



# Goddard Procedural Requirements (GPR)

**DIRECTIVE NO.** GPR 8719.1B                      **APPROVED BY Signature:** Original Signed By  
**EFFECTIVE DATE:** May 29, 2012                      **NAME:** Dennis Andrucyk  
**EXPIRATION DATE:** May 29, 2017                      **TITLE:** Director of AETD

---

## COMPLIANCE IS MANDATORY

---

**Responsible Office:** 540/Mechanical Systems Division

**Title:** Certification of Lifting Device Equipment and Its Operators

---

## TABLE OF CONTENTS

### PREFACE

**P.1 PURPOSE**

**P.2 APPLICABILITY**

**P.3 AUTHORITY**

**P.4 REFERENCES**

**P.5 CANCELLATION**

**P.6 SAFETY**

**P.7 TRAINING**

**P.8 RECORDS**

**P.9 METRICS**

**P.10 PROCEDURES**

**1. Responsibilities**

1.1 Center Director

1.2 RECERT Manager

1.3 Deputy RECERT Manager/WFF

1.4 LDE Owners and/or Division Offices

1.5 Occupational Safety and Health Division/Code 350 and Wallops Safety Office/Code 803

1.6 Medical and Environmental Management Division/Code 250

1.7 Facilities Management Division/Code 220

1.8 Office of Human Capital Management (OHCM)

1.9 Certified Crane Operators and Owner

1.10 Certified Critical Lift Coordinators

1.11 Certified MAP and PIT Operators and Authorized Jack (Critical) Operators

**2. Equipment Requirements**

2.1 Types and Traceability

2.2 LDE Certification and Safety Analyses

2.3 Operational Requirements

2.4 LDE Testing

**3. Personnel Qualification and Certification Requirements**

3.1 Personnel Performing NDT

CHECK THE GSFC DIRECTIVES MANAGEMENT SYSTEM AT  
<http://gdms.gsfc.nasa.gov> TO VERIFY THAT THIS IS THE CORRECT VERSION PRIOR TO USE.

**DIRECTIVE NO.** GPR 8719.1B  
**EFFECTIVE DATE:** \_\_\_\_\_  
**EXPIRATION DATE:** \_\_\_\_\_

Page 2 of 23

- 3.2 Crane Operators
- 3.3 Requirements for MAP and PIT Operator Certification and Jack Operator Authorization
- 3.4 Critical Lift Coordinators
- 3.5 Reciprocity with Other NASA Licensing Authorities
- 3.6 License Revocation

#### **4. Waivers**

#### **5. LDE Committee (LDEC)**

- 5.1 Center LDEC
- 5.2 LDEC Chairperson
- 5.3 Vice Chairperson
- 5.4 Executive Secretary
- 5.5 Committee Members

#### **Table 1 Load Test Requirements for New, Repaired, or Modified LDs**

#### **Appendix A DEFINITIONS**

#### **Appendix B ACRONYMS**

## **PREFACE**

### **P.1 PURPOSE**

This directive implements the requirements of NASA Standard 8719.9 “Standard for Lifting Devices and Equipment” for the GSFC Recertification Program (RECERT) in providing Center organizations with frequent and periodic inspection, certification, and recertification of lifting devices and equipment (LDE). Requirements are established for LDE Operators of cranes, mobile aerial platforms (MAP), and powered industrial trucks (PIT), and Critical Lift Coordinator (CLC) training and certification. This Center program improves safety, and minimizes or prevents potential personnel injury or fatality, and damage or loss of hardware and facilities.

This directive is not a substitute for applicable Occupational Safety and Health Administration (OSHA) and national consensus codes and standards (NCS) requirements. OSHA and NCS requirements apply to all GSFC LDE, LDE Operators, and their respective operations.

### **P.2 APPLICABILITY**

- a. This directive is applicable to all LDE at Greenbelt, Wallops Flight Facility (WFF), and other areas under GSFC cognizance, regardless of ownership, that are operated or used by NASA employees or GSFC support services contractors, to the extent required in their respective contracts, unless specifically excluded by this directive or by the RECERT Manager.
- b. When invoked as a contractual requirement by a project, this directive is applicable to the extent specified in the contract for off-site contractor installations supporting GSFC activities.
- c. Lifting operations under privatization clauses shall be subjected to the provisions of this directive to the extent provided by the contract, and the requirements shall be clearly specified therein.
- d. The responsible Contracting Officer and the Project Manager shall apply requirements of this directive to any contractor, tenant, or customer if non-NASA lifting operations place NASA personnel, facilities, or equipment at risk through incorporation into their respective contracts.

### **P.3 AUTHORITIES**

NASA-STD-8719.9, Standard for Lifting Devices and Equipment

### **P.4 APPLICABLE DOCUMENTS**

The references as listed within the NASA-STD 8719.9 are applicable:

- a. 29 CFR 1926.1400, OSHA, Cranes & Derricks in Construction
- b. 29 CFR 1910, Occupational Safety and Health Standards
- c. NASA-STD 1800.1, NASA Occupational Health Program Procedures

- d. NASA-STD-8709.20. Management of Safety and Mission Assurance Technical Authority (SMATAA) Requirements
- e. NASA-STD 8709.22, Safety and Mission Assurance Acronyms, Abbreviations, and Definitions
- f. GPR 1400.1, Waiver Processing
- g. GPR 1700.5 Control of Hazardous Energy (Lockout/Tagout)
- h. GPR 3410.2I, Employee Task-Specific, Required and Mandatory Training Requirements
- i. GPR 8621.4, Mishap Preparedness and Contingency Plan
- j. GPR 8715.3 Fall Protection Requirements for GSFC
- k. GPR 8834.1, Lifting Operations Requirements
- l. 540-WI-8719.1.3, Sample Lifting Device Inspection Forms
- m. ASME PALD, Safety Standard for Portable Automotive Lifting Devices
- n. ASME B30 Safety Standards for Cableways, Cranes, Derricks, Hoists, Hooks, Jacks, and Slings

**P.5 CANCELLATION**

GPR 8719.1A, Certification and Recertification of Lifting Devices and Equipment and its Operators

**P.6 SAFETY**

Detailed safety requirements are contained in applicable test and inspection procedure.

**P.7 TRAINING**

Training requirements are specified in Section 3.

**P.8 RECORDS**

Record Title	Record Custodian	Retention
Test & Inspection Reports for: <ul style="list-style-type: none"> <li>▪ LDE</li> </ul>	RECERT Manager at Greenbelt, Deputy RECERT Manager at WFF	Permanent – pending approval of record schedule. *NRRS 8/56.5A
Operator Certifications: <ul style="list-style-type: none"> <li>▪ LDE</li> <li>▪ CLC</li> </ul>	RECERT Manager at Greenbelt, Deputy RECERT Manager at WFF	*NRRS 3/33G Destroy 5 years after separation of employee or when no longer needed.
Jack Operator Training	Operator Supervisor	*NRRS 3/33G Destroy 5 years after separation of employee or when no longer needed.
Completed Daily Checklists	Property Custodian	Permanent. NRRS 8/56.5D
RECERT documentation	RECERT Manager	*NRRS 3/33G
Safety Analysis	Property Custodian	Permanent. NRRS 8/56.5D
LDEC Meeting Minutes	RECERT Manager	Permanent. *NRRS 1/14B (1) (a)

**DIRECTIVE NO.** GPR 8719.1B  
**EFFECTIVE DATE:** \_\_\_\_\_  
**EXPIRATION DATE:** \_\_\_\_\_

		Retire to FRC when 2 years old. Transfer to NARA when 20 years old.
GSFC 17-112, Employee Task-Specific Training Requirement for civil servant employees	Supervisor	Permanent – Maintained in the Employee Performance File in the IDP/Training Related Information section on the right side.

\*NRRS – NASA Records Retention Schedules (NPR 1441.1)

**P.9 MEASUREMENT/VERIFICATION**

The RECERT Manager shall document the percentage of scheduled test and inspections completed, and the pass/fail percentage of LDE.

**PROCEDURES**

In this document, a requirement is identified by “shall,” a good practice by “should,” permission by “may” or “can,” expectation by “will” and descriptive material by “is.”

**1. Responsibilities**

**1.1 Center Director** appoints the RECERT Manager and Deputy RECERT Manager/WFF for LDE.

**1.2 RECERT Manager shall**

- a. Maintain overall responsibility for the management, implementation, and enforcement of the Center’s LDE Program;
- b. Provide direction to the Deputy RECERT Manager;
- c. Tasks the RECERT Support Contractor in the maintenance of Section 1.2 of this directive;
- d. Serve as the GSFC interface with NASA Headquarters (HQ) and other NASA Centers on matters pertaining to LDE;
- e. Serve as the GSFC representative on the NASA LDE committee;
- f. Chair the Center LDE Committee;
- g. Serve as the Certifying Authority for the certification and recertification of LDE to which this directive is applicable;
- h. Serve as the final authority on interpretation of, and compliance with, this directive and its references;
- i. Establish and maintain a system for periodic inspection of LDE including review of logbooks, daily inspection forms, identification of deficiencies, and completion of corrective actions;
- j. Ensure that certification and/or recertification tests and inspections are performed by personnel properly trained and qualified in accordance with applicable codes and standards;

- k. Provide consultation to the center for design, specification, testing, maintenance, operation, and modification of LDE to owners and operators;
- l. Approve the re-rating of LDs;
- m. Review and concur/non-concur with waiver requests per GPR 1400.1;
- n. Review and concur/non-concur with specifications prior to procurement of LDs;
- o. Establish and maintain a RECERT configuration management system for LDE;
- p. Review, approve, and monitor the training courses for qualifying LDE Operators, and define their training and retraining requirements;
- q. Certify and recertify LDE Operators;
- r. Perform compliance spot checks of LDE Operators to ensure that the requirements of this GPR are being followed;
- s. Provide Division Offices with an inventory of Division LDs for review and update, when requested;
- t. Coordinate with affected Center safety offices on issues of mutual interest;
- u. Coordinates with the Office of Human Capital Management (OHCM) to ensure all RECERT training classes are entered in SATERN at least 30 days prior to the start of each class.
- v. Notify supervisors of training and certification requirements for civil servant employees to be documented on the GSFC 17-112, Employee Task-Specific Training Requirements Form
- w. Maintain oversight, for safety and compliance, of all Lifting Devices, including mobile cranes brought onsite, for lifting, setting and delivering equipment to center; and
- x. Review the use of lifting equipment (slings, strong-backs, etc.) brought onsite to support the lifting device operations delineated in item u, above.

### **1.3 Deputy RECERT Manager/WFF**

The Deputy RECERT Manager shall serve as the RECERT Manager's alternate and represent the RECERT Manager at WFF for day-to-day operations by performing duties in Section 1.2.

### **1.4 LDE Owners and/or Division Offices shall**

- a. Ensure documented compliance to this directive by maintaining records of LDE and the Operators;
- b. Submit LDE specifications to the RECERT Manager for review and concurrence prior to purchase;
- c. Ensure that LDEs are certified by the RECERT Manager prior to use;
- d. Provide resources for training and ensure that LDE operators are certified;
- e. Ensure that LDE for which the division is responsible is appropriately certified for critical or noncritical lifts, and notify RECERT, as required by NASA-STD 8719.9;
- f. Determine the appropriate LD usage category, i.e., Active, Standby, or Idle; and classification, i.e., Critical or Noncritical, based on current and projected operational requirements;
- g. Maintain a current inventory of LDE (including slings, shackles, turnbuckles, D-rings, load measuring devices, and other LE) owned and operated by the division;
- h. Manage and control uncertified or expired LDE to preclude inadvertent use;
- i. Request that RECERT perform certification of new or transferred LDE from offsite locations prior to their use;

- j. Notify the RECERT Manager immediately of all LDE deficiencies and failures, and initiate the appropriate Incident/Mishap Report in accordance with GPR 8621.4;
- k. Initiate repair for LDE deficiencies found during OSHA and NASA-STD 8719.9 required tests and inspections;
- l. Ensure that Original Equipment Manufacturer (OEM)-recommended maintenance is performed on LDE and that the daily checklist conforms with the OEM;
- m. Submit requirements to the appropriate budget to bring Division LDE into compliance with this directive;
- n. Maintain responsibility for day-to-day operations of LDE under their cognizance;
- o. Coordinate outages for load testing and inspections of inventoried LDE with RECERT to minimize conflicts with ongoing operations;
- p. Notify RECERT of any LDE that is removed from service or any change in use status per Section 2.3.2 of this directive;
- q. Perform daily LDE inspections and document such inspections on the Daily Checklist;
- r. Establish administrative controls over their LDE to preclude unauthorized operation. Such controls may include administratively controlling access to areas in which LDE are located, or administratively locking out LDE to all but authorized users by using GSFC Administrative locking procedures as defined in GPR 1700.5;
- s. Require civil servant supervisors to document task-specific training requirements on the GSFC 17-112, Employee Task-Specific Training Requirements Form for civil servant employees as required by GPR 3410.2;
- t. Notify RECERT Manager when rented or leased equipment is brought on center; and
- u. Review and document operator training of Overhead Crane, Mobile Crane, MAP, and PIT assigned to the division on an annual basis and submit to RECERT manager for review.

**1.5 Occupational Safety and Health Division/Code 350 and Wallops Safety Office/Code 803 shall:**

- a. Notify RECERT Manager if construction activities are not in compliance with OSHA (as it relates to LDE) and NASA-STD 8719.9 requirements.
- b. Provide comments on construction lift plans as requested by the RECERT Manager.

**1.6 Medical and Environmental Management Division/Code 250**

Shall provide medical expertise via the Medical Director to establish LDE operator medical examination criteria using applicable NASA and American National Standards Institute requirements.

**1.7 Facilities Management Division (FMD)**

FMD shall notify, in writing, the RECERT Manager of any planned LDE acquisition, installation, upgrade, and/or removal as part of a FMD facilities project. To ensure compliance and certifiability, all LDE designs and specifications shall be supplied to the RECERT Manager for review and approval prior to contract implementation. Assure that mobile cranes coming on center for facility construction

comply with OSHA 1926.1400. Notify the RECERT Manager and Safety (Code 350/803) of any construction activities requiring the use of a leased/rented LDE.

### **1.8 Office of Human Capital Management (OHCM)**

- a. Coordinate with RECERT Manager to document training offerings in SATERN;
- b. Coordinate with RECERT Manager in approving participants in SATERN;
- c. Provide RECERT manager official training roster for each training offered; and
- d. Update SATERN to ensure civil servant participants receive training credit and it is properly recorded in their learning history

### **1.9 Certified Crane Operators shall**

- a. Ensure that the load is properly and safely rigged;
- b. Verify the GSFC RECERT certification status of the LDE is current before commencing lifting operations (using uncertified LDE is a violation of Center policy);
- c. Perform crane daily inspections and tests in accordance with RECERT approved procedures;
- d. Perform LE inspection before use;
- e. Provide entry in the LD (including Hydra-set) log book for all inspections, tests, and operations; and
- f. Perform LDE lock out procedures in accordance with GSFC Administrative locking procedures as defined in GPR 1700.5, if any deficiencies are observed and immediately enter the deficiencies into the log book, and notify the RECERT Manager; and
- g. Have the final approval on the lift. If the Crane Operator is not comfortable or satisfied that all aspects are correct or complete prior to the lift, the Crane Operator does not have to perform the lift, and shall contact the RECERT manager immediately.

### **1.10 Certified Critical Lift Coordinators (CLC)**

Certified CLC's may be responsible for directing and giving commands to the Crane Operator during a lifting operation if so designated in the Critical Lift Procedure. If the CLC is in charge of the lifting operation, they shall, in a pre-lift briefing, instruct personnel in the proper preparation, rigging, lifting, and final positioning of the load. Coordination for directing the lifting operation shall be delineated in the Critical Lift Procedure and re-emphasized in the pre-lift briefing. A CLC shall not perform rigging activities or hands-on operation of LDs.

### **1.11 Certified MAP and PIT Operators and Authorized Jack (Critical) Operators shall**

- a. Verify the GSFC RECERT certification status of equipment is current before commencing operations (using uncertified LDE is a violation of Center policy);
- b. Perform daily inspection in accordance with daily checklist before operation;
- c. Provide entries in the equipment log book for all inspections, tests, and operations; and
- d. If any deficiencies are observed, lock out the equipment using GSFC Administrative locking procedures as defined in GPR 1700.5, immediately enter the deficiencies into the log book, and notify the RECERT Manager.

## 2. Equipment Requirements

### 2.1 Types and Traceability

**2.1.1 Items Subject to RECERT.** The following items are included in the RECERT Program and shall be subjected to formal certification and recertification. Other items may be included if deemed necessary by the RECERT Manager.

- Overhead and Gantry Cranes (Top Running Bridge, Single or Multiple Girder, Top Running Trolley Hoist, and Jib Cranes)
- Mobile Cranes\*\*
- Base Mounted Drum Hoists
- Monorails and Under hung Cranes and Hoists
- Manually Operated Level Hoists
- Special Hoist-Supported Personnel Lifting Devices
- Hydra-sets
- Crane Hooks
- Wire Rope Slings
- Alloy Steel Chain Slings
- Metal Mesh Slings
- Synthetic Slings
- Structural Slings
- Lifting assemblies
- Shackles, Turnbuckles, Swivel Joints, Connecting Links, and other lifting hardware components
- Load Measuring Devices\*
- MAPs including Attachments
- PITs including Fork Extensions and Attachments
- Jacks
- Shop cranes (Portable Automotive Lifting Devices)

**\*Load Measuring Devices are verified by RECERT for structural integrity in the load path. Calibration of these devices shall be the owner's responsibility.**

**\*\* Mobile cranes used strictly for construction activities are exempt from meeting GSFC RECERT requirements but must meet OSHA requirements.**

#### 2.1.2 Traceability to Original Equipment Manufacturer (OEM).

- a. All LE hardware components shall be traceable to a credible source of information, such as OEM for certifiability.
- b. Fork extensions and attachments to PITs that affect capacity and/or stability shall be OEM equipment; or approved by the OEM in writing for its design and fabrication. In all cases, a tag or notice shall be affixed to the equipment clearly showing the new CG and capacity restrictions.

- c. All LDE shall be used consistent with their intended purpose per OEM recommendations. The use of LDE that is contrary to OEM instructions or recommendations is not permitted, unless approved by the RECERT manager and complies with the applicable ASME/ANSI B30 series documents.

## **2.2 LDE Certification and Safety Analyses**

### **2.2.1 LDE Certification**

- a. LDE shall be certified, before first use, by the RECERT Manager based upon verification and acceptance of design safety factor, load testing, and nondestructive testing reports, if applicable, and by compliance with NASA-STD-8719.9 and this directive. It shall then be recertified thereafter in accordance with NASA-STD-8719.9 and this directive.
- b. The RECERT Manager shall re-certify altered LDE assemblies as a system unless specifically exempted by a safety variance reviewed and approved in accordance with Section 4 of this directive. Alteration includes the extension, modification, addition, replacement, or deletion of components to the original certified configuration . All components comprising a critical LE assembly shall be uniquely identified and controlled, and should not be interchanged for use elsewhere. Replacement by identical, individually certified and tagged components of equal or greater load rating is permissible without having to recertify the LE assembly.
- c. The RECERT Manger may authorize the applicable contractor organization to perform LDE test and inspections at Government Owned, Contractor Operated facilities by the applicable contractor organization provided the contractor has a test and inspection plan satisfactorily addressing GSFC requirements, including personnel qualifications, and the contractor’s plan has been reviewed and approved by the RECERT Manager.
- d. Owners and/or divisions responsible for LDE shall forward copies of all LDE test and inspection reports, including those for applicable off-site operations and applicable contractor installations, shall be forwarded to the RECERT Manager for annual re-certification and record keeping.

### **2.2.2 LDE Safety Analyses**

- a. A recognized Safety Analysis, such as a Fault Tree Analysis, a Failure Modes and Effects Analysis, or an Operating and Support Hazard Analysis shall be performed by the owning organization on critical LDE’s (including jacks, as defined in NASA-STD-8719.9). The critical or non-critical category determination shall be performed in accordance with Appendix C of GPR 8834.1, Lifting Operations Requirements. The analysis shall, as a minimum, determine potential sources of danger, identify failure modes, and recommend resolutions and a system of risk acceptance for those conditions that could cause loss of life, personal injury, and loss of or damage to the equipment, facility, or load.
- b. Safety Analyses shall be reviewed and approved by the RECERT Manager.

## 2.3 Operational Requirements

**2.3.1 Criticality Determination.** The owning organizations shall specify the category of operations to be performed by their LDE, i.e., critical or noncritical, so that the RECERT Manager may provide the requisite compliance requirements for the LDE. Appendix C of GPR 8834.1 must be completed, submitted, and approved by the RECERT Manager, for non-critical lifts that are non-institutional by nature.

**2.3.2 LD (except MPJ) Inspection Requirements.** Inspection requirements are based on the usage categories of LDs. “Daily” inspection requirements are generated by the LD owner. “Frequent” or “Periodic” inspections are defined in RECERT approved procedures.

**2.3.2.1 Active LDs** – These are devices that are available for unlimited daily use and:

- The Certified LDE Operator shall perform, prior to initial use, Daily Inspections and limit switch tests and record entry in the logbook in accordance with RECERT approved procedures.
- RECERT Frequent Inspections shall be performed at monthly intervals in accordance with NASA-STD 8719.9.
- RECERT Periodic Inspections for recertification shall be performed once a year in accordance with NASA-STD 8719.9.

**2.3.2.2 Standby LDs** – These devices are to be secured from use by using GSFC Administrative locking procedures as defined in GPR 1700.5 and operation shall be resumed only after an inspection by RECERT that allows unlimited use for a 1-month period as an Active LD. After that the LD shall be secured again. Additionally:

- RECERT Frequent Inspections shall be performed at 6-month intervals.
- RECERT Periodic Inspections shall be performed once a year in accordance with NASA-STD 8719.9.

**2.3.2.3 Idle LDs:** – These devices are to be secured from use by using GSFC Administrative locking procedures as defined in GPR 1700.5 and there is no planned use of the LD for the next 12 months. When LDs are idle more than 6 months, the LD shall be recertified prior to use. Additionally:

- RECERT tests and inspections are not required during an idle period.
- RECERT shall perform required tests and inspections prior to returning the LD to service.

## 2.3.3 Re-rating

Owner organizations may request that RECERT re-rate their LDs. Re-rating of LDs and the subsequent recertification shall be accomplished as follows:

- a. Engineering analyses shall be performed in accordance with OSHA, NASA, and NCS requirements to validate that the LD can be used at the new re-rated load. Building structural support system(s)

shall also be validated in terms of the new re-rated load. Re-rating resulting in higher equipment capacity shall require RECERT Manager's approval prior to modification.

- b. Certify the LD and clearly display re-rated capacity with a tag or marking.

### **2.3.4 Transfer of LDE**

- a. LDE and associated certification documentation transferred to GSFC shall be reviewed for certification by the RECERT Manager.
- b. Certification documentation shall accompany LDE permanently transferred from GSFC to other locations.

### **2.3.5 LDE (Re) Certification Tagging**

Tags shall indicate the (re)certification and NDT, if applicable, status of all LDE. The tagging shall be done in accordance with a Work Instruction(s) describing the tags for each application. Unless indicated, all LDE tags shall expire on the last day of the month, one year from the month in which the tag was issued.

- a. One load test tag (re)certification is applied to an assembly where the individual items are color-coded, tethered, or otherwise controlled as an assembly, and there are no plans to disassemble the assembly or to rearrange the configuration. The assembly is load tested as a unit with each item being individually NDT, if applicable, inspected and tagged as such.
- b. Load test (re)certification tags are applied to each component for an assembly that will be disassembled and where the individual items are not color-coded, tethered, or otherwise controlled as an assembly. The assembly may be load tested as a unit or each component load tested individually with each item being individually NDT, if applicable, inspected and tagged as such.
- c. One load test (re)certification tag per configuration is applied to an assembly where the configuration will be rearranged. The assembly is load tested in all applicable configurations with each item being individually NDT, if applicable, inspected and tagged as such. Note that there may be variations in the number of tags depending upon the similarities among the different configurations.
- d. For loose, individual components, each component is load test (re)certification tagged and NDT, if applicable, inspected and tagged.

## **2.4 LDE Testing**

### **2.4.1 Load Testing**

**DIRECTIVE NO.** GPR 8719.1B  
**EFFECTIVE DATE:** \_\_\_\_\_  
**EXPIRATION DATE:** \_\_\_\_\_

New or modified LDs and MPJ shall be proof load tested in accordance with Table 1 and in accordance with NASA Standard 8719.9. For periodic recertification, LDs shall be tested to 100% of their rated load. New or modified LE shall be tested in accordance with NASA Standard 8719.9

Certified test weights or calibrated load cells and test equipment shall be used for all LDE load-testing activities.

#### **2.4.2 Nondestructive Testing (NDT)**

NDT shall be performed in accordance with NASA Standard 8719.9.

### **3. Personnel Qualification and Certification Requirements**

#### **3.1 Personnel Performing NDT**

Personnel performing NDT shall meet the requirements of NASA Standard 8719.9.

#### **3.2 Crane Operators**

##### **3.2.1 Crane Operator Certification Requirements**

All Crane Operator candidates shall obtain formal training in LD operations and rigging as specified in NASA-STD-8719.9. Formal training may be available through the GSFC RECERT Program and other recognized sources and includes classroom instructions, written examination, and hands-on proficiency demonstration. The RECERT Manager shall evaluate and determine the acceptability of the syllabus of all training courses for which Operator candidates claim credit. In addition, all Crane Operator candidates shall pass the RECERT written examination and an applicable medical examination (in accordance with NASA-Standard 1800.1). The following training course topics shall be included as a minimum:

- a. NASA-specific requirements
- b. GSFC-specific requirements
- c. Safe rigging procedures
- d. Safe crane operations
- e. Safety and emergency procedures
- f. General performance standards
- g. Pre-operational checks
- h. Safety-related defects and symptoms
- i. Specific hazards
- j. Special procedures associated with critical lifts (critical lift operator training only)
- k. Use of standard hand signals
- l. Lessons learned

Upon successful completion of the required training, the certification records are updated and an individual license will be issued, or in some instances a roster of Certified Crane Operators, is prepared. The licenses or the Operator roster shall be signed by the RECERT Manager and issued to the Operator, or, in the case of the Operator roster, to the appropriate supervisory personnel. It is the crane Operator's responsibility to notify the RECERT Manager prior to expiration.

### **3.2.2 Categories of Crane Operator Licenses.**

There are three categories of Crane Operator Permits and Licenses:

- a. **Apprentice Permit:** Apprentice permits are typically issued with a required 40 hours of noncritical lift operation (minimum 20 hours Hands-On Crane Operation) and rigging to be attained under the direction of a licensed Crane Operator. Both the licensed operator and the candidate's supervisor shall attest to the attainment of these hours. On a case-by-case basis, for candidates with prior crane operation experience seeking GSFC Operator certification, the 40 hour apprenticeship requirement may be adjusted at the discretion of the RECERT Manager based on the recommendation of the trainer. The candidate shall complete the required hours of operation within 24 months from the Apprentice Permit issuance to prevent expiration of the Apprentice Permit. Upon completion of the required hours and attendance at a Noncritical Lift Crane Operator refresher class, the apprentice will be certified as a Noncritical Lift Crane Operator.
- b. **Noncritical Lift Crane Operator License:** This license authorizes the Operator to use only the types of Cranes and Hoists listed thereon, and rigging for noncritical lifts only. Noncritical operators are not permitted to use Hydra-sets, unless permitted by the RECERT manager.
- c. **Critical Lift Crane Operator License:** This license authorizes the operator to use Cranes and Hoists and rig for both noncritical and critical lifts, including Hydra-sets. The prerequisite for obtaining a Critical Lift Crane Operator License is that the candidate possesses a Noncritical Lift Crane Operator License and completes 40 hours of critical lift operation (minimum 20 hours Hands-On Crane Operation) and rigging under the direction of a licensed Critical Lift Crane Operator. Upon completion of the required 40 hours and attendance at a Critical Lift Crane Operator class, the Operator will be certified as a Critical Lift Crane Operator. Exceptions to the prerequisite may be reviewed and granted by the RECERT Manager on a case-by-case basis.

### **3.2.3 Crane Operator Recertification**

All Certified Crane Operators shall be recertified and a new license issued based on providing evidence of completion of refresher training, including written examination and hands-on training. A new license will be issued to the Operator, or the Operator roster will be updated and sent to the appropriate supervisory personnel.

Critical and Noncritical Lift Crane Operators shall recertify every two years and provide evidence of successfully completing a medical examination in accordance with NASA Standard 1800.1.

### **3.3 Requirements for MAP and PIT Operator Certification and Jack Operator Authorization**

#### **3.3.1 MAP and PIT Operator Certification Requirements.**

All MAP and PIT Operator candidates shall obtain formal training as specified in NASA-STD-8719.9. Formal training may be available through the GSFC RECERT Program or the RECERT Manager may evaluate and determine the acceptability of the syllabus of all training courses for which Operator candidates claim credit. In addition, all MAP and PIT Operator candidates shall pass a written exam, hands on proficiency demonstration, and the applicable medical examination per NASA-STD 1800.1. For MAP operator certification, the candidate must provide proof of successful completion of fall protection training in accordance with GPR 8715.8. A written RECERT exam shall be given to verify the adequacy of the commercial training that the operator candidate claims credit. The following training course topics shall be included as a minimum:

- a. NASA-specific requirements
- b. GSFC-specific requirements
- c. Safe operations
- d. Safety and emergency procedures
- e. General performance standards
- f. Pre-operational checks
- g. Safety-related defects and symptoms
- h. Specific hazards
- i. Lessons learned

Upon successful completion of the required training, the certification records are updated and an individual license, or in some instances a roster of Certified MAP or PIT Operators is prepared. The licenses or the Operator roster shall be signed by the RECERT Manager and issued to the Operator, or, in the case of the Operator roster, to the appropriate supervisory personnel.

#### **3.3.2 Jack Operator Authorization.**

Operators of jacks shall be instructed in their proper use per NASA-STD-8719.9 and shall be designated and authorized to operate by their supervisor. The supervisor shall be responsible for retaining documentation of this training.

#### **3.3.3 MAP and PIT Operator Recertification**

All Certified MAP and PIT Operators shall be recertified every two years by providing evidence of completion of refresher training, including written examination and hands-on training. Evidence of completing a satisfactory medical examination shall be provided to the RECERT Manager every two years. For MAP operator certification, the candidate must provide proof of successful fall protection refresher training in accordance with GPR 8715.8. A new license will be issued to the Operator, or, in the case of the Operator roster update, to appropriate supervisory personnel.

### **3.4 Critical Lift Coordinators**

#### **3.4.1 CLC Certification Requirements**

All CLC candidates shall attend a classroom training session equivalent to the training for critical lift crane operators (reference Section 3.2.1). All CLC candidates shall pass a written examination equivalent to that for critical lift operator certification but are excluded from hands-on proficiency demonstration and the medical examination requirement. Upon successful completion of CLC training and written examination requirements, the RECERT Manager shall certify CLC's by issuance of a signed license or a signed roster.

#### **3.4.2 CLC Recertification**

Recertification shall be granted upon successful completion of refresher training and applicable examinations every two years.

### **3.5 Reciprocity with Licensing Authorities.**

At the RECERT Manager's discretion, a temporary Crane, MAP, or PIT Operator License may be issued to personnel on temporary assignment to GSFC provided that the candidate:

- a. Possesses a valid Crane, MAP, or PIT operator license or equivalent issued by another Licensing Authority in compliance with requirements contained in NASA-STD-8719.9; and
- b. The candidate's license or equivalent remains valid for the duration of the candidate's assignment at GSFC.

Temporary Crane, MAP, or PIT Operator Licenses will be valid for the duration of the candidate's assignment at GSFC, but shall not exceed 90 days. Thereafter, a GSFC Crane, MAP, or PIT Operator License will be required.

### **3.6 License Revocation**

The RECERT Manager may revoke Crane Operator Licenses, CLC Licenses, MAP Operator Licenses, or PIT Operator Licenses for any of the following reasons:

- a. Recommendations by an appointed panel of inquiry or Mishap Investigation Board.
- b. Violations of, or noncompliance with, any of the safety requirements in the documented procedures.
- c. Failure of supervisor providing annual documentation on reviewing of training per Section 1.4 of this document.
- d. Failure to meet RECERT-required refresher training or medical examination requirements.

Revoked Operator Licenses shall be returned to the RECERT Manager within 3 business days, and may be reinstated upon satisfactory completion of applicable refresher training or other remedial action

deemed appropriate by the RECERT Manager. License extensions may be granted up to but not exceeding 30 days to allow for project demands and class scheduling flexibility. To be eligible for a license extension the operator must request the extension prior to the expiration date of the license and have a current medical examination. Extensions will not be granted if the license or medical examination has expired.

#### **4. Waivers**

- a. Waivers to the requirements of this directive shall be prepared and approved as outlined in NASA-STD 8709.20 and GPR 1400.1 prior to operation.
- b. If a mandatory requirement of this directive cannot be met, a detailed waiver request package shall be prepared by the requesting organization in accordance with NASA-STD 8709.20 and GPR 1400.1. The waiver request package shall be reviewed and the risk accepted by the initiating Division Office and forwarded to the RECERT Manager for review and concurrence/non concurrence.
- c. The RECERT Manager will submit the waiver request package to other authorities as stipulated in GPR 1400.1. Waiver requests approved by the Center shall be forwarded to NASA HQ within 14 days.

#### **5. LDE Committee**

**5.1 A Center LDE Committee (LDEC)** shall be established by the RECERT Manager via the Goddard Safety Committee (GSC) to ensure that LDE governing standards are understood and applied across all organizational elements at GSFC. In addition, the LDEC shall resolve LDE-related issues and provide a forum to exchange information. The RECERT Manager shall serve as the Chairperson of the Committee. The Deputy RECERT Manager/WFF shall serve as the Vice Chairperson of the Committee.

##### **5.2 The LDEC Chairperson shall:**

- a. Accept appointees from the Directorates as Committee Members.
- b. Include representatives from organizations conducting or having an interest in lifting operations.
- c. Establish the Committee meeting schedule.
- d. Conduct quarterly meetings, or more frequently as required.
- e. Appoint an Executive Secretary for the Committee.
- f. Report as required to the GSC regarding the activities of the Committee.

##### **5.3 The Vice Chairperson shall:**

- a. Chair the Committee meeting in the absence of the Chairperson.
- b. Report as required to the WFF Executive Safety Council regarding the activities of the Committee.

##### **5.4 The Executive Secretary shall:**

- a. Assist the Chairperson in preparing and distributing meeting agenda, minutes, and related materials.
- b. Assist the Chairperson in coordinating Committee-related activities.

**DIRECTIVE NO.** GPR 8719.1B  
**EFFECTIVE DATE:** \_\_\_\_\_  
**EXPIRATION DATE:** \_\_\_\_\_

- c. Track action items and their status.
- d. Maintain meeting minutes and make available for review by management and safety and health offices.

**5.5 The Committee Members shall:**

- a. At least one member from each directorate, that have LDE, shall represent his/her Directorate in the Committee's scheduled meetings. Invite other interested personnel to the meeting, including supporting contractors, as appropriate. Membership will be on a 2-year renewable term.
- b. Bring Directorate issues/concerns relating to LDE and LDE operations to the Committee.
- c. Serve as the information conduit between the LDEC and his/her Directorate organizations.
- d. Provide input/closure of the action items assigned by the Chairperson.
- e. Review and provide input to the Chairperson on LDE variance requests as required.
- f. Review close call and mishaps and provide recommendations for preventive measures.

**TABLE 1**  
**Load Test Requirements for New, Repaired, or Modified LDs**

	Proof Load		Rated Load		Requirement
	Periodicity <sup>1</sup>	Percentage	Periodicity	Percentage	
<b>Cranes</b>					
Overhead (Non-Critical)	New, Altered	125% (+0%/-5%)	Every Four Years	100% (+5%/-0%)	NASA-STD-8719.9-4.3
Overhead (Critical)	New, Altered	125% (+0%/-5%)	Every Year	100% (+5%/-0%)	NASA-STD-8719.9-4.3
Mobile (Non-Critical)	New, Altered	110% (+0%/-5%)	Every Four Years	100% (+5%/-0%)	NASA-STD-8719.9-5.3
Mobile (Critical)	New, Altered	110% (+0%/-5%)	Every Year	100% (+5%/-0%)	NASA-STD-8719.9-5.3
<b>MAPs</b> (Non-Critical)	New, Altered	N/A <sup>2</sup>	Every Year	100% (+5%/-0%)	NASA-STD-8719.9-11.3
<b>MAPs</b> (Critical)	New, Altered	N/A <sup>2</sup>	Every Year	100% (+5%/-0%)	NASA-STD-8719.9-11.3
<b>PITs</b> (Non-Critical)	New, Altered	N/A <sup>2</sup>	Every Four Years	100% (+5%/-0%)	NASA-STD-8719.9-12.3
<b>PITs</b> (Critical)	New, Altered	N/A <sup>2</sup>	Every Year	100% (+5%/-0%)	NASA-STD-8719.9-12.3
<b>Jacks</b> (Flight Hardware)	New, Altered	120% (+0%/-5%)	Every Year	100% (+5%/-0%)	NASA-STD-8719.9-13.3

<sup>1</sup> “New, Altered” in the column entitled “Periodicity” means new, reinstalled, altered, repaired, rerated, reconditioned, and/or modified

<sup>2</sup> Load test shall be done in accordance with manufacturer’s instructions and applicable ASME standard. In a case where both sources are silent, 100% of the rated capacity shall be used.

## Appendix A – Definitions

Most of the terms used in this directive are defined in NASA-STD-8719.9 or NASA-STD-8709.22. Those that are critical and or unique to this directive are listed below.

- A.1 Certification/Recertification – Written documentation that a set of requirements has been, and continues to be, met. As used in this GPR, certification and recertification is: 1) a process performed by the RECERT Manager that leads to the initial, or continuation of, certification that LDE is safe to use within specific certification parameters, and includes, but is not limited to LDE compliance and documentation reviews, tests, inspections, nondestructive testing, and analyses; 2) a license issued and renewed by the RECERT Manager for operation of LDE; and 3) a memo or license issued to perform the duties of a CLC.
- A.2 Critical Hardware – Hardware whose loss would have serious programmatic or institutional impact and that has been identified by the installation, directorate, or project as being critical.
- A.3 Critical Lift – A lift where failure/loss of control could result in loss of life, loss of or damage to critical hardware or other items such as spacecraft, one-of-a-kind articles, or major facility components whose loss or damage would have serious programmatic or institutional impact. Operations involving the lifting of personnel with a crane, and lifts where personnel are required to work under a suspended load, shall be defined as critical lifts (see NASA-STD-8719.9). Operations with special personnel and equipment safety concerns beyond normal lifting hazards shall also be designated as critical.
- A.4 Critical Lift Coordinator (CLC) – An individual who is assigned or demonstrates a need to direct critical lift activities due to specific project requirements and who has obtained the necessary training and is certified by the RECERT Manager. The CLC is an optional position, used only when a project desires to have its own lifting expert. The role of the CLC shall be specified in the Critical Lift Procedure.
- A.5 Daily Checklist – An inspection and/or test performed, prior to use, on a daily basis only for those days while in use.
- A.6 Division Office – For the purposes of this GPR, use of the term “Division Office” includes Project Offices, Program Offices, Supervisors, and Owner of Equipment.
- A.7 Flight Hardware – Hardware designed and fabricated for ultimate use in a vehicle intended to fly.
- A.8 Institutional Lift – A lift performed as part of the day-to-day operations of the Center, such as lifting a section of pipe or moving a pallet of office supplies. It is not a manual lift, although a manual lift may be included as part of an institutional lift. NOTE: an Institutional Lift can also be classified as “critical,” depending on the hardware involved.

- A.9 Lifting Devices (LD) and Equipment (LE) collectively (LDE) – LDE comprises LD such as overhead and gantry cranes (including top running monorail, under-hung, and jib), mobile cranes, derricks, hoists, winches, special hoist supported personnel lifting devices, mobile aerial platforms (MAP), powered industrial trucks (PIT), and jacks; and LE such as Hydrasets, load measuring devices, hooks, slings and rigging used for lifting and support of flight hardware or personnel..
- A.10 LDE Operator Certification – The documented status of LDE operators (Crane Operator, MAP Operator, and PIT Operator) validating that they are trained and qualified in accordance with NASA-STD-8719.9 and certified by the RECERT Manager. For the purposes of the GSFC LDE RECERT Program, an individual certified as a Crane Operator is concurrently certified as a Rigger, and references to Crane Operators include Riggers. Jack Operators shall be designated and authorized by the equipment owning organization.
- A.11 MPJ – For the purposes of this directive, the collective term “MPJ” refers to MAPs, PITs and Jacks as defined in NASA-STD-8719.9.
- A.12 RECERT Documentation – Files that are maintained for LDE that may include, but are not limited to, manufacturer’s/fabricator’s documents, field test data, safety analyses, results of engineering analyses, repair history, facility descriptions, record of all safety variances, re-rating, and correspondence.
- A.12 RECERT Approved Procedure – Owner generated, RECERT generated, or OEM-provided documentation that describes the specific steps needed to inspect, test, or operate LDE that is approved by the RECERT Manager.
- A.14 RECERT Manager and Deputy RECERT Manager/WFF – Positions appointed by the Center Director to implement and enforce the Center’s LDE Program meeting NASA-STD-8719.9 requirements.
- A.15 Rigger – An individual who selects and attaches LE to an item to be lifted.
- A.16 Support Services Contractors – Contract personnel who are based on-site and participate in on-going daily operations at GSFC.

## Appendix B – Acronyms

Most of the acronyms used in this directive are defined in NASA-STD-8719.9 or NASA-STD-8709.22. Those that are critical and or unique to this directive are listed below.

CG	Center of Gravity
CLC	Critical Lift Coordinator
FMD	Facilities Management Division
GPR	Goddard Procedural Requirements
GSC	Goddard Safety Committee
GSFC	Goddard Space Flight Center
HQ	NASA Headquarters
IAW	In Accordance With
IDP	Individual Development Plan
LD	Lifting Device
LDE	Lifting Devices and Equipment
LDEC	LDE Committee
LDEM	LDE Manager
LE	Lifting Equipment
LOTO	Lockout Tagout
MAP	Mobile Aerial Platform
MPJ	Mobile Aerial Platform, Powered Industrial Truck, and Jack collectively (see Appendix A)
NDT	Nondestructive Testing
NRRS	NASA Records Retention Schedules
OEM	Original Equipment Manufacturer
OHCM	Office of Human Capital and Management
OSHA	Occupational Safety and Health Administration (29 CFR 1910, 29 CFR 1926)
PIT	Powered Industrial Truck
RECERT	Goddard Recertification Program
SATERN	System for Administration, Training and Educational Resources, for NASA
WFF	Wallops Flight Facility

**DIRECTIVE NO.** GPR 8719.1B  
**EFFECTIVE DATE:** \_\_\_\_\_  
**EXPIRATION DATE:** \_\_\_\_\_

### CHANGE HISTORY LOG

Revision	Effective Date	Description of Changes
Baseline	11/23/04	Initial Release
Baseline	10/27/05	Administratively changed to reflect responsible office change from Code 540, Mechanical Systems Division, to Code 250, Safety and Environmental Division.
A	05/08/09	Responsible office was changed from Code 250, Safety and Environmental Division, to Code 540, Mechanical Systems Division. Revised nomenclature to be consistent with latest HQ requirements in Paragraph 4. Added Paragraph 5, LDE Committee. General editorial changes for consistency with GPR 8834.1.
B	5/29/12	Added GID changes; Under Section 1, changed Occupational Safety to Code 350; under P.1 reflected that this directive is implementing the NASA Standard; under P.2a added additional references; reworded Section 1.2 to reflect current contract; ; Section 1.4 added to reflect owners responsible to control LDE; Section 1.4 added to reflect NASA Standard; Section 1.8 added to give LDE operator authority; Section 2.1.2.3 wording added for ANSI requirements; Section 2.4.2 changed to optional; Section 3.2.3 period of recertification changed to reflect NASA Standard. A note was added to Section 3.6 License Revocation. All definitions and acronyms were moved to the end of the document.