GOVERNMENT OF INDIA/भारत सरकार

MINISTRY OF RAILWAYS/रेल मंत्रालय

(RAILWAY BOARD)

No. 2018/E&R/10(10)/5 New Delhi, dated 20.04.2018

General Manager All Indian Railways/ PUs
DG/RDSO, DG/NAIR
CAO DMW/Patiala, RWP/Bela, IROAF
Director/IRICEN, IRISET, IRITM, IRIMEE

Subject: 'Good Work done' practices reported by Railway units

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 were instructed for active sharing of the "Good Works" being done by Railway units on 'Rail Good Works Portal' hosted on the website of IR. In compliance, an overwhelming response of 1250 entries has been received from Railway units. Out of the total entries posted on the portal, 25 Good Work practices have been identified for initial mass scale implementation across Railway units wherever applicable. List of these 25 identified entries is enclosed as Annexure and the details of these can be seen at 'Rail Good Works Portal' on IR website.

It is requested that these identified 25 entries may be widely circulated among the Railway units. It is further requested that the implementation report of these identified 25 entries 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.

This has been issued with the approval of CRB.

20/4/18

(Vikas Arya)
Executive Director (E&R)
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Encl: DA

Copy to: PED/Transformation
: All Board Members
: OSD to CRB for kind information of CRB

S/c

Annexure

IDENTIFIED 'GOOD WORKS DONE' PRACTICES POSTED ON IR WEB-PORTAL

1. **Mobile jig for attention of Centre Pivot of WAG-7 locos without lifting the loco** - Electric Loco Shed/Vijayawada is maintaining 142 WAG-7 Locomotives. In WAG-7 locomotives, during overhauling and un-schedule repairs centre pivot block assembly needs to be removed and provided back after attention. Prior to this innovation, loco used to be lifted. Post lifting of loco for removal & related activities of Centre Pivot attention, 02 nos. staff were required along with 4 nos. staff for supporting heavy Centre Pivot Block. It was a strenuous and unsafe practice. ELS/BZA has developed a movable hydraulic Jig for removal/provisioning of centre pivot block, which can be operated by one person and whole work of assembly & provision can be done by 2 persons without lifting the locomotive. In case of un-schedule repair work, work can be done in inspection bay itself without lifting the loco. (Cost Reduction)

2. **Successful introduction of Common Mini Line (CML) Box in place of individual Loco Pilot's line box** - Till now each Loco Pilot is being supplied with individual line box equipped with various tools and other safety items. This individual line box is owned by each Loco Pilot and same is being loaded & unloaded at every crew change point. Now these individual line boxes have been replaced with Common Mini Line (CML) Box on all divisions of South Central Railway w.e.f. 16.01.2018. South Central Railway is the first zonal railway where Common Mini Line (CML) Box has been introduced in all six divisions at a time duly replacing old practice of providing individual line boxes of Loco Pilots in both coaching and freight trains. (Cost Reduction & Operations Improvement)

   Similarly, WR has also implemented named as Tool Box in passenger locos of BRC shed. BRC division of WR has also provided a Tablet PC containing the digital record of all the books/ manual required.

   Thus the Loco pilot /Guard line Box may be replaced by fixed Tool Box and trolley Bag with Tablet PC with Loco pilot & Guard.

3. **Provision of Conventional Rotary Switch in 3-Phase Locos** - M/s Siemens make Rotary switch used in conventional loco is provided as configuration switch (160) in Loco No.31162/WAG9 on trial basis and working satisfactorily. This switch is very robust and avoids failures like hard operation in 3phase locos. Cost of 3phase loco configuration switch is Rs.15000/- and the cost of rotary switch of conventional loco is Rs.4000/-. Thus provision of rotary switch as configuration switch saves Rs.11, 000/- per switch. (Cost Reduction)

4. **M/s INDFOSS Precision Range Pressure Switch For Brake Cylinder Circuit Of E70 Brake System** - Pressure switch provided in brake cylinder circuit of E70 brake system is having a working pressure setting of Cut in 0.65 Kg/Cm2 and Cut out 0.2 Kg/Cm2. The pressure switch for this provided by FTIL is of SQUARE-D make is having operating range of 0.1 to 5 bar with minimum differential pressure of 0.2 bar. The cost of the pressure switch also high. This pressure switch is causing erratic behavior due to low range of operation and low differential pressure setting. In view of this, better working and proven Pressure switch of INDFOS make RT-112X has been provided in 20 locomotives since 24.11.15 and these switches are working satisfactorily and superior to SQUARE-D type switches. (Cost Reduction)

5. **Outsourcing of Ambulance for the Transportation Of Railway Patient at Divisional Railway Hospital Pratap Nagar- Vadodara** - Divisional railway hospital Pratap Nagar Vadodara has out sourced patient ambulance from contract for the improvement of services rendered to railway beneficiaries. (Cost Reduction)

6. **Laying of released / unused PRC sleeper at goods sheds for improving goods shed surface** - Improvement of goods shed surface by laying released PRC sleepers has been done at Vikramanagar goods shed of Ratlam division. (Cost Reduction)

   Thus, the released PRC sleepers may be used for surface improvement, Boundary wall and boundary demarcation.

7. **Manually operated Coach Window rod Snapper Tool for removing window Rod & Quick rescue of Passengers at Accident Site** - Hubli Division of South Western railways has developed a very effective Rescue Device i.e Manually operated Coach Window rod Snapper Tool for removing window rods quickly which helps in evacuating passengers from coach at Accident Sites quickly . This aims to overcome the slow rod cutting problem with Hydraulic Cutters. (Cost Reduction)

8. **Indian Railways e-Locos TSD App** - This mobile app which can be downloaded from Playstore is a very useful tool for all Electrical (AC) Loco Pilots of Indian Railways in quick troubleshooting of loco faults/unusual situations encountered online thus considerably reducing the impact of mid section loco failures and other abnormalities, and minimizing train detention and its cascading effect on punctuality, mobility, turnaround, line capacity. (Operations Improvement)

   To spread the benefits of above good work done, the SCR shall now include all type of Locos i.e. Electric and Diesel in this app, by involving all stake holders and details may be given to all ZRs for use.

9. **Wheel Changing Gadget** - Wheel changing gadget without detachment of wagon from the formation. (Operations Improvement)

10. **Gadget to attend Door channel bent repairs** - A no. of wagons are attended for door channel bent repairs and the wagons are moved to sick line to attend door channel repairs by cutting the bent door channel of the wagon. This is resulting not only in detention to wagons and also utilization of more man hrs. (Asset Management and Maintenance)

11. **Gadget to find the worn out of side frame jaw from the center line of Axle of BLC wagons** - The longitudinal clearance to be maintained between wide jaw adaptor and side frame jaw of BLC bogie is 10mm and if this clearance is more, liners have to be welded. However, exact measurement is very difficult and was left to discretion of staff. To overcome this difficulty, a gadget has been developed to find out worn out of side frame jaw from the centre line of Axle of a Casnub/LCCF 20(c) bogie. (Asset Management and Maintenance)

12. **Extraction of Brake Hanger Bushes of WAP7 Loco Brake Rigging using a JIG and Impact Wrench** - So far Bushes of Brake hangers of WAP7 loco brake rigging have been removed by hitting with crow bar. It is taking minimum 15 min of time for each bush and bush also getting damaged. For WAG9 locos it is very difficult to remove the bush. An impact

wrench was developed with buster arrangement, which was facilitated to remove the WAP7 loco brake hanger bush within 05 min and WAG9 loco bush within 10 min. (Asset Management and Maintenance)

13. **Remote monitoring of Escalators** - There are around 40 Nos of safety equipments in the escalator and all safety's make one loop. Computer checks all safety, if any safety fails then safety loop is broken immediately and from safety point of view computer in escalator stops escalator immediately to avoid any untoward incident. Escalator also stops in case of power failure as there is no power to run it. In both the cases whether the safety loop is broken or power supply is restored, escalator dose not restart automatically. As soon as stoppage of escalator is known then electrical staff goes and check that all is okay, then only he put the key and re-start the escalator. But this takes more time. In case of no information to the staff, many complaints have been published in news papers and on the tweeter that escalators are not working since long. To avoid such problems, this real time monitoring system has been adopted. (Asset Management and Maintenance)

14. **Use of data-logger for safety predictive maintenance & operation issues** - Data acquisition system named data-logger is provided for signalling maintenance & post incident analysis. It has been provided at almost all stations and widely used for signalling incidence analysis and accident analysis. As it is used in limited ways and post accident analysis, it can be used as a management input in the area of predictive maintenance, various safety aspect and operations.

    (a) <u>Safety matters:-</u> Few input which can be used for input in safety matters are as follows:-

    (i) Point not set against occupied line.
    (ii) Over speed of train in loop line.
    (iii) Relay room opening.
    (iv) Late closure of LC gates.

    (b) <u>Predictive Maintenance:-</u> Management inputs for predictive maintenance :-

    (i) Point loose packing.
    (ii) Premature release of buttons.
    (iii) Daily emergency crossover operation report.

    (c) <u>Operations Management:-</u> Inputs for operations management:

    (i) Late start of train after signal is lowered (Above 15", 10"-15", 5"-10").
    (ii) Late operation of home signal (Above 5").

    As data-logger inputs are available but the MIS reporting system to be developed for the same. Such system has been developed by WCR and available at IP address on railnet - 10.157.16.40.

    The same shall be extended to the other zonal railways by WCR.

    Uses of Dataloggers are also reported by various ZRs. (Asset Management & Maintenance), (Digital Initiatives), (Operations Improvement) etc.

15. **Integration of EIMWB with FOIS and improving the security of weighment System against manual intervention-**

a) Previously, after weighment, the weight particulars of each wagon of a rake were punched and submitted manually by the operator on FOIS which was susceptible to errors or manipulation. To prevent the same, the direct connectivity of the weigh bridge with the FOIS has been made and data is transferred in secure mode through net to Central Server of FOIS.

b) Earlier, there was no method to ascertain whether the weighment slip of a loaded rake printed by the weigh bridge is correct or not. As such, to ascertain the same, instruction have been issued to keep the printing of last vehicle (match truck) weight enabled which is to be checked by the operator to find out whether he same falls in a stipulated range.

c) The EIMWB installed at different locations of Indian Railways are operated through external PCs. Due to accessibility of different I/O ports in such devices, the software installed on the PCs can be updated/ manipulated and the weighbridges can be compromised.

The above good work is implemented by Ranchi Division of SER which can be replicated over other ZRs. (Operational Improvement)

16. **Block Management System (BMS)-A unique, paperless, cloud based BMS has been developed by BRC division for maintenance block planning -** Block planning is integral to safety and efficient train operations. Under the BMS system, the weekly (Sunday-Saturday) block requirements are detailed in an online Google Spreadsheet by Engineering, S&T and TRD department by Wednesday. The S&T and TRD departments can work out their staff availability for Engineering block and also plan shadow blocks. On Thursday of every week the representatives of three departments along with Operating meet to finalize the blocks. Once agreed the blocks requirement is freezed. Based on the agreed weekly plan the system generates the daily block requirement. Emergency blocks may be added to daily planning also. (Operational Improvement)

17. **Introducing fully computerized pass module -** Fully computerized pass module has been introduced over Western Railway. (Digital Initiatives)

ICF has also developed a system to issue privilege pass / PTO through computer and to maintain the pass-ledger in system (Digital Initiatives)

18. **DISHA (Digital Interface for Station Help and Amenities) A Mobile Application**-DISHA (Digital Interface for Station Help and Amenities) , a Mobile App, first of its kind, launched by the Mumbai Division, for providing information on mobile phones about passenger amenities and Station assistance available at stations. (Digital Initiatives).

WR may be asked to develop this app on All India basis.

19. **Western Railway Telephone Directory App** - Helps in searching any Mobile/Landline number of WR, CR, RB and some Mumbai based PSUs by just typing name/designation. (Digital Initiatives).

WR may be asked to roll out the App for whole IR contacts.

20. **On line Monitoring system for Rolling In/Out Examination** - On line monitoring system for Rolling In/Out Examination is very much effective to detect the hanging, deficient parts of under gear of coaches in run condition at the nominated Rolling IN/out examination point for passing and Terminating trains. The whole is on network, so it can be accessed from anywhere by entering the IP address into a web browser. The cameras continuously capturing and stores live videos and images. The stored data will be available for monitoring, rectification and other necessary purposes throughout the time. The stored examined video will also provide the inputs for Maintenance staffs for corrective action during maintenance of trains at Pit lines which not possible in standstill condition. (Safety Improvement)

21. **Introduction of new concept to facilitate passengers hire cab services at Bengaluru-** South Western Railway Innovations: Cab Aggregator Service - A new concept to facilitate passengers hire cab services was introduced at Bengaluru (SBC) division through cab aggregators OLA & UBER wherein exclusive parking space was earmarked on open tender basis, which is first of its kind in India. This facility is provided at 12 stations (19 locations: 04 units to M/s UBER India Tech. Pvt. Ltd. and 15 units to M/s ANI Tech. Pvt. Ltd. - OLA) over Bengaluru division for a period of three years. Average earnings per annum is Rs.14,82,37,308/-. Similar facility is provided at Mysuru Railway Station over Mysuru (MYS) Division. Exclusive space has been allotted w.e.f. 27.12.2017 on quotation basis for a period of three months or till the finalisation of regular tender. Average earnings per month is Rs.84,000/-. Further, tender for App based call taxi has been called for by Mysuru division on dt.14.11.2017 to allot exclusive parking space at earmarked location for a period of three years. Tender was opened on dt.20.12.2017. Two offers have been received. Allotment of space will be finalised shortly. (Others)

22. **Fabrication of Contact wire splice jig** - Spicing of contact wire during contact wire replacement or during breakdown is important activity which takes considerable time. With newly developed splice jig this can easily be done by saving lot of power block time. (Asset Management & Maintenance)

23. **Automated Distributor Valve Test Bench** - Distributor Valve (DV) is an important safety equipment in the air brake system in any rolling stock. This innovated item is developed based on Micro Controller along with PC system to perform all the test procedures sequentially as per the make and type of Distributor Valve and generate reliable test results. Testing the distributor valves on this devise not only improves quality of the brake system but also ensure proper recording of various parameters for future reference. (Safety Improvement)

24. **Automatic single car test rig for LHB coaches** - This innovation is for testing to find efficacy of airbrake system in LHB Coaches after POH. This innovated item not only tests the efficacy of air brake system but also it records all the important test results data in a computer which can be analyzed in case of abnormality in future. (Safety Improvement)

25. **Soft Skill Training for frontline staff of Ranchi Division of South Eastern Railway -** Three days soft skill training for 20 front line staffs (i.e. Commercial, Operating, Electrical and Security Department) of Ranchi Division who are directly involve with customers dealing has been organised by Personnel Department of Ranchi Division. (HRD)