

Legislative Council Panel on Transport

Review of MTR Train Service Incidents

Purpose

This paper provides information on overall MTR service performance and train service disruption occurred since the commencement of new line service in August 2002.

Overall MTR Train Service Performance

2. Overall MTR train service performance in the first two quarters of the year, from January to June 2002, has been maintained at a high standard with all service targets met. 99.9% of the train trips were operated according to the schedule in the first six-month. 99.4% - 99.5% of train journeys arrived at their destination on schedule with less than 2-minute variations. MTR train service performance for the first six-month is summarized in Table 1 at **Annex I**.

3. To prepare for opening the new Tseung Kwan O Line service, the MTR Corporation Limited (MTRCL) commenced trial operations without passengers in early July this year. The train service has gradually been fine tuned with train service delivery and train punctuality brought up high standards before the diversion of service to the new Yau Tong Station on Sunday, 4 August 2002. Table 2 at **Annex I** shows the performance of the Tseung Kwan O Line in August 2002.

4. To meet the expanded MTR service, 13 new trains have been delivered from Korea. The safety and operational performance of the new trains is to the same high standard as the rest of the MTR trains running in the network. New features, i.e., sliding plug doors, have been included in the new fleet with a view to providing a more comfortable travelling environment. We understand that there were concerns on the performance of the new trains during the initial period of its service. Some fine-tuning has been carried out in order to achieve a smoother and comfortable ride.

5. To promote safety awareness, we have enhanced safety message announcements on board in August. Publicity video has been introduced to stations starting early this month.

6. Notwithstanding MTRCL's efforts put into system development, staff training and comprehensive maintenance of the train fleet, track and other related systems, there were unexpected train service incidents which unfortunately had caused delays and inconvenience to passengers. The impact ranged from a few minutes to 47 minutes. A summary of the train service disruptions since August 2002 is attached in the **Annex II**. It can be seen that the causes of incidents vary and do not have a common cause, but are mostly associated with the opening of Tseung Kwan O Line, the introduction of the new trains, extension of the Kwun Tong Line to Tiu Keng Leng. In general, passenger safety has not been compromised and the safety devices involved performed as designed.

Contingency and Recovery

7. The Corporation has developed and documented proper contingency procedures for a wide range of possible service disruptions that can be anticipated. Nonetheless, at the start of any incident, it takes some time to ascertain the nature of the disruption, to estimate the expected delay and to develop recovery action plans.

8. Priority is always given to safety and the recovery of the train service in the shortest period of time. All staff are trained and qualified to handle service recovery in a safe, timely, efficient and co-ordinated manner. In addition, we are conducting a review on the incident at North Point on Thursday, 5 September. Our initial investigation shows that the incident has been handled in accordance with the operational procedures.

9. During any train service interruption, train service information will be provided to passengers on board and at stations at the earliest possible time. For any serious disruption that has occurred or is expected to continue for over 20 minutes, and emergency transport support services from other operators are required, the Corporation will issue a Red Alert to the Transport Department and other transport operators for information and request them to strengthen their service to help cope with the situation. The sequence of events for the incident on 5 September is enclosed in **Annex III**.

10. Train service information is also disseminated through the electronic media to inform passengers who are planning to travel or already on their way to the stations.

Improvement Measures

11. In order to be well prepared for any unexpected service disruptions, regular drills and exercises are conducted at regular intervals to enhance staff competence and co-ordination with external parties. 55 drills and exercises were carried out in 2001 and similar number will be carried out in 2002.

12. Detailed investigation into the cause of any incident is carried out immediately after every incident, with the objective to establish the root cause of the incident and to seek any improvements which can be made to prevent similar occurrence in the future, to improve information dissemination to passengers and to improve the contingency plans.

13. This information is shared with the Transport Department or the Hong Kong Railway Inspectorate.

Conclusion

14. MTRCL has always been making efforts to further improve the performance of MTR train service. In light of the recent unexpected incidents, the Corporation will take appropriate actions and strive for the best performance.

15. The Corporation would like to reassure the travelling public that the MTR system is designed and built to stringent safety standards with proven technology, and is well maintained to provide safe, comfortable and reliable train services.

MTR Corporation Limited

9 September 2002

Table 1 : MTR Service Performance

	January – March	April - June
Train Service Delivery – Percentage of train trips operated	99.9%	99.9%
Train Punctuality – Percentage of train journeys arriving at their destination within 2 minutes of the scheduled journey time	99.4%	99.5%

Table 2: Performance of the Tseung Kwan O Line

	August 2002
Train Service Delivery – Percentage of train trips operated	99.4 %
Train Punctuality – Percentage of train journeys arriving at their destination within 2 minutes of the scheduled journey time	99.1 %

MTR Train Service Incidents

Date / Location	Summary of Incident	Recovery / Cause / Remedial Measures
<p>5 AUG 2002 at 0906 hours at Kwun Tong Station on Kwun Tong Line</p>	<p>* At 0826 hours, a new train running from Yau Ma Tei towards Yau Tong, suffered a trainborne computer fault, causing the train to run at slow speed. The train, originally scheduled to arrive Kwun Tong Station at 0846 hours, was taken out of service at Kwun Tong at 0906 to reduce the delay to the following trains.</p>	<p>The passengers were detained at Kwun Tong and picked up by the following train.</p> <p>The technical investigation revealed that the train had a transient trainborne computer failure which could not be reset.</p> <p>The software for the trainborne computer was subsequently upgraded and this particular problem has not recurred.</p>
<p>5 AUG 2002 at 0918 hours at Yau Tong Station on Tseung Kwan O Line</p>	<p>* A modernized train running from Po Lam to North Point stopped at Yau Tong Station with an air compressor fault. As the air pressure was falling, the train was taken out of service. There was minimal impact on train service.</p>	<p>The following train picked up the detained passengers at Yau Tong.</p> <p>Technical examination found that one of the air compressors on the train had a mechanical defect and was replaced. The fault has not recurred.</p>
<p>5 AUG 2002 at 1813 hours at Lok Fu Station on Kwun Tong Line</p>	<p>* A new train departing at 1747 hours from Yau Ma Tei to Yau Tong had an intermittent problem with the train door control circuit causing delays at Prince Edward, Shek Kip Mei, Kowloon Tong and Lok Fu stations. The train was taken out of service at Lok Fu at 1813 hours to reduce the delay to the following trains.</p>	<p>The passengers were detained at Lok Fu and picked up by the following train.</p> <p>Technical investigation revealed that the problem with the door control circuit was caused by a fault in the train door control software which was subsequently rectified. The problem has not recurred.</p>

* Associated with new Tseung Kwan On Line / new trains / new systems

Date / Location	Summary of Incident	Recovery / Cause / Remedial Measures
<p>10 AUG 2002 at 1310 hours at Kwun Tong Station on Kwun Tong Line</p>	<p>A track point at Kwun Tong Station failed. All trains had to run at slow speed at approximate 22kph over the affected track; thus causing an extra journey time of 3 minutes from Kwun Tong to Lam Tin.</p> <p>This section of track and point belongs to the original Kwun Tong Line.</p>	<p>Normal train operation was resumed at 1431 hours after a broken wire inside the Point Control Box was replaced.</p> <p>Further inspection of the wires inside the Point Control Box, after close of traffic, confirmed that all wires were intact. The problem has not recurred.</p>
<p>12 AUG 2002 at 2029 hours at Kowloon Tong Station on Kwun Tong Line</p>	<p>*A passenger's upper arm was caught in the train doors of a new train and the on-train Passenger Alarm Device was activated by a passenger, as the train departed Kowloon Tong Station. The train stopped inside the tunnel. After confirming the passenger was wholly inside the train, the train proceeded to Shek Kip Mei where the passenger's arm was released.</p> <p>Investigation revealed that an area (approx. 1cm x 5cm) of a 40-year old man's upper right arm, near the shoulder, was reddened as a result of nipping between the doors. There was no cut or visible injury.</p>	<p>Technical examination and testing confirmed that the door equipment was in good order. Specifically, the door gap detection tolerance was checked and found within specification.</p> <p>The 'stand clear of the doors' PA and door closing alarm chime were working correctly. Neither the train nor the platform was overcrowded. The train had about 400 passengers on board. The incident was caused by the passenger standing too close to the train doors as they closed.</p> <p>Additional staff have been deployed to platforms during peak hours. New door safety labels have been put on train doors and a public education video on door safety is being shown at stations. There has been no recurrence of similar incident after the press conference on train door safety held on 16 August 2002.</p>

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Date / Location	Summary of Incident	Recovery / Cause / Remedial Measures
<p>14 AUG 2002 at 1750 hours at Prince Edward Station on Tsuen Wan Line</p>	<p>A modernized train stalled at Prince Edward, Tsuen Wan Line platform, at 1750 hours and could not be moved. All passengers were detrained at 1753 hours. The failure persisted after conducting a series of trouble shooting/fault reset procedures. The following train was used to push the defective train to Yau Ma Tei.</p> <p>A Red Alert was issued at 1805 hours and cancelled at 1825 hours when the train was pushed clear of the running line.</p>	<p>The train service between Prince Edward and Central was maintained by running a special ‘loop’ service at 3-minute headway.</p> <p>A short ‘loop’ service was maintained between Tsuen Wan and Lai King, operating at 4-minute headway, until 1825 hours when the train service was resumed.</p> <p>Technical investigation showed that the train lost motive power due to a broken electrical contact in the traction control system. The defective component was replaced and there has been no further occurrence.</p>
<p>15 AUG 2002 at 1817 hours at Kwun Tong Station on Kwun Tong Line</p>	<p>At 1817 hours, as a modernized train was leaving Kwun Tong Station, the on-train Passenger Alarm Device was activated by a passenger. After confirming the passenger was wholly inside the train, the train proceeded to Ngau Tau Kok Station where the passenger’s hand was released. There was minimal impact on train service.</p> <p>The passenger claimed that her right hand index finger and left hand index and middle fingers had been nipped by the closing train doors. There was no cut and no sign of injury on her hands.</p>	<p>The ‘stand clear of the doors’ PA and the door closing alarm chime were working correctly to alert passengers before train doors were closed.</p> <p>Investigation showed that platform duties had been completed, and whilst the doors were closing a passenger entered at the last minute and then, from inside the train, tried to hold the doors open for a friend to enter.</p> <p>An educational video on door safety is being shown at stations, and a press conference on train door safety was held on 16 August 2002.</p>

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Date / Location /	Summary of Incident	Recovery / Cause / Remedial Measures
<p>21 AUG 2002 at 0922 hours at Yau Ma Tei Station on Tsuen Wan Line</p>	<p>* At 0922 hours, all Platform Screen Doors (PSD) on the platform towards Central failed to open and had to be opened manually for trains to carry out platform duties. Trains had to run at reduced speed in and out of Yau Ma Tei Platform. An extra running time of 3 minutes was required.</p> <p>Normal train service resumed from 0942 hours after resetting the control circuit breaker.</p>	<p>The incident was caused by a power supply failure to the PSDs which had just been installed and put into service.</p> <p>Technical investigation showed the failure was caused by a short circuit on a computer control circuit board causing the loss of power supply to the PSD. The defective circuit board was replaced and there was no further recurrence.</p>
<p>3 SEP 2002 at 0951 hours between Ngau Tau Kok and Kowloon Bay Depot on Kwun Tong Line</p>	<p>At 0951 hours, a modernized train after departing Ngau Tau Kok Station with passengers on-board was routed to the depot track.</p> <p>The train was immediately stopped, with 2 cars on the depot track and 6 cars on the main line. To reduce delay to following train, the train was authorized by the Central Control to draw forward and clear the main line. After the following train had proceeded to Kowloon Bay Station, the train was driven back to the main line by 1001 hours and then continued its journey to Kowloon Bay Station.</p>	<p>Subsequent investigation confirmed that the train was properly protected by the signalling system at all times and safety to passengers was not impaired.</p> <p>The trains were being regulated by the Central Control, and were not running in timetable sequence. The train was scheduled to return to the depot, but the Central Control did not inform the Train Driver that his train was to run empty to the depot, hence the incident.</p> <p>The Central Control has been reminded of the importance of establishing clear communication with train operators and station staff on train arrangements when trains are not running according to the timetable sequence. In addition, a new instruction has been implemented requiring the Central Control, in the above circumstances, to double check with the train operator at the last station before a train is routed back to depot. This will prevent a recurrence.</p>

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Date / Location	Summary of Incident	Recovery / Cause / Remedial Measures
<p>5 SEP 2002 at 0838 hours at North Point terminus on Tseung Kwan O Line</p>	<p>* At 0838 hours, a modernized train stalled with 2 cars in the platform when entering North Point Station. After conducting a series of trouble shooting and fault reset procedures, the Train Operator was unable to start the train and passengers were detrained via the first 2 cars.</p> <p>Attempts to drive from rear also failed and a Major Incident was declared at 0852 hours, and a Red Alert issued at 0854 hours. The train had to be pushed to the Siding by the following train in 3 stages. First the train was pushed clear of the platform to allow passengers to alight from the assisting train, second the defective train was pushed to the Siding, and third the assisting train was detached. Normal service then resumed at 0924 hours.</p>	<p>While the recovery action was in progress, the train service between North Point and Tiu Keng Leng was suspended for 37 minutes. The train service between Tiu Keng Leng and North Point was suspended for 47 minutes in the direction towards North Point. A short 'loop' service was maintained between Po Lam and Tiu Keng Leng on the Tseung Kwan O Line, operating at 3-minute headway in accordance with the contingency plan.</p> <p>Cross harbour passengers were advised to use the Kwun Tong Line and Island Line and cross the harbour via Tsim Sha Tsui.</p> <p>Examination of the train revealed that a device switch used to monitor the coupling between train cars had short-circuited, generating a false alarm, causing the train to stall and unable to move under its own power.</p> <p>Initial technical investigation showed that the protective tubing connecting to the switch had fractured. This damaged the insulation to the wires which shorted out generating a false alarm. A fleet check had been conducted to prevent recurrence.</p>

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Major Incident at North Point Station on 5 September 2002 at 0838 hours
Sequence of Key Events

Time (hrs)	Events
0838	T28 arrived at North Point platform from Po Lam and was tripped to stop with the leading 2 cars in the platform and the rear 6 cars in the running tunnel. The fault indications suggested to the train driver that there was a problem at the train coupling point. Emergency brakes had been applied.
0839-0840	<ul style="list-style-type: none">• The Train Driver reported the fault to the Central Control.• Attempts were made by the Train Driver to move the train in accordance with established procedures. Unfortunately, this did not work and the train could not be moved.• The Central Control started to regulate the train service on the Tseung Kwan O Line and announcements were made on the station and trains.• A Train Staff Supervisor boarded the train and made contact with the Train Driver to understand the problem.
0841	North Point Station staff came to render assistance..
0842	It was decided to drive the train from the rear cab in accordance with the established procedures. The Supervisor made his way to the rear driving cab, making visual inspection of the train en route.
0843	Train Driver and North Point Station staff made arrangements to detrain all passengers via the first 2 cars. The Platform Screen Doors and the train doors of the 2 leading cars manually opened to allow passengers to leave the train.
0844	Detrainment commenced.
0845	<ul style="list-style-type: none">• The Supervisor arrived at the rear cab and confirmed to Central Control that the train appeared normal.• Preparation was made to drive the train from rear in accordance with established procedures.• If this was successful, train service would resume normal within a matter of minutes and no alert would be necessary.
0848	The Supervisor at the rear cab reported to Central Control that all the fault symptoms persisted.
0849	Assisting train for a “push out” was required.
0850	Central Control activated the established crowd management plans for Tseung Kwan O Line Stations and station announcements were made to divert cross-harbour passengers to go via Tsim Sha Tsui on the Tsuen Wan Line.

Time (hrs)	Events
0851	The Train Driver of the following train (T29) was instructed to undertake the “push out” operation.
0852	<ul style="list-style-type: none"> • Chief Controller declared “Major Incident”. • Detrainment of the defective train (T28) was completed.
0854	Central Control issued “Red Alert” for the suspension of service between Tiu Keng Leng and North Point Stations on Tseung Kwan O Line. Transport Department and other transport operators were requested to assist.
0856	The assisting train (T29) arrived and successfully coupled up with the defective train.
0857	Arrangements were made to manually release the brakes of the defective train to allow the “push out” operation.
0901-0910	Electronic media was informed of the incident and train service information via telephone.
0907	The “push out” was successfully carried out and the assisting train berthed at North Point platform allowing passengers on this train to alight as normal.
0909	The 2-train-consist started to depart for North Point Siding.
0913	The combined consist arrived at the Siding, which can only accommodate one train. Arrangements were made to secure the defective train to allow the uncoupling of the two trains to take place.
0914	The assisting train (T29) uncoupled from the defective train and was shunted from the siding to North Point platform 3, ready to return empty to depot for inspection.
0919	The assisting train (T29) arrived at North Point platform 3.
0920	The assisting train departed platform 3 to depot.
0921	Track checks commenced to ensure the line was clear and safe to resume service.
0924	<ul style="list-style-type: none"> • Through service between North Point and Po Lam Station resumed. • Major Incident stood down and “Red Alert” cancelled. • Electronic Media informed via telephone before 0930 hours.