



PHENIX MuTr STATION 3 SOUTH INSTALLATION PROCEDURE

procedure name

PHENIX Procedure No. PP-2.5.5.4-11

Revision: A

Date: 4-28-00

Hand Processed Changes

<u>HPC No.</u>	<u>Date</u>	<u>Page Nos.</u>	<u>Initials</u>
<u>1</u>	<u>7/17/00</u>	<u>2 & 3</u>	<u>PK.</u>
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Approvals

Peter Ross 5/17/00
PHENIX S E & I Date

[Signature] 5/24/00
Cognizant Scientist/Engineer Date
/Activity Manager

William Long 5/8/00
PHENIX Safety Date

Charles Pearson 6/20/00
CA-D ES&H /SAFETY Date

REVISION CONTROL SHEET

LETTER	DESCRIPTION	DATE	WRITTEN BY	APPROVED BY	CURRENT OVERSIGHT
A	First Issue	4/28/2000	n/a	P. Kroon, (1 unintelligible), W. Lenz, C. Pearson	n/a
RETIRED	Installation Completed	3/20/2007	n/a	D. Lynch, P. Giannotti, R. Pisani for PHENIX	D. Lynch

Station 3 South Installation Procedure, PP-2.5.5.4-11

1.0 Purpose and Scope

- 1.1 The purpose of this procedure is to provide direction for the rigging of the station 3 south octants. This procedure will provide detailed instructions for the safe installation of the octants onto their mounting location on the back plate of the magnet

Note that the weight for each octant is 300 lbs.

2.0 Responsibilities

- 2.1 All operations shall be performed under the direction of the PHENIX experimental hall "person-in-charge", or their designee.
- 2.2 Due to the delicacy of this structure, and the critical alignment of its assembly in the magnet, 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.
- 2.3 A member of the muon tracking mechanical team should be present for all critical lifts, to consult on procedures and answer any questions as they may arise.

3.0 Prerequisites

- 3.1 Training: All personnel involved in this procedure shall have reviewed this procedure, and be fully knowledgeable about the way in which the octant is mounted in the South magnet. A meeting will take place with all participants involved with this installation to review all aspects and answer any questions that any of the personnel may have. *The crane operation.*
- 3.2 All personnel involved with in this procedure shall have a safety awareness certificate.
- 3.3 All personnel involved in this procedure shall wear hardhats and safety shoes.
- 3.4 Magnet buss has been removed.
- 3.5 All magnet coil water hoses have been reinstalled and leak tested.

4.0 Precautions

- 4.1 The area where rigging operations will be performed shall be cordoned-off to all personnel except the "person in charge" and the technicians assigned to perform this procedure.
- 4.2 Some operations will require personnel to work in close proximity to suspended loads. Do not permit anyone to be positioned under the load.
- 4.3 Lift the octants with the commercial lifting fixture only and only with the protective covers in place on the octant.

5.0 Equipment List

- 5.1 Appropriate ANVER vacuum lifting fixture, model number ET-100M8-MR-SP, serial number 974808, rated load capacity 1000 pounds.

- 5.2 "C" fixture, rated load capacity 1000 pounds
- 5.3 Guide ropes.
- 5.4 Shackles rated for a minimum of 1000-pound load.

6.0 Preparation

- 6.1 Presurvey of the kinematic mounts and octants. See drawing 002-0212-524 B1A and B2A for kinematic mount preset adjustments.
- 6.2 Magnet hoses tested and leak tight.
- 6.3 All kinematic mounts attached to magnet back plate as shown in drawing 002-0212-526 D1,D2 and 002-0212-524 B1,B2,B3
- 6.4 A preliminary trial fit with a station 3 south honeycomb panel should be made by the 1008 crew and muon personnel, to understand the ability and technique needed to safely locate the 6 o'clock octant into the bottom of the magnet. This will make use of both the "C" fixture and the ANVER vacuum lifter. Having the ability of using a full-scale panel along with the required rigging will allow the 1008 crew to get a feel for how difficult working with these large chambers may be.

7.0 Procedure

- 7.1 The side with the kinematic mounts face magnet back plate. Installation proceeds from the bottom of the magnet to the top beginning at 6:00 o'clock and proceeding in order 6:00,4:30,7:30,3:00,9:00,1:30,10:30,12:00.
- 7.2 FIRST OCTANT ONLY _ 6:00 position
 - 7.2.1 Attach "C" fixture to the crane hook and attach the ANVER vacuum-lifting fixture to the "C" fixture using a shackle.
- 7.3 Attach the ANVER lifting fixture to the octant in the horizontal position following the manufacturer instructions. Lift the octant only after the vacuum pump has turned off. Tilt the octant to a vertical position.
 - 7.3.1 For the First octant at 6:00 o'clock the octant may need to be in an intermediate position between 9:00 o'clock and 6:00 o'clock, see drawings numbered 002-0212-566 sheet C1-C8.
- 7.4 Rotate the octant to the orientation in the "spider".
 - 7.4.1 For the First octant at 6:00 o'clock rotate the octant to an intermediate position as it is lowered and then rotate the to the 6:00 o'clock position.
- 7.5 Attach guide ropes to the octant.
- 7.6 Lift and lower the octant into place on the kinematic mounts. Use guide ropes to stabilize the octant during installation. Survey the octant and reset kinematic mounts if necessary.
- 7.7 ~~Have the survey crew look at the targets on the octant and compare the data with the pre-survey data from bldg. 905, along with drawings numbered 002-0212-566, sheets C1 - C8. It is possible to make small adjustments to the kinematic mounts. It will be necessary to remove the octant from the wall to get access to these mounts for location adjustment.~~

*PJK
7/12/00*

8.0 Alignment of octants, alignment system

- 8.1 The survey crew will verify the location of all targets placed on the upstream face of each octant as part of their installation, ~~see 7.7~~ *PK 7/17/0*
- 8.2 Install the camera mounts and cameras to the brass flags located around the outer edge of each octant according the drawings numbered 002-0212-564 and 565.

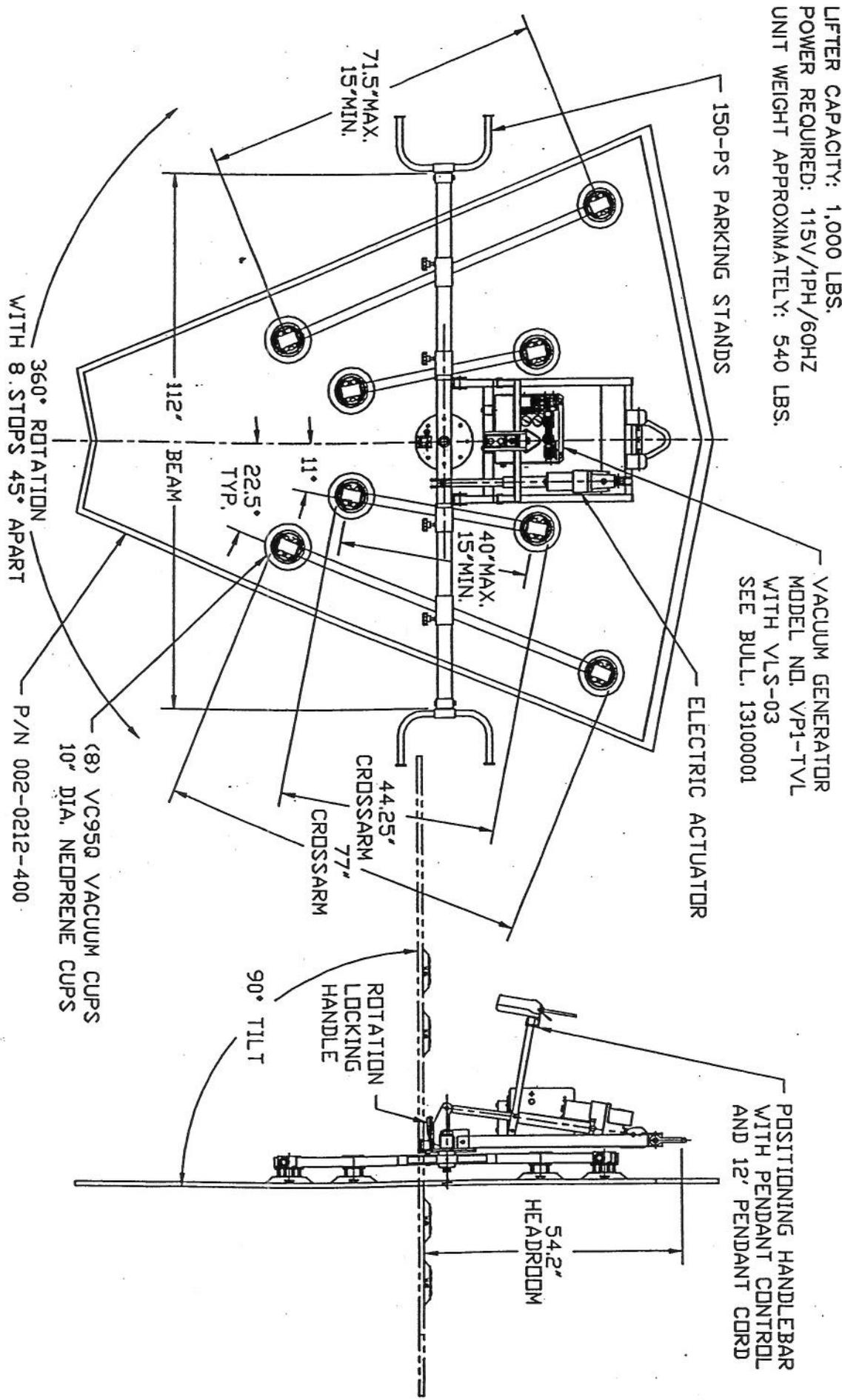


36 PARMENTER ROAD
 HUDSON, MA 01749 USA
 508-568-0221 • 800-654-3500
 FAX 508-568-1570

ELECTRIC TILTER NO. 820 00 090
MODEL NO. ET100M8-MR-SP

Doc. No. 820 00 090
 Revision: A
 Effective Date: Nov. 12, 1997

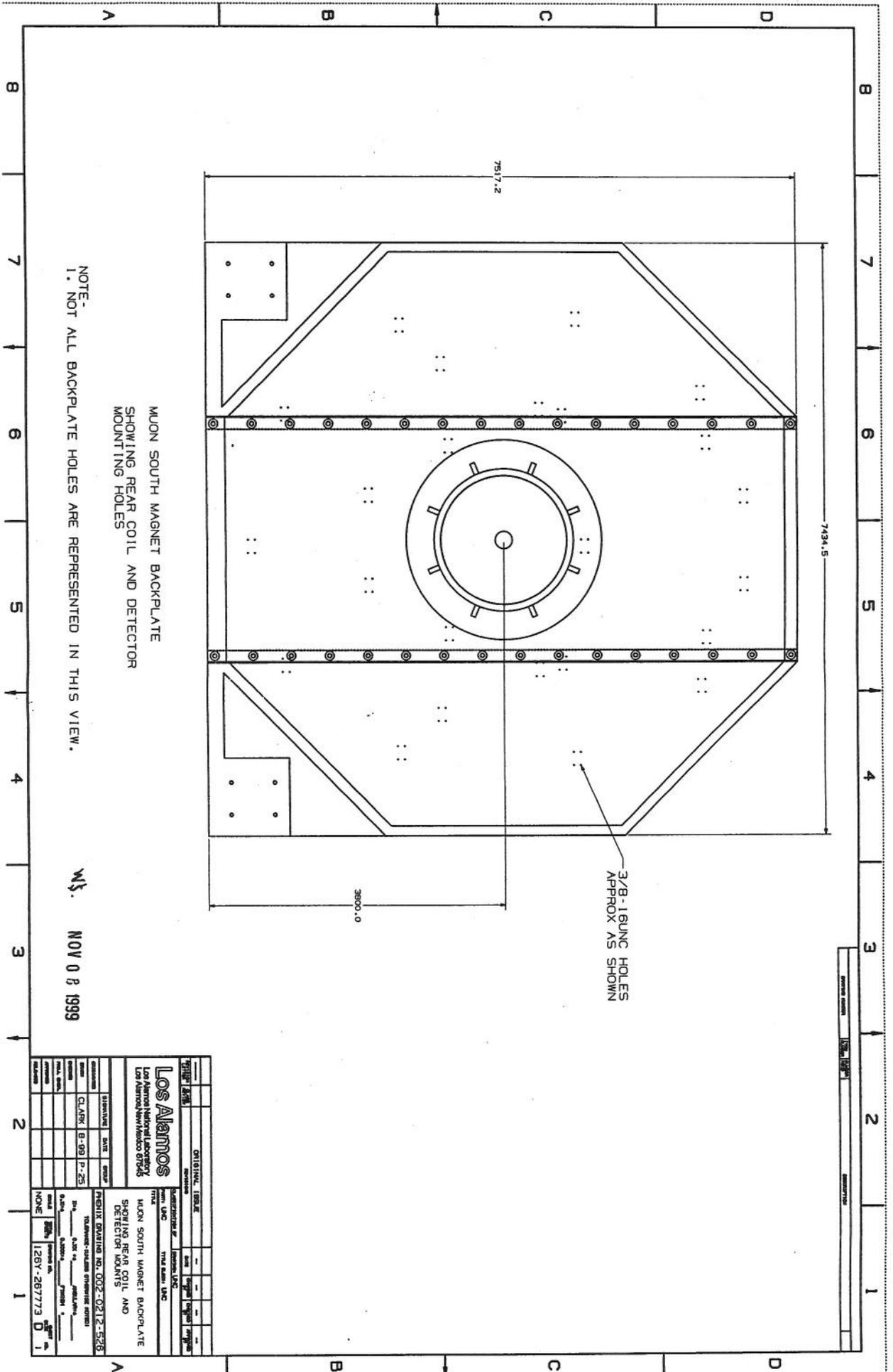
MAXIMUM LOAD SIZE: 11.5 FT. x 11 FT.
 LIFTER CAPACITY: 1,000 LBS.
 POWER REQUIRED: 115V/1PH/60HZ
 UNIT WEIGHT APPROXIMATELY: 540 LBS.



Supersedes:
 FROM 8002

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Classification: SPEC. SHEETS

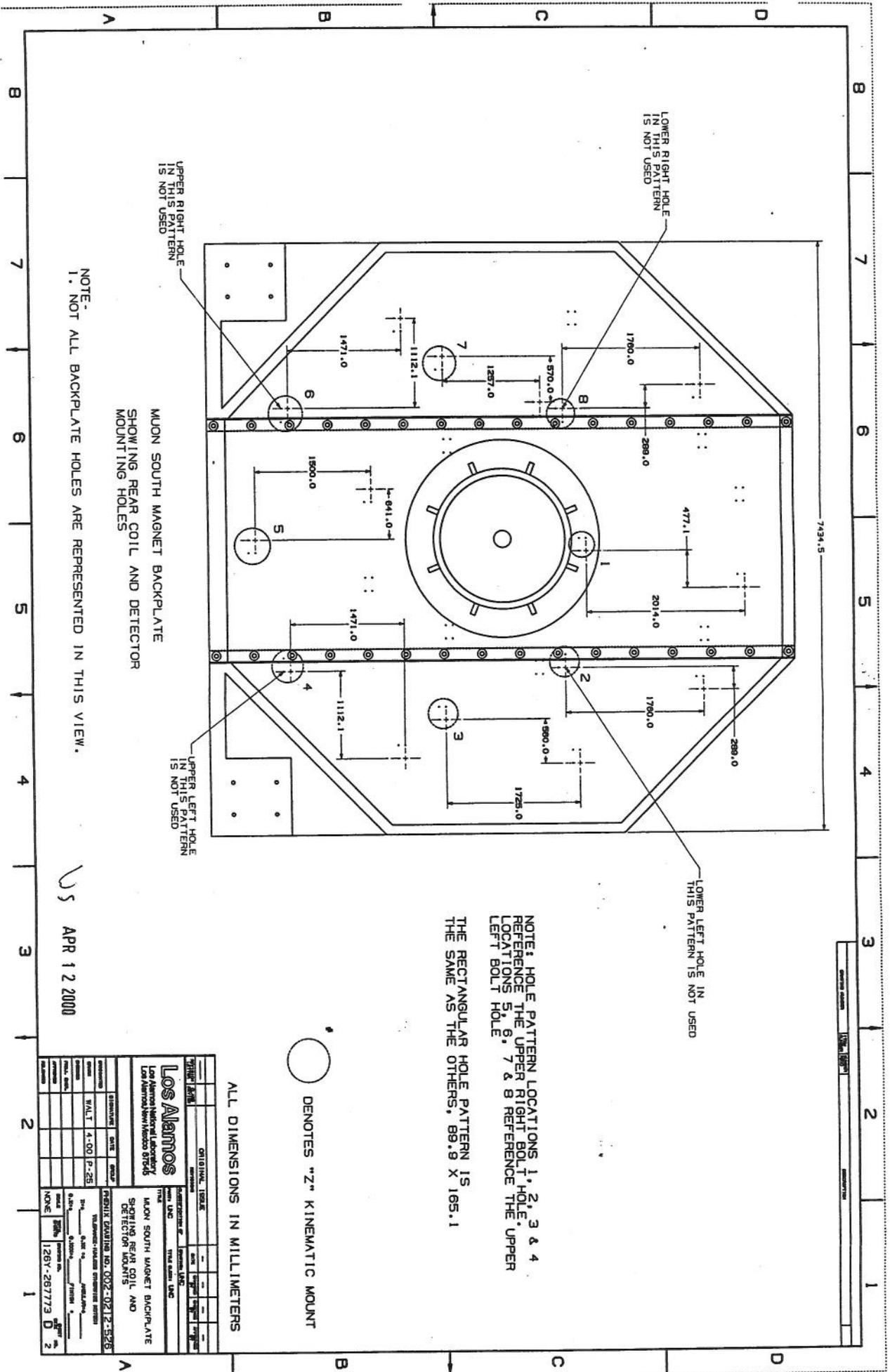


MUON SOUTH MAGNET BACKPLATE
SHOWING REAR COIL AND DETECTOR
MOUNTING HOLES

NOTE:
1. NOT ALL BACKPLATE HOLES ARE REPRESENTED IN THIS VIEW.

WJ. NOV 08 1999

Los Alamos Los Alamos National Laboratory 701 Avenue of the Sciences SW MS 5000 Los Alamos, NM 87545 TEL: 505/576-6000 FAX: 505/576-6000	PROJECT DRAWING NO. 002-0212-526 MUON SOUTH MAGNET BACKPLATE SHOWING REAR COIL AND DETECTOR MOUNTS	ORIGINAL ISSUE DATE: 11/08/99 BY: WJ CHECKED: WJ APPROVED: WJ	TITLE: MUON SOUTH MAGNET BACKPLATE PROJECT: MUON SOUTH MAGNET DRAWING NO.: 002-0212-526
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LOWER RIGHT HOLE IN THIS PATTERN IS NOT USED

UPPER RIGHT HOLE IN THIS PATTERN IS NOT USED

MUON SOUTH MAGNET BACKPLATE SHOWING REAR COIL AND DETECTOR MOUNTING HOLES

NOTE - 1. NOT ALL BACKPLATE HOLES ARE REPRESENTED IN THIS VIEW.

LOWER LEFT HOLE IN THIS PATTERN IS NOT USED

NOTE: HOLE PATTERN LOCATIONS 1, 2, 3 & 4 REFERENCE THE UPPER RIGHT BOLT HOLE. UPPER LOCATIONS 5, 6, 7 & 8 REFERENCE THE UPPER LEFT BOLT HOLE
THE RECTANGULAR HOLE PATTERN IS THE SAME AS THE OTHERS, 89.9 X 165.1



○ DENOTES "Z" KINEMATIC MOUNT

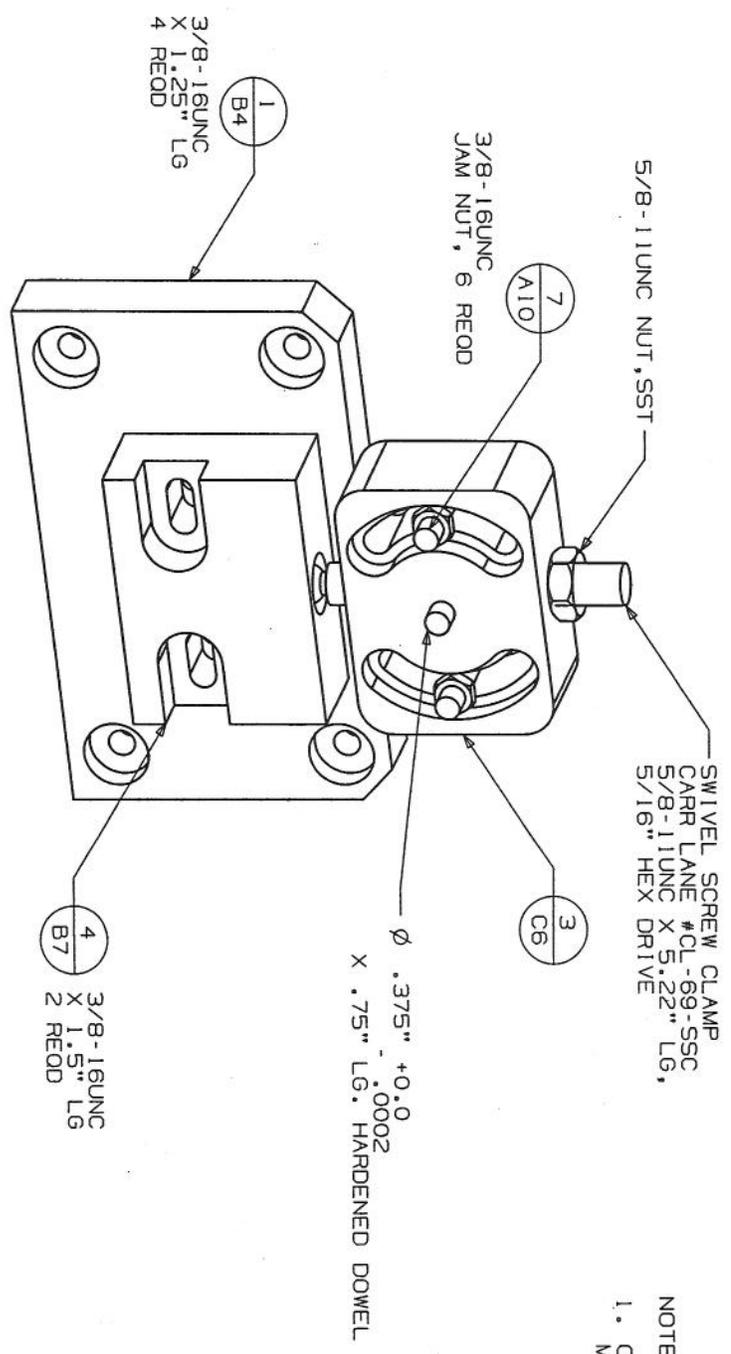
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Los Alamos		Los Alamos National Laboratory Los Alamos, New Mexico 87545	
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PROJECT NO.	REV. NO.	DATE	GROUP
DESIGNED BY	W.A.L.T.	4-00	F-25
CHECKED BY			
APPROVED BY			
MAGNET SOUTH MAGNET BACKPLATE SHOWING REAR COIL AND DETECTOR MOUNTS			
TELEPHONE - EXTENSION	128V-267773	MAIL ROOM	D 2
TELETYPE		POST OFFICE	
FAX		ADDRESS	
CITY		STATE	
COUNTRY		ZIP CODE	

US APR 12 2000

ITEM NUMBER	REVISION	DESCRIPTION

NOTE
1. ORIENTATION OF 3/8 THR. ROD
MAY VARY.

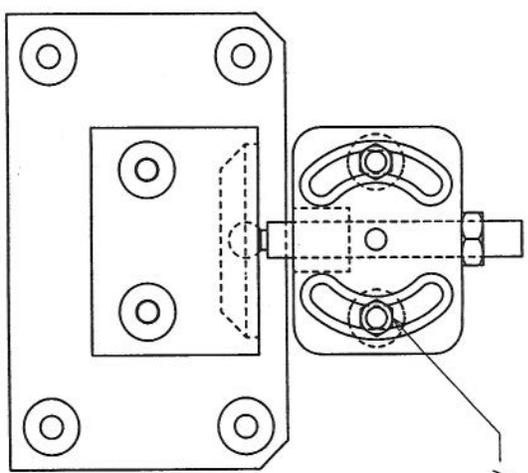
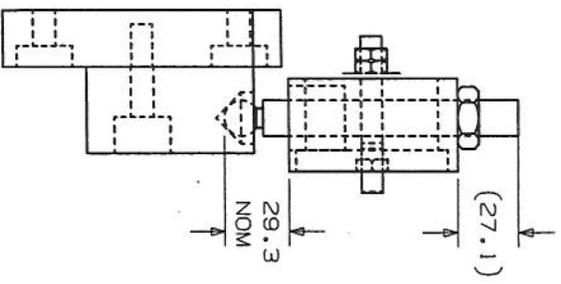


SUPPORT CONE ASSY
B REOD
X & Y ADJUSTMENT

5, AUG 20 1999

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DRAWING	SIGNATURE	DATE	GROUP	REV	CLASS	DATE	CHANGED BY	CHECKED BY	APPROVED BY	SCALE	TOTAL SHEETS	DRAWING NO.	SIZE
0010	CLARK	8/99	P-25										
DRAWN				LOS ALAMOS NATIONAL LABORATORY				PHENIX MUON KINEMATIC MOUNT					
CHECKED				LOS ALAMOS, NEW MEXICO, 87545				SUPPORT CONE ASSY					
PROJ ENGR				TOLERANCE-UNLESS OTHERWISE NOTED!				PHENIX DRAWING NO. 002-0212-524					
APPROVED				X=± 0.001 ± 0.0005				SCALE					
RELEASED				FIN=				126Y-267771				B 1	

TITLE NUMBER	REVISION	DESCRIPTION



NOMINAL SETTING FOR KINEMATIC MOUNT
SUPPORT SLIDE ASSY

CLASSIFICATION:		PART:		TITLE BLOCK:		ORIGINAL ISSUE		REVISIONS		DATE		CHANGED BY		CHECKED BY		APPROVED BY	
DRAWING:		SIGNATURE:		DATE:		GROUP:											
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CHECKED:																	
PROJ ENGR:																	
APPROVED:																	
RELEASED:																	

LOS ALAMOS
LOS ALAMOS NATIONAL LABORATORY
LOS ALAMOS, NEW MEXICO, 87545

PHENIX MUON
KINEMATIC MOUNT
SUPPORT SLIDE ASSY

SCALE: .5

TITLE: PHENIX MUON KINEMATIC MOUNT SUPPORT SLIDE ASSY

PHENIX DRAWING NO. 002-0212-524

SCALE: .5

TOTAL SHEETS: 1

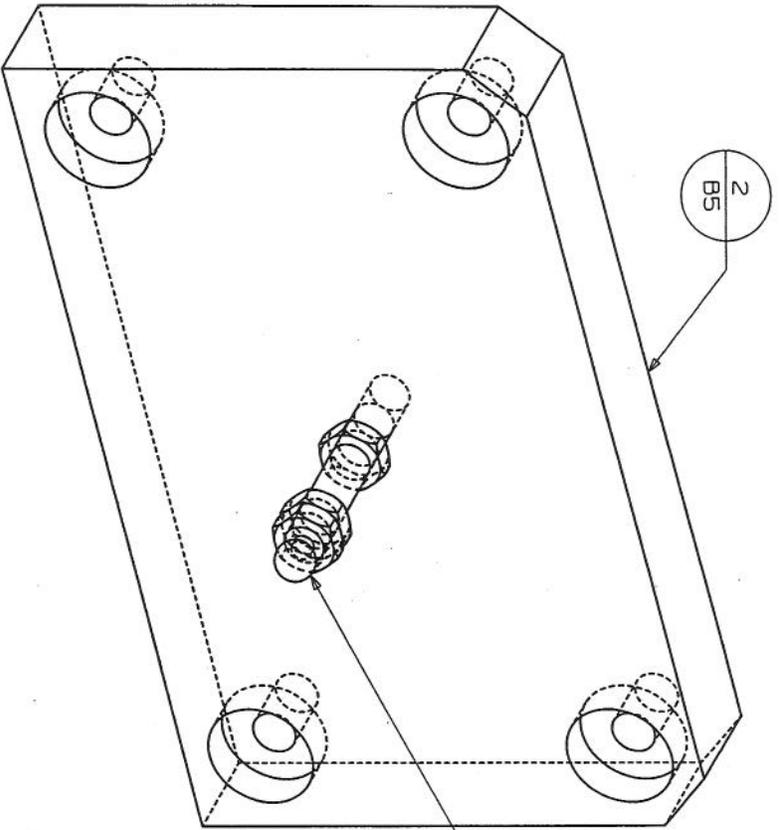
DRAWING NO. 126Y-267771

SIZE: B

NO. 2A

UJ APR 17 2000

ITEM NUMBER DESCRIPTION



6
A9
3/8-16UNC
JAM NUT, 3 REOD

SUPPORT STOP ASSY
 B REOD
 Z ADJUSTMENT
 Y FREEDOM
 X FREEDOM

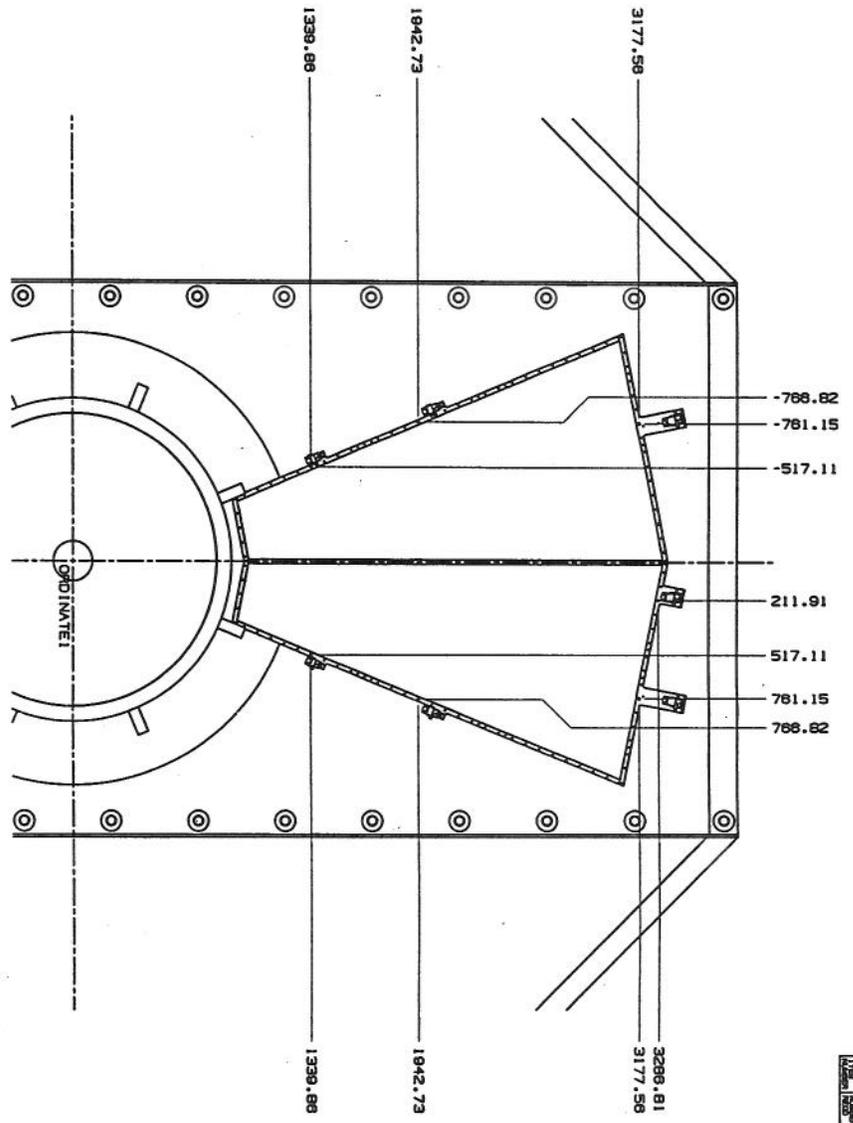
M.S. AUG 2 U 1955

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APPROVED:					
RELEASED:					

REV	CLASS	ORIGINAL	ISSUE	DATE	CHANGED BY	CHECKED BY	APPROVED BY

LOS ALAMOS LOS ALAMOS NATIONAL LABORATORY LOS ALAMOS, NEW MEXICO, 87545		TITLE PHENIX MUON KINEMATIC MOUNT SUPPORT STOP ASSY	
TOLERANCE - (UNLESS OTHERWISE NOTED) X's: 0.00 ± ANG'S: ± FIN:		PHENIX DRAWING NO. 002-0212-524 SCALE TOTAL SHEETS 126Y-267771 B 3	

DATE: 12/15/99
 DRAWN BY: J. CLARK
 CHECKED BY: J. CLARK
 APPROVED BY: J. CLARK



VIEW SHOWS ORIGINATE DIMENSIONS FOR (17) LOCATING PINS

5 APR 12 2000

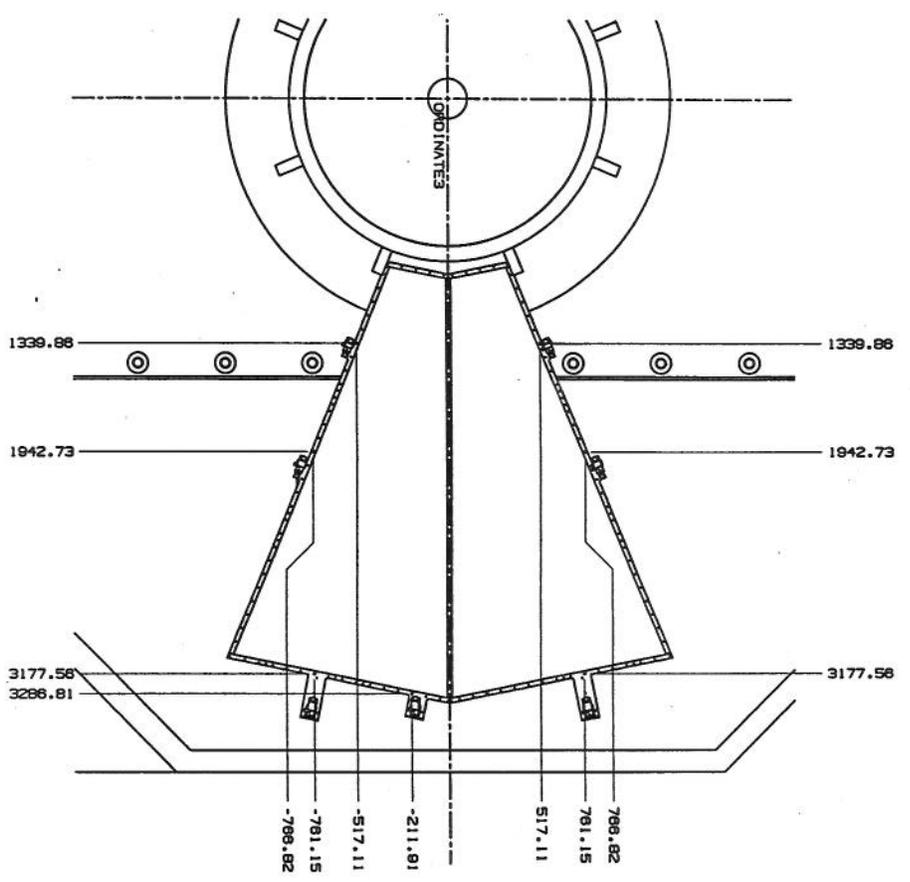
DATE	BY	REVISION	DESCRIPTION
12/15/99	J. CLARK	1	ORIGINATE, ISSUE

QUALIFICATION	PART	TITLE BLOCK	SCALE
ORIG	CLARK	4/00 P-25	
CHG			
APP			
REV			

DESIGNER	DATE	SCALE	DATE	SCALE	DATE	SCALE
J. CLARK	12/15/99	1:1				

PROJECT	DESCRIPTION	DATE	SCALE
LOS ALAMOS	MOON STATION 3 SOUTH LOCATING PINS.	12/15/99	1:1

PROJECT	DESCRIPTION	DATE	SCALE
LOS ALAMOS	MOON STATION 3 SOUTH LOCATING PINS.	12/15/99	1:1



VIEW SHOWS ORIGINATE DIMENSIONS FOR (7) LOCATING PINS

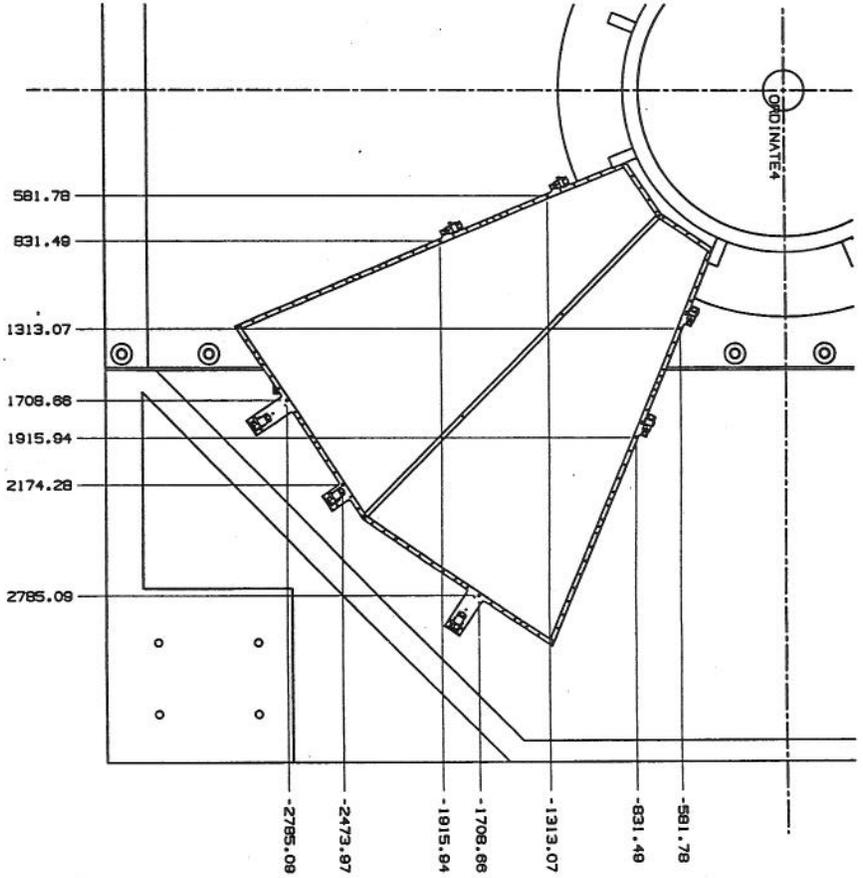
W.S. APR 12 2000

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DESIGNED					
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APPROVED					
DATE					

PROJECT NO.	002-0212-566
SCALE	1:1
DATE	APR 12 2000
BY	W.S.
APP'D	
DESCRIPTION	MON STATION 3 SOUTH LOCATING PINS, SIDE R
PROJECT NO.	002-0212-566
SCALE	1:1
DATE	APR 12 2000
BY	W.S.
APP'D	
DESCRIPTION	MON STATION 3 SOUTH LOCATING PINS, SIDE R
PROJECT NO.	002-0212-566
SCALE	1:1
DATE	APR 12 2000
BY	W.S.
APP'D	
DESCRIPTION	MON STATION 3 SOUTH LOCATING PINS, SIDE R

DESCRIPTION

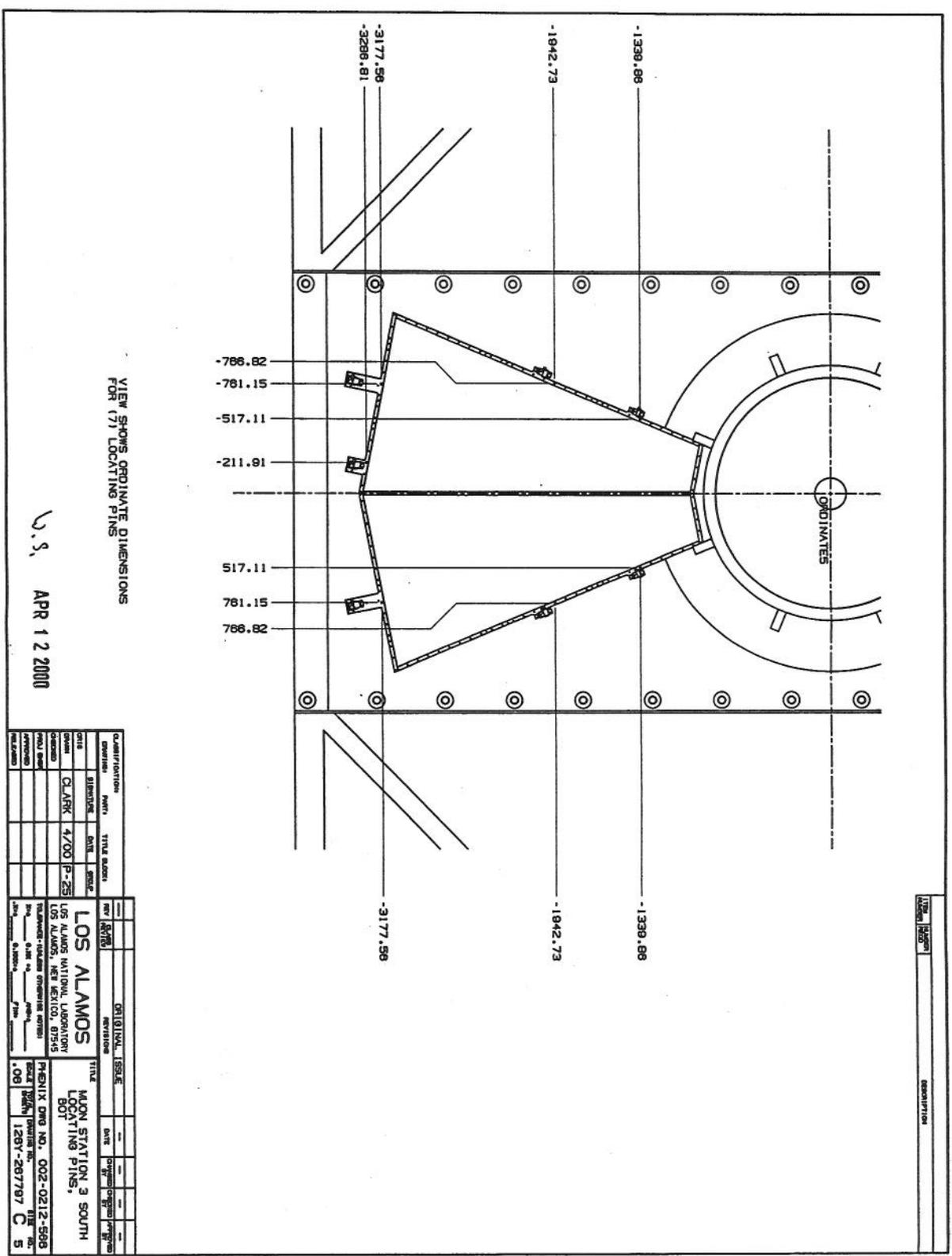
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 DRAWN BY: JVA
 CHECKED BY: JVA
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VIEW SHOWS ORIGINATE DIMENSIONS
 FOR (7) LOCATING PINS

W.S. APR 12 2000

ORIGINATOR	DATE	TITLE	SCALE	REV	DATE	DESCRIPTION
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MOON STATION 3 SOUTH LOCATING PINS, BOT SIDE R						
PDSIX DNG NO. 002-0212-568 SCALE 1/8"=1'-0" SHEET NO. 128V-28797 C 4						



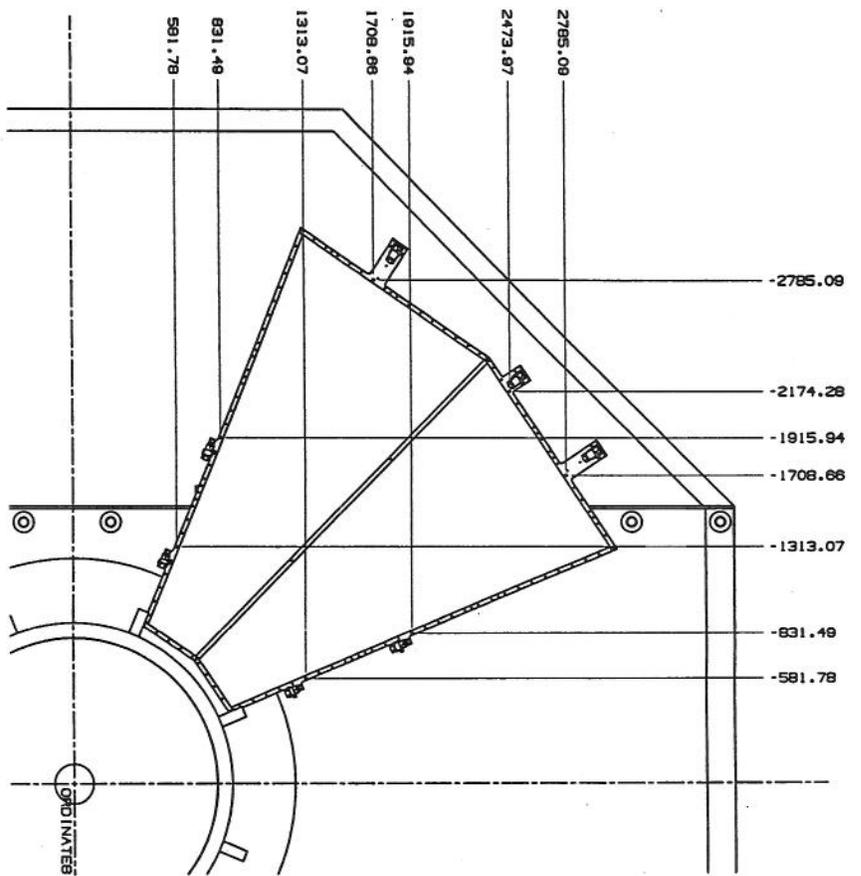
U.S. APR 12 2000

DATE	DESCRIPTION	BY	CHKD	DATE	DESCRIPTION	BY	CHKD
4/7/00	P-25	CLARK					

DESIGNER	DATE	SCALE	TITLE
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PROJECT	DATE	SCALE	TITLE
LOS ALAMOS NATIONAL LABORATORY			STATION 3 SOUTH LOCATING PINS

PROJECT	DATE	SCALE	TITLE
LOS ALAMOS NATIONAL LABORATORY			STATION 3 SOUTH LOCATING PINS



VIEW SHOWS ORIGINATE DIMENSIONS FOR 171 LOCATING PINS

W.S. APR 12 2000

DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION
4/00	CLARK	4/00 P-23			

DESIGNED BY	DATE	ORIGINATOR	DATE	REVISIONS
CLARK	4/00	LOS ALAMOS NATIONAL LABORATORY		
CHECKED BY	DATE	PROJECT NO.	PROJECT NAME	PROJECT LOCATION
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APPROVED BY	DATE	TITLE	SCALE	FIG. NO.
		MAP STATION 3 SOUTH LOCATING PINS TOP SIDE L	AS SHOWN	1287-287798 C 8

DESCRIPTION