



Date: 1 August 2015

Authorised Examiners (Lifting Equipment)

REQUIREMENT FOR DATA LOGGERS FOR MOBILE CRANES

The Ministry of Manpower (MOM) announced in April 2015 that all mobile cranes registered with MOM on or after 1 August 2015 must be equipped with data loggers. Existing mobile cranes registered before 1 August 2015 will also have to be retrofitted with data loggers by 1 August 2018.

2. Mobile cranes that are required to be equipped with data loggers are listed below.

- 601- Mobile Crane- Truck Mounted Variable Boom Length Type
- 602- Mobile Crane- Truck Mounted Fixed Boom Length Type
- 611- Mobile Crane- Crawler Mounted Variable Boom Length Type
- 612- Mobile Crane- Crawler Mounted Fixed Boom Length Type
- 621- Mobile Crane- Wheel Mounted (w/o prime mover) Variable Boom Length Type
- 622- Mobile Crane –Wheel Mounted (w/o prime mover) Fixed Boom Length Type
- 651- Mobile Tower Crane (Horizontal Boom)
- 652- Mobile Tower Crane (Luffing Boom)

3. Please note that lifting equipment under the above classifications codes that does not require the installation of a load radius indicator (LRI) will be exempted from the data logger requirements. More details on the requirements of the data logger can be found at www.mom.gov.sg/crane-data-logger.

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4. Authorised Examiners who are examining and testing mobile cranes for registration on or after 1 August 2015 will have to verify that data logger has been fitted, and its functionality meets MOM's requirements. A checklist and a guide for the inspection of the data logger are attached in Annex I and II for your reference. The table below indicates the required inspection of the cranes data logger by Authorised Examiners.

	Inspection of data logger is required for	
	Crane Registration	Yearly Statutory Inspection
Mobile cranes registered with MOM on or after 1 August 2015	Yes	Yes
Existing mobile cranes registered before 1 August 2015	Not Applicable	<ul style="list-style-type: none"> • Yes from 1 August 2018 onwards; or • If the Lifting equipment have received funding from the Data Logger Fund (refer to Annex II para 2)

Table 1. Required Inspection of the cranes data logger by Authorised Examiners

5. MOM's I-OSH system will also be enhanced to include a new function under the Lifting Equipment Examination and Registration/ Re-registration module. A checkbox will be displayed in the examination tab for the Authorised Examiner to declare that you have examined the data logger installed and is satisfied that it meets MOM's

requirement. The Certificate of Examination for the Lifting Equipment can only be generated when checkbox is checked.

Data Logger Fund for Cranes

6. To help crane owners to defray the cost of installing data loggers in mobile cranes, the Workplace Safety and Health (WSH) Council has launched a Data Logger Fund for Cranes which will co-fund up to 50% of the cost of installation, capped at \$5,000 per mobile crane.

7. To apply for the funds, crane owners are required to engage an Authorised Examiner to verify its functionality. Authorised Examiners would need to issue an endorsed inspection report which will be submitted to WSH Council as part of the application. You may wish to use the same checklist in Annex I for the said purpose.

8. More details on the data logger fund for cranes can be found at <http://www.wshc.sg/datalogger>

9. For more information or if you require clarification, please contact my colleague Mr Ian Teh at 6692 5085 or email Ian_Teh@mom.gov.sg.

Yours faithfully



ER. TAN KEE CHONG

For COMMISSIONER FOR WORKPLACE SAFETY AND HEALTH
OCCUPATIONAL SAFETY AND HEALTH DIVISION
MINISTRY OF MANPOWER

Date of issue:	Classification:	Circular No:
1 August 2015	Lifting Equipment	OSHD/ SPECS/ESB/LE/02/2015

Annex I

Authorised Examiners inspection checklist for data loggers for Mobile Cranes

Lifting Equipment Registration No:			
Brand/ Model of Data Logger:			
Location where inspection was conducted:			
Date and time of inspection:			
S/N	Item	Y/N	Remarks
Data Logger is able to perform the following functions:			
1	Detect and record any override key activation for the cranes safety devices, including the bypass of the derricking limiter, over-hoisting limiter and rated capacity limiter.		
2.	Detect and record overloading occurrences (applicable during load test when the load reaches and exceeds 100% of the cranes rated capacity)		
3	Detect and record status of limit switches, including derricking limiter and over-hoisting limiter.		
4	Equip with data security and anti-tampering feature		
5	Download recorded data		
6	Generates reports		
Data Logger is able to record the following operational parameters upon the trigger of the above events:			
7	Date and time		
8	Crane configuration		

9	Permitted load, actual load, percentage of usage of rated capacity (for main hook and auxiliary hook)		
10	Radius of load		
11	Slew angle (applicable to cranes with safe working load that varies according to the slewing angle)		
12	Main boom angle, fly jib angle (if applicable)		
13	Boom length ,fly jib length (if applicable)		
14	Sequence of extension (for telescopic cranes)		
15	Status of limit switches		
16	Status of override key activation (for over-derricking limiter, over-hoisting limiter and rated capacity limiter)		
Data Logger is able to meet following requirements:			
17	The data logger is automatically switched on and operational whenever the mobile crane is in operation.		
18	Data from the data logger shall be downloadable by users, such as crane owners or occupiers, on a regular basis. The report generated shall be in a readable format that is easily comprehensible.		

Submitted by:

Name of Authorised Examiner:	Stamp & Signature:	Date:

Annex II

Guide to inspection of data loggers for Mobile Cranes

The following provide guidance for inspecting data loggers on mobile cranes for the purpose of registration or statutory inspection.

IDENTIFICATION

1. Check the classification code and registration date to determine if the mobile crane is required to be installed with a data logger. All mobile cranes under the prescribed classification codes and registered with MOM on or after 1 August 2015 must be equipped with data loggers. Mobile cranes registered before 1 August 2015 will have to be retrofitted with data loggers by 1 August 2018.
2. For mobile cranes that are required to be inspected for data logger, a checkbox will be displayed in MOM's I-OSH system under the Lifting Equipment Examination and Registration/ Re-registration module. Authorised Examiners will have to examine and declare that data logger has been fitted, and its functionality meets MOM's requirements. The Certificate of Examination for the Lifting Equipment can only be generated when checkbox is checked.

Figure 1. Screenshot of enhanced I-OSH system with checkbox for Authorised Examiners to verify that the data logger has been examined and is satisfied that it meets MOM's requirement

FUNCTIONAL TEST ON THE CRANE

3. Take note of the operational parameters (boom length, permitted load, actual load and load radius, etc) that is displayed on the Load Radius Indicator (LRI) when carrying out the following functional test on the Lifting Equipment:
 - a) Bypass key activation
 - b) Anti-two block activation
 - c) Derricking limiter activation (over-derricking and over-lowering)
 - d) Rated capacity limiter activation

RETRIEVAL OF DATA FROM THE DATA LOGGER AND REPORT GENERATION

4. After conducting the functional test, Authorised Examiners can request for the data logger report to be generated. Please note that the data shall be easily

downloadable by interested parties, such as crane owners or occupiers, on a regular basis. The report generated shall be in a readable format that is easily comprehensible.

VERIFICATION OF INFORMATION CAPTURED IN THE REPORT

5. Check that the report generated records the events and parameters of the crane during the functional test. Authorised Examiners are required to verify that the information (events and operational parameters) captured in the report is accurate.

6. Upon the satisfactory inspection of the lifting equipment and its data logger, Authorised Examiners can proceed to key in the details of the inspection in MOM's I-OSH system and generate the Certificate of Examination.