

Fax : 0522 - 2452581

Tele/Fax: 2465754 & 42226 (Rly)
email:dse4cs@gmail.com

Dated: 02.04.2019

No. EL/3.1.35/2

Chief Electrical Engineer, 1. Central Railway, Mumbai, CST-400 001. 2. East Central Railway, Hazipur-844 101. 3. East Coast Railway, Chandrashekharpur, Bhubaneswar-751 016. 4. Eastern Railway, Fairlie Place, Calcutta-700 001. 5. North Central Railway, Block-A, Subedarganj, Allahabad-211 033. 6. Northern Railway, Baroda House, New Delhi-110 001. 7. North Western Railway, Jaipur- 302 006 8. North Eastern Railway, Gorakhpur-273001 9. North East Frontier Railway, Maligaon, Guwahati-781011 10. South Central Railway, Secunderabad-500 071. 11. South East Central Railway, Bilaspur-495 004. 12. South Eastern Railway, Garden Reach, Kolkata-700 043. 13. Southern Railway, Park Town, Chennai-600 003. 14. South Western Railway, Hubli- 580020 15. West Central Railway, Jabalpur-482 001. 16. Western Railway, Churchgate, Mumbai-400 020 17. Chittaranjan Locomotive Works, Chittaranjan-713 331 18. Diesel Locomotive Works, Varanasi-221 004 19. Diesel Loco Modernisation Work, Patiala- 147 003	मुख्य विद्युत अभियंता, 1. मध्य रेलवे, मुम्बई सीएसटी -400 001 2. पूर्व मध्य रेलवे, हाजीपुर-844 101 3. पूर्व तटीय रेलवे, चन्द्रशेखरपुर, भुवनेश्वर-751 023 4. पूर्व रेलवे, फेयर्ली प्लेस, कोलकाता-700 001 5. उत्तर मध्य रेलवे, ब्लाक ए-2, सुबेदारगंज इलाहाबाद - 211 033 6. उत्तर रेलवे, बडौदा हाऊस, नई दिल्ली-110 001 7. उत्तर पश्चिम रेलवे जयपुर- 302006 8. उत्तर पूर्व रेलवे गोरखपुर- 273001 9. उत्तर पूर्व फ्रन्टीयर रेलवे मालीगाँव गुवाहाटी-781011 10. दक्षिण मध्य रेलवे, रेल निलायम, सिकंदराबाद-500 371 11. दक्षिण पूर्व मध्य रेलवे, बिलासपुर - 495 004 12. दक्षिण पूर्व रेलवे, गार्डेनरीच, कोलकाता-700 043 13. दक्षिण रेलवे, पार्क टाउन, चेन्नई-600 003 14. दक्षिण पश्चिम रेलवे हुबली-580020 15. पश्चिम मध्य रेलवे, जबलपुर-482 001 16. पश्चिम रेलवे, चर्चगेट, मुम्बई- 400 020 17. चित्तरंजन रेल इंजन कारखाना, चित्तरंजन - 713331 18. डीजल रेल इंजन कारखाना, वाराणसी-221004 19. डीजल रेल इंजन आधुनिकीकरण कारखाना पटियाला-147 003
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Sub: Minutes of the meeting on reliability issues of All metal prevailing torque type Hexagonal nut used in 3-phase Electric Locomotives.

Enclosed please find Minutes of the meeting held at RDSO on 29.03.2019 to address the reliability issues of All metal prevailing torque type Hexagonal nut used in 3-phase Electric Locomotives.

This is for your kind information and necessary action please.

DA: As above

(Pratibha Gupta)
for Director General/Electrical

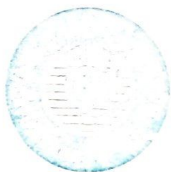
Copy to:

1. Secretary (Electrical), Railway Board, Rail Bhawan, New Delhi-110001 (Kind Attn: DEE(RS) /Railway Board) 2. Chief Works Manager, • Electric Loco Workshop, Eastern Railway, Kancharapara, 24 Pargana (N) -743145 (W.B.) • Electric Loco Workshop, Central Railway, Bhusaval- 425 201 • Loco, Carriage & Wagon Works, Western Railway, Dahod Freelandganj - 389160 (Gujrat) • Charbagh Workshop, Northern Railway, Lucknow- 260 005 • POH Shop, South Eastern Railway, Kharagpur (W.B.)-721 301 • POH Shop, Southern Railway, Perambur, Chennai-600 038	1. सचिव (विद्युत), रेलवे बोर्ड, रेल भवन, नई दिल्ली-110 001 (निदेशक विद्युत (चल स्टॉक) के ध्यानाकर्षण हेतु) 2. मुख्य कार्य प्रबन्धक • विद्युत लोको वर्कशाप, पूर्व रेलवे, कचरापाड़ा, 24 परगना (उत्तर)-743 145 (प.ब.) • विद्युत लोको वर्कशाप, मध्य रेलवे, भुसावल-425 201 • लोको कैरिज एण्ड वैगन वर्क्स, पश्चिम रेलवे, दाहोद, डाक-फ्रीलैंडगंज-389 160 (गुजरात) • चारबाग वर्कशॉप, उत्तर रेलवे, लखनऊ-226 005 • पी ओ एच शॉप, दक्षिण पूर्व रेलवे, खड़गपुर (प.ब.) 721 301 • पी ओ एच शॉप दक्षिण रेलवे, पैराम्बूर, चेन्नई-600 038
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3. M/s. Flaig & Hommel GmbH Germany (through Indian agent M/s RS Technologies, Merlin Infinite, office no. 912, 9th floor, Plot no. 51, block no. DN, Salt Lake Sector V, Kolkata- 700 091(email:rstechnologies3@gmail.com)
5. M/s. Hobson Engineering Co. Pty. Ltd. (Through M/s Keables Pty. Ltd. Australia) Through Indian agent, M/s. S. K. Sales Corporation, 30-Strand Road, 1st floor Kolkata-700001, 247, Dum Dum Park, 2nd floor, near 2 no. tank, Kolkata-700 055 (email: abuzar@sksalescorp.com)

DA: As above


(Pratibha Gupta)
for Director General/Electrical



Minutes of the meeting held at RDSO on 29.03.2019 on reliability issues of All Metal prevailing torque type Hexagonal nut used in 3- phase electric locomotives:

Present:

Name (S/Shri/Smt.)	Designation / Railway
O. P. Kesari	PED/Electrical/RDSO
Pratibha Gupta,	JDSE/Mech./RDSO
Girraj Kishore,	DDSE/Mech./RDSO
U. B. Yadav,	SSE/D/Elect./RDSO
Rajiv Kumar	JE/D/Elect./RDSO
Arvind Kumar,	Sr. DEE/RPM
Rahul Agarwal,	SEE/D&D/CLW
Gurudas Mandal	SSE/Drg./CLW
Rajendra Prasad	SSE/ELS/GMO
L.K. Kanchan	SSE/ELS/TKD
Mushtaq Hussain,	ADEE/ELS/CNB
Mukesh Kumar Dhanka	SSE/ELS/CNB
T. Krishna Prakash	SSE/ELS/LGD
Rajesh Kumar Maurya	SSE/ELS/BRCY
Manish Kumar,	SSE/ELS/GZB
S.K. Kundra,	ADE/Dev./DLW
Sandeep Shukla,	JE/Des./DLW
P. Narasimlu,	SSE/Des./DLW
Vikas Kumar,	JE/ELS/NKJ
K.K. Batra,	AWM/DMW/PTA
Satish Kumar,	SSE/DMW/PTA

A workshop on all steel lock nut to study problem highlighted by some Zonal Railways held on 28.03.2019 at ELS/CNB and deliberated on 29.03.2019 in meeting at RDSO with representative of loco sheds, CLW, DLW and DMW. During the meeting, following points were discussed:

1. Report No. RDSO/2011/EL/IR/0150 (Rev-0) on use of All Metal prevailing torque type Hexagonal Nut (F.S. all steel lock nut in general term) WAG-9/WAP-7/WAP-5 August-2012 was discussed. As per the report only M-24 size and traction rod M-20 size lock nut were recommended for single use. Other nuts were scheduled for replacement in major schedule. However, lock nuts of other locations, such as dampers, Cattle guard, Slack adjuster etc., of M-20 and M-16 size are also equally critical for train operation safety point of view. During the meeting, it was decided to treat these nuts also in same way as recommended for traction rod, wheel set guide rod etc. Therefore, all M-20 and M-16 nuts should be for single use in addition to M-24.

2. Zonal Railways have also stated that no case of loosening has been noticed for the nuts of sizes M-10 (used in sanders) and M-12 (used in brake shoe adjuster). Therefore, it was decided to keep the replacement cycle of these nuts during IOH / POH.
3. On perusal of CLW specification No.CLW/MS/3/089 (Rev-01) for F.S. All steel lock nut for 3-phase electric locomotives, it was found that on several pages F.S. All Steel Lock nut has been mentioned, where F.S. is a trade name of M/s Flag & Hommel GMBH, Germany. CLW is requested to revise above specification and change the name as All Steel Lock Nut or as per referred DIN.
4. The performance of the nuts of all sizes and makes should be monitored during scheduled / unscheduled inspections. In this regard, report should be sent to RDSO & CLW giving full details size-wise and make-wise for further action.
5. At some locations like torque arm and traction rod housing are not accessible with existing torque wrench. DMW/Patiala is using automatic digital torque wrench with facility for pre-setting of tightening torque and they are able to ensure tightness as prescribed torque. It is advised that Production Units / Zonal Railways may also procure automatic digital torque wrench for ensuring proper tightness and eliminating human error. Since it is automatic, the time/effort will also be reduced for the work, which will improve productivity.
6. Since many of the lock nuts are for single use, as recommended, therefore, it is necessary that the released lock nuts of sizes M-16, M-20, M-24 should be damaged before discarding to avoid its re-use inadvertently.
7. In some of the new locomotives turned out by DMW, Zonal Railways have reported use of Nylock nuts in place of all steel lock nuts. Therefore, there is a need for training among staff regarding correct use of hardware application-wise. All the Loco Sheds and Production Units should immediately arrange training-cum-awareness programme for correct use of hardware during maintenance / production of locomotives.
8. The newly received locomotive No.37096 WAP7 from DLW was checked during the workshop at ELS/CNB on 28.03.2019. Wheel set guide nuts for axle box No.1 & 3 were found having less tightening torque. Therefore, there is a need to ensure proper tightness with torque wrench for all these lock nuts.



9. CLW is requested to get the all steel lock nuts of both types tested dimensionally, metallurgically and physically by approved labs as per applicable DIN/ISO. Further shock and vibration test should also be done to ensure the efficacy of locking.
10. Warranty clause of specification will be applicable on OEM. Therefore, Zonal Railways should claim warranty replacement as per the specification.
11. During the workshop / meeting convened by RDSO on 28th & 29th March, 2019, the representative from M/s Hobson attended for one day at ELS/Kanpur. However, he was not having full technical knowledge about the subject matter. Whereas, no representative from M/s Flag & Hommel GMBH, Germany attended the meeting at ELS/CNB or at RDSO. Therefore, complete details about the product such as unscrewing torque, its fatigue life etc. could not be made available for deliberations. Hence, it was decided to have a technical session at RDSO or CLW with the competent technical experts from the OEMs for needful action. CLW, which is vendor controlling authority for this item, is requested to organize the same at the earliest.

