

Material Handling Lift Plan
 (See [ES&H Manual Chapter 6141 Appendix T4](#)
[Hoisting and Rigging Operations](#)) for Instructions

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For Word Doc

Instructions:

This form *must* be completed for each lift using a mobile crane, forklifts with suspended loads or a [critical lift](#), with an overhead crane or forklift. This form should be used for a non-routine lift with overhead cranes or incorporated into a [Temporary Operational Safety Procedure](#).

STEP 1 – Planning the Lift

Lift Title:	<u>Rich Detector Clean room</u> <u>DRAFT</u>		
Location:	EEL clean room 125		
Lift Date (s):	TBD		
Lift Plan Prepared by:	Print <input type="text" value="Marc McMullen"/>	Phone #	Date
JLab Approved by:	Print <input type="text" value="Mark Loewus"/>	Phone # <input type="text" value="757-871-3072"/>	Date <input type="text" value="17 Nov 2021"/>
JLab Work Coordinator: Marc McMullen			

DOE Lift Classification: **CRITICAL** **PRE-ENGINEERED PRODUCTION** X ~~ORDINARY~~

Load Weight # 1800lbs max force expected at initial lift off at start of rotation. All forces on winch after initial liftoff will reduce as detector is rotated towards vertical.

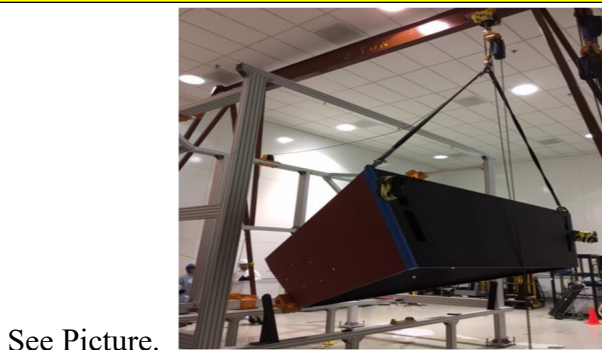
Load Weight Determined By:

Equipment Manufacturers information provided by:

D. Orecchini, S. Tomassini

- Rigger Estimate
- Labeled Shipping Weight
- Dyno Measured

Describe the Load:



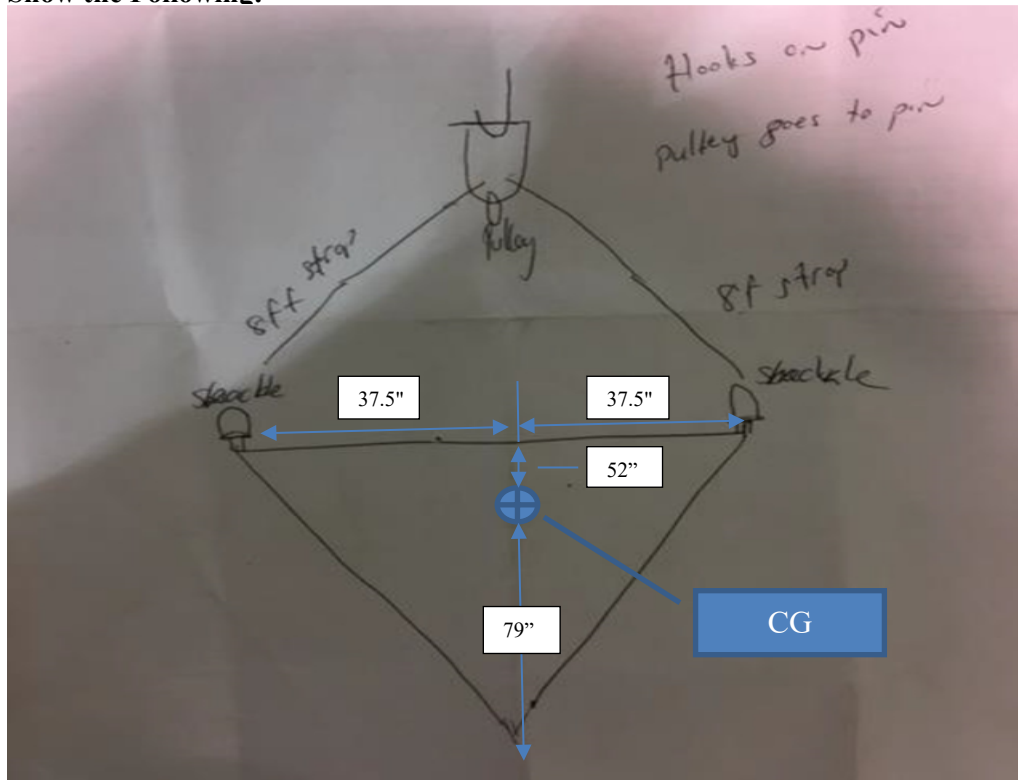
Rigging Hardware Required:

List all items (size & load rating) to be used under the hook to accomplish the planned lift.

- (2) Two- 8foot polyester round slings must have a capacity greater than 1700lbs
- (2) Two- Swivel hoist rings on detector must have a capacity greater than 1700lbs
- (2) Two- Shackles connecting slings to swivel hoist rings must a capacity greater the 1700lbs
- (1) (Collector-- Master Link or shackle) at top of both slings must have a capacity greater than 1800lbs
- (1) Rich detector winch rated at 2200lbs attached to stiffening fixture.
- (1) 5-ton clean room gantry crane.
- (1) 1-ton manual chain hoist or greater.

Plan View:

Show the Following:



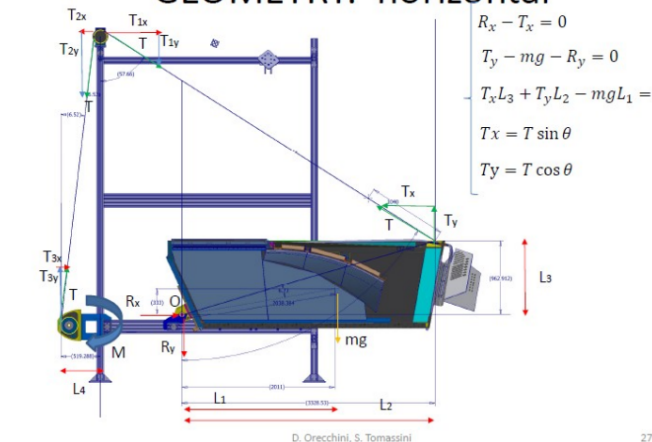
ELEVATION

Show the Following:

- Load with CG labeled
- BTHLD's
- Sling Horizontal Angles
- Sling Tensions
- Label Rigging Gear, size & WLL
- Label D/d-ratios



GEOMETRY: horizontal



Force and Torque Equilibrium: RICH assembly completed + stiffening frame

$$\begin{aligned}
 R_x - T_x &= 0 & R_x &= T_x \\
 T_y - mg - R_y &= 0 & R_y &= T_y - mg \\
 T_x L_3 + T_y L_2 - mg L_1 &= 0 & T \sin \theta L_3 + T \cos \theta L_2 - mg L_1 &= 0 \\
 T_x &= T \sin \theta \\
 T_y &= T \cos \theta
 \end{aligned}$$

$$\begin{aligned}
 R_x &= T_x & R_x &= 6549 \text{ N} \\
 R_y &= T_y - mg & R_y &= 4146 - 10000 = -5854 \text{ N} \\
 T &= \frac{mg L_1}{L_3 \sin \theta + L_2 \cos \theta} & T &= \frac{1000 \cdot 10 \cdot 2011}{963 \sin 57.66 + 3329 \cos 57.66} = 7751 \text{ N} \\
 T_x &= T \sin \theta & T_x &= 7751 \sin 57.66 = 6549 \text{ N} \\
 T_y &= T \cos \theta & T_y &= 7751 \cos 57.66 = 4146 \text{ N}
 \end{aligned}$$

STEP 2 – Setup for Lift

Equipment Make: Type:
Model#: Serial#:
Owner: JSA
Annually Inspected By: Date:

Monthly Wire Rope Inspection Documented: Y / N
Daily Inspection Documented: Y / N Pre-use inspection required by operator, documentation not required.

Equipment Operatorⁱ _____
Certification/Qualification: _____
CCO No. N/A Expiration Date: _____
Employer: _____

Lead Rigger: _____
Certification/Qualification: _____

Lift Director (ASME) or PIC (DOE)ⁱⁱ: _____

Site Supervisorⁱⁱⁱ: _____

- Establishes a perimeter that clearly identifies the area of the lift.
- Ensures ALL personnel within the perimeter wears proper PPE required for the area.
- Conducts a Pre-Lift Meeting where the sequences of actions that will occur to accomplish the lift are presented.
- Attend the Pre-Lift Meeting.

Signal Person: _____

STEP 2 – Setup for Lift

PPE Requirements:

- Hard Hat
- Safety Shoes
- Safety Glasses

- List any additional PPE needed to perform the lift

Watch Personnel (Maintains Lift Perimeters) : _____

Identify a Muster Point: _____

Emergency Procedures (in case of injury)

1. Stop Lift
2. Lower Load to a safe position
3. _____

Limits of Safe Operation (i.e. wind, rain, lighting or traffic)

STEP 3 - Lift

- Accomplish the lift according to the Lift Plan.
- Document minor adjustments required to accomplish the lift.
- Re-approval is required if Operators, equipment or rigging changes after initial approval.

Post Lift De-Brief

What went well? _____

Areas of Improvement: _____

Documentation – Send a copy of this COMPLETED LIFT PLAN to:

Name: **Mark Loewus** Loewus@jlab.org **53E**
Print e-mail address Mail Stop

- **Rigging Hardware must be inspected and marked in accordance with the criteria contained in the following documents:**

- ASME B30.9 Slings
- ASME B30.20 Below the Hook Lifting Devices
- ASME B30.26 Rigging Hardware
- 29 CFR 1926.251 Rigging Equipment for Material Handling

- **5-3.1.3 Responsibilities**

While the organizational structure of various projects may differ, the following roles are described here for purposes of delineating responsibilities. All responsibilities listed below shall be assigned in the work site organization. A single individual may perform one or more of these roles.

i Equipment Operator: directly controls the equipment’s functions.

ii Lift Director: directly oversees the work being performed by a crane and the associated rigging crew. This position equates to the **Person-In-Charge (PIC)** identified in the DOE Hoisting & Rigging Standard.

iii Site Supervisor: exercises supervisory control over the work site on which a crane is being used and over the work that is being performed on that site.

Form Revision Summary

Revision 2.1 – 01/25/17 – Updated TPOC from D.Kausch to B.Sperlazza

Revision 2.0 – 12/04/14 – Form revised to create uniformity between ALL material handling equipment

Revision 1.1 – 03/22/12 – Update to format only

Revision 1.0 – 04/12/10 – Update to reflect current laboratory operations

ISSUING AUTHORITY	FORM TECHNICAL POINT-OF-CONTACT	APPROVAL DATE	REVIEW DATE	REV.
ESH&Q Division	Bob Sperlazza	01/25/17	01/25/20	2.1

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