

**CONTROLLING OFFICER'S REPLY TO
INITIAL WRITTEN QUESTION**

Reply Serial No.

THB(T)011

Question Serial No.

2226

Head: 42 - Electrical and Mechanical Subhead (No. & title):
Services Department

Programme: (2) Mechanical Installations Safety

Controlling Officer: Director of Electrical and Mechanical Services

Director of Bureau: Secretary for Transport and Housing

Question:

For the Mass Transit Railway Ordinance (Cap. 556) and the Mass Transit Railway Regulations (Cap. 556A) enforced by the Electrical and Mechanical Services Department (EMSD), please advise this committee:

- (a) What are the numbers of rail inspections for each railway line in the past three years (2010-11, 2011-12, 2012-13)? How many incidents happened per year as classified by the nature of incident?
- (b) How many incidents affecting railway safety have been reported from the MTR Corporation Limited (MTRCL) to the EMSD in the past three years (2010-11, 2011-12, 2012-13)? Please report the figures according to the incident classification.
- (c) What are the actual numbers of staff and expenditure for regulating railway safety in the past three years (2010-11, 2011-12, 2012-13) and the estimated figures for 2013-14? In response to the increased number of incidents of MTRCL in recent years, will the Administration increase manpower or introduce other measures to improve safety?

Asked by: Hon. WU Chi-wai

Reply:

- (a) The MTRCL adopts a risk-based maintenance regime for rail maintenance, including visual and ultrasonic inspections. The frequency of visual inspection ranges from once every 48 hours to two times per week, while the ultrasonic inspection ranges from once every two weeks to three months.

(For Internal Reference Only : MTRCL's rail preventive maintenance inspection frequency is determined by the utilization and loading of the rail. Visual inspections are conducted in the non-traffic hours (NTH) once every 48 hours to 2 times per week.

Ultrasonic inspections are conducted in NTH once every two weeks to once every three months. The frequency of rail inspection for each railway line is shown as follows:

Frequency of Rail Inspection

Railway Line	Rail Inspection Frequency	
	Visual Inspection by Patrolling	Ultrasonic Testing Vehicle (UTV) Inspection
Kwun Tong Line	72 hours	2 weeks
Tsuen Wan Line	72 hours	2 weeks
Island Line	72 hours	4 weeks
Tseung Kwan O Line	72 hours	4 weeks
Tung Chung Line / Airport Express Line / Disneyland Resort Line	72 hours (Disney Resort Line: 48 hours)	4 weeks
East Rail Line	72 hours (Lok Ma Chau: 2 times per week)	3 weeks (Lok Ma Chau: 6 weeks)
Ma On Shan Line	2 times per week	6 weeks
West Rail Line	2 times per week	6 weeks
Light Rail	2 times per week	3 months

Corrective maintenance will be carried out for defects and irregularities found during inspections to ensure safe and reliable services. The section with cracks/breakages, if found, will be immediately replaced before the traffic hours if time permits. Otherwise, the cracked/broken rail section would be temporarily secured by steel plates to ensure safe operation of trains followed by replacement of the cracked/broken rail section after service. "Crack"(i.e. "裂紋") refers to the situation where a crack has appeared on a rail surface while "breakage" (i.e. "裂縫") refers to the gap formed as a result of the breakage through the whole cross-section of a rail.)

The EMSD carries out inspections on major railway incidents of possible railway safety concerns. In addition to the incident inspections, the EMSD conducts regular inspections to monitor systems and facilities critical to railway safety. The numbers of rail inspections conducted in the past three years are set out below.

MTR Lines	2010	2011	2012
Island Line	0	4	2
Kwun Tong Line	1	0	1
Tsuen Wan Line	0	4	1

MTR Lines	2010	2011	2012
Tseung Kwan O Line	0	1	0
East Rail Line	4	3	1
West Rail Line	0	2	0
Ma On Shan Line	2	0	0
Airport Express Line/ Tung Chung Line/ Disneyland Resort Line	0	3	0
Light Rail	0	3	1
Total	7	20*	6

* The number of rail inspections in 2011 was higher in the wake of the rail breakage incidents in that year.

(For Internal Reference Only : Upon receipt of the notification by MTRCL on rail breakage, RB will assess if there is any safety impact on railway operation and determine whether site inspection is required to be carried out. In addition to the incident inspection, RB adopts risk-based approach to conduct inspection on rails of some railway lines according to the schedule. Since the rail breakage incidents in 2011 attracted wide media attention and public concerns, the number of rail inspections in 2011 were increased significantly)

The numbers of rail breakage incidents in the past three years, which have to be reported to EMSD under the Mass Transit Railway Regulations, are set out below:

MTR Lines	2010	2011	2012
Island Line	0	0	0
Kwun Tong Line	2	0	2
Tsuen Wan Line	2	1	1
Tseung Kwan O Line	0	0	0
East Rail Line	2	1	2
West Rail Line	0	0	0
Ma On Shan Line	0	0	0
Airport Express Line/ Tung Chung Line/ Disneyland Resort Line	0	1	0
Light Rail	0	0	0
Total	6	3	5

(For Internal Reference Only : The figures in the tables refers to rail breakage.)

- (b) The numbers of railway-related incidents¹ caused by railway equipment failure, staff behaviour, passenger/public behaviour and other external factors in 2010, 2011 and 2012, which have to be reported to the EMSD under the Mass Transit Railway Regulations, are

¹ Excluding incidents involving escalators, lifts and other facilities outside the platform and track areas.

769, 839 and 774 respectively. These figures have already included the numbers of rail breakage incidents in the past three years as set out in (a) above.

Over 90% of these incidents were caused by passenger/public behaviour and other external factors, such as illness of passengers who need to be admitted to the hospital, passengers nipped by train doors during last minute boarding/alighting, trespassing and fallen trees under tropical typhoons, etc. The remaining incidents (less than 10%) were caused by railway equipment failure and staff behaviour.

(For Internal Reference Only:

Nos. of railway-related Incidents from 2010 to 2012:

Cause of Incidents	Annual Incident Figures					
	2010		2011		2012	
Railway equipment failure & staff behavior (A)	65	(8%)	78	(9%)	48	(6%)
Passenger/public behavior and other external factors (B)	704	(92%)	761	(91%)	726	(94%)
Total (A) + (B)	769	(100%)	839	(100%)	774	(100%)

- (c) The numbers of professional/technical staff and the corresponding expenditure for regulating safety of the existing railway lines are set out below

	2010-11	2011-12	2012-13
No. of staff	9	9	11
Expenditure (\$ in million)	7.690	8.238	9.842

The EMSD created one Electrical and Mechanical Engineer and one Mechanical Inspector posts in 2012-13 to strengthen the regulatory function of the EMSD. Staff and expenditure involved for monitoring railway safety in 2013-14 will remain the same as in 2012-13.

(For Internal Reference Only: In the RB, there are 10 professional and one technical grade staff, namely one Government Electrical & Mechanical Engineer, 4 Senior Engineers, 5 Engineers/Assistant Engineers and 1 Mechanical Inspector. They are responsible for performing railway safety regulatory functions of the existing railway lines. Of these 11 staff, 1 Engineer/Assistant and 1 Mechanical Inspector were created in 2012-13 to strengthen the regulatory function of the EMSD.)

(Supplementary Information : 1 Senior Engineer and 1 Engineer/Assistant Engineer will be created in 2013-14 to handle the Guangzhou-Shenzhen-Hong Kong Express Rail Link project. Since these two new posts are responsible for the new railway projects, they have not been mentioned in this question but included in the reply to SFCQ4278 (THB(T)199)).

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Date:	<hr/> 5.4.2013 <hr/>