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**SNo. मुख्य अभियन्ता (ट्रैक मशीन)**

1. मध्य रेलवे, सीएसटी, मुम्बई-400 001
2. पूर्व रेलवे, फेयरली प्लेस, कोलकाता-700 001
3. पूर्व मध्य रेलवे, हाजीपुर-844 101
4. पूर्व तट रेलवे, रेल विहार, चन्द्रशेखरपुर, भुवनेश्वर-751023
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8. उत्तर पूर्व सीमान्त रेलवे, मालीगांव, गुवाहाटी-781 011
9. उत्तर पश्चिम रेलवे, जयपुर-302 001
10. दक्षिण रेलवे, पार्क टाउन, चेन्नई-600 003
11. दक्षिण मध्य रेलवे, रेल निलायम, सिकन्दराबाद-500 071
12. दक्षिण पूर्व रेलवे, गार्डन रीच, कोलकाता-700 043
13. दक्षिण पूर्व मध्य रेलवे, बिलासपुर-495 004
14. दक्षिण पश्चिम रेलवे, हुवली-580 023
15. पश्चिम रेलवे, चर्चगेट, मुम्बई-400 020
16. पश्चिम मध्य रेलवे, जबलपुर-482 001

**Chief Engineer (Track Machines)**

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N E R, Gorakhpur-273 012.  
N F R, Maligaon, Guwahati -781 011.  
N W R, Jaipur-302 001.  
S R, Park Town, Chennai -600 003.  
SCR, Rail Nilayam, Secunderabad-500 071.  
S E R, Garden Reach, Kolkata-700 043.  
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**Sub: Average life of electromagnetic relay used in CSM.**

There was a reference from Western Railway to specify the life of relays used in machine. Accordingly, a relays used in CSM was studied. Various type of relays, either direct mounted type or plug in type are used in all type of track machine. The function of relay is to make or break electrical circuit / connection and deliver power to the load (solenoid). Various types of electromagnetic relays used in CSM are listed below.

- 1- EL-T 663
- 2- EL-T 277
- 3- EL-T 7002/S4
- 4- EL-T 7002/S2
- 5- EL-T 7002/S2-L2
- 6- EL-T 7045/24
- 7- EL-T 7064/24
- 8- EL-T 1218S
- 9- EL-T 7010

The capacity and operation frequency of each type of relays are different. For electromagnetic relays used in Railway signal operation, the life is specified as 10 lakh operations vide railway board letter No.2002/AC-II/10 dated

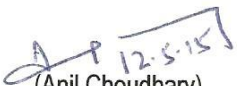
24.05.2006. M/s Plasser (India) Pvt Ltd has also mentioned that the relays in machines can also work for 10 lakh Cycle. Accordingly life of magnetic relays is taken as 10 lakh cycle for planning replacement.

Output of CSM per year, taking average per month progress of 40 km is 480 km. Total insertions involved per year are 398400 nos. Life of relays which is operated in each insertion is thus 2.51 years (10,00000 /398400). The life of other relays which are not involved in each operation will be more.

Accordingly life of different relays is tabulated below:

S. No.	PCB name & function	Relays used	Relay S.No.	Life	Remark
1.	EK 16VOO (tamping units up/down control)	EL-T 277 & EL-T 663	Re1 to Re6 (6nos)	2 years	Operates during each insertion
2.	EK 24VOO (satellite movement)	EL-T 277 & EL-T 663	Re1 to Re5 (5nos)	2 years	Operates during each insertion
3.	EK 349LVOO(Lining control)	EL-T 277, EL-T 663 & EL-T 7002/S4	Re1 to Re7 (7nos)	Re4& Re7 2 years other need basis	Re4& Re7 operates during each insertion
4.	EK 290LVOO(Lining control)	EL-T 7002/S2 EL-T 7002/S2-L2	1 no. each	need basis	Operates 1 time during each block
5.	EK 347LVOO(Lifting control)	EL-T 277, EL-T 663	Re1 to Re6	Re1& Re2, 2 years other need basis	Re1& Re2 operates during each insertion
6.	EK 48LVOO(compensation)	EL-T 7045/24	5nos.	need basis	Operates 1 time during each block
7.	EK 345LVOO(front input)	EL-T 7045/24	1no.	need basis	Operates 1 time during each block
8.	EK 346LVOO(pendulum )	EL-T 7045/24	6nos.	need basis	Operates 1 time during each block
9.	EK99VOO(pendulum comp.)	EL-T 277	2 nos.	need basis	Operates 1 time during each block
10.	EL-T1163.00 (engine safety)	EL-T 277 & EL-T 663	5nos.	need basis	Operates 1 time during each block
11.	EL-T 1218.00 (light)	EL-T 1218S	16nos.	need basis	Operates 1 time during night operation
12.	Power output EL-T 3151	EL-T 7002/S4	32 nos.	2 years	QL2B,2C2E, 2F,22,23,24,25 operates during each insertion. Other need basis
13.	B28	EL-T 7010 EL-T 7045/24	2 nos. 4nos.	need basis	Operates max. 10 time running
14.	EL-T 7064/24	-	-	need basis	Operates 1 time during each block

The relays whose life is two years should therefore be replaced during each IOH & POH. Other relays should be replaced as per requirement.

  
 (Anil Choudhary)  
 Director/Track Machine-III