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No. EL/2.2.70

Date: 29.05.2018

<p>Principal Chief Electrical Engineer,</p> <ol style="list-style-type: none"> 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. 	<p>प्रमुख वदयुत् अ भयंता</p> <ol style="list-style-type: none"> 1. मध्य रेलवे, मुम्बई सीएसटी -400 001 2. पूर्व मध्य रेलवे, हाजीपुर-844 101 3. पूर्व तटीय रेलवे, चन्द्रशेखरपुर, मुबनेश्वर-751 023 4. पूर्व रेलवे, फेयर्ली प्लेस, कोलकाता-700 001 5. उत्तर मध्य रेलवे, ब्लॉक 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 फ्रेन्टीयर रेलवे मालीगॉव 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 - 713 331 18. डीजल रेल इंजन कारखाना, वाराणसी-221004
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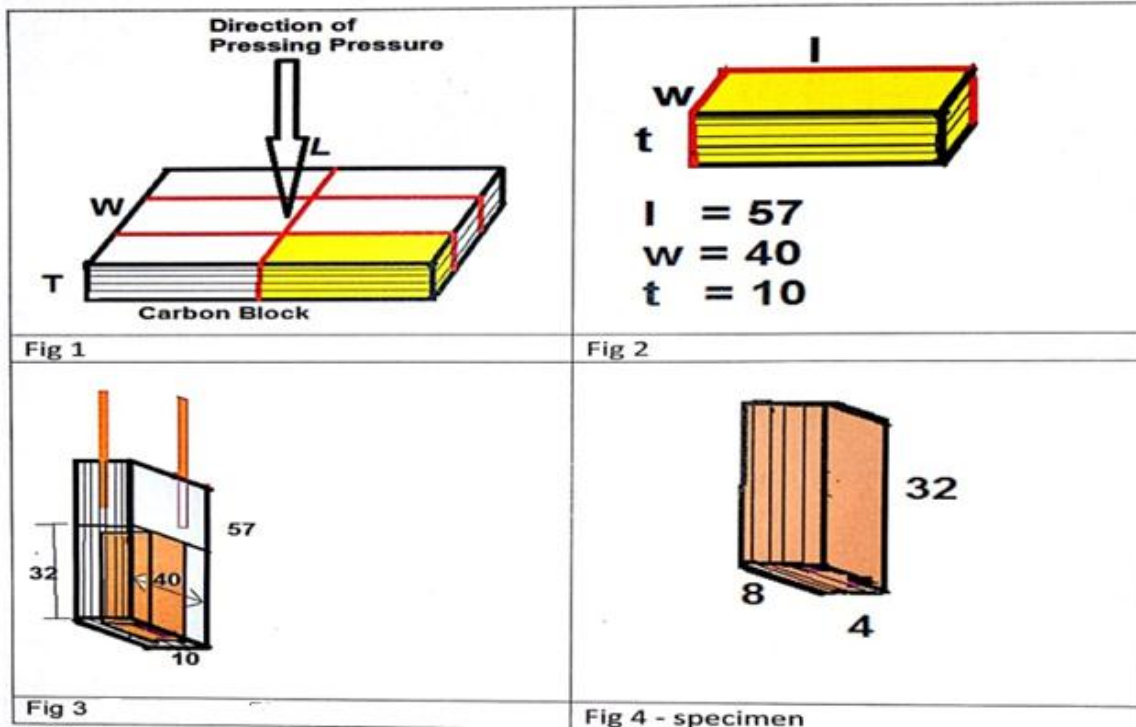
TECHNICAL CIRCULAR No. RDSO/2018/EL/TC/0147 (Rev '0') dated 29.05.2018

Sub.: Technical Circular for Testing of Carbon Brush block properties from finished carbon brush of Hitachi HS 15250A Traction Motors.

- 1.1 Testing of carbon brush block properties is usually carried on test specimen cut from brush block into size 10 mm X 10 mm X 64 mm and following properties are checked as per IS 13584:1993:-
 - (a) Density (b) Porosity (c) Hardness (d) Resistivity (e) Transverse Strength (f) Ash Content (g) Brush wear
- 1.2 As the new carbon brush pallet size is 10 mm X 40 mm X 57 mm, sample of 10 mm X 10 mm X 64 mm cannot be prepared from the brush and Railways cannot carry out the testing of various parameters of carbon brush block from the brush. This issue was examined and it was observed that IS-13584:1993 provides an alternate size of test specimen as 4 mm X 8 mm X 32 mm, which can be prepared from carbon brush.
2. Based on the inputs received from M/s Mersen and M/s ACPL, cutting plan for preparation of specimen for testing from carbon brush is given below:

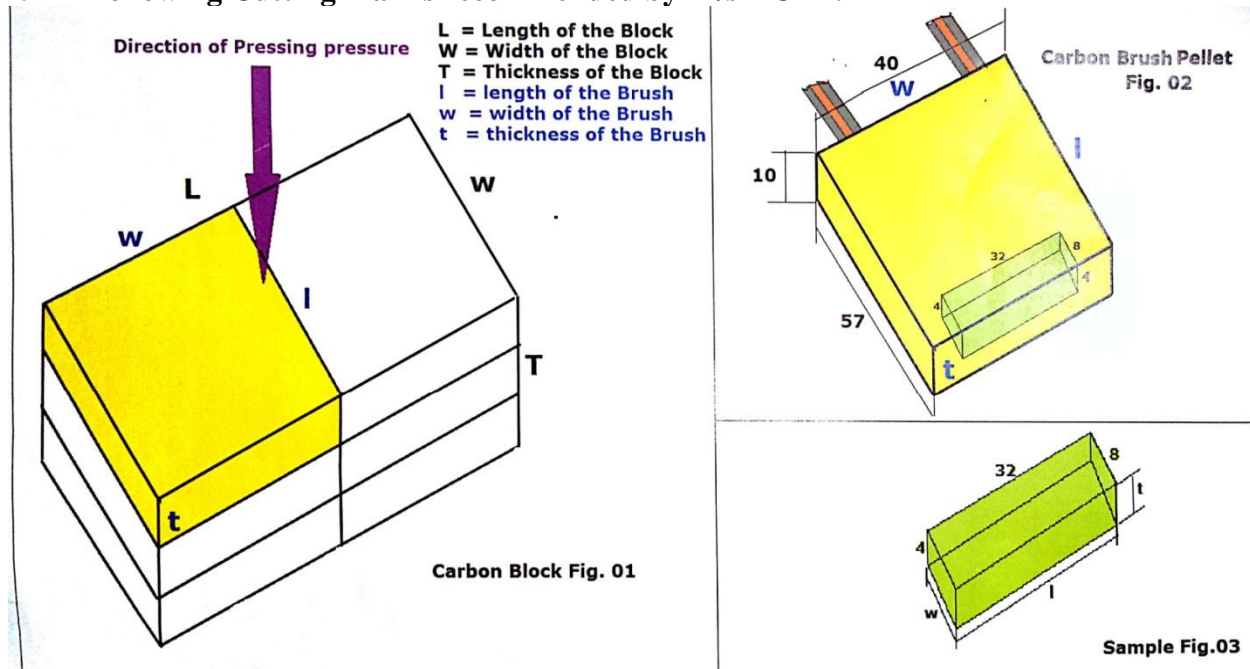
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2.1 Following Cutting Plan is recommended by M/s Mersen:



M/s Mersen has recommended to cut specimen length 32 mm from length of brush (57 mm), specimen width 8 mm from width of brush (40 mm) & specimen thickness 4 mm from thickness of brush (10 mm).

2.2 Following Cutting Plan is recommended by M/s ACPL:



M/s ACPL has recommended to cut specimen length 32 mm from width of brush (40 mm), specimen width 8 mm from length of brush (57 mm) & specimen thickness 4 mm from thickness of brush (10 mm).

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3 Declared values of properties of various grades:

S N	Grade	Density (gm/cc)	Sp. Res. (micro- Ω -m)	Tr. Strength (Kg/cm ²)	Hardness (HRB 10/40)	Hardness (Shore)	Ash content (max.)	Porosity (max.)
1.	EG-8220	1.64 to 1.81	34 to 57	245 to 370	100 to 140	64 to 87	0.5%	15%
2.	EG-9049	1.51 to 1.67	31 to 53	240 to 360	NA	56 to 76	0.5%	20%
3.	EG-105(S)	1.54 to 1.70	39 to 65	168 to 252	NA	59 to 80	0.15%	NA

4 Tolerances on declared values:

Tolerance on declared values may be referred in clause no. 4.1 of IS: 13584-1993.

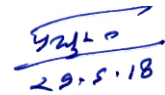
5 Testing on finished carbon brushes:

Testing of finished carbon brushes can be carried out as per RDSO SPECN. No. ELRS/SPEC/CB/0027 Rev '0' of September 2003.

6 Application:

This Technical Circular is applicable for carbon brushes used in Hitachi Traction motors.

Encl: nil


29.5.18

(P. K. Saraswat)
for Director General/Electrical