sets and thus making Replacement of Lead Acid Batteries financially more viable.
Future replacements will also be planned in a phased manner so as to properly utilise existing stocks and also reaping the benefit of advanced technology of VRLA batteries.
In view of manpower saving this replacement has saved 4 man hours a day, thus yearly saving of 365 days X 4 man hours/Day = 1460 man hours.
Modification- Battery trolley accommodating the lead-acid battery was modified by cutting the existing partition and then re-welding as per the size of VRLA batteries (Picture attached). All the above modification work was done completely in-house without any extra expenditure in terms of man-power and cost of material.
In accordance to above mention advantages and weighing on the entire pro and cons of replacement of Lead Acid Batteries with VRLA type of Batteries, this modification proves its worth.

Impact/ Benefits: Due to the replacement of battery banks with VRLA type of batteries, there is saving in form of maintenance manpower as VRLA type batteries do not require any top-ups. Also, added advantage of increased reliability of equipment and hence increasing the reliability of MEMU services as whole as battery is one of the most critical equipment.

Upload support documents/ Photographs:

Contact person Name: Vishal Yadav

Contact person Designation:ADME/MEMU/ BRCY (CUG: 9725200437)



Existing Trolley for Lead Acid Battery Bank



Modified Trolley for VRLA Battery Bank



Lead Acid Battery Bank



VRLA Battery Bank