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भारत सरकार – रेल मंत्रालय  
अनुसंधान अभिकल्प और मानक संगठन  
लखनऊ- 226 011  
Government of India – Ministry of railways  
Research, Designs & Standards Organization,  
Lucknow – 226 011

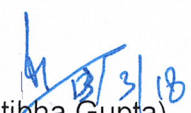
No. EL/DSE-4/Borescope

Date: 13.03.2018

- (i) Chief Electrical Engineer,  
North Central Railway, Block-A,  
Subedarganj, Allahabad- 211 033.
- (ii) Chief Electrical Engineer,  
East Central Railway,  
Hazipur-844101

**Sub:** Minutes of the Meeting held at RDSO on 08.03.2018 regarding uses of video borescope in Electric Locomotives.

A meeting was held at Electrical directorate of RDSO on 08.03.2018 regarding uses of video borescope in electric locomotives. The copy of minutes of meeting for the same is enclosed for information please.

  
(Pratibha Gupta)  
for Director General/ Electrical

**Encl:-** As above

**Copy to:-**

- (i) Groz Engineering Tools (P) Ltd. Village Kherki Daula, N.H-8, Gurgaon-122001
- (ii) Ashbond Engineers (P) Ltd., B-9/3, Mianwali Nagar, Rohtak Road, New Delhi- 110087.
- (iii) El-mech Engineers, Plot 9B, Sector 6, Faridabad – 121004 (Haryana).




### Minutes of Meeting

SN	Name (Shri / Mrs.)	Railway/Firm
1.	O. P. Kesari / PED	RDSO
2.	Aseem Kumar / Director-PS & SC	RDSO
3.	Pratibha Gupta / JDSE- C&S	RDSO
4.	Girraj Kishore/ ADE -C&S	RDSO
5.	Rajiv Kumar/ JE/Elect.	RDSO
6.	Rajib Das Gupta SSE / Elect.	RDSO
7.	Mahendar Pal JE / Elect.	RDSO
8.	Shivam Srivastav / ADEE / CNB	NCR
9.	R. K. Ranjan SSE / MGS	ECR
10.	Amit Jain / Sales Manager	M/s Elmech Engineers / New Delhi
11.	Mayank	M/s Groz Engineering / Gurgaon
12.	Tarique Alam	M/s Ashbond Engineers / New Delhi

A meeting was held at RDSO on 08.03.2018 to discuss the useful features of video borescope and its uses in Electric Locomotives. During the meeting following points were discussed:-

1. Representative of M/s El-mech Engineers told that the probe of video borescope can be of three type: rigid i.e. no system for rotation of camera through remote, semi-flexible i.e. with system for 2-way rotation of camera through remote, 360° rotation i.e. with system for full rotation of camera through remote. ADEE / CNB & SSE / MGS informed that both the sheds are having rigid probe type borescope. It was felt that provision of at least 2 way rotation control of camera by remote should be there. Length of probe should be at least 1 to 1.5 meter.
2. Firms informed that the dia of probe can vary from 2.4 mm to 12 mm. it was discussed that as per the requirement in Electric Locomotives 2 probe one with 6 mm dia and other 12 mm dia is sufficient.
3. Further firm informed that the view angle i.e angle range of camera can be 60°, 90° or 120°. It was decided that for electric locomotive application at least 60° view angle of camera will be sufficient.
4. All firms explained various features available in their different models of video borescope.
5. Other desirable features which was discussed during the meeting are as follows:-
  - i. Storage of at least 8 GB.
  - ii. Feature for seeing live and recorded video on separate screen.
  - iii. Pixel of camera should be at least 3,00,000 pixle.
  - iv. Ingress Protection (IP) – 55 or above.
  - v. Compatibility to transfer data to computer by USB lead.
  - vi. Battery backup at least 3 hours.
6. It was decided that RDSO will issue a Technical Circular regarding the application of video borescope for condition monitoring of equipment of electric loco for guidance to sheds / work shops.

  
13/3/18