NOT MEASUREMENT-SENSITIVE

KSC-STD-141
Revision B

LOAD TEST IDENTIFICATION DATA MARKING,

STANDARD FOR

National Aeronautics and
Space Administration

John F. Kennedy Space Center

KSC FORM 16-12 (REV. 6/95) PREVIOUS EDITIONS ARE OBSOLETE (CG 11/95)
KDP-KSC-T-5407 Rev Basic

KSC-STD-141
Revision B

LOAD TEST IDENTIFICATION DATA MARKING,

STANDARD FOR

Approved by:

Shawn M. Quinn, Director
Engineering

April 11, 2019

JOHN F. KENNEDY SPACE CENTER, NASA

RECORD OF REVISIONS/CHANGES

REV LTR	CHG NO.	DESCRIPTION	DATE
Basic			April 28, 1966
A			November 1, 1989
B		General Revision	April 11, 2019

CONTENTS

ABBREVIATIONS, ACRONYMS, AND SYMBOLS

DE	Design Engineering
DTL	Detail
GS	Ground Systems
GSE	Ground Support Equipment
GSS	Ground Support System
KSC	Kennedy Space Center
LDE	Lifting Devices and Equipment
MIL	Military
MS	Mil-Spec
NASA	National Aeronautics and Space Administration
NSN	National Stock Number
RTV	Room-Temperature-Vulcanizing
STD	Standard
SWL	Safe Working Load

1. SCOPE

1.1 This standard establishes requirements for load test identification, identification data, and the method for affixing load test data to Lifting Devices and Equipment (LDE) and other Ground Systems (GS) at the John F. Kennedy Space Center.

1.2 The effective date of this standard shall be 6 months after its date of issuance.

1.3 Equipment load tested or tagged after the effective date of this standard shall conform to the requirements herein.

2. APPLICABLE DOCUMENTS

The following documents form a part of this document to the extent specified herein. The latest issuances of cited documents shall apply unless specific versions are designated. When this document is used for procurement, invitation for bids, requests for proposals, or added to an existing contract, the issuances in effect at that time shall apply.

A-A-55305	Personnel Identification Tag
KSC22-420	Label, Calibration-Operational Check
KSE-DE-512-SM	Facility Systems, Ground Support Systems, and Ground Support Equipment General Design Requirements
NASA-STD-8719.9	NASA Lifting Standard
NSN 8465-00-242-4804	Personnel Identification Tag
MIL-A-46106	Adhesive-Sealants, Silicone, RTV, One-Component
MIL-DTL-83420	Wire Rope, Flexible, For Aircraft Control, General Specification For
MS51844	Sleeve, Swaging-Wire Rope

3. DEFINITIONS

The following definitions apply to this document to the extent specified herein.

Critical LDE: Lifting Devices and Equipment (LDE) used to perform Critical Lifts.

Note: The above definition was sourced from NASA-STD-8719.9. The definition in the latest issuance of the source document takes precedence.

Critical Lift: Lifts where failure/loss of control presents an elevated risk of serious injury, loss of life, or loss of one-of-a-kind articles, high dollar items or major facility components whose loss would have serious programmatic or institutional impact. Lifts of high-value flight hardware and/or non-routine lifts (e.g., lift point below center of gravity) are usually classified as critical lifts, while lifts of small, improvised mini-satellites, for example, most likely would not be. Lifting and movement of flight hardware components packaged per applicable shipment specifications are typically not classified as critical lifts.

Note: The above definition was sourced from NASA-STD-8719.9. The definition in the latest issuance of the source document takes precedence.

Facility Ground Support Systems: fixed infrastructure and equipment (not including utility systems and collateral equipment) that provides functional or physical support to GSS or GSE. Facility Ground Support Systems are specialized systems that are designed, built, and tested to more stringent requirements than conventional facilities and their integral facility systems.

Note: The above definition was sourced from KSC-DE-512-SM. The definition in the latest issuance of the source document takes precedence.

Ground System (GS): Ground support equipment, ground support systems, and facility ground support systems.

Note: The above definition was sourced from KSC-DE-512-SM. The definition in the latest issuance of the source document takes precedence.

Ground Support Equipment (GSE): Non-flight equipment, systems, or devices specifically designed and developed for a direct physical or functional interface with flight hardware.

Rationale: Equipment used during the manufacturing of flight hardware is not considered to be GSE. Each program defines when manufacturing ends and processing of the flight hardware begins. If manufacturing equipment is to be used after flight hardware processing begins, it must be designed to meet GSE requirements. GSE does not include tools that are designed for general use and not specifically for use on flight hardware.

Note: The above definition was sourced from KSC-DE-512-SM. The definition in the latest issuance of the source document takes precedence.

Ground Support System (GSS): Equipment or infrastructure (portable or fixed) that provides functional or physical support to GSE. It does not directly interface with flight hardware, although it may supply commodities, power, or data that eventually reaches the flight hardware after being conditioned or controlled by GSE.

Rationale: Design standards for GSS may be similar to or, at the discretion of the program/project, identical to the design standards for GSE. Protective features designed into the GSE prevent failures from propagating to flight hardware.

Note: The above definition was sourced from KSC-DE-512-SM. The definition in the latest issuance of the source document takes precedence.

Lifting Devices and Equipment (LDE): Devices, equipment, and their accessories used to lift, lower, and position a load.

Note: The above definition was sourced from NASA-STD-8719.9. The definition in the latest issuance of the source document takes precedence.

Load Test: Test performed by loading the LDE or GS to a percentage of its design rated load, typically 100% or greater. Load testing for LDE is governed by NASA-STD-8719.9, load testing for GS is governed by KSC-DE-512-SM. This term includes both proof load test and periodic load test.

Noncritical LDE: Lifting Devices and Equipment (LDE) used to perform Noncritical Lifts.

Noncritical Lift: A lift involving routine lifting operations governed by standard industry rules and practices except as supplemented with unique NASA testing, operations, maintenance, inspection, and personnel licensing requirements.

Note: The above definition was sourced from NASA-STD-8719.9. The definition in the latest issuance of the source document takes precedence.

Periodic Load Test: Load test performed at predetermined intervals to determine whether the equipment (e.g., limit switches, E-Stop, controls, brakes) is functioning properly.

Note 1: The above definition was sourced from NASA-STD-8719.9. The definition in the latest issuance of the source document takes precedence.

Note 2: This test is usually only performed on LDE, and the frequency of testing is based upon the criticality of the LDE.

Personnel Access Platform: A platform, typically deployed or relocated by one or multiple dedicated hoists or winches, which allow personnel to access and work in a specific area of a fixed structure or building. Personnel occupy these platforms only after the platforms are deployed and secured and never during movement or while the platforms are supported by hoists/winches.

Note: The above definition was sourced from NASA-STD-8719.9. The definition in the latest issuance of the source document takes precedence.

Personnel Access Platform Hoist/Winch: A dedicated hoist/winch whose only purpose is to raise and lower a personnel access platform not carrying personnel.

Note: The above definition was sourced from NASA-STD-8719.9. The definition in the latest issuance of the source document takes precedence.

Proof Load Test: Load test performed prior to first use, after major modification of the load path, or at other prescribed times. This test verifies material strength, construction, and workmanship and typically uses a load greater than the rated load.

Note: The above definition was sourced from NASA-STD-8719.9. The definition in the latest issuance of the source document takes precedence.

4. GENERAL REQUIREMENTS

4.1 All hardware and equipment which is load tested shall be marked with an identification tag compliant with paragraph 5.1 of this standard.

Note: Load testing of LDE will be in accordance to NASA-STD-8719.9, and load testing of GS will be in accordance to KSC-DE-512-SM.

4.2 Personnel Access Platform hoists and winches may be marked with an operational sticker compliant with paragraph 5.2 in lieu of an identification tag to indicate the currency of the periodic load test.

Note: This provision only applies to periodic load test marking and does not apply to proof load tests of Personnel Access Platform hoists and winches.

4.3 Cranes and other LDE with multiple hoists shall be marked with load test tags corresponding to each hoist tested.

Note: A crane equipped with a main hoist and an auxiliary hoist(s) will have separate tags corresponding to each hoist load test.

4.4 Identification tags or operational stickers shall be installed in an easily accessible location on the affected equipment, or on nearby structure or equipment as long as the nearby structure or equipment always remains with the load tested equipment.

Note: The preferred method is to install the load test identification tag or operational sticker directly on the equipment, but this is not always possible or practical.

4.5 Identification tags shall be securely installed using either:

a. Silicone adhesive-sealant compliant with paragraph 5.3 of this standard
b. Tethering compliant with paragraph 5.4 of this standard
c. Other methods that provide the same or greater level of security and durability as the silicone adhesive-sealant and tethering methods specified herein.

4.6 Data shall be permanently marked on the identification tag using electro-etching, die stamping, or equivalent methods.

Note 1: Equivalent methods will provide the same or greater level of durability as electro-etching or die stamping and be suitable for the environment under which the equipment is used.

Note 2: In order to preserve readability, multiple tags may be used in the event that all of the necessary and relevant information does not fit onto one tag.

4.7 The following information shall appear on the identification tag:

a. Drawing number, part number, serial number, asset number, or other unique identifier

b. Safe Working Load (SWL) in pounds

Note: A statement such as "SWL PER CHART" is acceptable for mobile cranes, mobile aerial platforms, powered industrial trucks, or other equipment whose safe working load varies with equipment configuration.

c. Test load in pounds

Note: For mobile cranes and other equipment tested in multiple configurations using different loads, list the maximum test load used.

d. Date of load test

e. Date of required retest or indication that retest is not required.

Note: A statement such as "ONE TIME ONLY" is acceptable for load tests that are not repeated based on a set periodicity, such as proof load tests.

f. Critical or Non-critical

Note: Only applies to LDE.

g. Load test organization

h. Quality acceptance

Note: Only applicable when quality acceptance is required. Consult the appropriate center, program, or project requirements and operating procedures.

4.8 Equipment which has missing, out of date, or otherwise non-conforming identification tags shall be re-tested prior to use if satisfactory evidence of load test cannot be provided.

Note: The equipment may be re-tagged without re-testing if satisfactory evidence of load test is provided.

5. DETAILED REQUIREMENTS

5.1 Identification tags shall comply with A-A-55305, or equivalent.

Note: FSN 8465-00-242-4804 satisfies this requirement.

5.2 Operational stickers shall comply with KSC Form 22-420, or equivalent.

5.3 Silicone adhesive-sealants shall comply with MIL-A-46106, or equivalent.

5.4 Tethers:

a. Tether cable shall comply with MIL-DTL-83420, or equivalent.
b. Swage sleeves shall comply with MS51844, or equivalent.
c. Tether shall be constructed by forming a loop using a section of cable and splicing the ends using a swage sleeve.
d. Swaging shall be performed using the manufacturer recommended tools and in accordance with the manufacturer instructions.

5.5 Markings:

a. Character size should be 3/32 inches or greater.
b. Letters should be English capitals without serifs (sans serif).
c. Numerals should be Arabic except when roman numerals are used for type designation per applicable government or industry specifications and standards.
d. Dates should be in the following format: MM/DD/YY.

NOTICE: The Government drawings, specifications, or data are prepared for the official use by, or on behalf of, the United States Government. The Government neither warrants these Government drawings, specifications, or other data, nor assumes any responsibility or obligation, for their use for purposes other than the Government project for which they were prepared or provided by the Government, or any activity directly related thereto. The fact that the Government may have formulated, furnished, or in any way supplied the said drawings, specifications, or other data is not to be regarded, by implication or otherwise, as licensing in any manner the holder or any other person or corporation nor conveying the right or permission, to manufacture, use, or sell any patented invention that may relate thereto.

Custodian:

NASA – John F. Kennedy Space Center
Kennedy Space Center, Florida 32899

Preparing Activity:

John F. Kennedy Space Center
Engineering Directorate