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MC/CTRB/Defects

Date: 29.03.2019

**Principal Chief Mechanical Engineers,**

1. Central Railway, Chhatrapati Shivaji Terminus, Mumbai - 400 001
2. Eastern Railway, Fairlie Place, Kolkata - 700 001
3. Northern Railway, Baroda House, New Delhi - 110 001
4. Southern Railway, Park Town, Chennai - 600 003
5. South Central Railway, Rail Nilayam, Secunderabad - 500 071
6. South Eastern Railway, Garden Reach, Kolkata - 700 043
7. North Eastern Railway, Gorakhpur - 273 001
8. Northeast Frontier Railway, Maligaon, Guwahati - 781 011
9. Western Railway, Churchgate, Mumbai - 400 020
10. East Central Railway, Hajipur - 844 101
11. East Coast Railway, Chandrasekharapur, Bhubaneswar - 751 016
12. North Central Railway, Allahabad - 211 001
13. North Western Railway, Jaipur - 302 006
14. West Central Railway, Jabalpur - 482 008
15. South East Central Railway, Bilaspur - 495 004
16. South Western Railway, Hubli - 580 023
17. Konkan Railway Corp. Ltd. Corporate office Belapur Bhawan, Navi Mumbai-400 614

**Sub:** Attention to Wheels and CTRBs of the LHB wheelsets observed with heavy wheel shelling.

**Ref:** (i) En-route detachment of LHB Coach No. SWR 17216/C LWSCN1 from Train No. 12291 YPR-MASExp. on 09.03.2019 due to hot axle at JTJ Railway Station of Southern Railway.  
(ii) This office letter no.MC/WA/Genl. Dated 1.11.2017, reiterated on 10.01.2019.

Coach number SWR 17216/C LWSCN1 was detached en-route from train number 12291 YPR-MASExp. at JTJ(Jolarpettai) Railway Station of Southern Railway on 09.03.19 due to high temperature (235°C) of axle box no. R6 detected during rolling in examination. The coach was placed at JTJ Railway Station and affected wheelset was sent to Central Workshop, Mysore for failure investigation.

RDSO official has visited JTJ Railway Station, Southern Railway on 15.03.2019 and Central Workshop, Mysore, South Western Railway on 16.03.2019 for joint inspection of reported bearing (Annexure I).

**The affected wheelset No. 171241 was received in Central Workshop, Mysore on 22.02.2019 from CDO/YPR for tyre turning due to deep wheel shelling. The dia. Reduced during tyre turning was 17 mm as per report of Central Workshop, South Western Railway, Mysore dated 09.03.2019. After tyre turning, the wheelset was put in Coach No. 17216/C LWSCN1 on 02.03.2019 & got involved in hot axle case on 9-3-2019.**

The affected wheelset was tyre turned after deep wheel shelling i.e. much more than prescribed criteria issued by RDSO vide letter referred above at Ref. (ii). Heavy shelling leads to huge impact load getting transferred to various load bearing members of bogie, including CTRBs. Due to such impact load, internal mating parts of CTRBs may get damaged, leading to hot axle, as in this case.

Vide this office letter under ref (ii), following limits for wheel shelling were laid down:-

*Turning of LHB wheels may be done as per following limits:*

- i. *Depth of shelling marks has reached to 1.5mm.*
- ii. *Length of shelling marks has reached to 40mm.*
- iii. *Depth of hollow tyre reached to 3mm. This limit of 3mm is kept to study the effect of wheel shelling and service life of wheels. The rejectable limit of hollow tyre will continue as more than 5mm as specified in IRCA Part IV. During investigation, it has been noticed on many wheels that the formation of hollow tyre precedes the wheel shelling.*

In view of above, the following may pl. be strictly complied with:

1. Wheels with shelling beyond limit set by the letter under reference (ii) are timely removed from service at Coaching Depots. Shelling in wheels must not be allowed to increase to levels of heavy shelling, as happened in the wheelset mentioned above.
2. ***CTRBs of wheelsets requiring tyre-turning on account of shelling / flats beyond permissible limits must be dismantled from wheelset, irrespective of CTRB overhaul due date, & sent for overhaul. These wheelsets should be put-back in service only with overhauled / new CTRBs.***

Necessary instructions in this regard may pl. be issued to depots and workshops.

DA: As above



(Samir Lohani)  
Executive Director (Stds.)/Carriage

Copy to: EDME/Coaching, Railway Board, Rail Bhawan, New Delhi – 110 001



**Findings:**

1. Heat marks found on axle end cover and both control arms of reported axle box No. R6 . Slight rubbing marks found on upper control arm bore.



2. The phonic wheel teeth found with slight rubbing mark with speed sensor due to bearing failure. The speed sensor was also found in completely damaged and melted condition.



3. Bearing found in seized condition and Bearing cup found in broken condition at 3 'O' clock position on entire length i.e. 160 mm. Half moon crack found on Bearing cup at outboard side.



4. Outboard side seal found in broken, completely damaged and melted condition.
5. Bearing could not be initially dismantled from axle journal with bearing dismantling press. After gas cutting of outer cup and heating of cones, the bearing components were dismantled from axle journal with help of bearing dismantling press.



6. Rubbing and heating marks were found on axle journal surface.



7. Rollers of outboard side cone assembly were found smeared, melted and deformed. Rollers of inboard side cone assembly found in good condition comparatively.



8. Outboard side cone was found badly rubbed & having heat marks with metal flows. Inboard side cone also had rubbing marks. In board side cone found in cracked condition (linear fresh hair crack) over whole width.



9. Inboard side grease seal found in intact condition but grease oozing found at this side.





10. The other end bearing No. 02 16 83540 was found in good condition and rotating freely onto the axle journal without any abnormal noise during hand rotation.
11. All wheels found Ok and no shelling marks were observed. However, affected wheel-set has some heat marks due to wheel skidding after bearing seized.



**Note:** The affected wheelset No. 171241 was received in Central Workshop, Mysore on 22.02.2019 from CDO/YPR for tyre turning due to deep wheel shelling. The dia. Reduced during tyre turning was 17 mm as per report of Central Workshop, South Western Railway, Mysore dated 09.03.2019. After tyre turning, the wheelset was put in Coach No. 17216/C LWSCN1 on 02.03.2019& got involved in hot axle case on 9-3-2019.