



# PHENIX MuTr SOUTH SPIDER INSTALLATION PROCEDURE

procedure name

PHENIX Procedure No. PP-2.5.5.4-12

Revision: A

Date: 4-28-00

### Hand Processed Changes

<u>HPC No.</u>	<u>Date</u>	<u>Page Nos.</u>	<u>Initials</u>
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

### Approvals

PJ Krom 5/10/00  
PHENIX S E & I Date

[Signature] 8 May 00  
Cognizant Scientist/Engineer Date  
/Activity Manager

[Signature] 5/2/00  
PHENIX Safety Date

\_\_\_\_\_  
CA-D ES&H /SAFETY Date

In House Procedure

\_\_\_\_\_

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	n/a
RETIRED	Installation Completed	3/20/2007	n/a	D. Lynch, P. Giannotti, R. Pisani for PHENIX	D. Lynch

## **Station 2 South Spider Installation Procedure PP-2.5.5.4-12**

### **1.0 Purpose and Scope**

1.1 The purpose of this procedure is to provide direction for the rigging of the station 2 south support "spider". This structure locates all eight station 2 detectors in the South muon magnet. This procedure will provide detailed instructions for the safe installation of the support "spider" onto its mounting location off the back of the "teacup" and flanges on the bottom three lampshade panels.

Note that the weight for each half of the "spider" is 350 pounds. Each spanner weldment bar is an additional 30 pounds.

### **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 support "spider" is assembled 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.
- 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 power buss must be removed.

### **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 half spiders only by the swivel eyes attached to the hub. (See drawings numbered 002-0212-260, sheets D2, D3, D4 and D5.

### **5.0 Equipment List**

- 5.1 Appropriate slings for lifting 1000 pounds and shackles

- 5.2 Two-3/8-16 lifting swivel eyes (supplied by Ray Savino) – Jergens part # 23408 rated for 1000 pounds each.
- 5.3 Guide ropes. May be attached to outer bars to help stabilize.
- 5.4 Torque wrench.

## 6.0 Preparation

- 6.1 Mount 12 FR4 support brackets to top half of spider using 3/8-16 x 1-3/4 inch stainless steel socket head cap screws (provided by Ray Savino). Drawing number 002-0212-262 D1. On the lower half spider attach FR4 brackets as called out on drawing 002-0212-260 D1. On the two splice tube weldments attach 6 FR4 brackets as indicated on drawing 002-0212-260-D1. Torque for a 3/8-16 stainless steel bolt is 236 in-lbs.
- 6.2 For each half spider install 9-3/8-16 x 2 inch long set screws where indicated on the hub on drawing 002-0212-260 D4-5.
- 6.3 Place the bottom half of the spider in the bottom of the magnet. Attach two slings to two swivel eyes screwed into the center hub. Attach a rope to the outer cross bar that match the 6 o'clock octant to stabilize and to pull across from the underside of the piston. Lower the bottom half of the spider along the side of the bottom lampshade panel and pull the rope so that this piece will lay flat in the bottom of the magnet. It will need to be rotated so that it can be lifted up from the bottom of the magnet, after the top half is installed. See 7.2.

## 7.0 Procedure

### 7.1 Top half spider

- 7.1.1 The spokes are on the upstream side of the assembly. The hub extends in the downstream direction towards the magnet back plate.
- 7.1.2 Attach two slings, in a choker around the interface of the three legs that would be on either side of the 12 o'clock octant.
- 7.1.3 Attach guide ropes to stabilize the piece from rotating. Note: for 7.1.2 and 7.1.3 see drawings numbered 002-0212-260, sheet D2.
- 7.1.4 Lift and lower the top half spider into place and attach to the teacup at the outside boundary using two 1/2-13 stainless steel bolts per FR-4 block, these screws will be tightened later in the assembly process. Put set screws into the hub at 6 locations to support the hub off of the piston.

### 7.2 Bottom half spider.

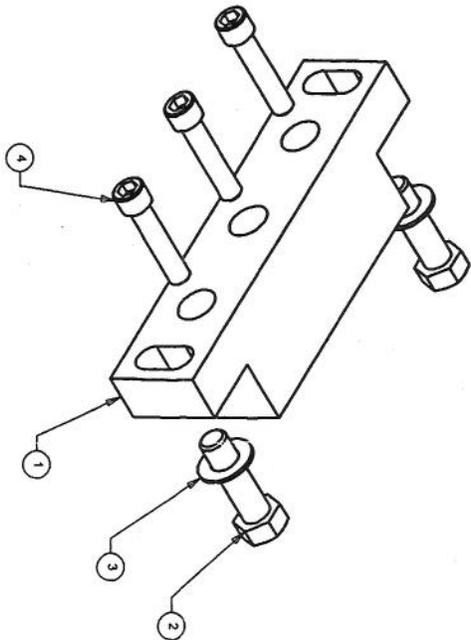
- 7.2.1 The spokes are in the upstream side of the assembly. The hub extends in the downstream direction.
- 7.2.2 Attach four swivel eyes to the hub in the upstream, (spoke side) location where the two halves join together and attach a sling to each of the pair of swivel eyes and run up on either side of the piston.
- 7.2.3 On either side a 1/8 inch aluminum spacer is placed between the two half hubs. Install 3/8-16 socket head screws and tighten to 236 in-lbs. Attach outer spider to the tea cup flange using two 1/2-13 stainless steel bolts per FR-4 block, do not tighten.

- 7.2.4 Install splice tubes as shown on drawing 002-0212-260 sheet D1. Use long 3/8-16 bolts to make connection with top and bottom halves of the spider. Torque 3/8-16 stainless steel bolts to 236 in-lbs.

## **8.0 Alignment**

- 8.1 Survey crew can make some small adjustments to the location of the spider, once the two halves are bolted together, using the long setscrews that go through the hub to the piston notch. After the spider is located correctly, tighten all 1/2-13 bolts around the perimeter to the teacup and lampshade panels to a torque of 517 in-lbs. remove the setscrews from the hub to the piston. Measure continuity to the piston to make sure that the piston is not in electrical contact with the spider.

REV	DESCRIPTION	DATE	DESIGNED BY



- NOTES: UNLESS OTHERWISE SPECIFIED
1. ALL DIMENSIONS IN MILLIMETERS.
  2. SURFACE TEXTURE PER ANVSI #14.5M-1994
  3. REMOVE ALL BURRS TO BE ON SHARP EDGES TO A MAXIMUM OF .015
  4. REMOVE ALL BURRS TO BE ON SPINDLE HOLES TO A MAXIMUM OF .015
  5. HOLE DIA. APPROXIMATELY .004/0.08 DEEP ALL DRILLED HOLES
  6. COUNTERSINK 82 DEGREES APPROXIMATELY .004/0.08 DEEP ALL DRILLED HOLES
  7. PART NUMBER DRAWING NO. (DASH NO., REVISION NO., SERIAL NO.) TO BE CLEARLY MARKED ON THE PART ITSELF.

NO. 5, OCT 13 1999

ITEM NO.	QTY.	PART NO.	DESCRIPTION	MATERIAL
1	1	002-0212-262-02	Support Block	303
2	1		Hex Hd Screw, 1/2-13 UNC-2A X 1.75 W.	303
3	1		Flat Washer, 1/2	303
4	4		Socket Screw, 3/8-16 UNC-2A X 1.75 W.	303

PARTS LIST

UNLESS OTHERWISE INDICATED DIMENSIONS ARE IN INCHES	CAD GENERATED DRAWING DO NOT MANUALLY UPDATE DO NOT SCALE DRAWING
REVISIONS	DATE
1.1 10.25	11.18.99
1.2 10.25	12.08.99
1.3 10.25	12.08.99
1.4 10.25	12.08.99
1.5 10.25	12.08.99
1.6 10.25	12.08.99
1.7 10.25	12.08.99
1.8 10.25	12.08.99
1.9 10.25	12.08.99
1.10 10.25	12.08.99
1.11 10.25	12.08.99
1.12 10.25	12.08.99
1.13 10.25	12.08.99
1.14 10.25	12.08.99
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1.16 10.25	12.08.99
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1.19 10.25	12.08.99
1.20 10.25	12.08.99

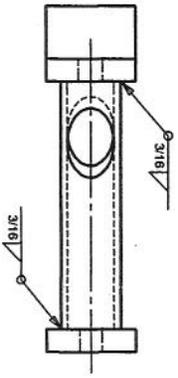
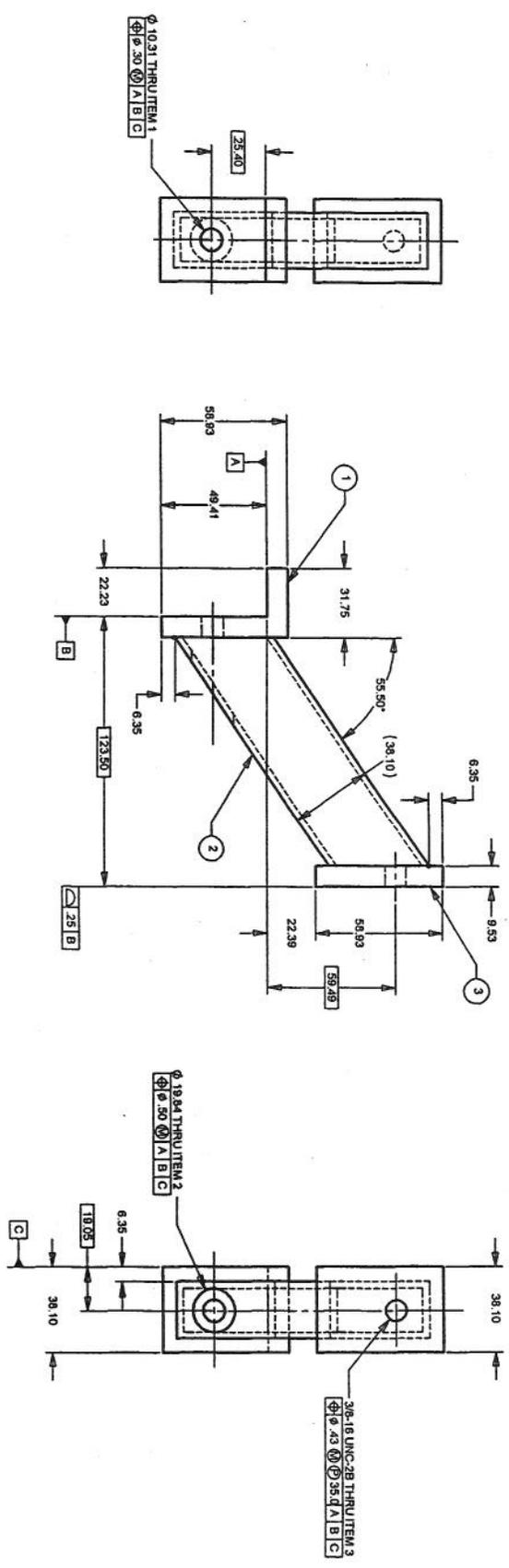
HYTEC, INC  
PHENIX STATION 2 SOUTH  
SPIDER  
SUPPORT BRACKET ASSY

PART NO. 002-0212-262-D1-1

REV. D

QTY. 1

REV	DESCRIPTION	DATE	APPROVED



- NOTES: UNLESS OTHERWISE SPECIFIED
1. ALL DIMENSIONS IN MILLIMETERS.
  2. DIMENSIONS AND TOLERANCING PER ANASIS Y14.5M-1994
  3. SURFACE TEXTURE PER ANASIS B 46.1-1995
  4. SURFACE FINISH PER ANASIS B 46.1-1995
  5. ALL INSIDE CORNERS TO BE .015 RADIUS UNLESS OTHERWISE SPECIFIED
  6. COUNTERSINK 92 DEGREES ALL TAPPED HOLES TO MAJOR DIAMETER UNLESS OTHERWISE SPECIFIED
  7. COUNTERSINK 92 DEGREES ALL TAPPED HOLES TO MAJOR DIAMETER UNLESS OTHERWISE SPECIFIED
  8. ALL DIMENSIONS UNLESS OTHERWISE SPECIFIED TO BE CLEARLY MARKED ON THE PART ITSELF.
  9. PART NUMBER (DRAWING NO., DASH NO., REVISION NO., SERIAL NO.) TO BE CLEARLY MARKED ON THE PART ITSELF.

W.S. OCT 13 1999

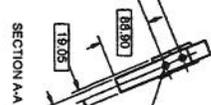
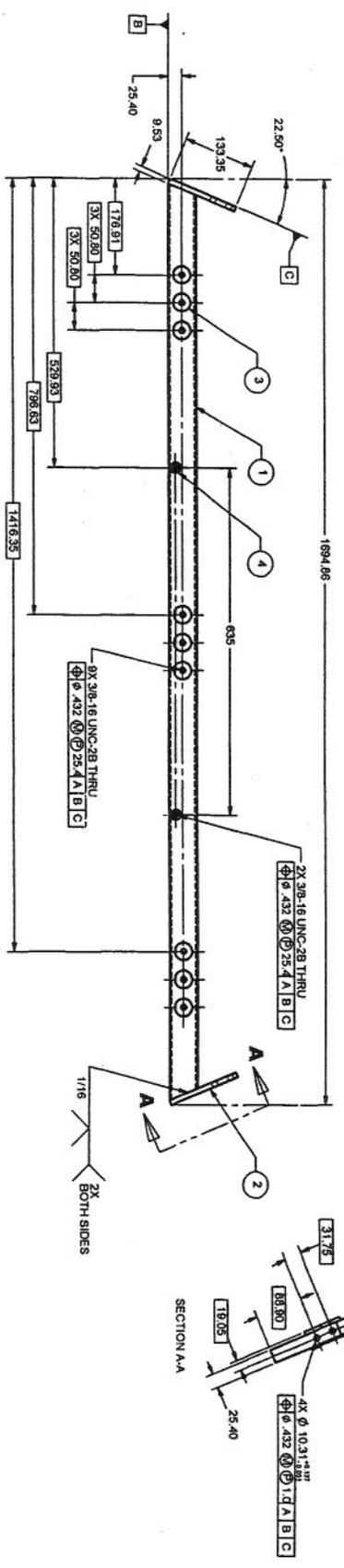
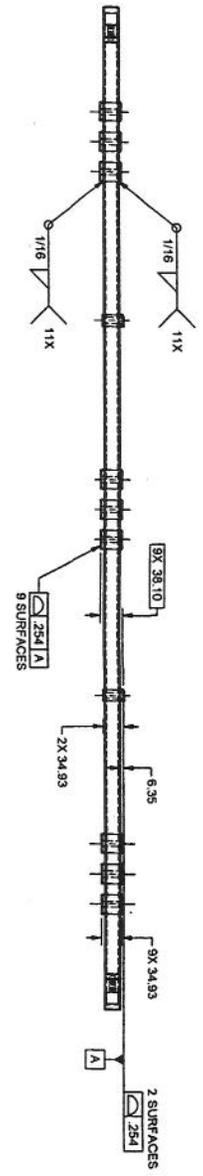
ITEM NO.	QTY.	DESCRIPTION	MATERIAL
1	1	Angle	SST-304
2	1	Rectangular Tubing 1.5" X 1.0" X .120" wall	SST-304
3	1	Plate	SST-304

UNLESS OTHERWISE SPECIFIED		CAD GENERATED DRAWING	
TOLERANCES	FINISHES	DO NOT SCALE DRAWING	DO NOT SCALE DRAWING
±.15	RA.1.6		
±.075	RA.0.8		
±.030	RA.0.4		

PARTS LIST		HYTEC, INC	
PHENIX STATION 2 SOUTH		INNER DETECTOR STABILIZER	
DRAWING NO.	002-0212-261	REV	D
DATE	10/13/99	BY	W.S.
CHECKED			
APPROVED			

8 7 6 5 4 3 2 1

NO.	DESCRIPTION	DATE	REVISION
1			



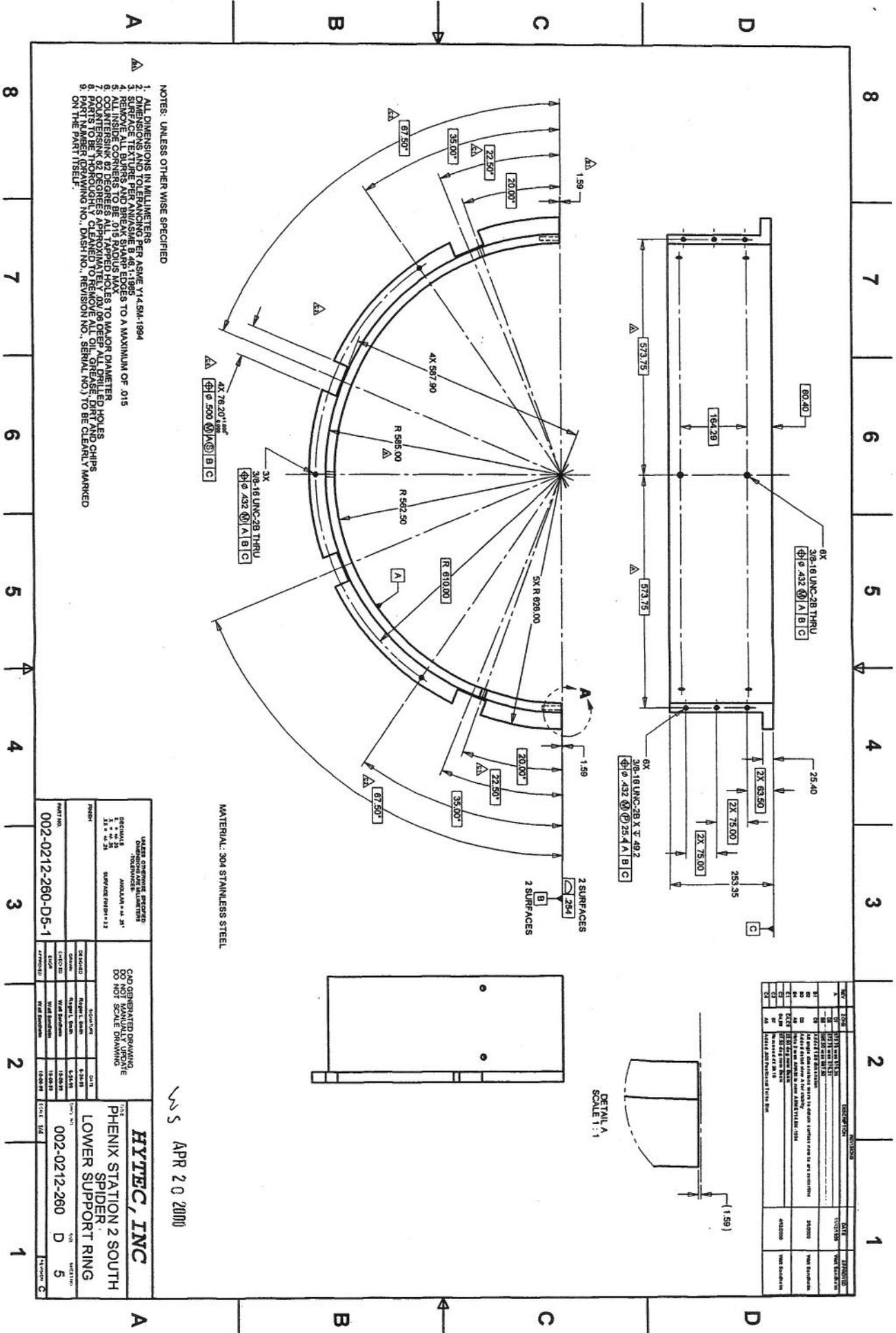
- NOTES: UNLESS OTHERWISE SPECIFIED
1. ALL DIMENSIONS IN MILLIMETERS.
  2. DIMENSIONS AND TOLERANCING PER ANSI Y14.5M-1994
  3. SURFACE TEXTURE PER ANTIWEAR B 46.1-1995
  4. ALL DIMENSIONS UNLESS OTHERWISE SPECIFIED TO A MAXIMUM OF .015
  5. ALL INSIDE CORNERS TO BE .015 RADIUS UNLESS OTHERWISE SPECIFIED
  6. COUNTERSINK 82 DEGREES APPROXIMATELY FOR MAJOR DIAMETER HOLES
  7. COUNTERSINK 82 DEGREES APPROXIMATELY FOR DEEP ALL DRILLED HOLES
  8. PART NUMBER (DRAWING NO., DASH NO., REVISION NO., SERIAL NO.) TO BE CLEARLY MARKED ON THE PART ITSELF.

W.S. 07 11 1999

ITEM NO.	QTY.	DESCRIPTION	MATERIAL
1	2	Rectangular Tubing 2" X 1" X .120" wall	SST-304
2	2	End Mounting Plate	SST-304
3	9	Round Plug 1/2" Diameter	SST-304
4	2	Round Plug 1/8" Diameter	SST-304

UNDER DEVELOPMENT PARTS LIST		CAD GENERATED DRAWING DO NOT SCALE DRAWING	
PART NO. 002-0212-260-D6-1	REVISIONS 1. 11.99 2. 11.99 3. 11.99 4. 11.99	DATE 11/11/99 11/11/99 11/11/99 11/11/99	DRAWN BY W.S.

HYTEC, INC PHENIX STATION 2 SOUTH SPIDER SPLICE TUBE WELDMENT		PART NO. 002-0212-260	REVISION D	DATE 11/11/99
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- NOTES: UNLESS OTHERWISE SPECIFIED
1. ALL DIMENSIONS IN MILLIMETERS
  2. DIMENSIONS AND TOLERANCING PER ASME Y14.5M-1994
  3. SURFACE TEXTURE PER FINISH B, 40.1, 1995
  4. ALL DIMENSIONS UNLESS OTHERWISE SPECIFIED TO A MAXIMUM OF .015
  5. ALL INSIDE CORNERS TO BE .015 RADIUS MAX.
  6. COUNTERSINK 82 DEGREES ALL TAPPED HOLES TO MAJOR DIAMETER
  7. POINTS OF CONTACT TO BE CLEARLY MARKED TO REMOVE ALL OIL, GREASE, DIRT AND CHIPS
  8. PART NUMBER DRAWING NO., DASH NO., REVISION NO., SERIAL NO.) TO BE CLEARLY MARKED ON THE PART ITSELF.

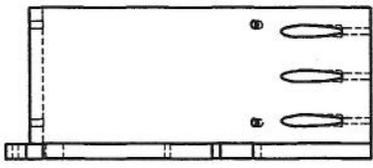
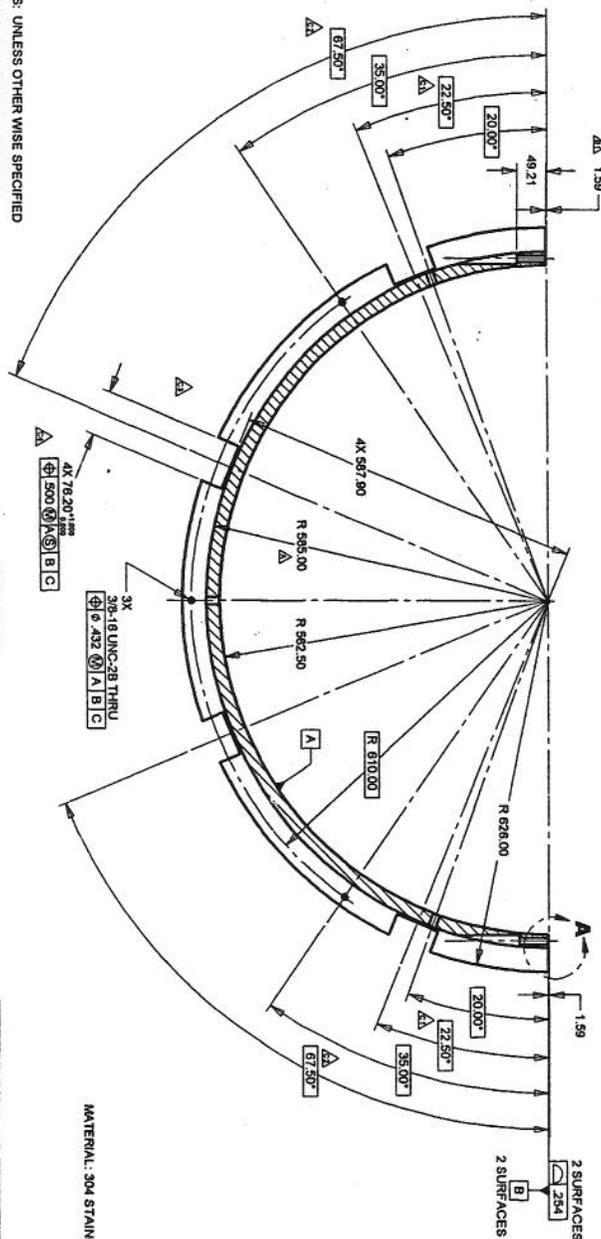
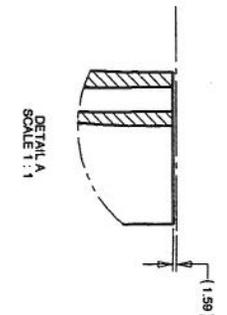
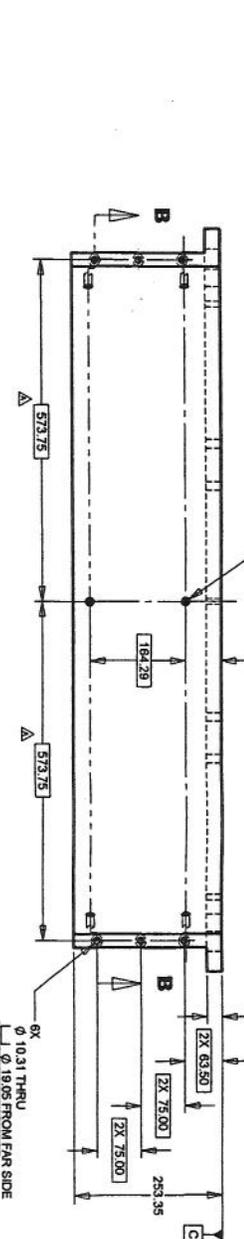
MATERIAL: 304 STAINLESS STEEL

DETAIL A  
SCALE 1:1

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2	11/17/11	ISSUE FOR FAB	WJ	WJ
3	11/17/11	ISSUE FOR FAB	WJ	WJ
4	11/17/11	ISSUE FOR FAB	WJ	WJ
5	11/17/11	ISSUE FOR FAB	WJ	WJ
6	11/17/11	ISSUE FOR FAB	WJ	WJ
7	11/17/11	ISSUE FOR FAB	WJ	WJ
8	11/17/11	ISSUE FOR FAB	WJ	WJ
9	11/17/11	ISSUE FOR FAB	WJ	WJ
10	11/17/11	ISSUE FOR FAB	WJ	WJ

<b>HYTEC, INC</b> PHOENIX STATION 2 SOUTH LOWER SUPPORT RING	
DATE: APR 20 2010 TIME: 5:55	DRAWING NO.: 002-0212-260-D-5-1 PART NO.: 002-0212-260-D-5-1
CHECKED: [Signature] DATE: 11/17/11	DESIGNED: [Signature] DATE: 11/17/11
DRAWN: [Signature] DATE: 11/17/11	MANUFACTURED: [Signature] DATE: 11/17/11

NO.	DATE	DESCRIPTION	BY	CHKD.
1	12/28/00	ISSUE FOR FABRICATION	W. B. BUCHHEIT	W. B. BUCHHEIT
2	01/11/01	REVISED PER COMMENTS	W. B. BUCHHEIT	W. B. BUCHHEIT
3	01/11/01	REVISED PER COMMENTS	W. B. BUCHHEIT	W. B. BUCHHEIT
4	01/11/01	REVISED PER COMMENTS	W. B. BUCHHEIT	W. B. BUCHHEIT
5	01/11/01	REVISED PER COMMENTS	W. B. BUCHHEIT	W. B. BUCHHEIT
6	01/11/01	REVISED PER COMMENTS	W. B. BUCHHEIT	W. B. BUCHHEIT
7	01/11/01	REVISED PER COMMENTS	W. B. BUCHHEIT	W. B. BUCHHEIT
8	01/11/01	REVISED PER COMMENTS	W. B. BUCHHEIT	W. B. BUCHHEIT
9	01/11/01	REVISED PER COMMENTS	W. B. BUCHHEIT	W. B. BUCHHEIT
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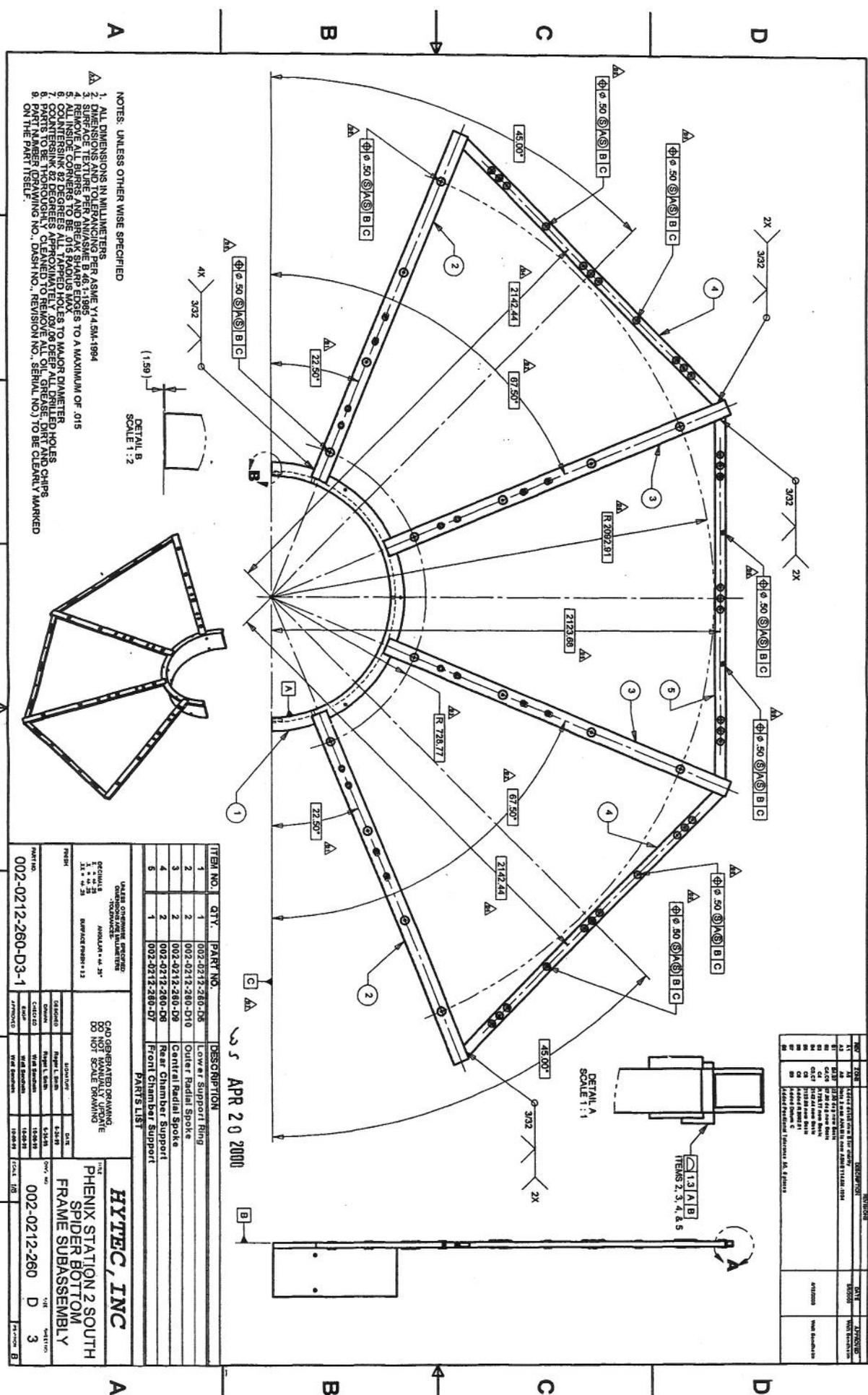
- NOTES: UNLESS OTHERWISE SPECIFIED
1. ALL DIMENSIONS IN MILLIMETERS
  2. SURFACE TEXTURE PER FINISH B 46.1:1995
  3. SURFACE TEXTURE PER FINISH B 46.1:1995
  4. ALL INSIDE CORNERS TO BE 0.15 RADII UNLESS OTHERWISE SPECIFIED
  5. ALL INSIDE CORNERS TO BE 0.15 RADII UNLESS OTHERWISE SPECIFIED
  6. COUNTERSINK 62 DEGREES ALL TAPPED HOLES TO MAJOR DIAMETER
  7. COUNTERSINK 62 DEGREES ALL TAPPED HOLES TO MAJOR DIAMETER
  8. PART NUMBER DRAWING NO., DASH NO., REVISION NO., SERIAL NO.) TO BE CLEARLY MARKED ON THE PART ITSELF.

SECTION B-B

MATERIAL: 304 STAINLESS STEEL

HYTEC, INC PHENIX STATION 2 SOUTH SPIDER UPPER SUPPORT RING		DATE: APR 20 2000	
PART NO: 002-0212-260-D4-1	QUANTITY: 1	DRAWN BY:	CHECKED BY:
DATE: 11/11/00	SCALE: 1:1	TITLE:	SHEET NO: 4
PART NO: 002-0212-260-D4-1	QUANTITY: 1	DRAWN BY:	CHECKED BY:
DATE: 11/11/00	SCALE: 1:1	TITLE:	SHEET NO: 4

8 7 6 5 4 3 2 1



- NOTES: UNLESS OTHERWISE SPECIFIED
1. ALL DIMENSIONS IN MILLIMETERS
  2. SURFACE FINISH PER ANSYS B 46.1-1985
  3. ALL INSIDE CORNERS TO BE 0.15 RADIUS MAX
  4. ALL DIMENSIONS TO BE CLEAR UNLESS OTHERWISE SPECIFIED
  5. ALL DIMENSIONS TO BE CLEAR UNLESS OTHERWISE SPECIFIED
  6. ALL DIMENSIONS TO BE CLEAR UNLESS OTHERWISE SPECIFIED
  7. PART NUMBER (DRAWING NO., DASH NO., REVISION NO., SERIAL NO.) TO BE CLEARLY MARKED ON THE PART ITSELF.

DETAIL B  
SCALE 1:2

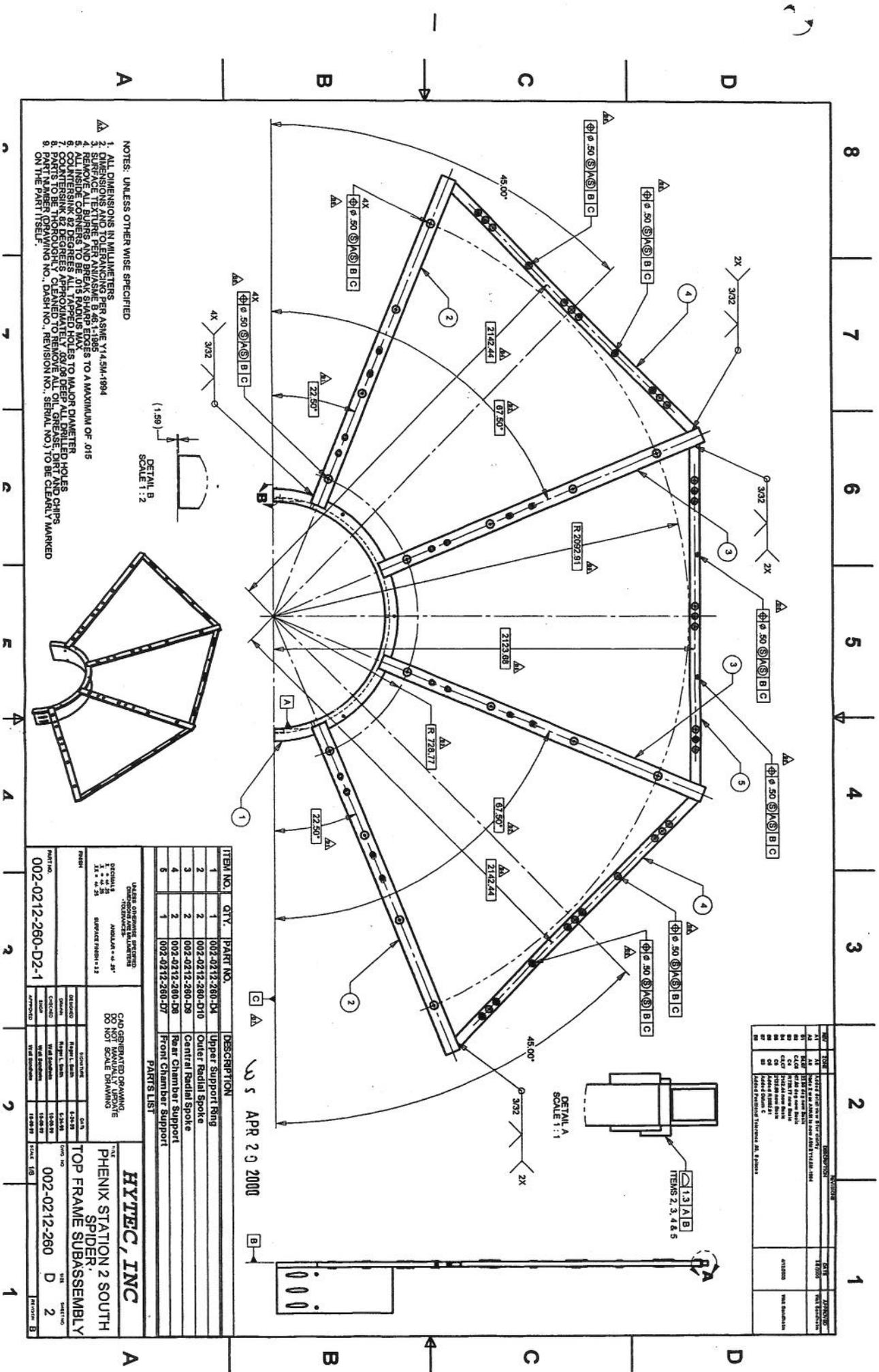
DETAIL A  
SCALE 1:1

ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	1	002-0212-260-D8	Lower Support Ring
2	2	002-0212-260-D10	Outer Radial Spoke
3	2	002-0212-260-D9	Central Radial Spoke
4	2	002-0212-260-D6	Rear Chamber Support
5	1	002-0212-260-D7	Front Chamber Support

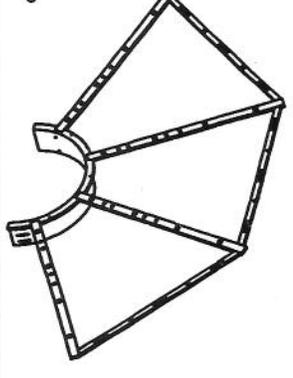
PARTS LIST

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PART NO: 002-0212-260-D3-1		TITLE: PHENIX STATION 2 SOUTH SPIDER BOTTOM FRAME SUBASSEMBLY	
DRAWING NO: 002-0212-260-D3-1		DATE: 02/12/2000	
SCALE: 1:1		SHEET NO: 3	

NO.	DATE	DESCRIPTION	BY	CHKD
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3	11/11/99	REVISED PER COMMENTS	JMS	JMS
4	11/11/99	REVISED PER COMMENTS	JMS	JMS
5	11/11/99	REVISED PER COMMENTS	JMS	JMS
6	11/11/99	REVISED PER COMMENTS	JMS	JMS
7	11/11/99	REVISED PER COMMENTS	JMS	JMS
8	11/11/99	REVISED PER COMMENTS	JMS	JMS
9	11/11/99	REVISED PER COMMENTS	JMS	JMS
10	11/11/99	REVISED PER COMMENTS	JMS	JMS



- NOTES: UNLESS OTHERWISE SPECIFIED
1. ALL DIMENSIONS IN MILLIMETERS
  2. SURFACE TEXTURE PER ANV/ASME B 46.1-1995
  3. REMOVE ALL DIMS AND BREAK SPARKS TO A MAXIMUM OF .015
  4. REMOVE ALL DIMS AND BREAK SPARKS TO A MAXIMUM OF .015
  5. REMOVE ALL DIMS AND BREAK SPARKS TO A MAXIMUM OF .015
  6. COUNTERSINK 62 DEGREES APPROXIMATELY 10X DEEP ALL DRILLED HOLES
  7. PARTS TO BE HONED/CN CLEANED TO FINISH (SERIAL NO.) TO BE CLEARLY MARKED ON THE PART ITSELF
  8. PARTS TO BE HONED/CN CLEANED TO FINISH (SERIAL NO.) TO BE CLEARLY MARKED ON THE PART ITSELF



ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	1	002-0212-260-1A	Upper Support Ring
2	2	002-0212-260-D10	Outer Radial Spoke
3	2	002-0212-260-D5	Center Radial Spoke
4	2	002-0212-260-D9	Rear Chamber Support
5	1	002-0212-260-D7	Front Chamber Support

PARTS LIST

DESIGNED	DATE	BY
CHECKED	DATE	BY
APPROVED	DATE	BY

UNLESS OTHERWISE SPECIFIED  
DIMENSIONS ARE IN MILLIMETERS  
ANGLES - ° ' "

CAD GENERATED DRAWING  
DO NOT MANUALLY UPDATE  
SCALE DRAWING

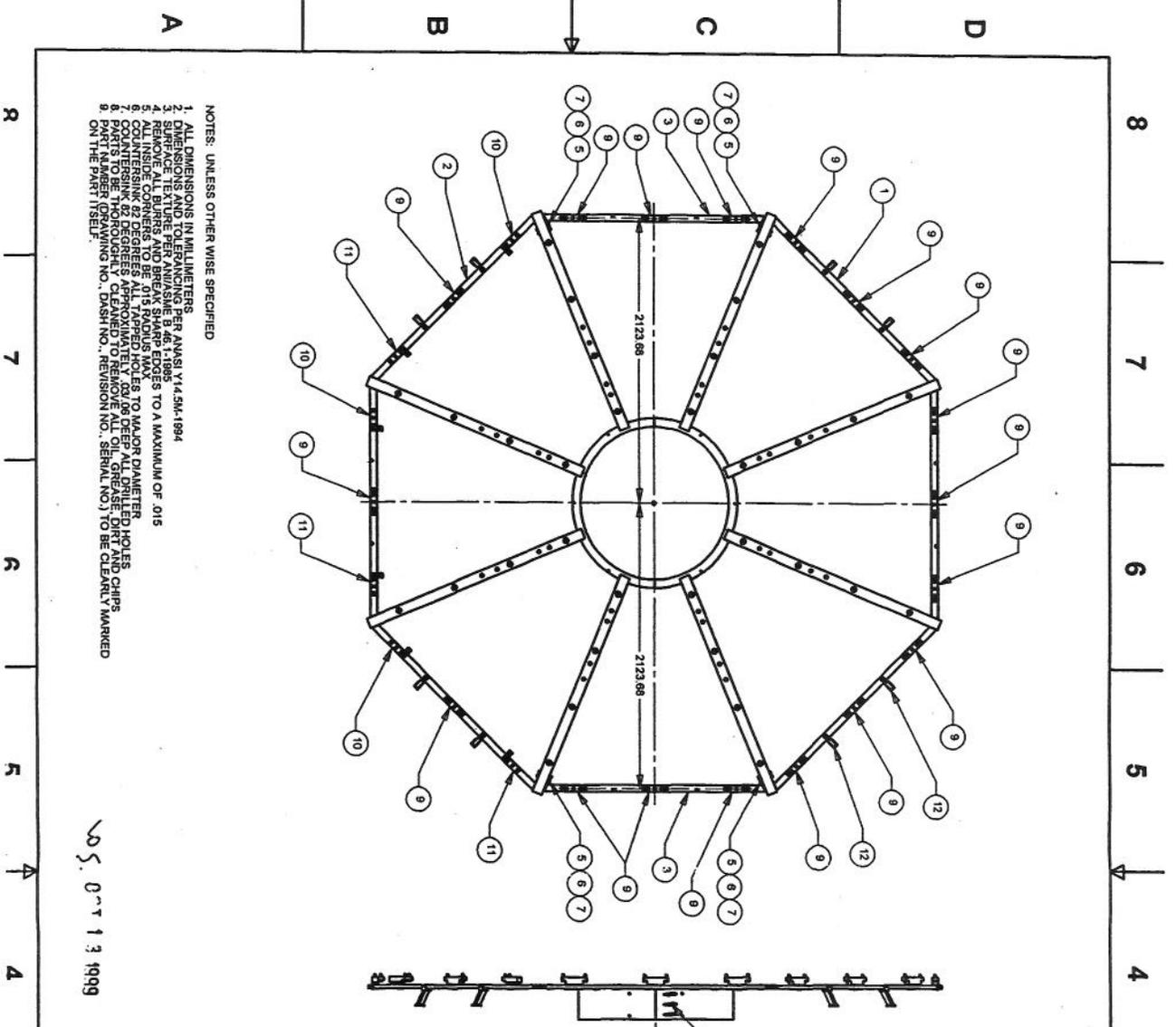
HYTEC, INC  
PHENIX STATION 2 SOUTH  
SPIDER  
TOP FRAME SUBASSEMBLY

DATE: 002-0212-260 D 2

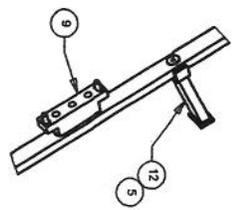
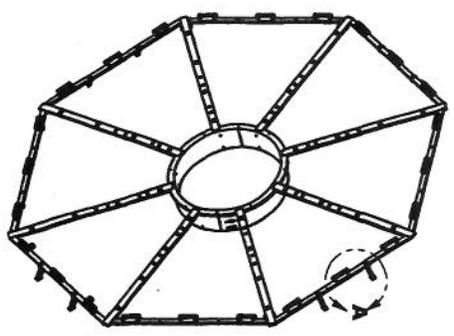
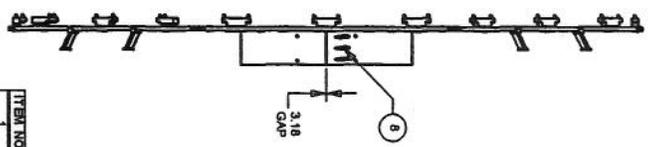
NO.	REV.	DESCRIPTION	DATE	BY
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6	1	ISSUED FOR MANUFACTURE		
7	1	ISSUED FOR MANUFACTURE		
8	1	ISSUED FOR MANUFACTURE		
9	1	ISSUED FOR MANUFACTURE		
10	1	ISSUED FOR MANUFACTURE		

APR 20 2000

REV	DESCRIPTION	DATE	DESIGNED BY



- NOTES: UNLESS OTHERWISE SPECIFIED
1. ALL DIMENSIONS IN MILLIMETERS.
  2. DIMENSIONS AND TOLERANCES PER ANSI Y14.5M-1994.
  3. SURFACE TEXTURE PER ANI/ASME B 46.1-1995.
  4. REMOVE ALL BURRS AND BREAK SHARP EDGES TO A MAXIMUM OF .015.
  5. ALL DIMENSIONS UNLESS OTHERWISE SPECIFIED ARE TO THE CENTERLINE.
  6. COUNTERSINK 92 DEGREES APPROXIMATELY .05/.06 DEEP ALL DRILLED HOLES.
  7. PARTS TO BE THOROUGHLY CLEANED TO REMOVE ALL OIL/GREASE/DIRT AND CURS.
  8. ON THE PART NUMBER, DASH NO., REVISION NO., SERIAL NO.) TO BE CLEARLY MARKED ON THE PART ITSELF.



ITEM NO.	QTY	PART NO.	DESCRIPTION	MATERIAL
1	1	002-0212-260-02	TOP Frame Sub-Assembly	
2	1	002-0212-260-03	BOTTOM Frame Sub-Assembly	
3	2	002-0212-260-06	Splice Tube Weirment	
4	8		Soc Hd Screw, 3/8-18 UNC-2A X 1.25 LG.	SSST
5	14		Soc Hd Screw, 3/8-18 UNC-2A X 3.75 LG.	SSST
6	16		Flat Washer, 3/8"	SSST
7	8	002-0212-261-01	Hex Nut, 3/16 UNC-2B	
8	8		Inner Detector Stabilizer	
9	19	002-0212-264-01	Support Bracket Assembly	
10	3	002-0212-264-01	Right Support Bracket Assembly	
11	3	002-0212-264-01	Left Support Bracket Assembly	

PARTS LIST

UNLESS OTHERWISE SPECIFIED  
DIMENSIONS ARE IN MILLIMETERS  
TOLERANCES:  
FRACTIONS  
1.2, 1.5, 2.5  
DECIMALS  
AS SHOWN  
SURFACE FINISH:  
ANODIZE 14.5 μm

CAN BE GENERATED DRAWING  
DO NOT MANUALLY DIMENSION  
DO NOT SCALE DRAWING

**HYTEC, INC**

PHENIX STATION 2 SOUTH  
SPIDER SUPPORT RING  
ASSEMBLY

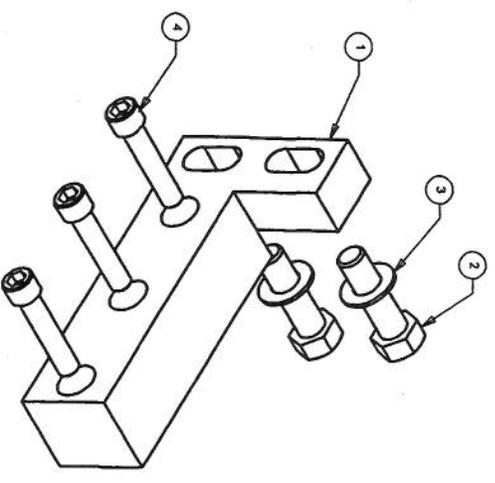
PART NO. 002-0212260-D1-1

DATE 02/12/20

SCALE 1:1

REV 1

REV	DESCRIPTION	DATE	APPROVED



- NOTES: UNLESS OTHERWISE SPECIFIED
1. ALL DIMENSIONS IN MILLIMETERS
  2. DIMENSIONS AND TOLERANCING PER ANASIS Y14.5M-1994
  3. REMOVE THE SURFACE FINISH FROM THE SURFACES TO A MAXIMUM OF .015
  4. ALL INSIDE CORNERS TO BE .015 RADIUS MAX.
  5. COUNTERSINK 82 DEGREES ALL TAPPED HOLES TO MAJOR DIAMETER
  6. PARTS TO BE THROUGHBORER CLEANED TO REMOVE ALL CHIPS
  7. PART NUMBER (DRAWING NO., DASH NO., REVISION NO., SERIAL NO.) TO BE CLEARLY MARKED ON THE PART ITSELF.

U.S. OCT 13 1999

ITEM NO.	QTY.	PART NO.	DESCRIPTION	MATERIAL
1	1	002-0212-264-D2	RIGHT SUPPORT BRACKET	SS316
2	1		Hex Hd Screw - 1/2-13 UNC-2A X 1.75 Lg.	SS316
3	1		Flat Washer - 1/2"	SS316
4	4		Sec Hd Screw - 3/8-16 UNC-2A X 1.75 Lg.	SS316

PARTS LIST

UNLESS OTHERWISE SPECIFIED  
DIMENSIONS ARE IN MILLIMETERS  
TOLERANCES ARE:  
FRACTIONS .15  
DECIMALS .05  
ANGLES .5°

UNLESS OTHERWISE SPECIFIED  
SURFACE FINISH IS:  
ANODIZE PER MIL-13

UNLESS OTHERWISE SPECIFIED  
CANNOT BE GENERATED FROM  
DO NOT MANUALLY UPGRADE  
DO NOT SCALE DRAWING

HYTEC, INC  
PHENIX STATION 2 SOUTH  
SPIDER SUPPORT  
RIGHT BRACKET ASSY

002-0212-264 D 1

DATE: 10/13/99

