टेलैक्स : 0535-2424 RDSO-IN
फैक्स : 91-0522-458500
तार : 'रेलमानक' लखनऊ
Telegram : 'RAILMANAK', Lucknow
टेलीफोन/Tele : 451200 (PBX)
450115 (DID)

सत्यमेव जयते

भारत सरकार - रेल मंत्रालय
अनुसंधान अभिकल्प और मानक संगठन
लखनऊ - 226 011
Government of India-Ministry of Railways
Research Designs & Standards Organisation
LUCKNOW - 226 011

TECHNICAL CIRCULAR NO.ELRS/TC/0087 (Rev '0')

No. El/3.1.39 / 1 Date: 14-11-05

CHIEF ELECTRICAL ENGINEERS,

1. Central Railway, Mumbai, CST-400 001.
2. East Central Railway, Hazipur-844101.
3. East Coast Railway, Chandrashekharpur, Bhubaneshwar-751016.
4. Eastern Railway, Fairlie Place, Calcutta-700001.
5. North Central Railway, Hastings Road, Allahabad- 211001.
6. Northern Railway, Baroda House, New Delhi-110001.
7. South Central Railway, Secunderabad-500 071.
8. South East Central Railway, Bilaspur-495004.
9. South Eastern Railway, Garden Reach, Calcutta-700 043.
10. Southern Railway, Park Town, Chennai-600 003.
11. West Central Railway, Jabalpur-482001.
12. Western Railway, Churchgate, Mumbai-400 020.
13. South Western Railway, Hubli.
14. Chittaranjan Locomotive Works, Chittaranjan-713 331 (WB)

15. Director, IRIEEN, Post Box No.233, Nasik Road, Nasik - 422101

Sub:- Haulage Capacity of WAG5 Locomotive with TAO Traction motor 15:62 gear Ratio in Run Through conditions on different gradients with CC+6 (5062 t) and CC+10 (5294 t) loading of 58 Box N.

The haulage capacity of WAG5 locomotive fitted with TAO 659 traction motor on different gradients have been issued by RDSO vide EL/3.1.39/1 dt 4-6-98 (Technical Circular No. 23). Railway Board have permitted the loading of Box N wagon with CC+6 vide letter no. 2004/CE-II/TS/2 dt 4-5-2005 and CC+10 vide letter no. 2003/CE-II/TS/5 Vol. I dt 4-5-2005.

Single WAG5 locomotive cannot start and haul 58 Box N train loaded with CC+6 and CC+10 on up gradients steeper than 1:200, 1:150 and 1:100. For gradients section twin WAG5 locomotives are required for starting and hauling 58 Box N trains.

However, computer simulation have been done with single WAG5 loco (fitted with TAO 659 traction motor) to arrive at the lengths of stretches which can be negotiated in Run through conditions at various attacking speeds for 58 BOXN load and results are as under -

Table-1

Negotiable Length on 1:200 Compensated up gradient in Run Through Conditions For Load – 5062 t (CC+6)

Attacking Speed (kmph)	Max. length of 1:200 section which can be negotiated (km.)	Exit Speed (kmph)
20	0.5	14.0
30	1.0	21.0
40	2.0	24.5
50	3.0	30.0
60	4.0	34.5
70	4.5	41.0

Table-2

Negotiable Length on 1:150 Compensated up gradient in Run Through Conditions For Load – 5062 t (CC+6)

Attacking Speed (kmph)	Max. length of 1:150 section which can be negotiated (km.)	Exit Speed (kmph)
Upto 25	Not recommended	--
30	0.5	22.0
40	1.0	26.5
50	1.75	29.5
60	2.0	39.0
70	3.0	39.5

Table-3

Negotiable Length on 1:100 Compensated up gradient in Run Through Conditions For Load – 5062 t (CC+6)

Attacking Speed (kmph)	Max. length of 1:100 section which can be negotiated (km.)	Exit Speed (kmph)
Upto 30	Not recommended	--
40	0.75	19.0
50	1.00	28.0
60	1.50	30.0
70	1.75	31.5

Table-4

Negotiable Length on 1:200 Compensated up gradient in Run Through Conditions For Load – 5294 t (CC+10)

Attacking Speed (kmph)	Max. length of 1:200 section which can be negotiated (km.)	Exit Speed (kmph)
Upto 20	Not recommended	--
30	1.0	20.0
40	2.0	23.0
50	3.0	28.0
60	3.5	36.0
70	4.5	39.0

Table-5

Negotiable Length on 1:150 Compensated up gradient in Run Through Conditions For Load – 5294 t (CC+10)

Attacking Speed (kmph)	Max. length of 1:150 section which can be negotiated (km.)	Exit Speed (kmph)
upto 25	Not recommended	--
30	0.5	21.5
40	1.0	26.0
50	1.75	28.5
60	2.0	38.5
70	3.0	36.0

Table-6

Negotiable Length on 1:100 Compensated up gradient in Run Through Conditions For Load – 5294 t (CC+10)

Attacking Speed (kmph)	Max. length of 1:100 section which can be negotiated (km.)	Exit Speed (kmph)
upto 30	Not recommended	--
40	0.5	27.5
50	1.0	27.5
60	1.5	29.5
70	1.5	38.5

2. Railways are requested to conduct field trials on the above guidelines in different sections. Based on such trials, you may issue guidelines to Drivers to enable them negotiate such stretches successfully without causing stalling and overloading of electrical equipment. RDSO may be kept apprised of the developments.

(I. C. Sharma)
Sr. Executive Director Std/Elect
For Director General Std/Elect

Encl.: Nil.

Copy to:

1. Secretary (Electrical) Railway Board, Rail Bhawan, New Delhi-110001.
2. Sr. Divl. Electrical Engineer (Operation)
   - Central Railway, DRM office, Mumbai CST-400 001
   - Central Railway, DRM office. Bhusawal (Maharashtra)

   - Eastern Railway, DRM office, Howrah
   - Eastern Railway, DRM office, Asansol
   - East Central Railway, DRM office, Dhanbad.
   - East Central Railway, DRM office, Mughalsarai.

   - East Coast Railway, DRM Office, Khurda Road.
   - East Coast Railway, DRM Office, Sambalpur.
   - East Coast Railway, DRM Office, Waltair.

   - Northern Railway, DRM office, Delhi
   - North Central Railway, DRM office, Allahabad.
   - North Central Railway, DRM office, Jhansi, (U.P.).
   - North Central Railway, DRM office, Agra.

   - Southern Railway, DRM office, Chennai

   - South Central Railway, DRM office, Vijayawada
   - South Central Railway, DRM office, Secunderabad

   - South Eastern Railway, DRM office, Kharagpur
   - South Eastern Railway, DRM office, Chakradharpur
   - South East Central Railway, DRM office, Bilaspur.
   - South East Central Railway, DRM office, Nagpur
   - South East Central Railway, DRM office, Raipur.

   - South Western Railway, DRM office, Bangalore.
   - South Western Railway, DRM office, Hubli.
   - South Western Railway, DRM office, Mysore.
   - Western Railway, DRM office, Vadodara
   - Western Railway, DRM office, Ratlam
   - Western Railway, DRM office, Mumbai Central.
   - West Central Railway, DRM office, Bhopal, (M.P.).
   - West Central Railway, DRM office, Jabalpur, (M.P.).
   - West Central Railway, DRM office, Kota.

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Sr. Executive Director Std/Elect
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सत्यमेव
जयते

भारत सरकार - रेल मंत्रालय
अनुसंधान अभिकल्प और मानक संगठन
लखनऊ - 226011
Government of India - Ministry of Railways
Research, Designs & Standards Organization, LUCKNOW - 226011

ई.एल/3.1.39/1 दिनांकः 14.11.2005

टेक्निकल सरकुलर सं. ईएलआरएस/टीसी/0087 संषो 0

मुख्य विद्युत इंजीनियर

1. मध्य रेलवे, मुम्बाई सी.एस.टी - 400001.
2. उत्तर रेलवे, बड़ोदा हाउस, नयी दिल्ली - 110001.
3. उत्तर मध्य रेलवे, हेस्टिंश रोड, इलाहाबाद - 211001.
4. पश्चिम मध्य रेलवे, जबलपुर - 482001.
5. दक्षिण पूर्व मध्य रेलवे, बिलासपुर - 495004.
6. पश्चिम रेलवे, चर्चगेट, मुम्बाई - 400020.
7. पूर्व मध्य रेलव, हजीपुर, बिहार - 844101.
8. निदेशक, भारतीय रेलवे विद्युत इंजीनियर संस्थान, नासिक रोड - 422101.

विषयः Haulage Capacity of WAG5 Locomotive with TAO Traction motor 15:62 gear Ratio in Run Through conditions on different gradients with CC+6 (5062 t) and CC+10 (5294 t) loading of 58 Box N .

संदर्भः रेलवे बोर्ड का दिनांक 4.5.2005 का पत्र सं 2003/सीई-II/टीएस/5 वाल्यूम - I

उपरोक्त वर्णित टेक्निकल सरकुलर की एक प्रति आवश्यक कार्यवाही हेतु संलग्न हैं।

राम प्रकाश
कृते महानिदेशक/विद्युत

संलग्नकः यथोक्त

प्रति प्रेषितः मेलिंगलिस्ट के अनुसार

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राम प्रकाश
कृते महानिदेशक/विद्युत