

Bill,
Comments?
(not work more than 10 min)
Pete

Pete - please review

Steve / Hennick



DC-PC Prototype Installation Procedure

procedure name

PHENIX Procedure No. PP-2.5.5.4-04

Revision: A

Date: 4-1-99

① left rings obscured by PC 1 ?

Hand Processed Changes

② - how get sling through RICH ?

<u>HPC No.</u>	<u>Date</u>	<u>Page Nos.</u>	<u>Initials</u>
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③ CG Location with PC in? Caution on over-center when picking up with sling.

_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Approvals

PHENIX S E & I Date

Cognizant Scientist/Engineer Date
/Activity Manager

PHENIX QA/Safety Date

RHIC ES&H Date

REVISION CONTROL SHEET

LETTER	DESCRIPTION	DATE	WRITTEN BY	APPROVED BY	CURRENT OVERSIGHT
A	First Issue	4/1/1999	n/a	n/a	n/a
RETIRED	Installation completed	3/19/2007	n/a	D. Lynch, P. Giannotti, R. Pisani for PHENIX	D.Lynch

Introduction

Safe handling of the Drift Chamber (DC) and Pad Chamber #1 (PC1) Prototype Assembly while transporting from building 1008A to building 1008 and installing upon the PHENIX West Carriage will eliminate danger to workers at Brookhaven National Laboratory (BNL). This procedure will provide detailed instructions for safe transport of the DC/PC1 Prototype Assembly from building 1008A (PHENIX counting house) shipment to building 1008 (PHENIX Experimental Hall—PEH), and installation of the detector assembly onto the PHENIX West Carriage.

1.0 Purpose & Scope

- 1.1 The purpose of this procedure is to provide directions for handling and installing the DC/PC1 Prototype Assembly. It applies to BNL personnel, outside contractors, contract labor and to personnel designated to operate equipment covered by this procedure. Safety standards provided by BNL for Material Handling (1.6.0) and required training and certification (1.6.1) will apply. There are two part to the procedure: Movement of the detector assembly from 1008A to 1008, and lift of the detector assembly into the West Carriage.

Note that the DC/PC assembly weighs an estimated 900-lbs.

2.0 Responsibilities

- 2.1 All operations shall be performed under the direction of the Phenix Experimental Hall "Person-in-Charge" or his designee.
- 2.2 Due to the component value, as well as the inherent personnel risk involved in handling such large objects, this procedure and all relevant BNL safety guidelines must be strictly adhered to. In accordance with BNL policy, any individual may cease operations if they in any way feel unsafe or if they believe unsafe procedures are being followed. Such a complaint shall be reviewed by the cognizant engineer, and if necessary, BNL ES & H Services.

3.0 **Prerequisites**

- 3.0 Training: All personnel involved in this procedure shall have reviewed this procedure, and be fully knowledgeable about the way in which the Nosecone attaches to the magnet.
- 3.1 All personnel involved in this procedure must have a current BNL Safety Awareness Certificate (SAC).
- 3.2 All personnel involved in this procedure shall wear hard hats in accordance with RHIC SEAPP 1.16.0.
- 3.3 Personnel involved in this procedure shall wear safety shoes.

4.0 **Precautions**

- 4.1 Visitors shall not be permitted in the PEH during these procedures.
- 4.2 The area where rigging operations will be performed shall be cordoned-off to all personnel except for the Person-in-Charge and the technicians assigned to perform this procedure. Others may enter the area only with the specific approval of the Person-in-Charge.
- 4.3 Some operations will require personnel to work in close proximity to suspended loads. Do not permit yourself or anyone else to be positioned under the load.

5.0 Equipment/Parts List

- 5.1 The following equipment, hardware, & parts are called for in various sections of this procedure:

Equipment/Rigging Hardware:

Sling: Yellow, 10-ft., nylon, 6200-lb. capacity in vertical configuration

12-ton Collision Hall crane

4"x4" wooden beams (see Figure 2).

Forklift with 8' tines.

Detector Parts & Hardware:

Drift Chamber/Pad Chamber Assembly w/ integral lift rings.

6.0 Preparations

- 6.1 Locate the Central Magnet in a convenient spot in the Collision Hall so as to have access to ~~both~~ the west carriage.
- 6.2 Position the PHENIX cart ^{so} that it will roll through PHENIX main door.
- 6.3 Place the carriage mount points in their extended position and secure with clamps. ^{DC}
- 6.4 Remove or secure all peripheral cables and connections to the prototype assembly.

7.0 Procedure

7.1 Transport from 1008A to 1008

This procedure is the reverse of that used to deliver the DC prototype to the PHENIX counting house (PC-OP-98-002, single lift via forklift).

- 7.1.1 The chamber has 4 rings installed (see Figure 1), one in each corner, to allow lifting. Pick the chamber up from the doorway of 1008A via forklift with 8' tines.
- 7.1.2 Transport the detector assembly to the PEH by forklift.

*Pick up with crane
or direct from fork 3*

7.1.3 Deposit detector assembly onto the PHENIX cart resting atop wooden beams (4"x4" minimum—Figure 2).

7.2 Carriage installation

7.2.1 Roll the cart through the shield wall door under the interaction region crane.

7.2.2 Attach slings to the keystone openings on the entrance face (see Figure 3).

7.2.3 Lift the detector array into position so that the front mount pins may be inserted (Figure 4).

7.2.4 Attach the front mount pins

7.2.5 Lower the crane until the back mount pins align with the support.

7.2.6 Attach the back mount pins.

7.2.7 Remove crane attachments.

7.2.8 Retract mounting slides.

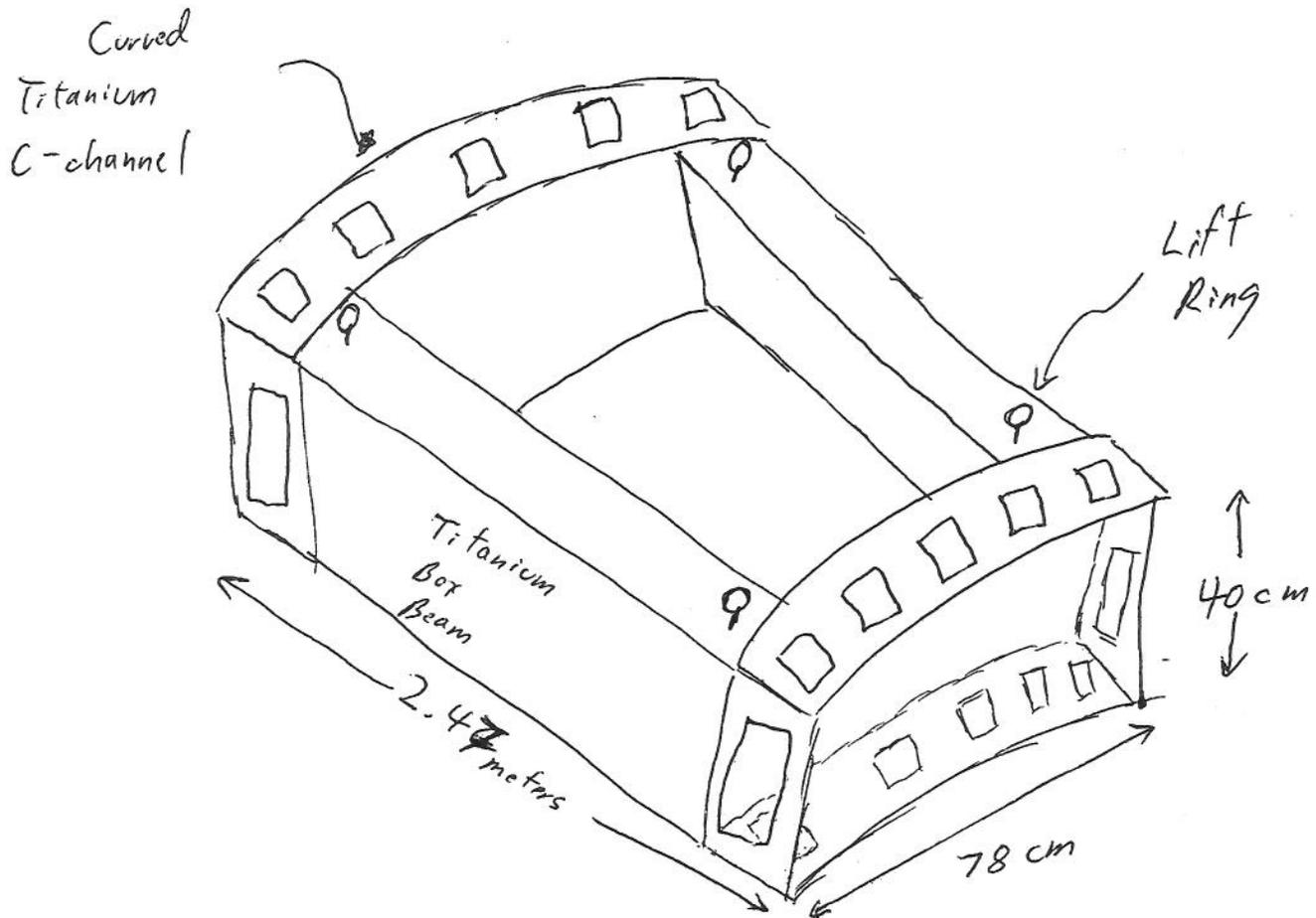
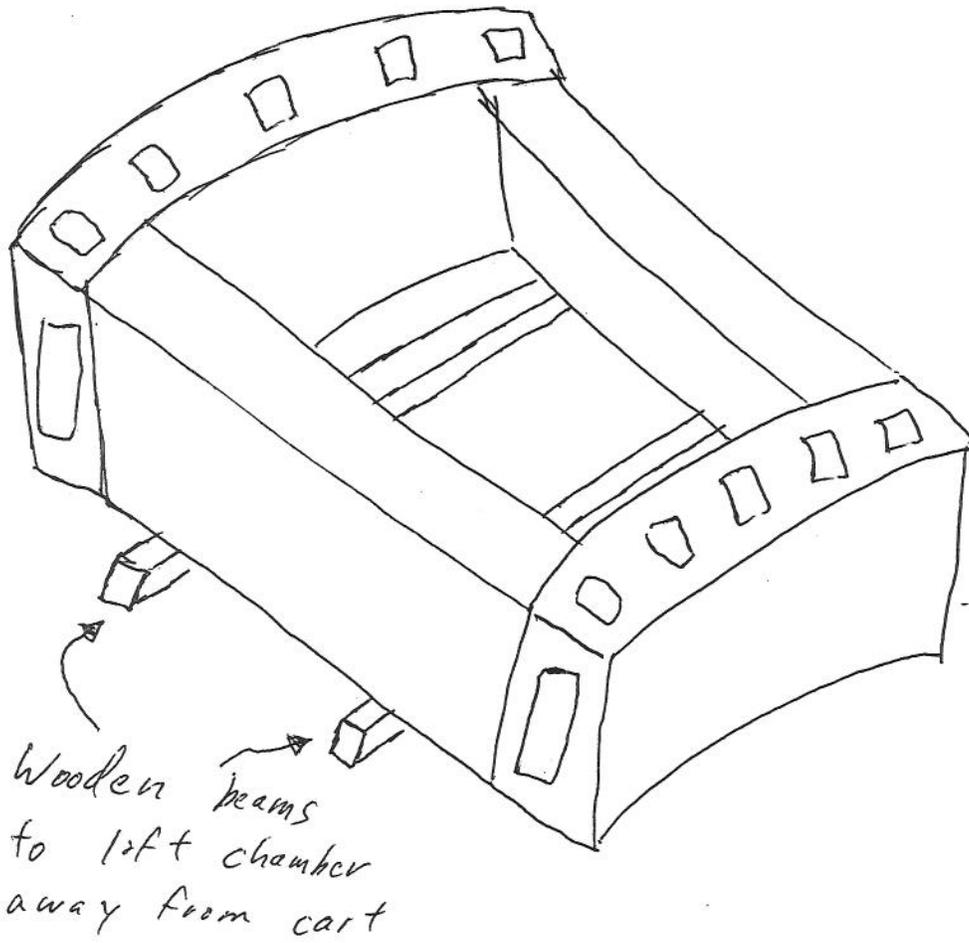


Figure 1. Dimensioned picture of drift chamber Ti frame. Vertical gussets in the C-channel are not shown for clarity. The detector weighs 900 lbs.



Wooden beams
to lift chamber
away from cart

Figure 2. Wooden beam placement
under DC frame (allows access
for later sling attachment).

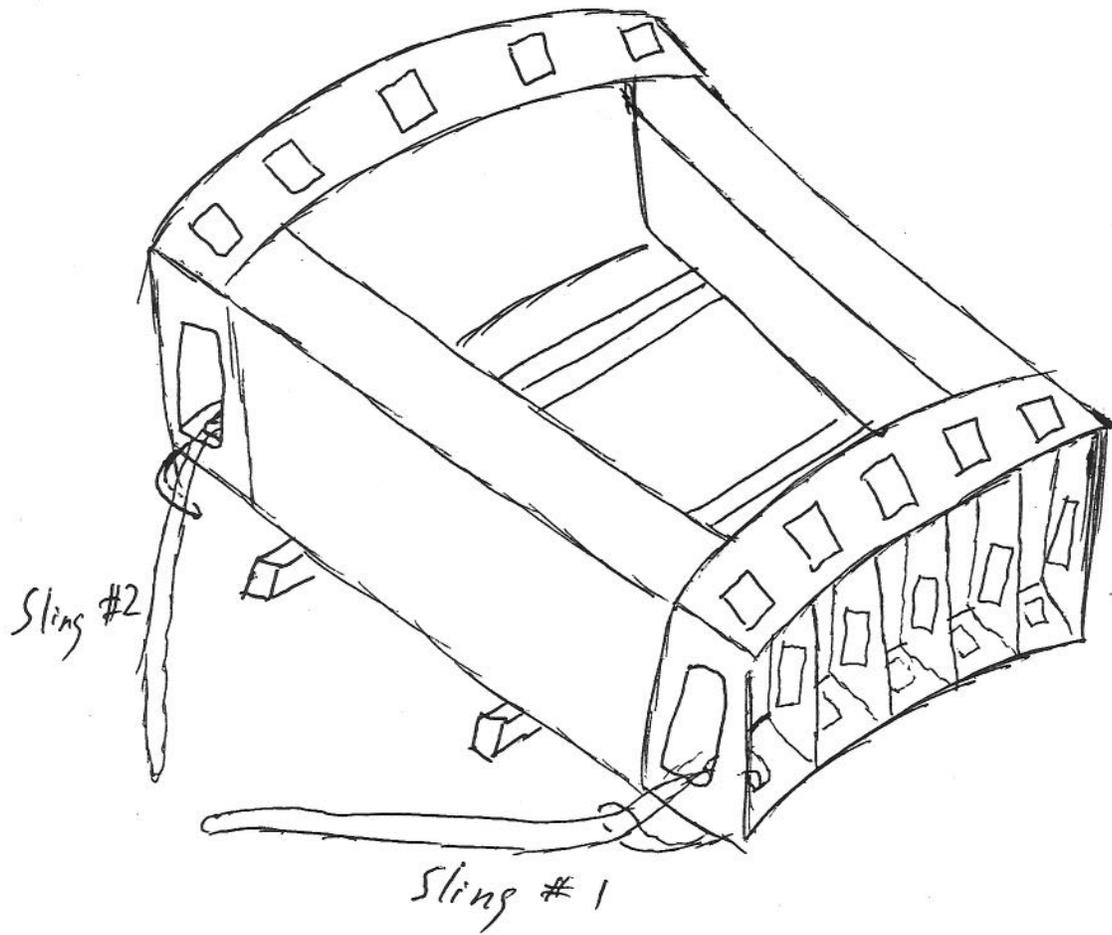


Figure 3. Strap locations for final lift onto west carriage. Use chafe protection on slings.

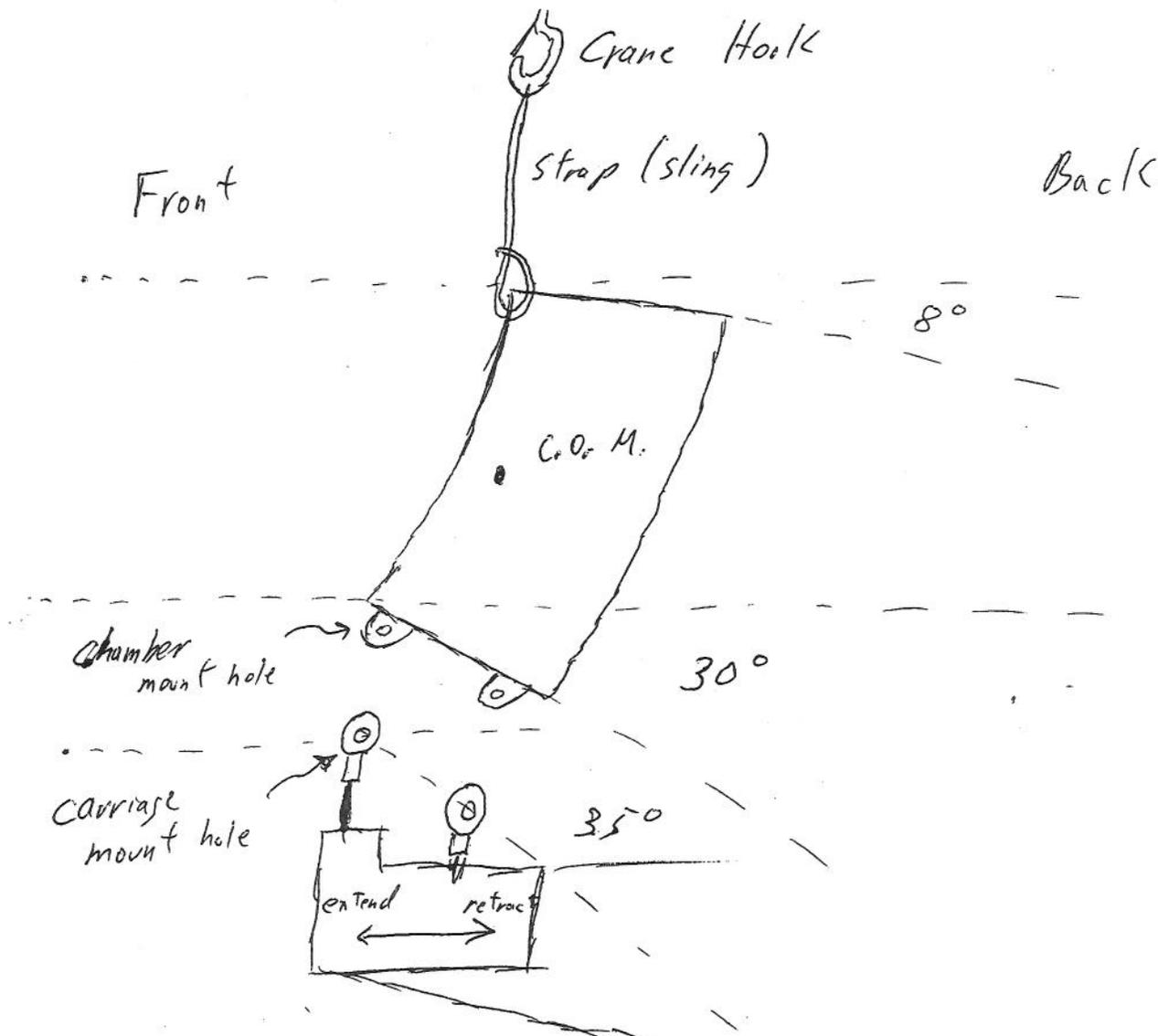


Figure 4. The detector will hang with its center of mass directly below the strap attachment point. In this attitude, the front attachment will engage first (allowing pin insertion). The C.O.M. will be behind the front pins allowing the crane to lower the detector to final alignment.