

Legislative Council Panel on Transport
Progress on Measures to Enhance Safety of Franchised Bus Operation

PURPOSE

This paper updates Members on the progress of measures implement to further enhance the safety of franchised bus operation.

BACKGROUND

2. The Legislative Council Panel on Transport (“the Panel”) was briefed on 24 October 2006 (LC Paper No. CB(1)110/06-07(03)), 2 March 2007 (LC Paper No. CB(1)783/06-07(01)) and 23 March 2007 (LC Paper No. CB(1) 1149/06-07(03)) on measures to further enhance the safety of franchised bus operation. The Administration was asked to update the Panel on the progress of the following actions –

- (a) review on the retrofitting of seat belt on franchised buses;
- (b) review on requiring passengers to wear seat belts where provided;
- (c) review on the working hours of bus captains; and
- (d) other improvement measures to further enhance bus safety.

3. The Road Traffic (Construction and Maintenance of Vehicles) Regulations (Cap. 374A) stipulates the requirement for the design and construction of franchised bus. All franchised buses that provide services to passengers must meet the safety requirements of the legislation and pass Transport Department’s (“TD”) stringent inspections. Every new model of franchised buses has to undergo a type approval process by TD to ensure that its design and construction comply with the requirements before the buses can be registered and licensed for use on the road. The type approval process includes a tilt test to ensure stability of the bus. Every franchised bus has to undergo an annual examination by TD to ensure its safety and roadworthiness. TD also conducts random spot checks on franchised buses to monitor their proper maintenance. The buses are kept roadworthy by the companies’ own servicing and maintenance programmes. TD closely monitors the franchised bus companies’ maintenance programmes and holds regular meetings with them to discuss bus examination results and, where appropriate, formulate actions to enhance bus safety.

LATEST DEVELOPMENT ON MEASURES TO ENHANCE BUS SAFETY

(a) Review on retrofitting of seat belts on franchised buses

4. In the light of concerns raised by Panel Members, the franchised bus companies have sought expert advice on the need for, and the feasibility of, retrofitting seat belt on their fleets to further enhance passenger safety on double deck buses. The Kowloon Motor Bus Company (1933) Limited (“KMB”), Citybus Limited (“CTB”) and New World First Bus Services Limited (“NWFB”) jointly appointed a major bus manufacturer to carry out a comprehensive study on the bus structure design and the feasibility of retrofitting seat belts. The major findings of the study are as follows -

- (a) The bus manufacturer confirmed that the buses designed for use in Hong Kong are safe and meet the most stringent specifications. The bus body structure has undergone all kinds of stringent tests adopted by the bus manufacturing industry including simulation loading test, physical stress test, accelerated durability test and tilt test before that type of bus is put into service. Their buses of the same designs have been widely used in many places in the world for over 30 years with excellent safety and reliability record.

(b) Pre-1997 design double deck buses

Retrofitting seat belt on bus types designed before 1997 is not feasible nor cost effective on the following grounds -

- these buses were not designed to have seat belts. If seat belts are to be retro-fitted to these buses, extensive disassembly and rebuilding of the bus body structure would be required so as to provide sufficient structural strength for anchoring the seat belts. Given that the bus was not designed for this process, the modification work might cause significant disturbance to bus components and hence reduce the vehicle reliability.
- There are approximately 29 different bus types which were designed before 1997. If seat belts are to be retrofitted to these buses, each bus type has to be evaluated and tested individually to accommodate the

seat belt configuration. The time required for redesigning each bus type would be about 20 months and the work cannot be done concurrently due to the limitation of resource and facilities. The redesign cost for each bus type of the pre-1997 design would be around HK\$ 4.3 million (or \$124.7 millions for all the 29 types).

(c) Post-1997 design double deck bus

It would be technically feasible to retrofit seat belts to the four exposed seats at the front row directly behind the windscreen on the upper deck without significant redesign and strengthening work as the structure of most post-1997 design buses has been reinforced in this area to take possible seat belt fitment.

- (d) There will be technical difficulty to retrofit a seat belt on the single exposed seat facing the aisle at the back on the upper deck. If a seat belt is to be provided for this seat, extensive disassembly, rework, and reassembly will be required in order to anchor the seat belt to the vehicle structure. The work is not cost effective. In the most common head-on accidents, the crash force usually comes from the front and its impact on this seat would have been greatly reduced by the absorbing effect of the body structure.
- (e) There would be little benefit to retrofit seat belts on the other seats on the upper deck of the post-1997 design buses. Passengers are effectively seated in a cell contained fore-and-aft by the seat and a bulkhead of the high back seat in front. The compartmentalisation effect already provides adequate containment to passengers against being thrown forward.
- (f) To retrofit seat belts to the seats in the lower deck would require extensive redesigning and strengthening of the body structure in order to have adequate mounting points for the seat belts. Notwithstanding the costly and extensive work required, the work may affect the integrity of the bus structure. These seats are all behind the front axle of the vehicle and so passengers are protected against direct impact in the event of a head-on collision. By the time the crash force reaches the back of the bus, it would have been greatly

reduced by the energy absorbing effect of its structure.

5. TD and the bus companies have examined the idea of banning the use of the four exposed seats without seat belts at the first row of the upper deck of buses operating on expressways. As pointed out in paragraph 3 above, all franchised buses which provide services meet the safety requirements of the legislation. All these buses are capable of providing safe service under normal operation and there is no justification to ban the use of the four seats at the first row of the upper deck even they are not fitted with seat belts. Furthermore, if the four seats are not used, the carrying capacity would be reduced, resulting in either a reduction in the level of service, or more buses have to be added to these routes with cost implications.

Recommendation on retrofitting of seat belts on franchised buses

6. Taking into account the professional advice of the bus manufacturer, we recommend the following measures to further enhance bus safety:

- (a) to retrofit seat belt at the four seats on the first row on the upper deck of post-1997 design buses. The feedback from the franchised bus companies is positive and work can be completed in 24 months;
- (b) to install/add handrail, armrest or other facilities where appropriate for the other exposed seats to further enhance passenger safety during sharp acceleration/deceleration;
- (c) to install an additional horizontal guard rail across the upper deck windscreen of pre-1997 design buses for further protection to the front seat passengers. The feedback from the franchised bus companies is positive and installation can be completed in 18 months;
- (d) to accord priority to the retrofitting of seat belt or installation of the additional guard rail on buses which operate on expressways;
- (e) to examine with the bus companies advancement of vehicle replacement programme to replace the old buses earlier as far as their financial situation permits; and

- (f) to ensure that new buses purchased by bus companies will have seat belts on all exposed seats.

(b) Requiring passengers to wear seat belts where provided

7. TD conducted a preliminary passenger survey in May 2007¹ to gauge the views of bus passengers on the wearing of seat belt. The findings revealed that majority of the respondents agreed to mandating wearing of seat belt where it is available.

8. We note that no overseas countries require fitting of seat belts on passenger seats of buses designed for urban use or for carrying standing passengers. There are also practical difficulties for imposing such requirement on buses deployed on urban bus routes or buses that allow standing passengers. The enforcement of such requirement by the Police on franchised buses is much more difficult than on public light buses since passengers can stand or move around in a bus even when the bus is in motion². That said, we have an open mind and will be prepared to consider making wearing of seat belts if fitted on franchised buses a legislative requirement as and when the majority of franchised buses are fitted with seat belts for the exposed seats on the first row on the upper deck.

9. In the meantime, we will continue to encourage bus passengers to wear seat belt where provided through education and publicity. We have prepared a new version of TV Announcement of Public Interest (“API”) to promote safe use of bus service, including the wearing of seat belts where provided, and this will be launched in July this year.

(c) Review on working hours of bus captains

10. To ensure that bus drivers have sufficient rest time, TD issued “Guidelines on Working Schedule for Franchised Bus Drivers”³ (“the

¹ The preliminary survey was a household-based telephone questionnaire survey involving 2,221 successful respondents.

² For instance, a passenger caught failing to wear a seat belt may have a defence that he was just about to stand and leave the seat for alighting the bus at the coming bus stop.

³ Guideline A - Captains should have a break of at least 30 minutes after 6 hours of duty and within that 6-hour duty, the captains should have total service breaks of at least 20 minutes.
 Guideline B - Maximum duty (including all breaks) should not exceed 14 hours.
 Guideline C - Driving duty (i.e. maximum duty minus all breaks of 30 minutes or more) should not exceed 11 hours.
 Guideline D - Break between successive working days should not be less than 9 hours.

Guidelines”) to the bus companies. The franchised bus companies fully comply with the Guidelines as reflected in their quarterly reports. As a monitoring process, TD conducted a survey in May 2007 on the bus captains of 42 bus routes operated by KMB, CTB and NWFB to assess the compliance rate. The findings confirm that all bus companies comply with the Guidelines and no discrepancies have been noticed. On average, the bus captains have total service breaks of 30 minutes within the 6-hour duty, which is more than the minimum of 20 minutes as stipulated in the Guidelines.

11. The survey also found that a typical bus captain drive about 8 hours during his working period. All bus captains surveyed have rest time of 20 minutes or more during their 6-hour duty. The survey findings also reveal that the bus companies follow the principle of setting service breaks at about 10% of the journey time of a bus route.

12. TD, in conjunction with the franchised bus companies, reviewed the existing Guidelines and identified room to enhancing the rest time of bus captains. As revision of the Guideline would affect the scheduling of shifts which in turn may affect the working hours and shift arrangements of the bus captains, the bus captain unions were consulted. Taking into account of views of the bus captain unions and bus companies, the following revisions to the Guidelines have been made -

- (a) Guideline A stipulates that bus captains should have a break of at least 30 minutes after six hours of duty and within that 6-hour duty, the captains should have total service breaks of at least 20 minutes. While maintaining this requirement, it is further refined to stipulate that a rest time of at least 12 minutes in total should be within the first four hours of the duty; and
- (b) Guideline D on the break period between successive working days would be revised from the current 9 hours to no less than 9.5 hours.

13. The bus captain unions support the above revision. The revised Guidelines incorporating the recommended revisions are at **Annex**.

(d) Other improvement measures to further enhance bus safety

Bus captain training

14. While the design, construction and maintenance of a bus are important factors ensuring the provision of safe franchised bus service, it is considered that the driving skill and behaviour of the bus captains are equally important. The franchised bus companies have been providing various training programmes to their bus captains including -

- (a) Basic training for new bus captains - All new recruits are required to attend training programmes which include desktop training and on-the-road training. These training programmes last from a few days to a few weeks, aiming to introduce to new bus captains the importance of safe driving, skills and techniques in preventing accidents and handling emergencies, defensive driving techniques, and customer service etc.
- (b) Enhancement / refresh training for serving bus captains - All franchised bus companies have pledged to providing each serving bus captains at least one enhancement / refresher training course every three years. The refresher training aims to enhance the bus captains' defensive driving skills, update them on new driving rules and legislations, draw to their attention accident black spots, and instill on them the importance of safe driving.
- (c) Remedial training - These are tailor-made training courses arranged on a need basis for bus captains.

15. In addition, TD, in collaboration with the Police, other experts, and the bus companies, conduct at least four "Road Safety Seminars" annually for the bus captains. Road safety experts are invited to introduce to the bus captains the latest safety driving techniques and contributory factors to traffic accidents so as to promote safety awareness and proper driving behaviours.

16. Apart from the various training programmes already provided for the bus captains, the bus companies will introduce new driving training programmes later this year. KMB will launch their computer-oriented driving simulator machines to bus captains in July this year. The new training

simulator will sharpen bus captains' reactions when facing emergency situations. CTB and NWFB will revise their training syllabus, putting more emphasis on improving driving behaviour with a view to reducing the "passenger loss balance" accidents inside bus compartment.

Publicity on bus safety

17. More than 50% of franchised bus accidents involving passengers injured do not involve collision between the buses concerned and other vehicles, objects or pedestrians. Many of these accidents could have been avoided if passengers sat properly or held the handrail tightly while standing. To remind passengers to be careful when using bus services, franchised bus companies have launched publicity programmes through bus body advertisements, on-bus televisions or other media. TD also produced television and radio APIs to promote passenger safety awareness to reduce bus accidents in 2001, 2004 and 2006. A new API will be launched in July to remind passengers to use bus service safely.

Transport and Housing Bureau
Transport Department
July 2007

Guidelines on Bus Captain Working Hours

(Revised in July 2007)

- Guideline A - Bus captains should have a break of at least 30 minutes after 6 hours of duty and within that 6-hour duty, the bus captains should have total service breaks of at least 20 minutes of which no less than 12 minutes should be within the first 4 hours of the duty.
- Guideline B - Maximum duty (including all breaks) should not exceed 14 hours in a day.
- Guideline C - Driving duty (i.e. maximum duty minus all breaks of 30 minutes or more) should not exceed 11 hours in a day.
- Guideline D - Break between successive working days should not be less than 9.5 hours.