

**Legislative Council Panel on Transport
Subcommittee on Matters Relating to Railways**

**Information about the Implementation of
Crack Management Recommendations**

At the Subcommittee meeting held on 1 August 2006, Members requested the Kowloon-Canton Railway Corporation (“KCRC”) to provide them with the implementation programme for the 18 recommendations made in the Government’s assessment of KCRC’s investigation report on the East Rail underframe equipment cracks. In response to this request, the implementation plan of the recommended measures as at the end of August 2006 is tabulated in the Annex for Members’ information. In sum, actions are now well in hand to implement all of the recommendations and the progress is monitored by a high-level committee chaired by the Chief Executive Officer of the KCRC, Mr. James Blake. It is expected that all of the recommendations will be fully implemented by September 2007.

Kowloon-Canton Railway Corporation
September 2006

**Action Plan for Implementing Government's Recommendations on
East Rail Underframe Equipment Mounting Cracks**

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Ref.	Government's recommendation	Follow-up Actions	Target Completion
1	Work out the detailed design for strengthening the equipment mountings and enhancement of the suspension system.	Detailed design for strengthening the equipment mountings and enhancing the suspension system has been completed. Fleet modification will be carried out following the completion of the installation and validation test of a prototype unit.	August 2007
2	Consider replacing the worst sections of the rails with undulations on a priority basis.	The rail replacement programme on a priority basis has commenced with 27% of rails replaced.	September 2007
3	Explore whether rail grinding technology is readily available to detect and remove the undulations.	The Corporation is discussing with grinding machine manufacturers on the availability of technology to detect and remove the undulations.	End September 2006
4	Explore feasibility and cost-effectiveness of increasing the stiffness of the car body during the regular overhauls.	The Corporation is exploring the feasibility of stiffening the car body.	End September 2006

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Ref.	Government's recommendation	Follow-up Actions	Target Completion
5	Work out the implementation details of train-based and track-based instruments for surveillance of the wheel-rail interaction.	The software and hardware design for the train-based and track-based monitoring system has been completed and put on trial. Full implementation of these monitoring systems will be completed by end 2006.	End 2006
6	Monitor the running rails at various locations throughout the tracks.	A set of train-mounted instruments has been developed to regularly monitor the performance of running rails in relation to vibration.	Completed
7	Maintain vigilance on other aspects of the rolling stocks that may be susceptible to vertical vibration mode.	Briefings have been given to all depot staff for maintaining high vigilance on crack detection particularly for equipment that may be susceptible to vertical vibration mode. Refresher course has been structured in staff training modules to upkeep staff's vigilance annually.	Completed On-going

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Ref.	Government's recommendation	Follow-up Actions	Target Completion
8	Monitor wheel roundness and wheel balancing process.	<p>The Corporation will further review the wheel roundness standards in benchmarking it with international best practice.</p> <p>The track-based monitoring system mentioned in Ref 5 above will also monitor the wheel roundness.</p> <p>Wheel balancing is a standard practice after wheel replacement. The balancing machine will be calibrated regularly to ensure good performance.</p>	<p>End September 2006</p> <p>End 2006</p> <p>On-going</p>
9	Revise the procedures and training for inspections and overhauls to incorporate crack detection and management.	<p>KCRC has developed a risk-based maintenance regime for crack detection and management for implementation with effect from end August 2006. Training has been held for all concerned staff.</p> <p>The risk-based maintenance regime would be reviewed regularly.</p>	<p>Completed</p> <p>On-going</p>

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Ref.	Government's recommendation	Follow-up Actions	Target Completion
10	Conduct training on recognition of poor weld quality for all workshop staff.	Training will be arranged with external welding professional body for all relevant staff.	End 2006
11	Review underframe cleaning methods.	The cleaning methods of the underframe have been reviewed and modified.	Completed
12	Increase the frequency for the replacement of resilient mounts to occur at each overhaul.	All existing resilient mounts will be replaced by August 2007. The resilient mounts will then be replaced in every overhaul, i.e. around every 3 years.	August 2007
13	Specify a maximum level of vibration as part of the acceptance criteria for rotating equipment after overhaul.	The acceptance criteria are being developed and the corresponding instrumentation set up will be ready by end November 2006.	November 2006
14	Carry out vigilant maintenance in other trains and railway lines of KCRC.	The risk-based maintenance regime mentioned in Ref 9 above for crack detection and management will be extended to carry out vigilant maintenance in other trains and railway lines of KCRC by March 2007.	March 2007

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Ref.	Government's recommendation	Follow-up Actions	Target Completion
15	Consider including stricter requirements on manufacturers' process control and quality control for new trains and rails.	The relevant project management procedures and guidelines will be updated to direct the Project Manager in setting up extra control requirements in the procurement specification on top of the general practices. Emphasis will be placed on applying appropriate advanced technology in the process when new trains and rails are procured. The requirements will be reviewed continuously.	End September 2006
16	Consider including stricter requirements on the process of acceptance in future procurement of new trains and rails, e.g. by instructing the appointed inspection to conduct sample checking of items in factory and during acceptance stage, and setting comprehensive instructions for the appointed agent to conduct the inspection using the latest technology.	<p>For rails: procedures are being developed to ensure that the latest appropriate international standards, which have stricter requirements than those of the past, will be used for future procurement. The requirements will be reviewed continuously to adopt the international best practice.</p> <p>For trains: procedures are being developed to ensure that the acceptance will adopt the best practices of the industry and adhere to the relevant international standard. The requirements will be reviewed continuously. In addition, destructive tests for critical</p>	<p>End September 2006</p> <p>End September 2006</p>

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Ref.	Government's recommendation	Follow-up Actions	Target Completion
		welds would be carried out on a practical sampling basis as part of the acceptance process.	
17	Expedite the development of a formal and integrated asset management system.	A consultant will be appointed to assist development of an integrated asset management system.	End 2006
18	Conduct a review of the linkage of the safety management system from Corporation to Departmental levels.	A consultant will be appointed to review the alignment of the safety management system; the effectiveness of the existing risk management system; and the process of change management.	End 2006