



Department of the Air Force
HQ AEDC (AFMC)
Arnold AFB, TN 37389

Safety, Health, and Environmental Standard

Title: Hoisting Devices
Standard No.: D5
Effective Date: 06/30/2014
Releasability: There are no releasability restrictions on this publication.

The provisions and requirements of this standard are mandatory for use by all personnel engaged in work tasks necessary to fulfill the AEDC mission. Please contact your safety, industrial health and/or environmental representative for clarification or questions regarding this standard.

Approved:

Contractor/ATA Director
Safety, Health, and Environmental

Air Force Functional Chief

SHE Standard D5, Hoisting Devices**Record of Review/Revision**

Date/POC	Description
06/10/14 Bidmead	Minor administrative changes to the basic publication, significant changes to the Annex to align with current OSHA, ASME and AF regulations and correct deficiencies noted by hoisting and rigging program assessment team (Crane SQS Team).
05/29/13 Roosa	Added training requirement section 5.0. Critical lift requirements changed in the H&R Handbook. See link.
01/25/2013	Added NFAC supplement; no other change.
04/18/2012	Updated hyperlink to AEDC Hoisting and Rigging Handbook which is an annex to this standard.
09/14/10 R. Eichel	Added definition for incidental rigger, incidental rigging and minimal training required for rigging. Re worded para 1.3. Changed reference in para 4.9.1.1 to the H&R Handbook from chap 14 to chap 2. Para 4.9.2.1 Added the word "planned". Added Para 4.9.4.1, 4.9.4.1.2 and 4.9.4.1.6. Updated critical lift Matrix, figure 3. Added AEDC H&R Handbook as an Annex.
01/05/09 R. Eichel	Annual review; no change required.
11/02/07 R. Eichel	Annual review; minor administrative change: Added reference to ANSI/ASME B30.26-NEW
11/01/06 R. Eichel	Added definition and responsibility for crane engineer. Changed wording to clarify inspection (PM) programs. Changed types of tags used for inspection and documentation of inspections. Added requirement to provide AEDC Crane Engineer with copies of inspection reports. Added requirement to administratively control cranes with minor deficiencies through use of a GC82, the MWP and LOTO process. Alphabetized definitions; made minor editorial changes throughout including renumbering item following Section 4.3 (to accommodate addition of crane engineer responsibilities) and sequencing attachments to the order in which they appear in the text.
01/20/04 R. Eichel	Review of material content, no major changes required at this time. Minor change to formatting, page numbering and headers. Clarified mobile crane operating on rubber as non-standard lift Changed critical lift flow chart to reflect clarification.
03/01/03 R. Eichel	Combined D5 and D6 information into a new D5 standard plus a crane safety handbook. D6 Standard no longer exists and is reserved for future use. Engineering design information for lifting devices has been removed and the recommendation has been made for engineering to include this information in their T standards. Tables for capacities of lifting devices have been extracted from OSHA instead of from manufacturer's catalogs as in the past.



Safety, Health, and Environmental Standard

HOISTING DEVICES

1.0 INTRODUCTION/SCOPE/APPLICABILITY

- 1.1 This standard specifies qualifications for hoisting operators, riggers, equipment maintenance and inspection personnel and requirements for the safe use of hoisting devices.
- 1.2 This standard cannot and does not cover all aspects of hoisting operations; therefore, the *AEDC Hoisting and Rigging Handbook* has been developed as an annex to the standard to be referred to for specific guidance.
- 1.3 This standard does not cover fork trucks, scissor lifts or manlifts, which are covered under a separate SHE Standard. However, ASME requirements for forklift operations are now also covered in the AEDC Hoisting and Rigging Handbook.

2.0 BASIC HAZARDS/HUMAN FACTORS

- 2.1 Hoisting devices are used extensively on AEDC to lift, move and place various items and personnel. Many of the items being lifted are expensive, one-of-a-kind, and/or mission critical. Some contain explosives and/or other types of chemicals which are hazardous to health and/or contain flammable properties.
- 2.2 Operation of hoisting equipment requires extensive training on, and knowledge of the equipment. Should one of the items being lifted be dropped or otherwise damaged during a lift, the results could jeopardize the mission through property damage and/or injury to personnel at AEDC.

3.0 DEFINITIONS

Base Operating Contractor – A long-term contractor directly accountable to the Air Force for the AEDC mission.

Crane System Engineer – Authority having jurisdiction over hoisting and rigging equipment and for implementation and interpretation of the *H & R Handbook*.

Gantry Crane – A crane with the bridge for carrying the trolley rigidly supported on two or more legs running on fixed rails.

Hoisting – The act of lifting.

Hoisting Device – Any piece of equipment capable of lifting.

Minimal Rigging Training – A basic classroom rigger training course, a minimum of approximately 4 hours in length.

Mobile Crane – A crane with a boom/hoist that can be moved from one location to another.

On The Job Evaluation – OJE, see *AEDC Hoisting and Rigging Handbook* for details of the program.

Outside Contractor/Subcontractor – An organization employed by the Operating Contractor or the Air Force to do construction, maintenance, repair or other work at AEDC. This term includes those who may be subcontracted by an outside contractor for specific portions of a project. Also referred to as the construction contractor.

Overhead Crane – A crane with a movable bridge carrying the trolley and traveling on an overhead fixed structure.

Person In Charge (PIC) - The manager or other responsible person (other than the equipment operator) known to be qualified and appointed to be responsible for the safe handling of critical loads.

Stability Analysis – assessment of load stability conducted when attachment points are at or below the center of gravity of the item being lifted.

For a complete list of Definitions, see the *AEDC Hoisting and Rigging Handbook*.

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4.0 REQUIREMENTS/RESPONSIBILITIES**Base Operating Contractor Shall**

- 4.1.1 Be responsible for the Crane Safety Program as specified in the *AEDC Hoisting and Rigging Handbook*. Designate qualified supervisors, inspectors, operators and maintenance personnel as required.
- 4.1.2 Operate, maintain, inspect, and document maintenance and inspections of hoisting devices according to the *AEDC Hoisting and Rigging Handbook*, OSHA and ANSI B-30 Series requirements. (See References.)
- 4.1.3 Schedule maintenance, coordinated with area supervisors, in advance to establish availability of the hoisting equipment.
- 4.1.4 Provide area supervisors/project manager(s) with results of inspections and maintenance that might affect the use of the hoisting device, before any work commence; ensure tags are attached to the controls to identify any restriction(s) or limitations placed on the hoisting device.
- 4.1.5 Maintain certifications, corrective and preventive maintenance records according to the *AEDC Hoisting and Rigging Handbook*, OSHA and ANSI B-30 Series requirements. Sub-contractors shall provide this information to the contracting officer or contract monitor.

4.2 Base Operating Contractor's Equipment/Special Purpose Vehicle Custodian Shall

- 4.2.1 Ensure currently installed and mobile hoisting equipment is entered into the preventative maintenance (PM) program, the property system, and the special purpose vehicle maintenance program as applicable and that it is scheduled for and receives required inspections and maintenance.
- 4.2.2 Ensure hoisting equipment which is not to be used for an extended period of time or is defective is properly tagged out of service.
- 4.2.3 Ensure any new hoisting equipment is entered into the PM program, the property system, and the special purpose vehicle maintenance program, if applicable.

4.3 Manager/Supervisor Shall

- 4.3.1 Designate/appoint, and ensure operators of hoisting equipment are properly trained and meet physical requirements to operate hoisting equipment.
- 4.3.2 Designate/appoint, and ensure riggers of hoisting equipment are properly trained and meet physical requirements to rig hoisting equipment.
- 4.3.3 Designate/appoint, and ensure inspectors of hoisting equipment are properly trained and meet physical requirements to inspect hoisting equipment.
- 4.3.4 Designate/appoint and assign maintenance personnel that are properly trained who meet physical requirements to perform maintenance on hoisting equipment.
- 4.3.5 Maintain a current listing of all hoisting devices in their immediate area of responsibility.
- 4.3.6 Assure hoisting devices are serviceable and receive required inspections and maintenance.
- 4.3.7 Remove from service any hoisting device which is out of compliance with inspections and /or are damaged, until inspections and/or repairs have been performed.

4.4 Crane System Engineer Shall

- 4.4.1 Ensure consistency in implementation and interpretation of the *H&R Handbook* across AEDC.

- 4.4.2 Be the AEDC authority having jurisdiction over interpretation of the *H&R Handbook*.
- 4.4.3 For hoisting and rigging (H&R) events, help ensure that:
 - 4.4.3.1 Pertinent H&R issues are identified during subsequent investigations and critiques.
 - 4.4.3.2 Identified H&R issues are adequately addressed in corrective actions or lessons-learned issues.
 - 4.4.3.3 Any mishap reports or official lessons-learned issues adequately address H&R aspects of and H&R corrective actions and lessons-learned for the event.
- 4.4.4 Periodically assess line management of implementation of the H&R program at AEDC.
- 4.4.5 When requested, assist program managers or line organizations in matters relating to H&R.
NOTE: This could include H&R surveillances, reviews of critical non-standard lift procedures or work packages and hostile environment plans, as well as participation in the H&R aspects of Operational Readiness Reviews, etc.
- 4.4.6 When requested, assist AEDC contractors in addressing issues related to implementation of, compliance with, or interpretation of the H&R Handbook.

4.5 Hoisting Equipment Operators Shall

- 4.5.1 Meet the physical qualifications as required in the current applicable ANSI B-30 series standard. Physicals shall be conducted at least annually. As a minimum, operators shall have binocular vision measuring at least 20/40 (Snellen), with or without glasses, and be free of a history of epilepsy, heart disease, or similar ailments that may suddenly incapacitate. They shall have good hearing and be in good health. See *AEDC Hoisting and Rigging Handbook* for any additional requirements.
- 4.5.2 Meet the educational qualifications as required in the current applicable ANSI B-30 series standard. As a minimum, operators shall be able to read and understand the signs, notices, and instructions pertaining to their job. They shall know the standard crane signals and safety requirements and be familiar with good rigging practices. See *AEDC Hoisting and Rigging Handbook* for any additional requirements.
- 4.5.3 Perform required pre-operational inspection of equipment in accordance with the daily checklist tag (attached to pendant or other visible location) and documents that the inspection has been performed on the Form GC-1707 Job Safety Analysis (JSA) to ensure the piece of equipment is in safe operating condition prior to use.
- 4.5.4 Ensure green-and-white Crane Inspection History Tag, is attached to the crane and that annual and monthly PM's have been performed by maintenance qualified inspectors and are current. (Attachment 1)
- 4.5.5 Comply with Form GC-82 Safety Information Tag before using hoisting devices that have minor deficiencies. Cranes with minor deficiencies shall be administratively controlled by the Master Work Permit (MWP) Issuing Official who shall brief the user on the minor deficiencies and provide conditions under which the hoisting device can be used. The crane shall be returned to lock-out status upon completion of the approved lift. This process shall continue until permanent repairs have been completed.

NOTE: No hoisting device shall be operated if the annual/monthly PM is not current, unless a temporary approval is granted by the crane engineer. Such an approval shall be documented and the documentation entered into the crane's permanent file.
- 4.5.6 Ask to be relieved when physically or mentally impaired. An operator shall not be required to operate a crane under those conditions.
- 4.5.7 Accept signals from one authorized signal person only; however, an emergency stop signal shall be accepted from anyone.
- 4.5.8 Operate hoisting devices within rated load capacities and in a safe manner.

NOTE: Refer to the *AEDC Hoisting and Rigging Handbook* for any additional operating requirements.

4.6 Maintenance Qualified Inspectors Shall

- 4.6.1 Meet the physical qualifications as required in the current applicable ANSI B-30 series standard. As a minimum inspectors shall have binocular vision measuring at least 20/40 (Snellen), with or without glasses, and be free of a history of epilepsy, heart disease, or similar ailments that may suddenly incapacitate. They shall have good hearing and be in good health. See the *AEDC Hoisting and Rigging Handbook* for any additional requirements.
- 4.6.2 Meet the educational qualifications as required in the current applicable ANSI B-30 series standard. As a minimum inspectors shall be trained on operations of hoisting device being inspected, able to read and understand the signs, notices, and instructions pertaining to their job. They shall know the standard crane signals and safety requirements and be familiar with good rigging practices. See the *AEDC Hoisting and Rigging Handbook* for any additional requirements.
- 4.6.3 Perform all required inspections of hoisting equipment.
- 4.6.4 Ensure new hoisting equipment or equipment which has been taken out of service is properly inspected before it is initially placed into or back in service.
- 4.6.5 Ensure required inspection reports are prepared and provided to appropriate manager/supervisor, to the AEDC Crane Engineer and to the equipment/special purpose vehicle custodian and, where required, a copy is placed in the hoisting device.
- 4.6.6 Ensure that the green and white Crane Inspection History Tag is attached on all hoisting devices. (Attachment 1)
 - 4.6.6.1 Ensure the inspection tag, at a minimum, contains the crane's identification number, the date of the next scheduled periodic inspection and the signature of the inspector. This information shall be placed on the tag using a permanent type ink.
 - 4.6.6.2 Record lock-out, tag-out actions, if any, on reverse side of tag.
 - 4.6.6.2.1 Ensure yellow and black Daily Inspection Checklist Tag is attached to pendant or other visible part of the hoisting device (Attachment 2).
 - 4.6.6.2.2 Ensure Form GC 82, Safety Information Tag is completed and placed on hoisting device when minor deficiencies are discussed. The inspector shall coordinate administrative control with the MWP Issuing Official who shall implement and administrative lock to prevent the crane from being used.
 - 4.6.6.2.3 Refer to and comply with the *AEDC Hoisting and Rigging Handbook* for inspection requirements.

4.7 Riggers Shall

- 4.7.1 Meet the educational qualifications as required in the current applicable ANSI B-30 series standard. As a minimum riggers shall be able to read and understand the signs, notices, and instructions pertaining to their job. They must know the standard crane signals and safety requirements and be familiar with good rigging practices. See *AEDC Hoisting and Rigging Handbook* for any additional requirements.
- 4.7.2 Refer to the *AEDC Hoisting and Rigging Handbook* for rigging requirements.

4.8 Inspections of Hoisting Equipment

- 4.8.1 Hoisting equipment shall be inspected in accordance with current OSHA, ANSI, AEDC, and manufacturers' requirements. Refer to the *AEDC Hoisting and Rigging Handbook* for intervals and requirements.

4.8.2 Hoisting equipment which has been taken out of service for an extended period of time or has been overhauled/renovated shall have an annual PM inspection performed and be inspected in accordance with current OSHA, ANSI, AEDC, and manufacturers' requirements, before being placed back into service.

4.9 Critical Lift

4.9.1 The detailed requirements for critical lifts are found in the AEDC Hoisting and Rigging Handbook. Attachment 3, *Critical Lift Matrix* provides a flowchart of the basic requirements list in this paragraph. For ALL CRANES, a critical lift shall include, but not be limited to, any of the following:

4.9.1.1 Any lift which involves the lifting of people. (See Chapter 2, in the *AEDC Hoisting and Rigging Handbook*.)

4.9.1.2 Any lift which involves lifting or movement of explosives.

4.9.1.3 Any lift which involves the use of two cranes to lift a common load, when the load exceeds 50 per cent of either crane's rated capacity.

4.9.1.4 Any lift in which the item being lifted contains radioactive or other hazardous materials or chemicals, which if dropped or upset could result in a release/spill that meets State or Federal reporting criteria.

4.9.2 For FIXED CRANES, additional critical lift requirements shall include, but not be limited to, the following:

4.9.2.1 Any planned engineered lift.

4.9.2.2 Any lift that exceeds 95 percent of the rated load capacity.

4.9.3 For MOBILE CRANES, additional critical lift requirements shall include, but not be limited to, the following:

4.9.3.1 Lifts near high voltage lines. (A Dedicated Spotter shall be required to monitor overhead high voltage line clearances.)

4.9.3.2 Any lift which involves lifting in excess of 85 percent of the crane's rated capacity, as shown on the applicable crane manufacturer's load charts for the configuration to be used.

4.9.3.3 The use of a crane or lifting device in an application that deviates from manufacturer's recommendations including, but not limited to:

4.9.3.3.1 Boom configuration not per boom make-up chart.

4.9.3.3.2 Moving a crane with longer boom than recommended.

4.9.3.3.3 Exceeding capacities or restrictions shown on the load chart.

4.9.3.4 Operations which require traveling the crane while carrying a load of 85 percent of the crane manufacturer's rated pick and carry capacity.

4.9.4 ADDITIONAL CONDITIONS which may constitute a critical lift shall include, but not be limited to, the following.

4.9.4.1 Any lift deemed critical by management, the AEDC Crane System Engineer, or an affected organization's safety manager. Some additional conditions that should be taken into consideration that do not automatically classify the lift as critical are as follows:

4.9.4.1.1 Lifts that are made where the load or crane could fall on pipelines or reactors containing flammable gases or liquids.

4.9.4.1.2 The load item is unique and, if damaged, would be irreplaceable or not repairable and is vital to a system, facility or project operation.

4.9.4.1.3 Lifts in confined spaces.

4.9.4.1.4 Lifts over active work areas, office buildings or public access ways.

4.9.4.1.5 Lifts using rigs over 150 ton capacity and/or 200 feet of boom.

4.9.4.1.6 Further site-specific criteria may be developed to supplement those cited above and may include loads which require exceptional care in handling because of size, weight, close-tolerance installation or high susceptibility to damage as well as lifts using multiple pieces of lifting equipment.

4.9.5 Non-standard lift. The load to be lifted is between 50 percent and 85 percent of the rated capacity of the mobile crane operating on rubber.

4.10 Critical and Non-Standard Lift Determination

The manager who has responsibility for the item to be lifted has the authority to require that it be handled as a critical or non-standard lift. In addition, the manager at the facility where the lift will be performed also has the authority to require that it be handled as a critical or non-standard lift.

NOTE: See Attachment 3 for a critical lift matrix.

5.0 BASE OPERATING CONTRACTOR TRAINING REQUIREMENTS

Personnel must complete stability analysis training, course code D00150, "Equilibrium Stabilization Analysis for Lift Operators to be qualified to evaluate, plan, and execute critical lifts with attachment points at or below the center of gravity.

6.0 REFERENCES

29CFR 1910.179

29CFR 1910.180

29CFR 1910.184

29CFR 1926.554

29CFR 1926, Subpart CC

ANSI/ASME Standard B30.2

ANSI/ASME Standard B30.5

ANSI/ASME Standard B30.9

ANSI/ASME Standard B30.10

ANSI/ASME Standard B30.11

ANSI/ASME Standard B30.16

ANSI/ASME Standard B30.17

ANSI/ASME Standard B30.20

ANSI/ASME Standard B30.23

ANSI/ASME Standard B30.26

6.0 ATTACHMENTS

1. Crane Inspection/LOTO History Tag
2. Daily Inspection Checklist Tag
3. Critical Lift Matrix

7.0 ANNEX

AEDC Hoisting and Rigging Handbook

[AEDC Internal Web Link](#)

[Base Operating Contractor External \(worldwideweb\) Link](#)

(provided and hyperlinked as a separate document of 300+ pages)

8.0 SUPPLEMENT

NFAC A321-0801-XSP D5 Hoisting Devices

**Attachment 1
Crane Inspection/LOTO History Tag**

The image shows two views of a white plastic tag with a gold-colored fastener at the top. The left view is the front, and the right view is the back.

Front View:

- Green header: **CRANE INSPECTION HISTORY**
- Fields: Crane No. _____, Location _____
- Table with 4 columns: Initial PM Date, Craftsman Initials, Next PM Due Date, TYPE of PM. The table has 15 rows.

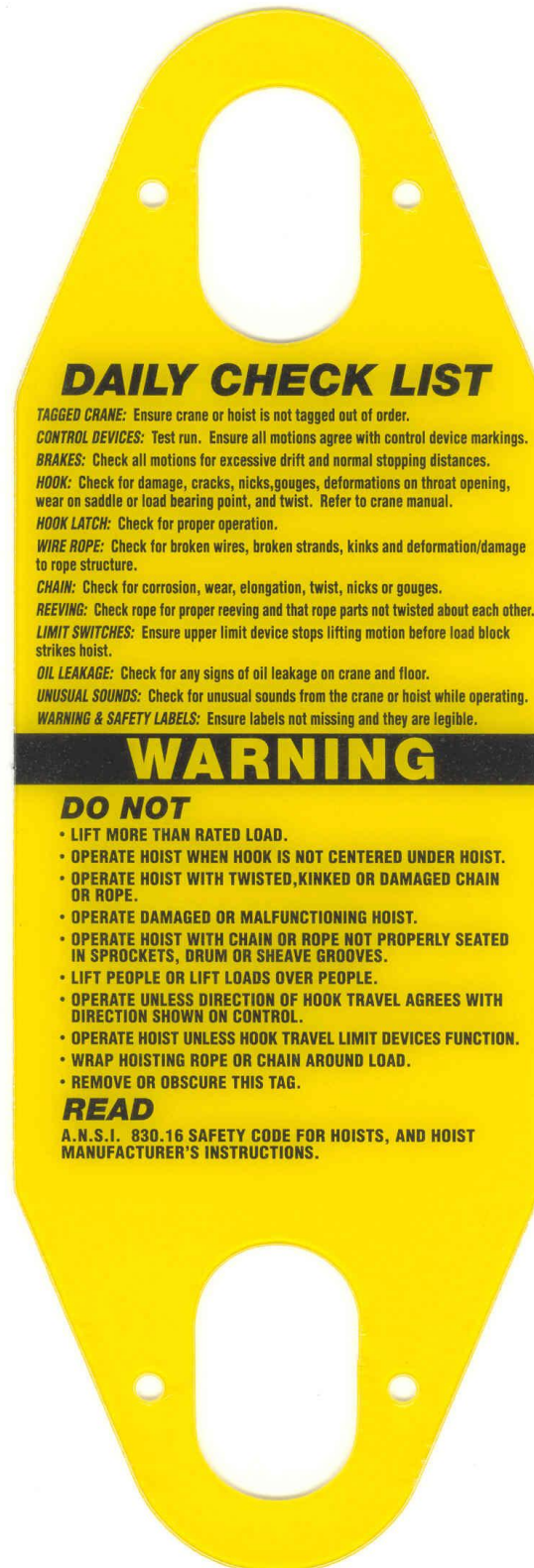
Back View:

- Green header: **LOTO HISTORY**
- Table with 3 columns: Date, By, Lock No. The table has 15 rows.

Front

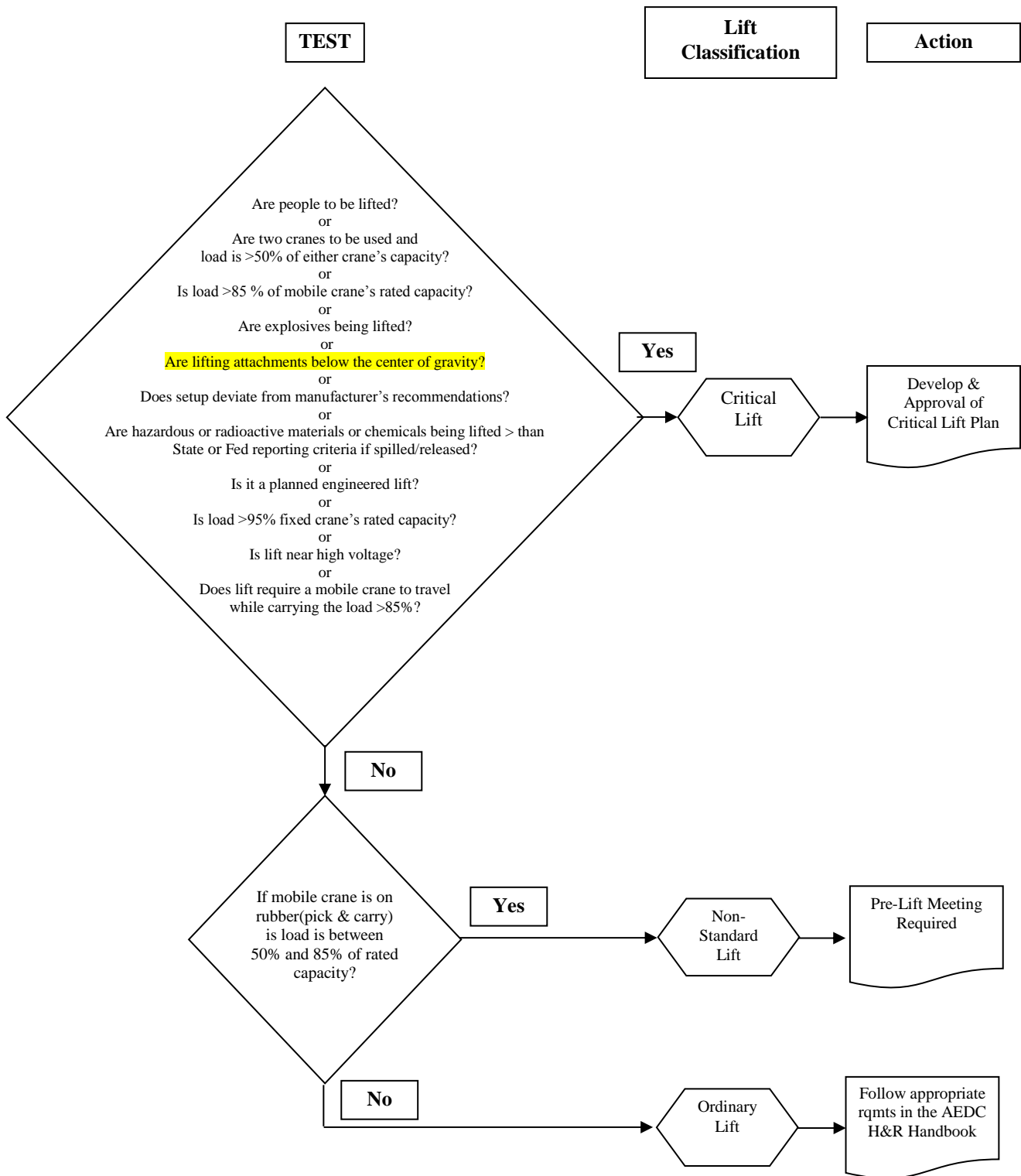
Back

Attachment 2 Daily Check List



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**Attachment 3
Critical Lift Matrix**



A321-0801-XSP D5 Hoisting Devices

This supplement has been approved for the NFAC Site.

Review: This supplement will be reviewed and updated using the same cycle as the [AEDC Safety Standard D5 "Hoisting Devices"](#).

References: [AEDC Safety Standard D5 – Hoisting Devices](#) at the AEDC NFAC Site.

Scope:

This supplement specifies qualifications for hoisting operators, riggers, equipment maintenance and inspection personnel and requirements for the safe use of hoisting devices.

This supplement cannot and does not cover all aspects of hoisting operations; therefore, the *AEDC Hoisting and Rigging Handbook* has been developed as an annex to the standard to be referred to for specific guidance.

This supplement does not cover fork trucks, scissor lifts or manlifts, which are covered under a separate standard. However, ASME requirements for forklift operations are now also covered in the AEDC Hoisting and Rigging Handbook.

Hoisting devices are used extensively at NFAC to lift, move and place various items and personnel. Many of the items being lifted are expensive, one-of-a-kind, and/or mission critical. Some may contain explosives and/or other types of chemicals which are hazardous to health and/or contain flammable properties.

Operation of hoisting equipment requires extensive training on, and knowledge of the equipment. Should one of the items being lifted be dropped or otherwise damaged during a lift, the results could jeopardize the mission through property damage and/or injury to personnel at NFAC.

This supplement applies to all personnel conducting operations, maintenance, testing and support at NFAC, NASA AMES.

NFAC Worksite Application:

NFAC will follow Ames [APR 1700.1 "Lifting Devices and Equipment" Chapter 17](#), which is driven by ASME 30.2 Overhead and Gantry Cranes (Top Running Bridge, Single or Multiple Girder, Top Running Trolley Hoist).

NFAC cranes are inspected and serviced by NASA Ames Facilities Support Services (IAP). Inspection frequency of cranes are as follows:

- Monthly
- Quarterly
- Annual

Copies of the inspections listed above will be placed in the crane's Log Book and be maintained by the Facility Service Manager (FSM). Annual inspections also place a metal tag on the crane controllers when complete.

NFAC personnel will review the latest inspection and fill out the NFAC Crane Inspection Checklist (A321-0801-XSF-20) before any use of the crane.

Inventory and inspection of "below the hook equipment" will be coordinated through the (FSM). Both certified and un-certified equipment are secured in separate areas. All rigging hardware is sent out to be tested/certified. Tags are attached to the equipment indicating inspection date, load that it was tested at, and the working load capacity of the device. Any customer owned rigging hardware must have the same tag information and/or a certificate document before it can be used.

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Lifts exceeding 95% of the crane's capacity, based on its configuration capacity for the greatest radius the load will achieve during the lift, require written approval by the applicable Vice President or the Group Vice President.

Critical Lift for all cranes shall include, but not be limited to, any of the following:

1. A lift where failure/loss of control could result in loss of life, loss of or damage to flight hardware or a lift involving special, high dollar items, such as spacecraft, one-of-a-kind articles, or major facility components, etc., whose loss would have serious programmatic or institutional impact.
2. Lift which involves the lifting of people
3. Lifts where personnel are required to work under a suspended load (this situation should be avoided by utilizing engineered devices or procedures)
4. Lift which involves the lifting or movement of explosives
5. Any lift which the item being lifted contains radioactive or other hazardous material or chemicals, which if dropped or upset could result in a release/spill that meets State or Federal reporting criteria
6. Any lift deemed critical by management or the Safety Health Group
7. Fixed Cranes, additional critical lift requirements shall include but not limited to, the following:
 - a. Any engineered lift
 - b. Any lift that exceeds 95 percent of the rated load capacity, requires written approval by the applicable Vice President or Group Vice President
8. Mobile Crane, additional critical lift requirements shall include, but not limited to the following:
 - a. Lifts near high voltage lines (A safety watch shall be required to monitor overhead high voltage lines clearance)
 - b. Any lift which involves lifting in excess of 85 percent of the crane's rated capacity, as shown on the applicable crane manufacturer's load chart for the configuration to be used
 - c. Use of a crane or lifting device in an application that deviates from manufacturer's recommendations including but not limited to:
 - i. Boom configuration not per boom make-up chart
 - ii. Operations which require traveling the crane while carrying a load of 85 percent of the crane's rated pick and carry capacity
9. Additional conditions which may constitute a critical lift shall include, but not limited to, the following:
 - a. Lifts where the load or crane could fall on pipelines or reactors containing flammable gasses or liquids
 - b. Lifts in confined spaces or limited clearances that could cause a pinch hazard
 - c. Lifts over active work areas, office buildings or public access ways
 - d. Lifts using rigs over 150 tons capacity and/or 200 feet of boom
10. All lifts over 50 tons
11. Tandem lifts involving two cranes lifting a common load, where the load exceeds 50 percent of the capacity for either crane, including overhead cranes. (All two crane lifts less than 50 percent capacity of both cranes requires a written lift plan)
12. All multi-crane lifts (three or more cranes)
13. Lifts involving non-rigid (flexible) such as tank shells, rotor craft blades will be determined on a case by case bases.
14. Minimum listing of personnel to review and sign off of a critical lift:
 - a. Originator
 - b. Lift Director
 - c. Test Engineer Lead (Test Articles) or Facilities Group Lead (Facility Items)
 - d. EHS Engineer
 - e. Jacobs Site Manager
 - f. NFAC Chief Engineer

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Wind speed and other weather conditions such as cold conditions affect crane capacity.

1. Crane capacity is generally based on a maximum 20 mph (32 kph) wind speed. At wind speeds above 20 mph the crane should be appropriately de-rated in accordance with the manufacturer's direct instructions, and additional loads caused by the wind on the load itself should be added to the weight of the lift. (See ANSI/ASCE 7.)
 2. At 30 mph (48 kph), lifting operations should be stopped. See the crane manufacturer specification for your specific crane, since they may specify a lower limit.
 3. Long boom cranes may experience higher wind speeds above ground level and buildings/structures near the lifting area can increase the wind speed in the work area. Wind speed readings will need to be taken at various elevations.
 4. Gusting winds may also make it hard to control the load even when they are below 20 mph, and lifting operations may need to be stopped. Anyone on the lift team can deem a lift unsafe and stop the lift. Lift Director will monitor and determine to lift based on load surface area/configuration and the winds using the crane wind indicator, local weather tower and wind information from the flight line.
 5. No lifts shall be made in electrical storms.
 6. Ice build-up on booms and cables should be removed before use.
 7. In the event a local storm warning has been issued, the Competent Person must determine whether it is necessary to implement manufacturer recommendations for securing the equipment.
- I. NFAC Site Management shall:
1. Follow the supplement
 2. Define a lift critical or non-standard if deemed necessary
 3. Ensure lift plan is complete and signed off by all responsible parties
- II. NFAC Supervisors and Test Directors shall:
1. Follow the supplement
 2. Ensure cranes are inspected and documented as required by a competent person
 3. Ensure crew are currently trained and medically cleared
 4. Follow critical lift criteria
 5. Ensure lift plan is complete and signed off by all responsible parties
 6. Ensure pre-inspections are complete and all lifting hardware is certified before lift commences
 7. Stop lift operations if environment or situation could cause injury or damage
- III. NFAC Safety Engineer shall:
1. Coordinate medical physical clearance for staff that meet the ANSI B-30 series standard
 - i. Binocular vision measuring 20/40 (Snellen), with or without glasses
 - ii. Free of epilepsy, heart disease, or similar ailments that may suddenly incapacitate.
 - iii. Good hearing and be in good health
 2. Assist with and review all critical lift plans
 3. Define a lift critical or non-standard if deemed necessary
 4. Monitor first time critical lifts (only need to review process for a repeat of the same critical lift)
 5. Coordinate Vice President requirements for lifts in excess of 95 percent of the crane capacity
 6. Stop lift operations if environment or situation could cause injury or damage
- IV. NFAC Staff shall:
1. Follow the supplement
 2. Ensure all pre-inspection of lifting equipment and rigging are complete and comply with the required inspection criteria

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- i. Standard lift all equipment inspected within the last four years
 - ii. Critical lift all equipment inspected within the last year
3. Participate in pre-lift meetings
4. Maintain their crane training (every two years)
5. Maintain their medical crane clearance (annual)
6. Follow critical lift criteria and that the lift plan has been approved
7. Never place themselves or other personnel under a suspended load
8. Utilize the proper PPE during lift operations
 - Hardhat
 - Safety Shoes
 - Safety Glasses
9. Establish keep out areas for all lifts by posting signage or a monitor(s)
10. Stop lift operations if environment or situation could cause injury or damage