



15 May 2017

Authorised Examiners (Lifting Equipment)

REVISED STATUTORY EXAMINATION REQUIREMENTS FOR LORRY CRANES

Background

The Land Transport Authority (LTA) has required lorry cranes¹ and truck-mounted mobile elevating work platforms (TM-MEWPs) to be fitted with an audio warning system to reduce the risk of these vehicles colliding with overhead structures. Lorry cranes and TM-MEWPs newly registered with the LTA on or after 1 January 2017 are required to have been installed with an audio warning system. Existing lorry crane and TM-MEWP registered before 1 January 2017 are required to be installed with the audio warning system by 30 September 2017.

2 The audio warning system shall include an audio buzzer in the driver’s cabin linked either to a limit switch installed at the base or to an angle sensor fitted on the inner boom of the crane. The audio warning system shall emit an alarm when the limit switch detects that the boom is not fully stowed or when the angle sensor detects that the boom is above its maximum permissible stow height when the lorry is being driven.

Statutory Examination of Lorry Cranes from 1 October 2017

3 Effective from 1 October 2017, Authorised Examiners (AEs) conducting statutory examination of lorry cranes and TM-MEWPs are also required to carry out test and examination of the audio warning system. Among others, AEs shall check that the audio warning system is in good working condition, which include ensuring that the alarm would be activated when the boom is not fully stowed or when the angle sensor detected the boom is above its maximum permissible stow height. AEs shall also check that the said system is not altered or tampered with such that it defeated its intended purpose.

4 When the AE is satisfied that the audio warning system is in good working condition and complies with the requirements stated in paragraph 3, the AE shall include the following remark

¹ Lorry fitted with an articulated arm used for loading, unloading and lifting of materials or goods

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in the Comments/Observations field of Form B – Certificate of Test/Thorough Visual Examination of Lifting Equipment (LE Certificate): “*Height audio warning system is fitted, in good working condition and not altered/deactivated*”. Lorry cranes and TM-MEWPs shall not be issued with a Certificate of Test and Examination if the audio warning system is found to be in noncompliant with the above requirements.

Further Information

5 Appended for your reference in **Annex 1** is a copy of LTA’s News Release dated 30 November 2016 and a sample copy of LTA’s letter to owners of lorry cranes and TM-MEWP to remind them on the requirement for an audio warning system with effect from 1 October 2017.

6 You may contact my colleague, Mr. Elmer Khong at Elmer_KHONG@mom.gov.sg (e-mail) should you require any further clarification.

Yours faithfully



ER. TAN KEE CHONG
for COMMISSIONER FOR WORKPLACE SAFETY AND HEALTH
OCCUPATIONAL SAFETY AND HEALTH DIVISION

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22 May 2017

Our ref VE/02-2016
Your ref
DID 6553 5643 Fax 6553 5329

Mr xxxx
Designation
Organisation
Address
Facsimile:

Via Fax and Post

Dear Mr xxxx

AUDIO WARNING SYSTEM FOR LORRIES WITH CRANES

We refer to LTA’s News Release of 30 November 2016 (as attached) on measures to improve safety of over-height vehicles – new Audio Warning System for lorries mounted with cranes.

Audio Warning System for Lorries with Crane

The Land Transport Authority (LTA) has required all lorries mounted with cranes on or after 1 January 2017 to be installed with an audio warning system to reduce the risk of collision with overhead road structures. All lorries mounted with cranes before 1 January 2017 have up to 30 September 2017 to comply with this requirement.

The audio warning system features an audio buzzer in the driver’s cabin which is linked either to a limit switch installed at the base of the crane or to an angle sensor fitted on the inner crane boom. The system will emit a sound to alert the driver when the crane boom is not adequately stowed.

Inspection of Lorry Cranes’ Audio Warning Systems

Currently, the Ministry of Manpower (MOM) requires all lifting equipment, including lorries mounted with cranes, to be examined by their Authorised Examiners (AEs) during annual crane inspections. LTA has worked with MOM to include checks on the lorry crane’s audio warning system during the annual crane inspections. This will commence from 1 October 2017. During the annual crane inspections, the AEs

will check and certify the function of the audio warning system. Lorry cranes must have an audio warning system that is maintain in good working condition. Otherwise, it would not be issued with a valid crane inspection certificate.

From 1 October 2017, LTA's Authorised Inspection Centres would also check for the validity of the crane inspection certificates during periodic vehicle inspections. Lorry cranes with an invalid certificate, or a defective or tampered audio warning system would not be able to pass the inspection and their owners would not be able to renew the vehicle's road tax.

If the annual crane inspection of your lorry crane is due before the periodic vehicle inspection, you are strongly encouraged to approach an AE for the check and certification on the audio warning system before sending the lorry crane for the periodic vehicle inspection. Alternatively, you may engage a registered Professional Engineer (Electrical or Mechanical Engineering), to check and certify that the audio warning system is maintained in good working condition.

If you have any enquiry or require any assistance on the above-mentioned matter, you may also write to LTA at www.lta.gov.sg/feedback.

Thank you.

Yours sincerely

Tan Zhi Chiang
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Date of Issue: 30 November 2016

Measures to Improve Safety of Over-Height Vehicles *New Audio Warning System for Lorries with Cranes*

From 2017, the Land Transport Authority (LTA) will require all lorries with cranes to be fitted with an audio warning system to reduce the risk of collision with overhead road structures.

2 Since 2013, there have been 20 cases of overhead road structures being hit by over-height vehicles. Many of these incidents could have been prevented if the drivers had stowed the cranes before setting off.

New Audio Warning System for Lorries with Cranes

3 From 1 January 2017, all lorries with cranes mounted after 1 January 2017 will be required to install an audio warning system. All existing lorries with cranes have until 30 September 2017 to comply with this requirement.

4 The audio warning system features an audio buzzer in the driver's cabin which is linked to a limit switch installed at the base of the crane. If a limit switch is installed, the buzzer would be activated when the limit switch detects that the crane is not fully stowed.

5 In cases whereby cranes are unable to be fully stowed due to operational reasons, an angle sensor can be installed on the crane's inner boom instead of the limit switch. When the sensor detects that the crane is not fully stowed and is above its maximum stowed height, the audio buzzer would be activated to alert the driver to retract the crane adequately before moving off. Illustrations of the audio warning systems are shown in **Annex A**.

Road Humps at Selected Locations with High Covered Linkways

6 To further enhance road safety, road humps will be implemented at six locations with high covered linkways by February 2017. The road humps will help reduce the speed of the over-height vehicles approaching the high covered linkways and lessen the impact if any over-height vehicle were to hit the high covered linkway.

Penalties for Damaging Road Structures

7 Drivers of over-height vehicles are reminded to be cautious while driving and look out for overhead road structures. Drivers who are found guilty of damaging road structures/buildings can be fined a maximum of \$5,000 and/or be jailed up to two years. Repeat offenders can be fined a maximum of \$10,000 and/or be jailed up to 5 years.

8 If a collision is caused by a driver driving a vehicle more than 4.5 m in height without police escort, a first time offender will be liable on conviction to a maximum fine of \$2,000 and be jailed up to three years and may also be disqualified from driving.

9 LTA will continue to engage vehicle owners and drivers through letters, brochures and stickers, on driving safely and reducing the risk of collision with overhead road structures.

10 More information can also be found on LTA's One.Motoring website at:
https://www.onemotoring.com.sg/content/onemotoring/en/on_the_roads/road_facilities/heavy_vehicle.html

Annex A: Illustrations of the Audio Warning Systems

Illustrations of the Audio Warning Systems

- **Limit Switch Audio Warning System**

A limit switch audio warning system consists of a mechanical lever switch linked to an audio buzzer in the driver’s cabin. The limit switch is installed at the base of the crane (or home position) and the crane boom rests on a lever of the limit switch (circled in yellow) when the crane boom is fully stowed. The audio buzzer in driver’s cabin will not be activated when crane boom is fully stowed.

When the crane boom is not fully stowed, the mechanical lever will be lifted, and the buzzer in the driver’s cabin would be activated to warn the driver that the crane is not fully stowed.



<u>Fully Stowed Position</u> <u>(Buzzer is not activated)</u>	<u>Position of audio</u> <u>warning system lever</u> <u>when buzzer is not</u> <u>activated</u>	<u>Crane is not fully</u> <u>stowed (Buzzer is</u> <u>activated)</u>	<u>Position of audio</u> <u>warning system lever</u> <u>when buzzer is</u> <u>activated</u>

- **Angle Sensor Audio Warning System**

An angle sensor audio warning system consists of an angle sensor linked to a warning buzzer in the driver’s cabin. The angle sensor could be installed on the inner crane boom and measures the angle of the inner crane boom. When the crane is raised above its maximum stowed height (height measured from the ground to the highest point of the fully stowed crane), the buzzer in the driver’s cabin would be activated to remind the drivers to retract their cranes adequately before moving off.

Positions of Adequately Stowed Crane Boom (Audio Warning System **not** Activated)



Positions of Inadequately Stowed Crane Boom (Audio Warning System Activated)

