

Vehicle Practice

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MAINTENANCE TESTING OF VEHICLE MOUNTED AERIAL EQUIPMENT

Practice:

1.0 INTRODUCTION

- 1.1 This procedure is to be used as a standard for maintenance testing of vehicle mounted aerial equipment. It is particular to stability testing, structural load testing, rated load testing, and unloaded functional testing.

2.0 DEFINITIONS

- 2.1 **Rated Load Capacity** - the maximum loads, as specified by the manufacturer, which can be lifted by the aerial device through the specific range of boom elevation and extension with specified options, and in consideration of stability requirements.
- 2.2 **Stability** - a condition of a mobile unit in which the sum of moments which tend to overturn the unit is less than the sum of the moments tending to resist overturning.
- 2.3 **Structural Load Test** - a design load specified by the Original Equipment Manufacturer or certified by a Professional Engineer to verify the ability of the machine and it's components to withstand the stresses imposed by applied loads.

3.0 REFERENCE CODES

The following procedure is to be used in conjunction with:

- 3.1 CSA C225 "Vehicle Mounted Aerial Devices".
- 3.2 ANSI / SIA A92.2 "Vehicle Mounted Elevating and Rotating Aerial Devices" (or most current issue).
- 3.3 ANSI A10.31 "Construction and Demolition Operations - Safety Requirements, Definitions and Specifications for Digger Derricks" (or most current issue).

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Fleet Services



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4.0 **TEST REQUIREMENTS**

4.1 **Function Test (No-Load)**

- 4.1.1 Test is to be done in accordance with the operational guidelines of the original equipment manufacturer.
- 4.1.2 Unit is to be operated from the lower controls first.
- 4.1.3 Once completed from the lower controls and the test personnel are satisfied with the operational conditions, the unit is to be operated from the upper controls.
- 4.1.4 Note the operational safety considerations when doing this test as listed in, but not limited to, Section 5.

4.2 **Stability Load Test**

- 4.2.1 Test to be done in accordance with VP 03 13.
- 4.2.2 Unit is to be operated from the lower controls only.
- 4.2.3 Note the operational safety considerations when doing this test, as listed in, but not limited to, Section 5.

4.3 **Rated Load Test**

- 4.3.1 Test is to be done in accordance with the operational guidelines of the original equipment manufacturer and the applicable standard from Section 3.
- 4.3.2 Unit is to be operated from the lower controls first.
- 4.3.3 Test personnel shall verify the functions of the lower controls prior to lifting the test weight. It shall be noted that when operated from the lower controls, the test weight must be increased by the bucket capacity times the number of buckets to allow for operator's weight. Secure the weight in the bucket(s) (lanyard).
- 4.3.4 Once completed from the lower controls and the test personnel are satisfied with the operational conditions, the unit is to be operated from the upper controls, if necessary, to verify the upper controls.

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4.3.5 Test personnel shall verify the functions of the upper controls prior to lifting the test weight. When operated from the upper controls, the test weight must be reduced by the bucket capacity times the number of baskets to allow for the operator(s) in the bucket(s).

4.3.6 Note the operational safety considerations when doing this test as listed in, but not limited, Section 5.

4.4 **Structural Load Test**

4.4.1 Test to be done in accordance with the recommendations of the original equipment manufacturer.

4.4.2 Unit is to be operated from the lower controls only.

4.4.3 Note the operational safety considerations when doing this test, as listed in, but not limited to, Section 5.

5.0 **SAFETY CONSIDERATIONS**

5.1 There will be a minimum of two (2) qualified persons present during any of the stability or maintenance testing. One person shall be designated employee in charge. In most cases it is the employee responsible for the inspection that is deemed "employee in charge". If there is any doubt as to whom the employee in charge is, the two (2) qualified persons shall report to their supervisor before doing the test.

5.2 Always use an annually calibrated dynamometer when lifting test weights to provide a means of verifying the test load and also provide an indication of force being applied during the lift.

5.3 Verify the accuracy of the boom angle indicator with a calibrated angle indicator.

5.4 Test weights are to be stored in such a manner that they cannot become frozen to the ground.

5.5 Verify test weights are not frozen to the ground.

5.6 Test weights are to be verified by a Professional Engineer and permanently marked to indicate their weight.

5.7 All appropriate personal safety equipment is to be worn by the test personnel, i.e. hard hat, safety glasses, gloves, safety shoes, safety harness and lanyard.

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- 5.8 The bucket liner shall be cleaned out prior to testing, i.e., all tools and tool holders, tool trays, etc.
- 5.9 Upon completion of the test the "employee in charge" and the supervisor/acting supervisor will review the test, document the results and both sign-off on the test completion record.
- 5.10 Whenever users observe that any component of an aerial device is defective or is not functioning properly, they shall immediately discontinue the use and shall report the fact to their Supervisor. Without limiting the generality of this duty to report defects and improper operation, they shall report any of the following:
- (a) uncontrolled motion;
 - (b) motion which is not responsive to actuation of a control;
 - (c) any loose connection of any type;
 - (d) any evidence of improper adjustment;
 - (e) any structural damage of fiberglass components;
 - (f) any evidence of deformation of any part;
 - (g) broken wires or fraying of the wire ropes;
 - (h) missing fasteners of any type; and
 - (i) any evidence that the unit is not stable.

The lift operation will remain terminated until the issue is resolved. Input from the supervisor/acting supervisor, fleet specialist shall be requested.

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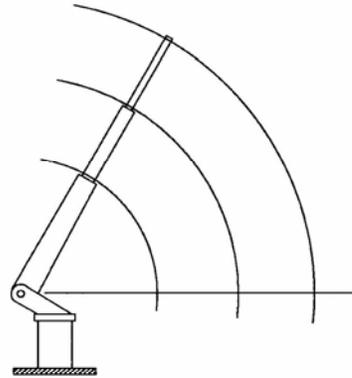
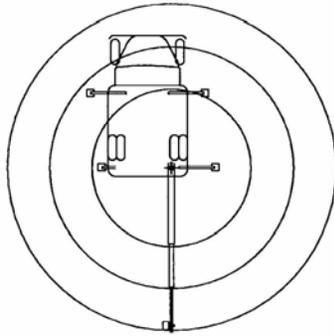
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DIGGER/DERRICK BOOM CONFIGURATION



Test 1 Load _____ Radius _____ Angle _____

Test 2 Load _____ Radius _____ Angle _____

AERIAL DEVICE BOOM CONFIGURATION

