



Baseplate Update

Van Graves

Tony Gabriel, Phil Spampinato

MERIT Videoconference

19 Jul 2005

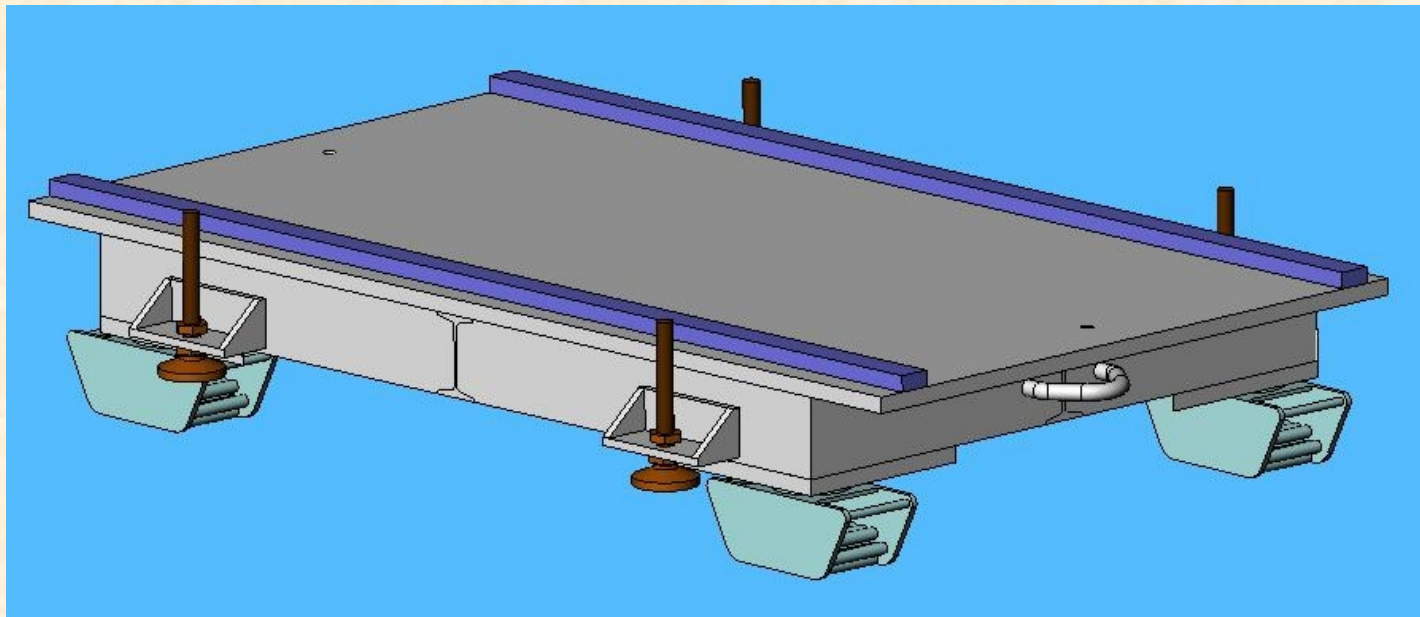
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U. S. DEPARTMENT OF ENERGY

Baseplate Status

- **Two baseplates designed**
 - Target Transporter (moves Hg System only)
 - Common Baseplate (supports Hg System & Magnet)
- **Detailed design & fabrication drawings nearly complete**
 - Final ORNL review next week
 - Procurement package to BNL August 1
- **Need input from MIT/CERN *this week* if changes are needed**

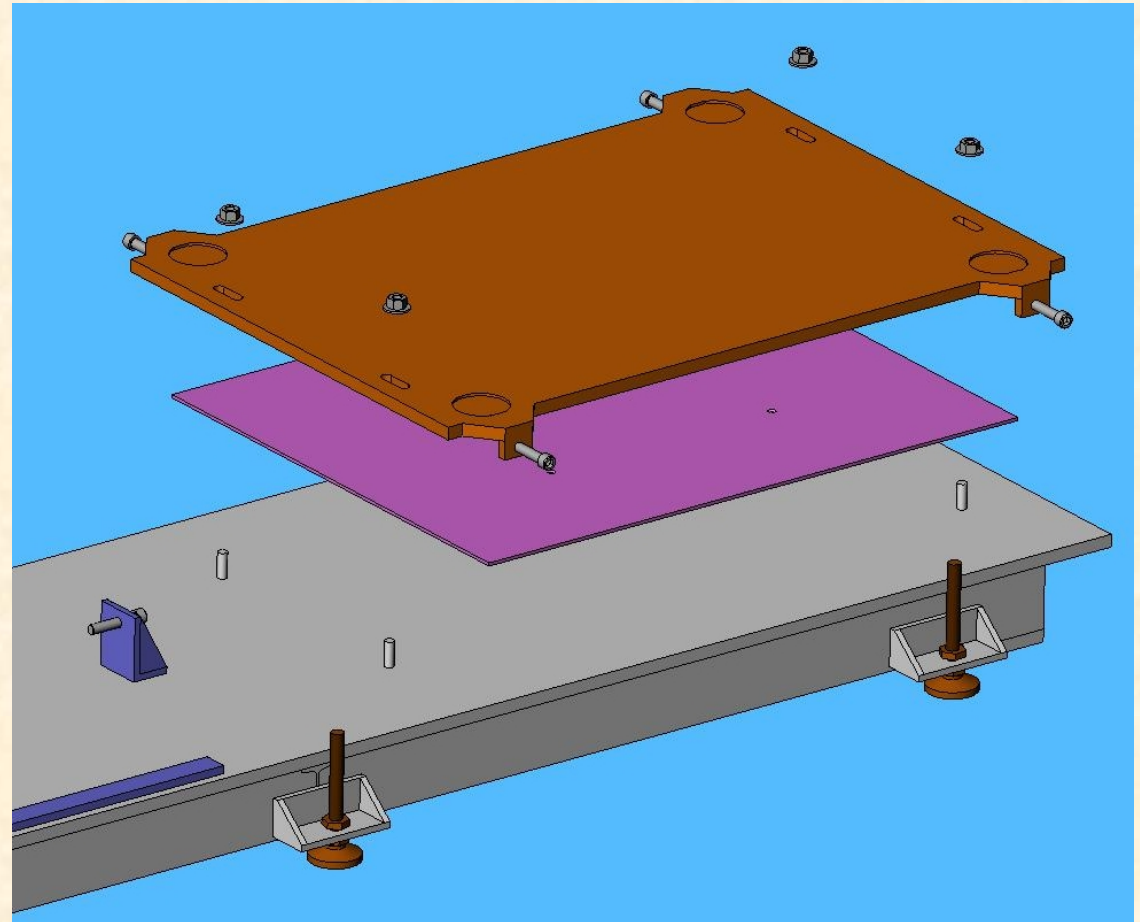
Target Transporter Baseplate

- Transports Hg system inside tunnel
- Rollers removed once in position
- Rails for Hg system cart wheels
- Will have mechanism to lock cart in place



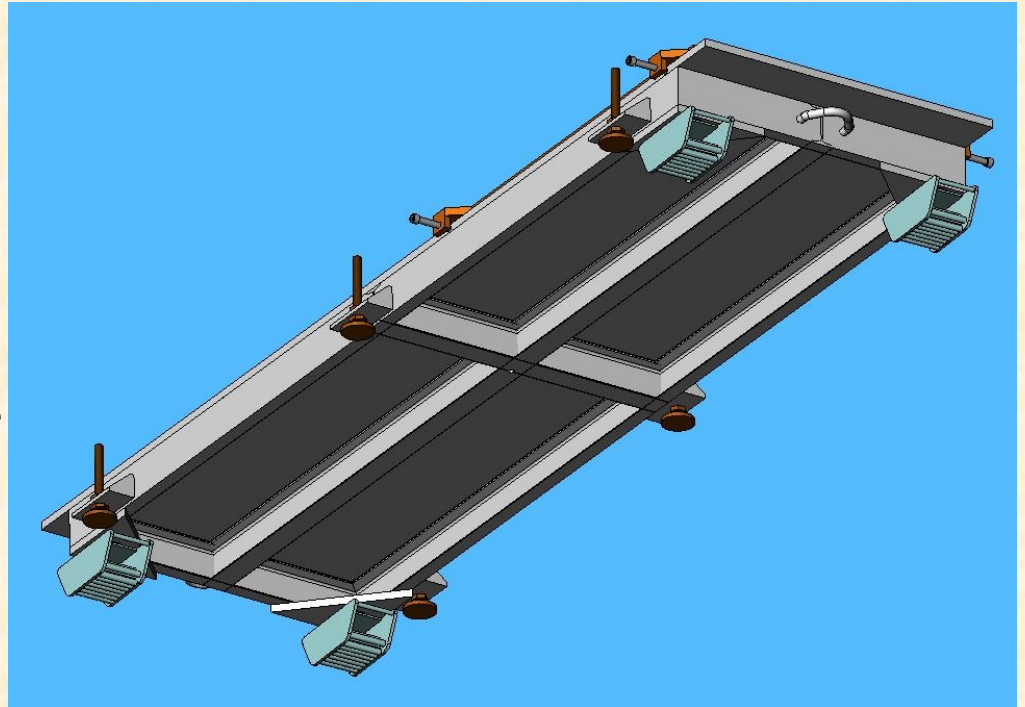
Common Baseplate

- Same design as transporter baseplate, just longer
- Rollers used to grossly align solenoid to beam
- Provides lateral movement of solenoid for alignment to beam once rollers removed

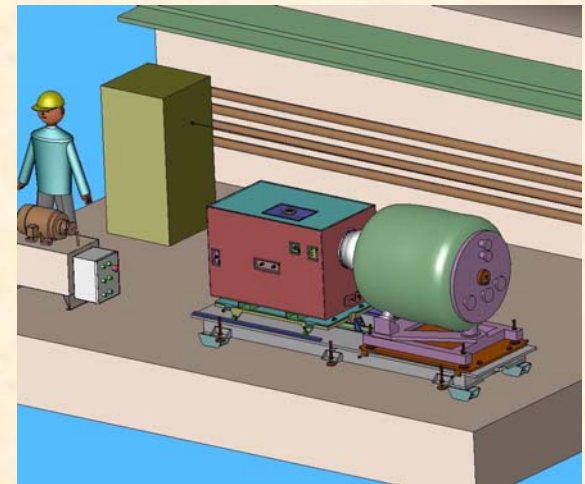
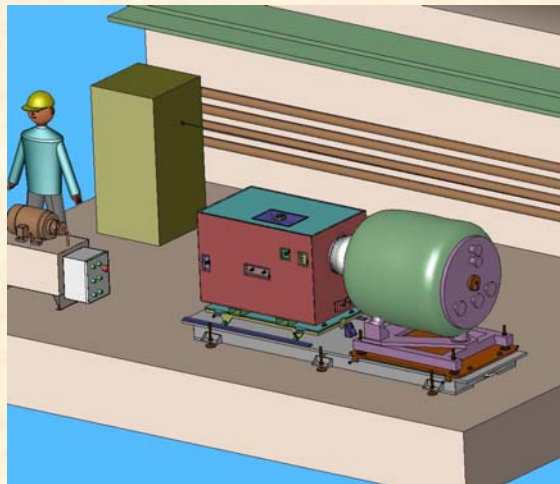
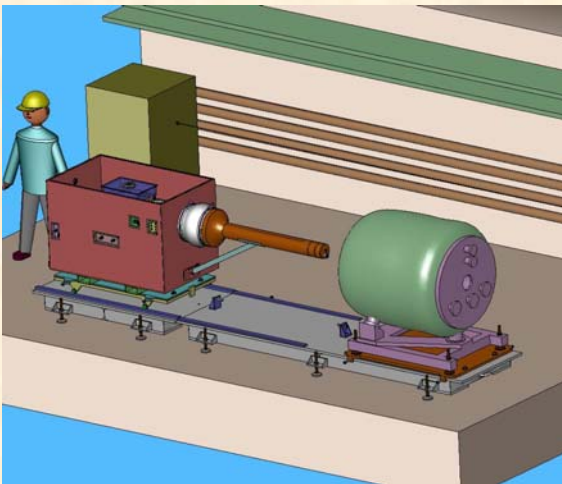
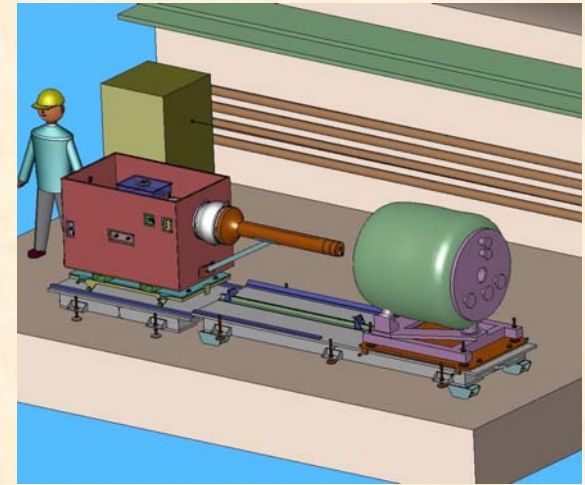
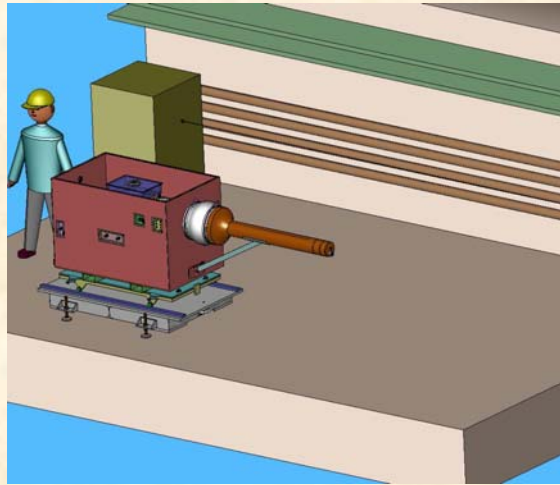
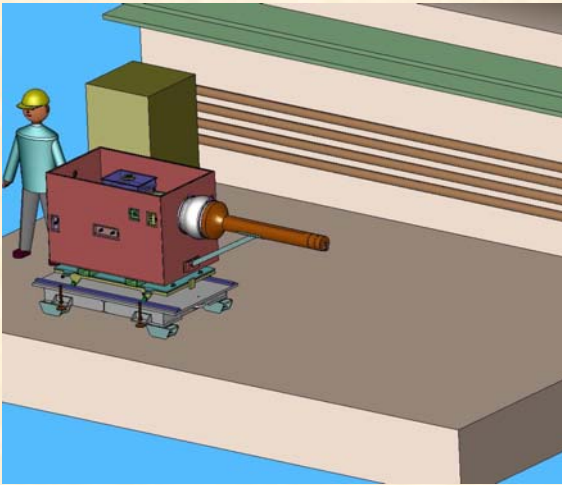


Baseplate Mobility Issues

- **Method needed to remove rollers from baseplates**
 - Lift from end or underneath?
 - CERN/MIT or nTOF11 provide?
- **How to interface to CERN "turtle"**
- **How accurately can baseplate be aligned to beam using rollers?**
- **Lift empty baseplate with side-mount swivel hoist rings**



Installation Sequence Part 1 (Out-of-beam)

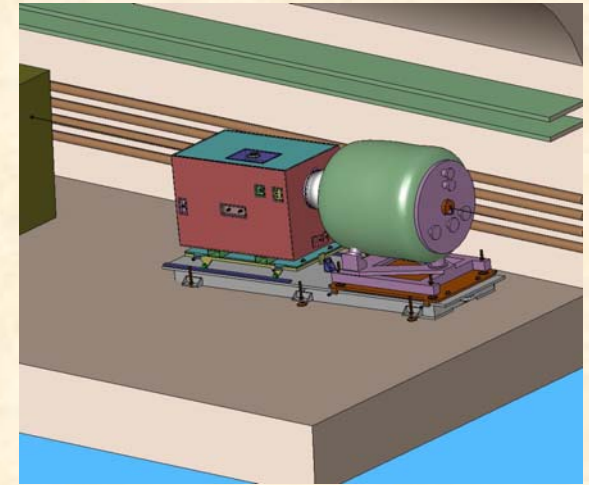
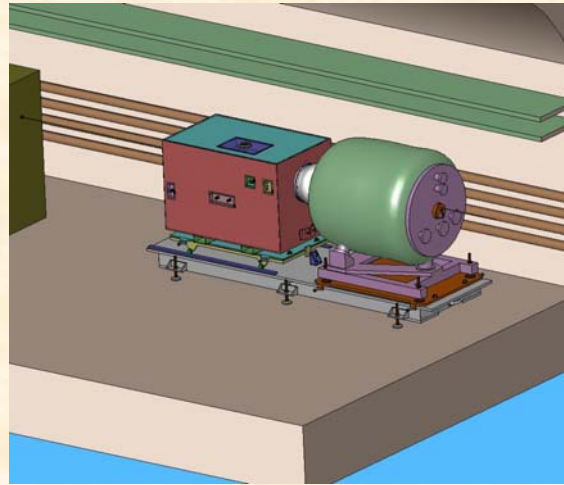
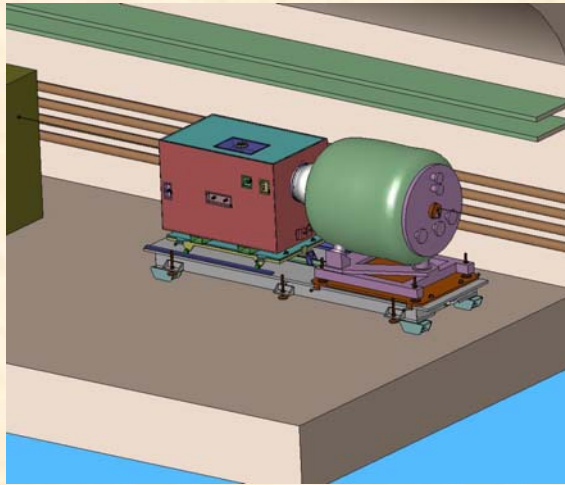


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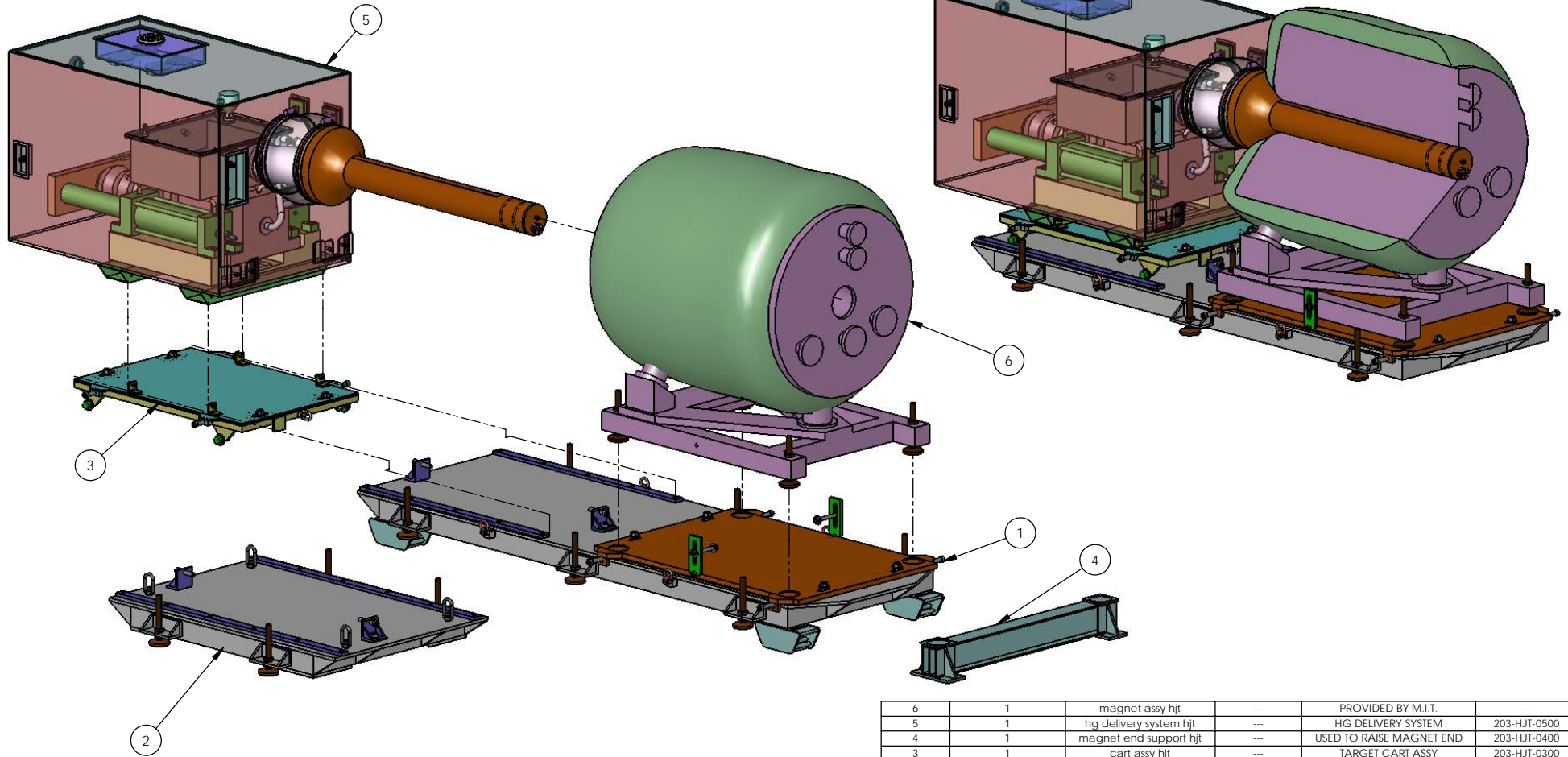
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UT-BATTELLE

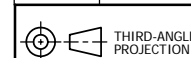
Installation Sequence Part 2 (In-beam)



- **Common baseplate can go in beam line prior to Hg system install if beam attenuator is far enough away**
- **Magnet set on baseplate prior to Hg system installation**
- **Jacking system needed to remove rollers**
- **Blocks under leveling feet to provide adequate elevation**



ITEM	for dwg with carrier/QTY.	NAME	MATERIAL	DESCRIPTION	DWG
6	1	magnet assy hjt	---	PROVIDED BY M.I.T.	---
5	1	hg delivery system hjt	---	HG DELIVERY SYSTEM	203-HJT-0500
4	1	magnet end support hjt	---	USED TO RAISE MAGNET END	203-HJT-0400
3	1	cart assy hjt	---	TARGET CART ASSY	203-HJT-0300
2	1	target transporter assy hjt	---	TRANSPORTER BASEPLATE ASSY	203-HJT-0200
1	1	common base assy hjt	---	---	203-HJT-0100



- UNLESS OTHERWISE NOTED
1. ALL DIMENSIONS ARE IN INCHES
 2. INTERPRET DIMENSIONS AND TOLERANCES PER ASME Y14.5M
 3. MACHINED FINISH 125 MICRO-INCHES RMS
 4. CONCENTRICITY .010 TIR
 5. MACHINED ANGLES ±1/2°
 6. FORMED ANGLES ±1°
 6. BREAK SHARP CORNERS AND REMOVE ALL BURRS
 7. WHOLE NUMBERS AND FRACTIONS ±1/16
 8. X DECIMALS ±.030
 9. XX DECIMALS ±.010
 10. XXX DECIMALS ±.005

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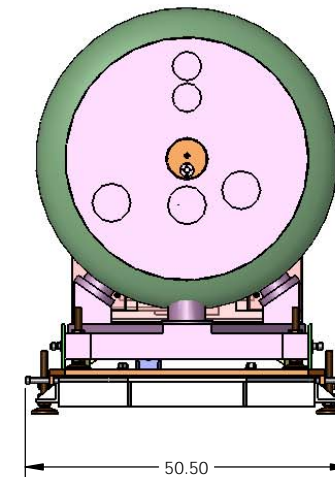
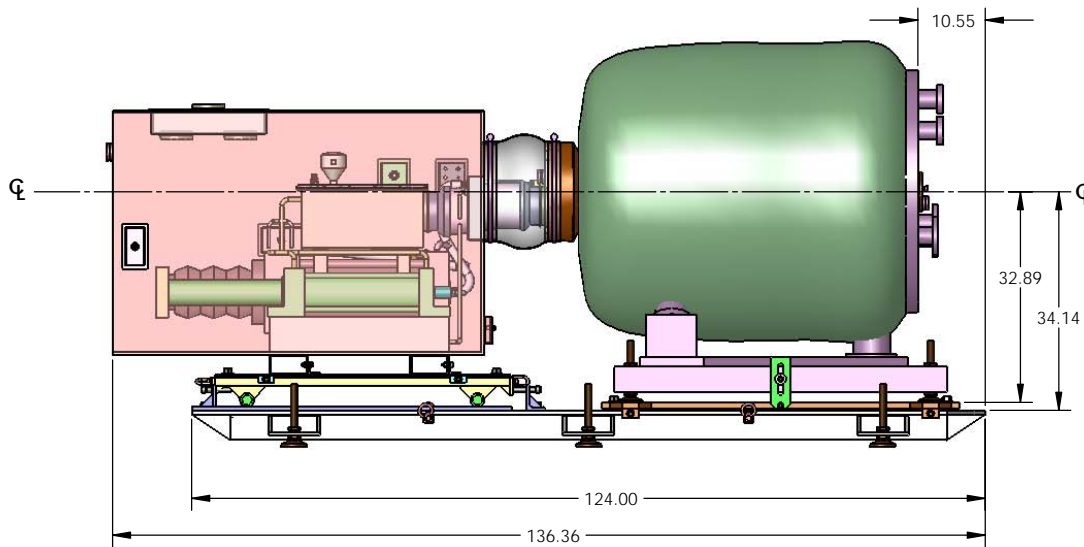
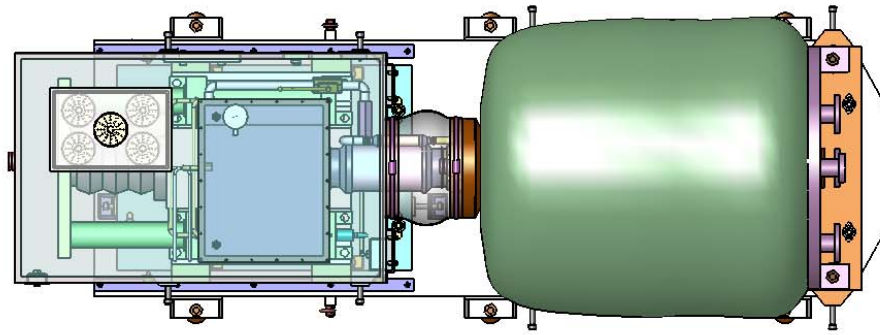
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NSTB REMOTE SYSTEMS GROUP
NUCLEAR SCIENCE & TECHNOLOGY DIVISION

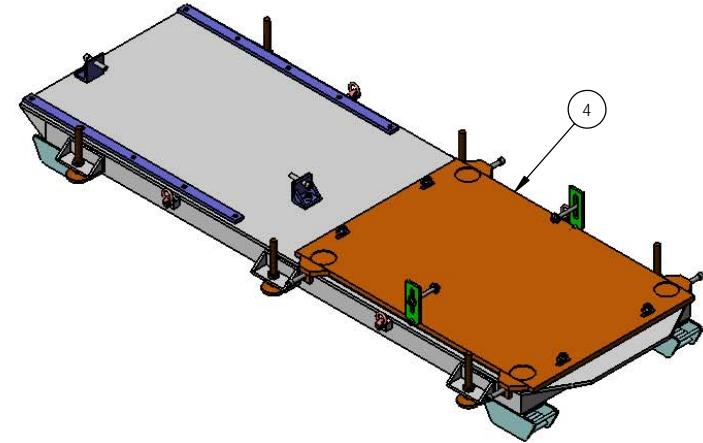
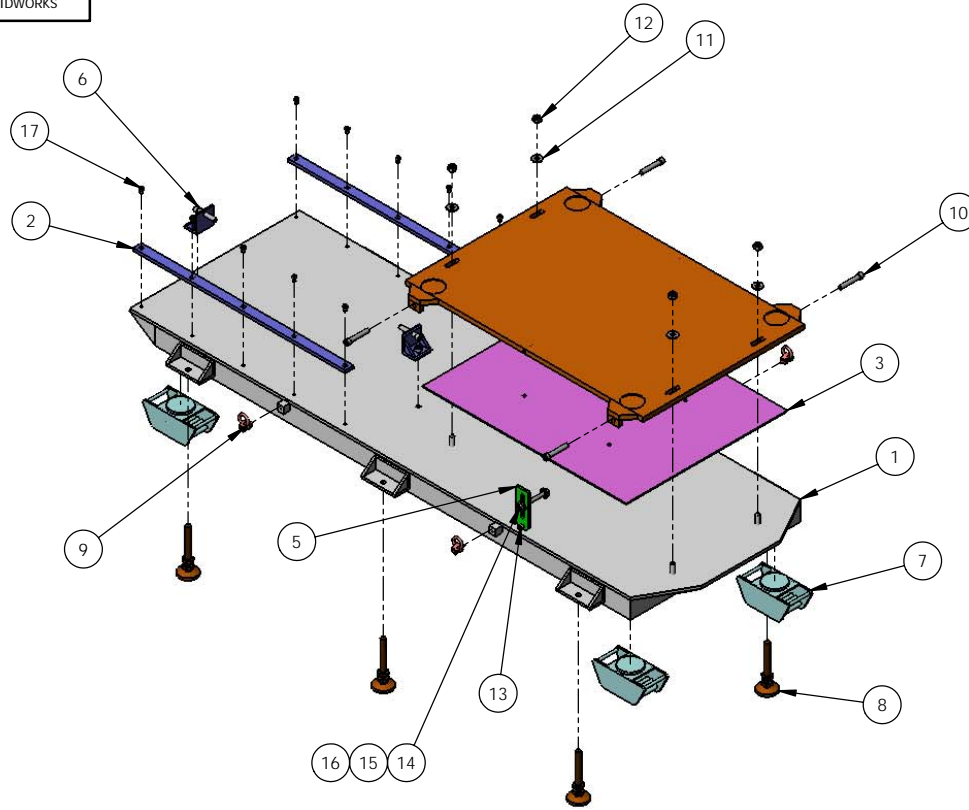
DES	V GRAVES	06/04/2005
DRW	T OQUIN	06/04/2005
CHK		
ENG	V GRAVES	06/04/2005
QA		

CAD FILE	PREV ASSY	SCALE	SHEET
COMMON BASE LOADED HJT	---	1:15	1 of 2
SIZE	DWG NO.	REV	
C	203-HJT-0001	3	

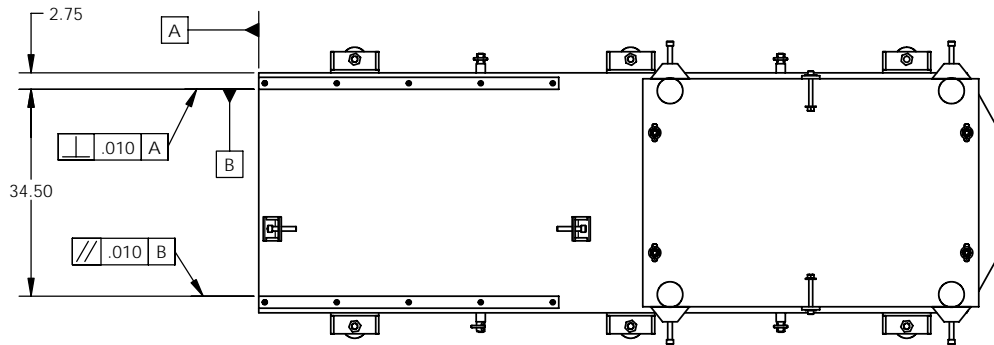
DRAWING APPROVALS DATE



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DES	V GRAVES	06/04/2005	<p>NUFACT HG JET EXPERIMENT</p>			
DRW	T OQUIN	06/04/2005				
CHK						
ENG	V GRAVES	06/04/2005				
QA			CAD FILE	PREV ASSY	SCALE	SHEET
			COMMON BASE LOADED HJT	---	1:15	2 of 2
DRAWING APPROVALS			DATE	SIZE	DWG NO.	REV
				C	203-HJT-0001	3



NOTES
1. MATERIAL CERTIFICATIONS REQUIRED



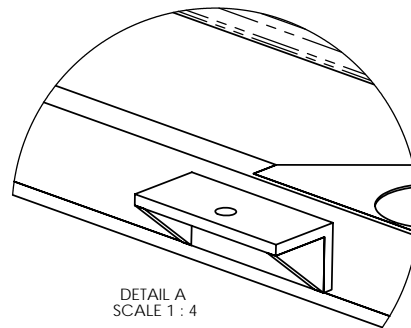
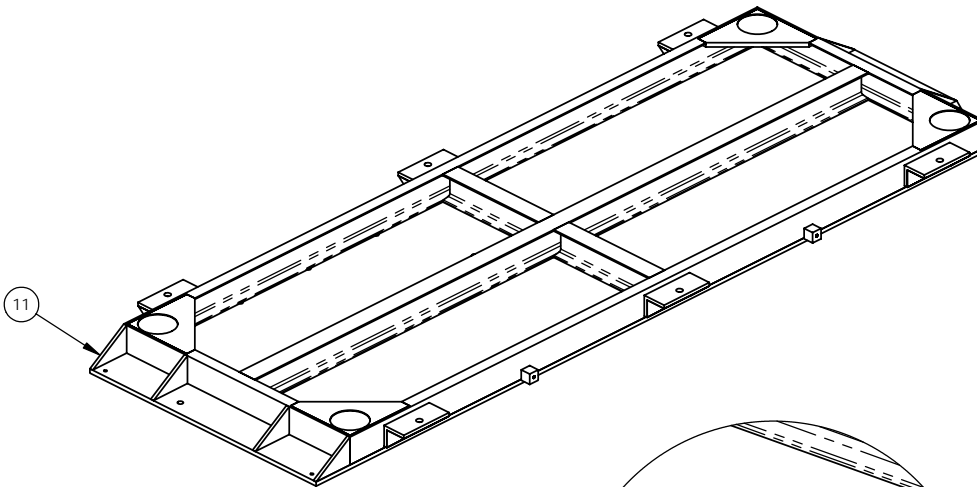
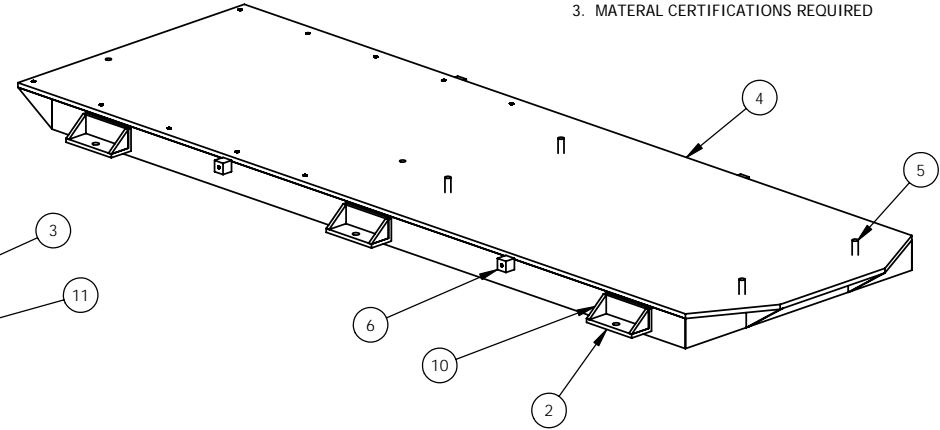
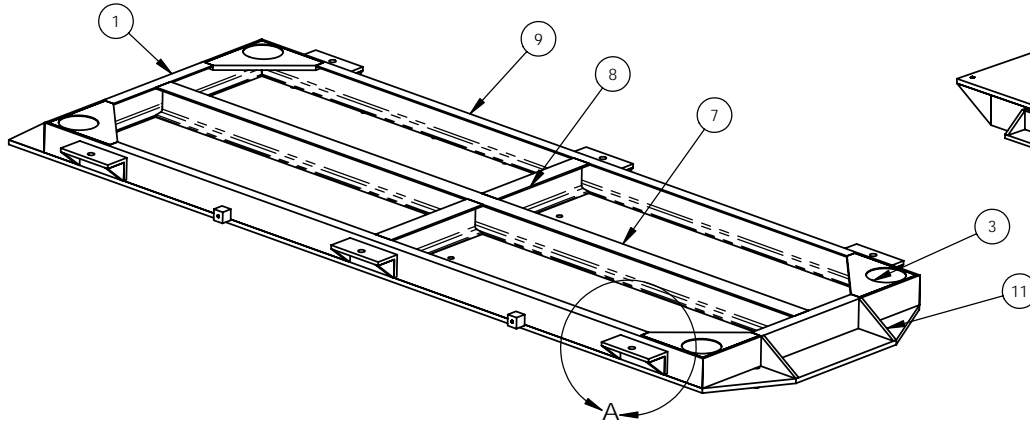
TOP VIEW

ITEM	for dwg/QTY.	NAME	MATERIAL	DESCRIPTION	DWG
17	10	HX-SHCS 0.5-13x0.625x0.625-N	SS - 18-8	SHCS - 1/2-13 x .63	N/A
16	2	HHNUT 0.6250-11-D-N	SS - 18-8	HEX NUT - 5/8-11 UNC	N/A
15	4	FW 0.625	SS - 18-8	FLAT WASHER - 5/8"	N/A
14	2	HX-SHCS 0.625-11x6x2.25-N	SS - 18-8	SHCS - 5/8-11 x 6.00	N/A
13	2	HX-SHCS 0.625-11x1x1-N	SS - 18-8	SHCS - 5/8-11 x 1.00	N/A
12	4	HHNUT 0.7500-10-D-N	SS - 18-8	HEX NUT - 3/4-10 UNC	N/A
11	4	FW 0.75	SS - 18-8	FLAT WASHER - 3/4"	N/A
10	4	HX-SHCS 0.75-16x4.5x4.5-N	SS - 18-8	SHCS - 3/4-16 x 4.50	N/A
9	4	sidemount swivel hoist ring	ALLOY STEEL	MCMaster CARR 29525T83	N/A
8	6	leveling foot hjt	SS - 303	S & W MFG. CO., Bensenville, IL, Phone 888-538-3548, #SSW-5G	N/A
7	4	hilman hjt	---	HILMAN ROLLER #KRS-15-SLP	N/A
6	2	cart anchor assy hjt	---	CART ANCHOR ASSY	203-HJT-0120
5	2	magnet restraint plate hjt	AL - 6061 T6511, ASTM B-221	PLATE - 3" X 8" X .50"	203-HJT-0114
4	1	magnet support plate hjt	AL - 6061 T651, ASTM B-209	MAGNET SUPPORT PLATE	203-HJT-0113
3	1	uhmw sheet hjt	UHMW	MCMaster CARR #B619K116	203-HJT-0112
2	2	flat rail hjt	SS - 304L	BAR - 2" X 50" X 5/8	203-HJT-0111
1	1	base weldment hjt	AL - 6061 T6	BASE WELDMENT	203-HJT-0110

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DES V GRAVES 06/02/2005 DRW T OQUIN 06/02/2005 CHK ENG V GRAVES 06/02/2005 QA	NUFAC HG JET EXPERIMENT COMMON BASE ASSY		PREV ASSY 203-HJT-0001	SCALE 1:16	SHEET 1 of 1
DRAWING APPROVALS DATE		CAD FILE COMMON BASE ASSY HJT	SIZE C	DWG NO. 203-HJT-0100	REV 2

NOTES

1. WELDING & INSPECTIONS SHALL BE PERFORMED IN ACCORDANCE WITH AWS D.1.2
2. ALL WELDS SHALL BE DYE PENETRANT INSPECTED
3. MATERIAL CERTIFICATIONS REQUIRED

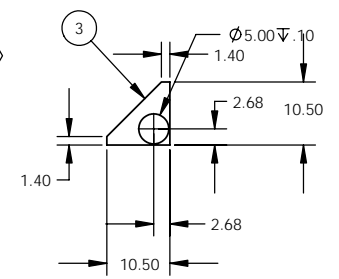
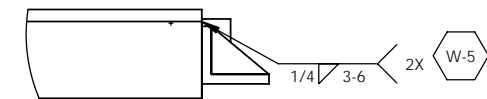
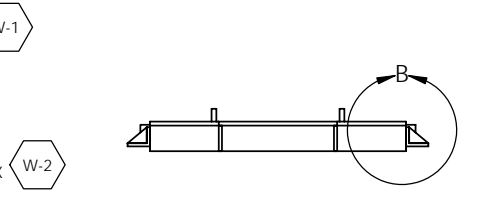
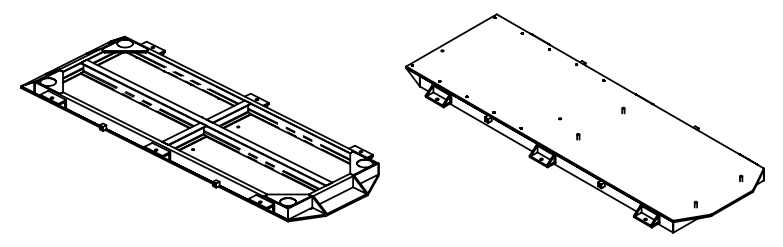
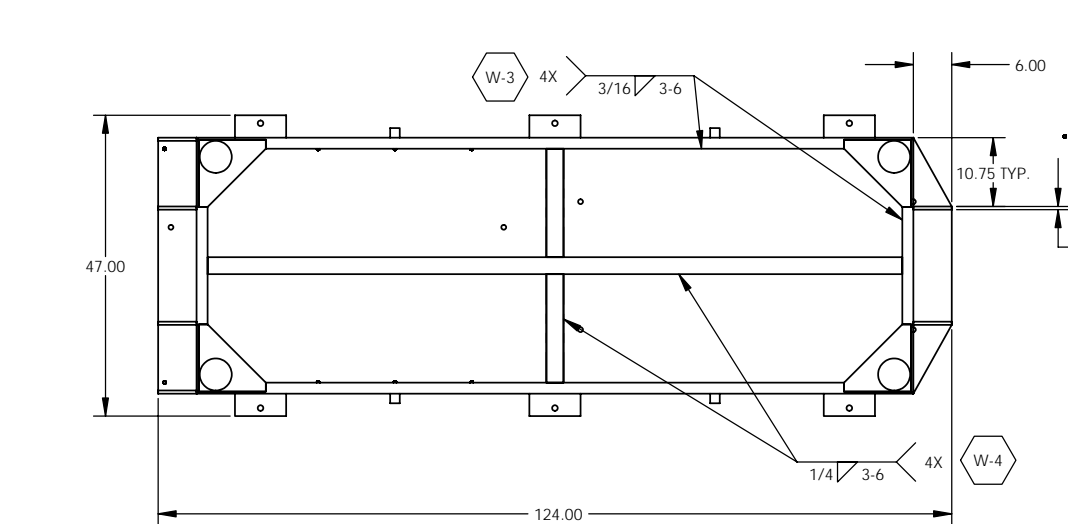
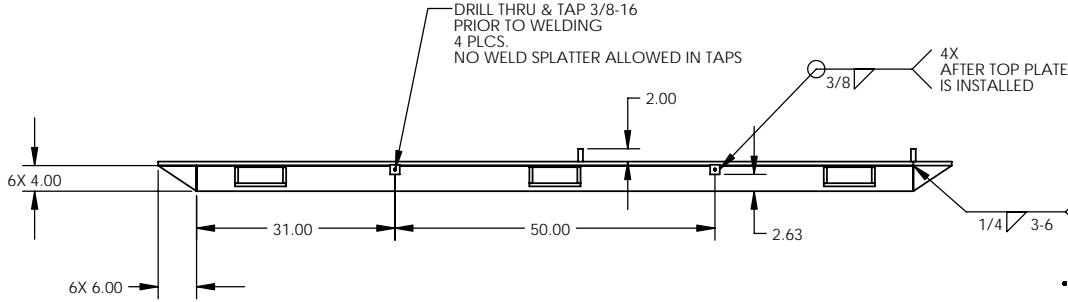
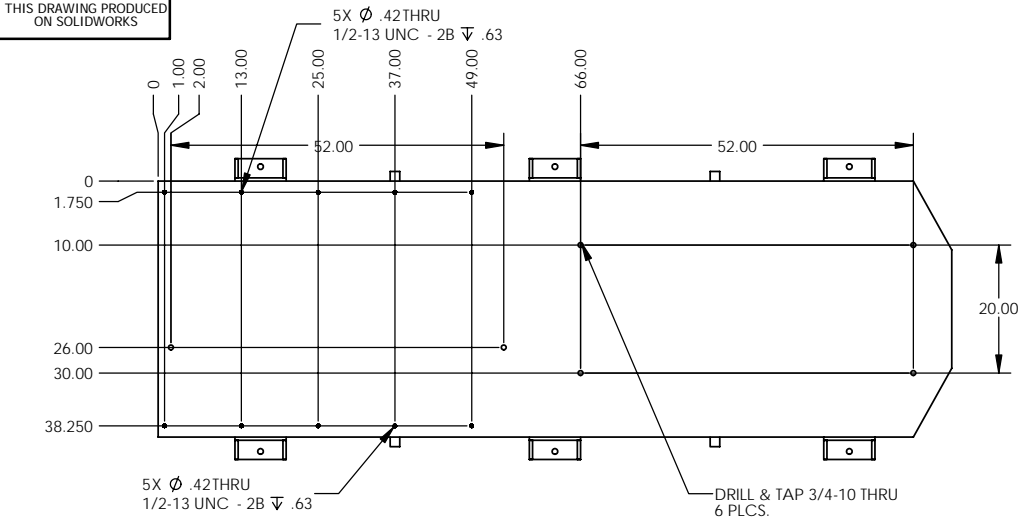


DETAIL A
SCALE 1 : 4

ITEM NO.	QTY.	DESCRIPTION	MATERIAL	LENGTH
11	6	PLATE, 4.00 x 6.00 x .50	AL - 6061 T6511, ASTM B-221	---
10	12	PLATE - 2.50 X 3.00 X .50	AL - 6061 T6511, ASTM B-221	---
9	2	AMER STD "C", 4.00 X 1.72 X .32	AL - 6061 T6, ASTM B-308	112
8	2	AMER STD "I", 4.00 x 2.66 x .19	AL - 6061 T6, ASTM B-308	16.95
7	1	AMER STD "I", 4.00 X 2.66 X .19	AL - 6061 T6, ASTM B-308	108.56
6	4	BAR, 1.50 x 1.50 x 1.50	AL - 6061 T6511, ASTM B-221	1.50
5	4	STUD, 3/4-10 UNC	SS ALL-THREAD	2.625
4	1	PLATE, 40.00 x 124.00 x .63	AL - 6061 T651, ASTM B-209	124.00
3	4	PLATE, 10.50 x 10.50 x .63	AL - 6061 T6511, ASTM B-221	10.50
2	6	ANGLE - 3.00 X 3.50 X .50	AL - 6061 T6511, ASTM B-221	8.00
1	2	AMER STD "C", 4.00 X 1.72 X .32	AL - 6061 T6, ASTM B-308	40

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		<p>NUFACT HG JET EXPERIMENT COMMON BASEPLATE ASSY BASE WELDMENT</p>		CAD FILE BASE WELDMENT HJT	PREV ASSY 203-HJT-0100
		DRAWING APPROVALS	DATE	SCALE 1:12	SHEET 1 of 3
		<p>SIZE DWG NO. C 203-HJT-0110</p>		REV 2	

S THIS DRAWING PRODUCED ON SOLIDWORKS



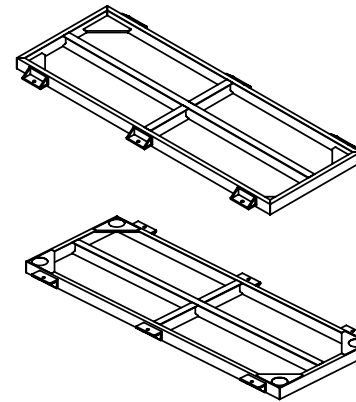
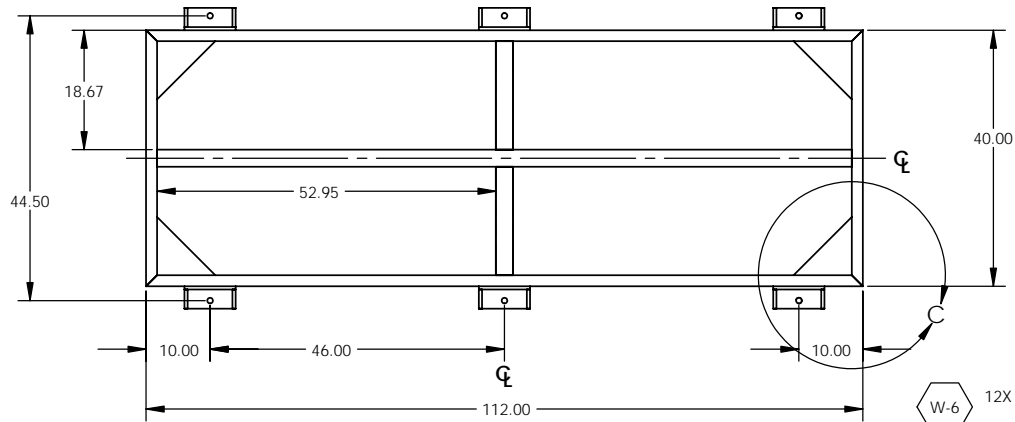
DETAIL B SCALE 1 : 5

NOTES

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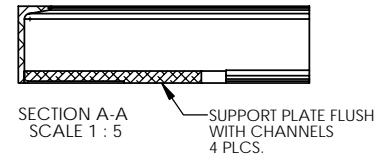
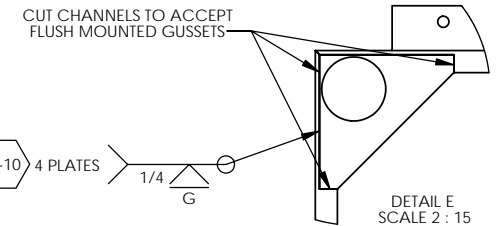
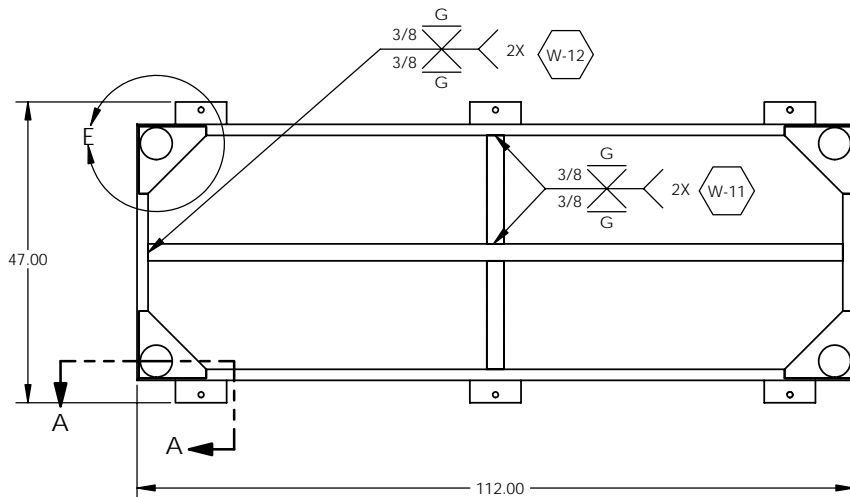
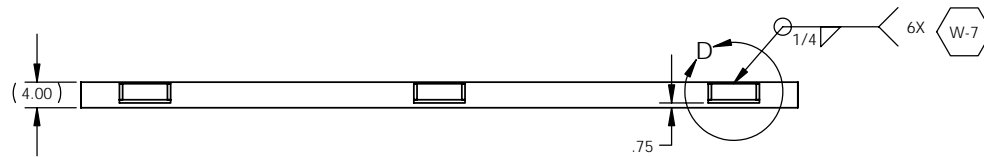
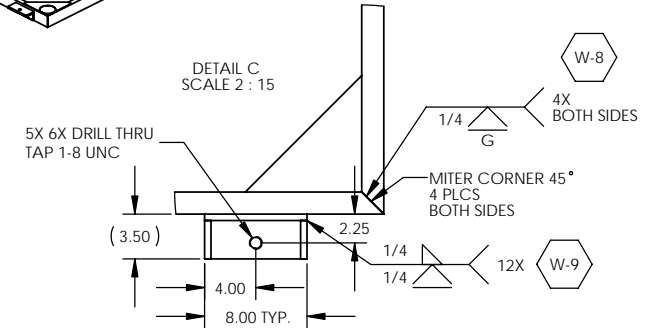
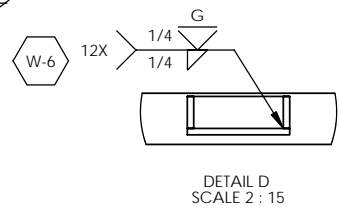
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<p>DRAWING APPROVALS</p>		<p>DATE</p>	<p>SIZE DWG NO. C 203-HJT-0110</p>	<p>SCALE 1:15</p>	<p>SHEET 2 of 3</p>
					<p>REV 2</p>

DWG NO. 203-HJT-0110

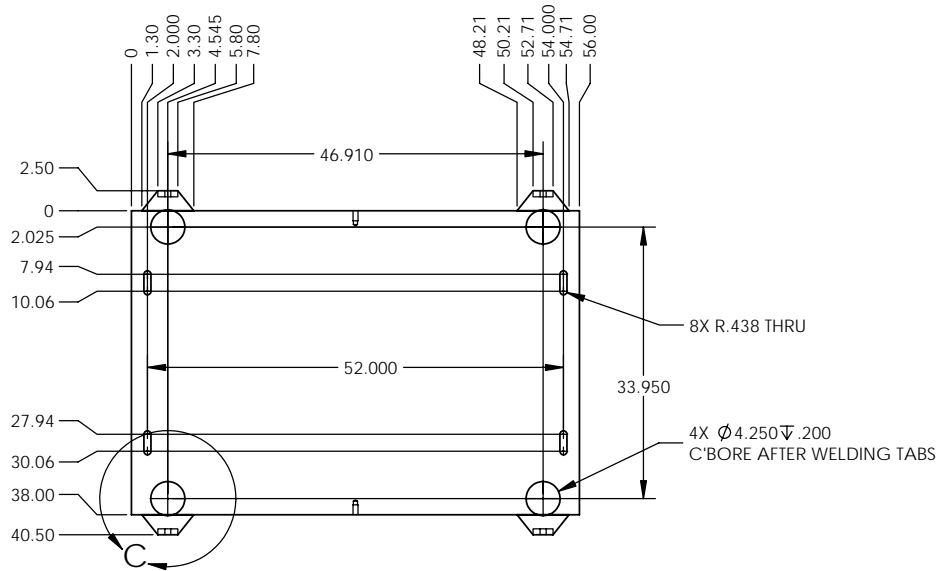


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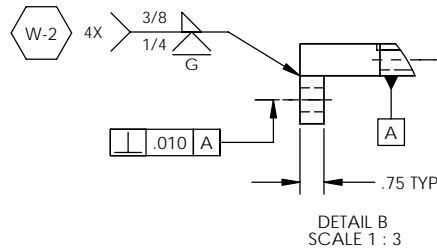
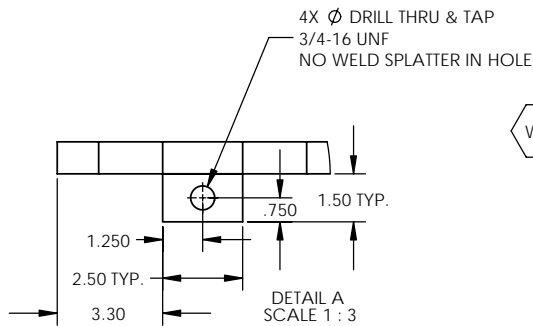
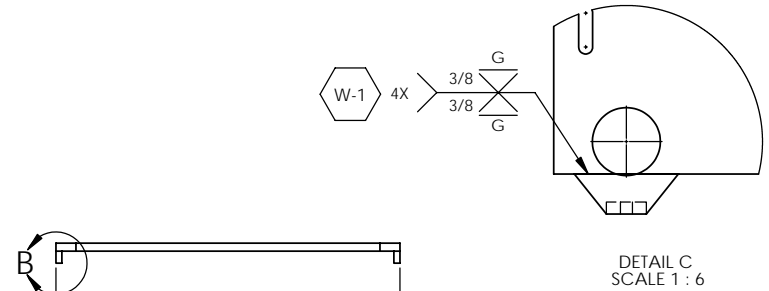
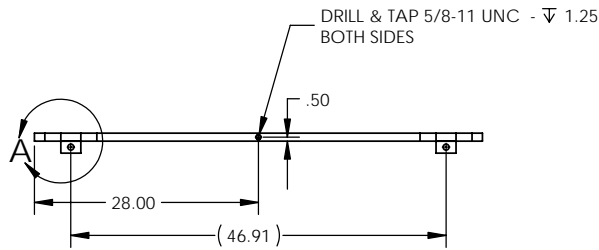
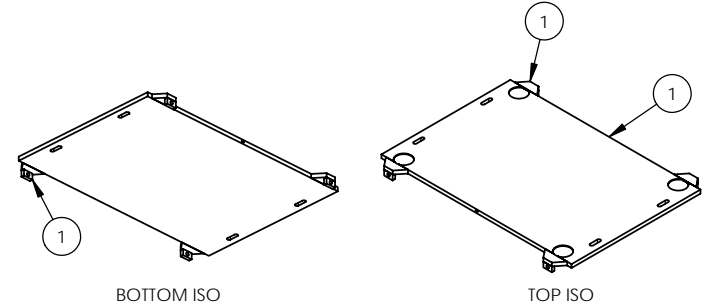


<p>THIRD-ANGLE PROJECTION</p>	This drawing was prepared by ORNL solely for use in work performed under Department of Energy contract number DE-AC05-00OR22725 and applicable Work for Others Agreements and Cooperative Research and Development Agreements. This drawing is property of ORNL and must be returned upon request.		<p>OAK RIDGE NATIONAL LABORATORY operated for the U.S. Department of Energy under contract DE-AC05-00OR22725 Oak Ridge, TN</p>			
	UNLESS OTHERWISE NOTED 1. ALL DIMENSIONS ARE IN INCHES 2. INTERPRET DIMENSIONS AND TOLERANCES PER ASME Y14.5M 3. MACHINED FINISH 125 MICRO-INCHES RMS 4. CONCENTRICITY .010 TIR 5. MACHINED ANGLES ±1/2° 6. FORMED ANGLES ±1° 7. BREAK SHARP CORNERS AND REMOVE ALL BURRS 8. WHOLE NUMBERS AND FRACTIONS ±1/16 9. X DECIMALS ±.030 10. XX DECIMALS ±.010 11. XXX DECIMALS ±.005		<p>REMOTE SYSTEMS GROUP NUCLEAR SCIENCE & TECHNOLOGY DIVISION</p>			
DES	V GRAVES	06/02/2005	<p>NUFACT HG JET EXPERIMENT COMMON BASEPLATE ASSY BASE WELDMENT</p>			
DRW	T OQUIN	06/02/2005				
CHK						
ENG	V GRAVES	06/02/2005				
QA			CAD FILE BASE WELDMENT HJT	PREV ASSY 203-HJT-0100	SCALE 1:10	SHEET 3 of 3
DRAWING APPROVALS		DATE	SIZE C	DWG NO. 203-HJT-0110	REV 2	



NOTES

1. WELDING & INSPECTIONS SHALL BE PERFORMED IN ACCORDANCE WITH AWS D.1.2
2. ALL WELDS SHALL BE DYE PENETRANT INSPECTED
3. MATERIAL CERTIFICATIONS REQUIRED



ITEM NO.	QTY.	DESCRIPTION	MATERIAL	LENGTH
3	4	PLATE, 6.50" x 2.50" x 1.00"	AL - 6061 T6511, ASTM B-221	6.50"
2	1	PLATE - 38.00" x 56.00" x 1.00"	AL - 6061 T651, ASTM B-209	56.00"
1	4	BAR, .75" x 1.50" x 2.50"	AL - 6061 T6511, ASTM B-221	2.50"

THIRD-ANGLE PROJECTION

UNLESS OTHERWISE NOTED
 1. ALL DIMENSIONS ARE IN INCHES
 2. INTERPRET DIMENSIONS AND TOLERANCES PER ASME Y14.5M
 3. MACHINED FINISH 125 MICRO-INCHES RMS
 4. CONCENTRICITY .010 TIR
 5. MACHINED ANGLES ±1/2°
 6. FORMED ANGLES ±1°
 7. BREAK SHARP CORNERS AND REMOVE ALL BURRS
 8. WHOLE NUMBERS AND FRACTIONS ±1/16
 9. X DECIMALS ±.030
 10. XX DECIMALS ±.010
 11. XXX DECIMALS ±.005

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ORNL OAK RIDGE NATIONAL LABORATORY
 operated for the U.S. Department of Energy under contract DE-AC05-00OR22725 Oak Ridge, TN

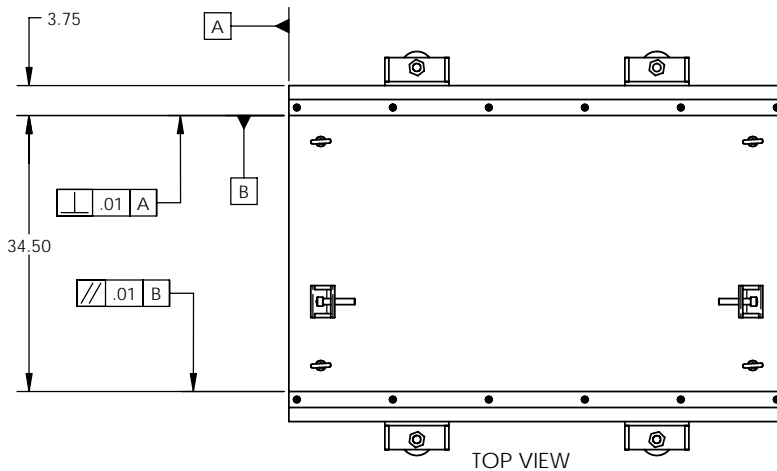
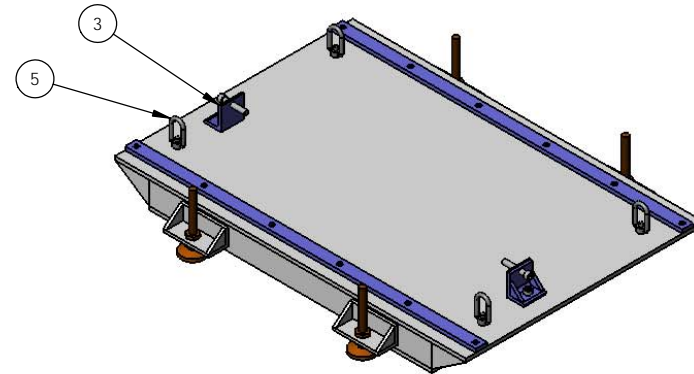
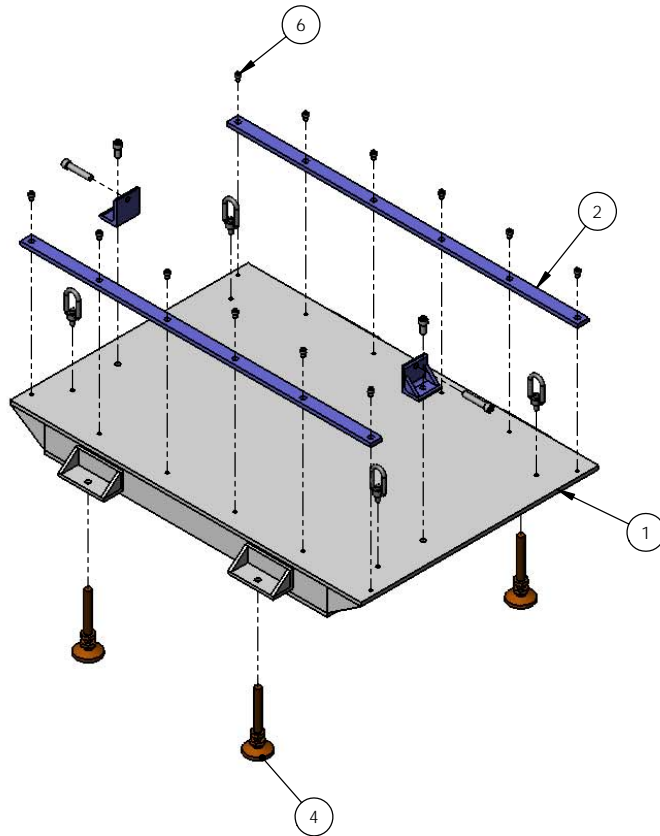
NSTB REMOTE SYSTEMS GROUP
 NUCLEAR SCIENCE & TECHNOLOGY DIVISION

DES	V GRAVES	06/03/2005
DRW	T OQUIN	06/03/2005
CHK		
ENG	V GRAVES	06/03/2005

CAD FILE	PREV ASSY	SCALE	SHEET
MAGNET SUPPORT PLATE HJT	203-HJT-0100	1:12	1 of 1
SIZE	DWG NO.		REV
C	203-HJT-0113		#

NOTES

1. MATERIAL CERTIFICATIONS REQUIRED

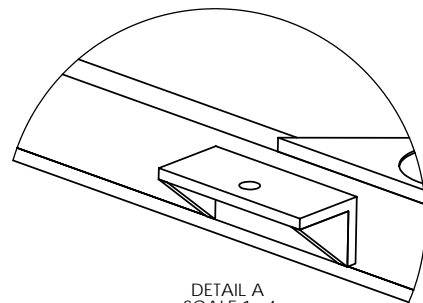
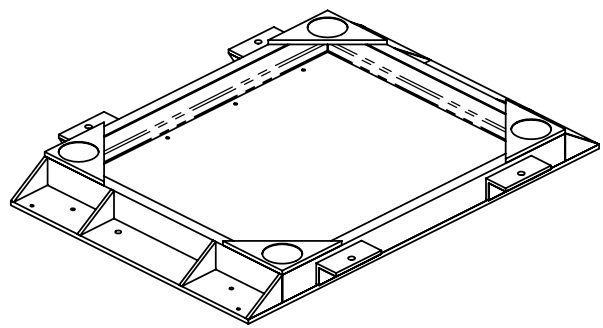
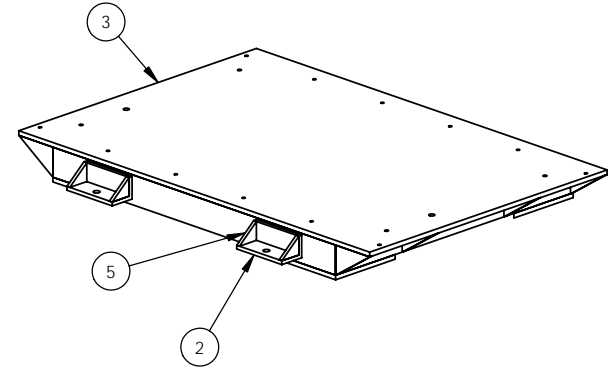
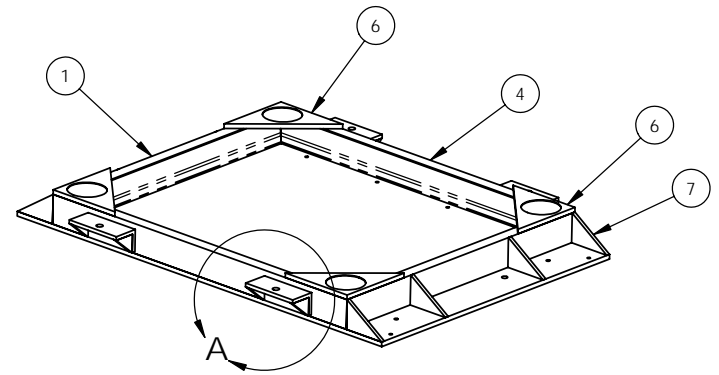


6	12	HX-SHCS 0.5-13x0.625x0.625-N	SS - 18-8	SHCS - 1/2-13 x .63	N/A
5	4	swivel hoist ring hjt	ALLOY STEEL - MACHINED	McMASTER-CARR #3145T23	N/A
4	4	leveling foot hjt	SS - 303	S & W MFG. CO., Bensenville, IL, Phone 888-538-3548, #SSW-5G	N/A
3	2	cart anchor assy hjt	---	CART ANCHOR ASSY	203-HJT-0120
2	2	flat rail hjt	SS - 304L	2" X 62" X 5/8" BAR	203-HJT-0202
1	1	base weldment hjt	AL - 6061 T6	BASE WELDMENT	203-HJT-0201
ITEM	Default/QTY.	NAME	MATERIAL	DESCRIPTION	DWG

<p>THIRD-ANGLE PROJECTION</p>	<p>This drawing was prepared by ORNL solely for use in work performed under Department of Energy contract number DE-AC05-00OR22725 and applicable Work for Others Agreements and Cooperative Research and Development Agreements. This drawing is property of ORNL and must be returned upon request.</p>			<p>OAK RIDGE NATIONAL LABORATORY operated for the U.S. Department of Energy under contract DE-AC05-00OR22725 Oak Ridge, TN</p>		
	<p>UNLESS OTHERWISE NOTED</p> <p>1. ALL DIMENSIONS ARE IN INCHES</p> <p>2. INTERPRET DIMENSIONS AND TOLERANCES PER ASME Y14.5M</p> <p>3. MACHINED FINISH 125 MICRO-INCHES RMS</p> <p>4. CONCENTRICITY .010 TIR</p> <p>5. MACHINED ANGLES ±1/2°</p> <p>6. FORMED ANGLES ±1°</p> <p>7. BREAK SHARP CORNERS AND REMOVE ALL BURRS</p> <p>8. WHOLE NUMBERS AND FRACTIONS ±1/16</p> <p>9. X DECIMALS ±.030</p> <p>10. XX DECIMALS ±.010</p> <p>11. XXX DECIMALS ±.005</p>			<p>REMOTE SYSTEMS GROUP NUCLEAR SCIENCE & TECHNOLOGY DIVISION</p>		
DES	V GRAVES	05/30/2005	<p>NUFACT HG JET EXPERIMENT TARGET TRANSPORTER ASSY</p>			
DRW	T OQUIN	05/30/2005				
CHK						
ENG	V GRAVES	05/30/2005				
QA			CAD FILE	PREV ASSY	SCALE	SHEET
			CARRIER BASE ASSY HJT	203-HJT-0001	1:12	1 of 1
DRAWING APPROVALS			DATE	SIZE	DWG NO.	REV
				C	203-HJT-0200	0

NOTES

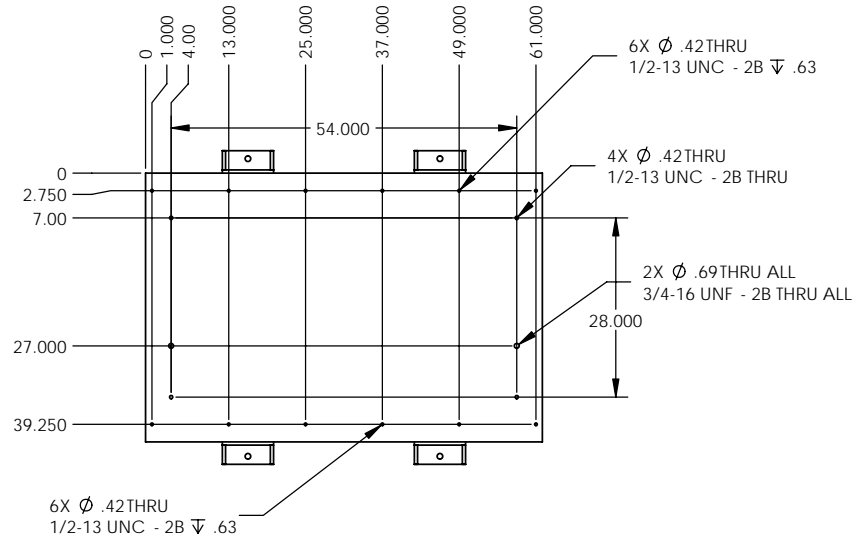
1. WELDING & INSPECTIONS SHALL BE PERFORMED IN ACCORDANCE WITH AWS D.1.2
2. ALL WELDS SHALL BE DYE PENETRANT INSPECTED
3. MATERIAL CERTIFICATIONS REQUIRED



DETAIL A
SCALE 1 : 4

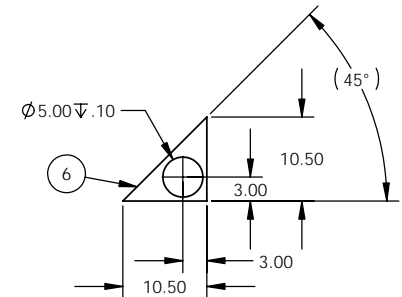
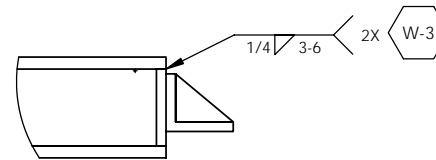
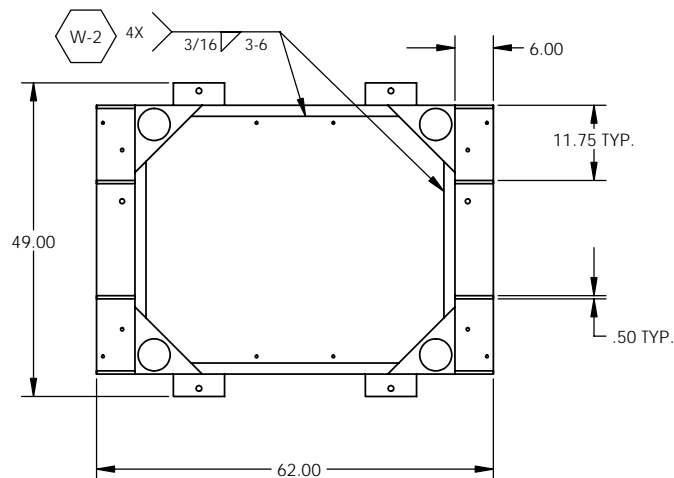
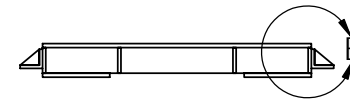
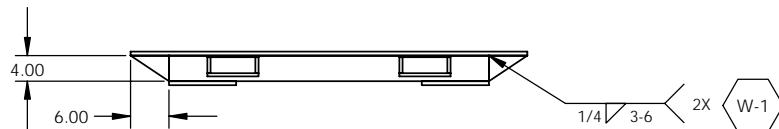
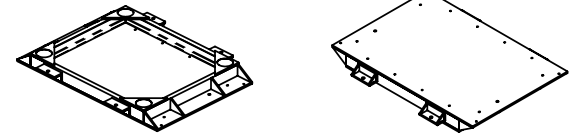
ITEM NO.	QTY.	DESCRIPTION	MATERIAL	LENGTH
7	8	PLATE, 4.00 x 6.00 x .50	AL - 6061 T6511, ASTM B-221	---
6	4	PLATE, 10.50 x 10.50 x .63	AL - 6061 T651, ASTM B-209	---
5	8	PLATE - 2.50 X 3.00 X .50	AL - 6061 T6511, ASTM B-221	---
4	2	AMER STD "C", 4.00 X 1.72 X .32	AL - 6061 T6, ASTM B-308	50
3	1	PLATE, 42.00 x 62.00 x .63	AL - 6061 T651, ASTM B-209	62.00
2	4	ANGLE - 3.00 X 3.50 X .50	AL - 6061 T6511, ASTM B-221	8.00
1	2	AMER STD "C", 4.00 X 1.72 X .32	AL - 6061 T6, ASTM B-308	42

<p>THIRD-ANGLE PROJECTION</p>	UNLESS OTHERWISE NOTED 1. ALL DIMENSIONS ARE IN INCHES 2. INTERPRET DIMENSIONS AND TOLERANCES PER ASME Y14.5M 3. MACHINED FINISH 125 MICRO-INCHES RMS 4. CONCENTRICITY .010 TIR 5. MACHINED ANGLES ±1/2° 6. FORMED ANGLES ±1° 7. BREAK SHARP CORNERS AND REMOVE ALL BURRS 8. WHOLE NUMBERS AND FRACTIONS ±1/16 9. X DECIMALS ±.030 10. XX DECIMALS ±.010 11. XXX DECIMALS ±.005		This drawing was prepared by ORNL solely for use in work performed under Department of Energy contract number DE-AC05-00OR22725 and applicable Work for Others Agreements and Cooperative Research and Development Agreements. This drawing is property of ORNL and must be returned upon request.		<p>OAK RIDGE NATIONAL LABORATORY operated for the U.S. Department of Energy under contract DE-AC05-00OR22725 Oak Ridge, TN</p>			
	DES V GRAVES 06/02/2005 DRW T OQUIN 06/02/2005 CHK ENG V GRAVES 06/02/2005	<p>REMOTE SYSTEMS GROUP NUCLEAR SCIENCE & TECHNOLOGY DIVISION</p>		<p>NUFACT HG JET EXPERIMENT TARGET TRANSPORTER ASSY TRANSPORTER BASE WELDMENT</p>		CAD FILE BASE WELDMENT HJT	PREV ASSY 203-HJT-0200	SCALE 1:12
DRAWING APPROVALS		DATE	SIZE C	DWG NO. 203-HJT-0201		REV 2		



NOTES

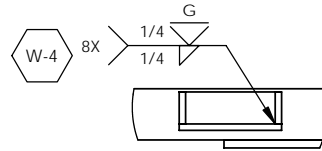
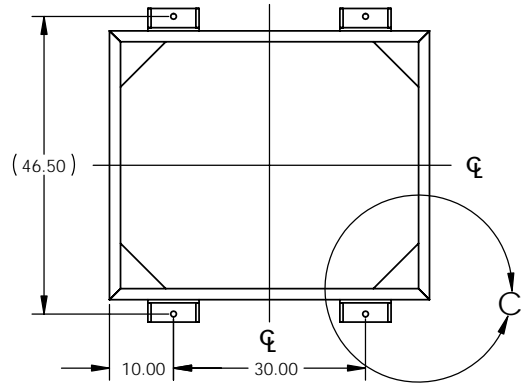
1. WELDING & INSPECTIONS SHALL BE PERFORMED IN ACCORDANCE WITH AWS D.1.2
2. ALL WELDS SHALL BE DYE PENETRANT INSPECTED
3. MATERIAL CERTIFICATIONS REQUIRED



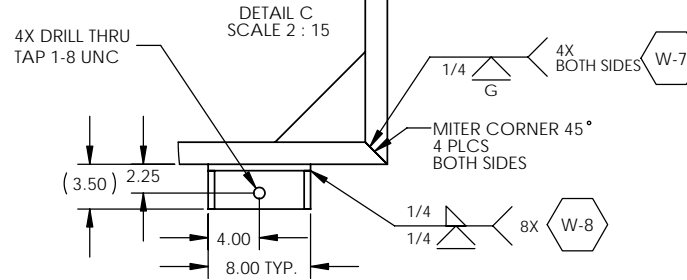
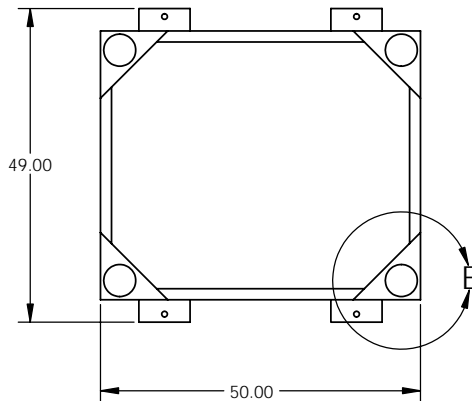
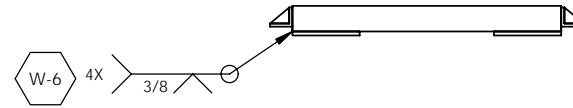
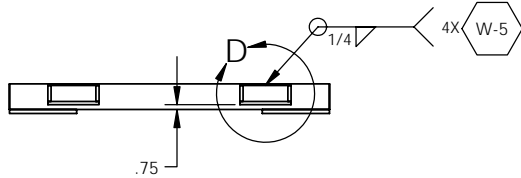
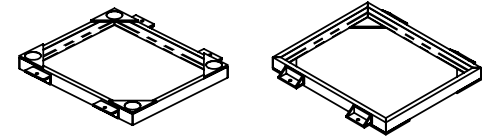
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DES V GRAVES 06/02/2005 DRW T OQUIN 06/02/2005 CHK ENG V GRAVES 06/02/2005 QA	NUFAC HG JET EXPERIMENT TARGET TRANSPORTER ASSY TRANSPORTER BASE WELDMENT			CAD FILE BASE WELDMENT HJT	PREV ASSY 203-HJT-0200	SCALE 1:15	SHEET 2 of 3
DRAWING APPROVALS		DATE	SIZE C	DWG NO. 203-HJT-0201		REV 2	

NOTES

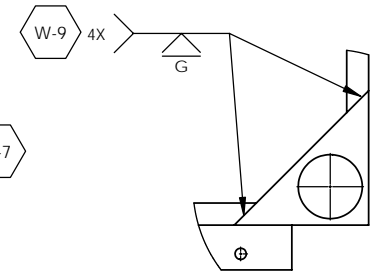
1. WELDING & INSPECTIONS SHALL BE PERFORMED IN ACCORDANCE WITH AWS D.1.2
2. ALL WELDS SHALL BE DYE PENETRANT INSPECTED
3. MATERIAL CERTIFICATIONS REQUIRED



DETAIL D
SCALE 2 : 15



DETAIL C
SCALE 2 : 15



DETAIL E
SCALE 2 : 15

<p>THIRD-ANGLE PROJECTION</p>	This drawing was prepared by ORNL solely for use in work performed under Department of Energy contract number DE-AC05-00OR22725 and applicable Work for Others Agreements and Cooperative Research and Development Agreements. This drawing is property of ORNL and must be returned upon request.			<p>OAK RIDGE NATIONAL LABORATORY operated for the U.S. Department of Energy under contract DE-AC05-00OR22725 Oak Ridge, TN</p>	
	UNLESS OTHERWISE NOTED 1. ALL DIMENSIONS ARE IN INCHES 2. INTERPRET DIMENSIONS AND TOLERANCES PER ASME Y14.5M 3. MACHINED FINISH 125 MICRO-INCHES RMS 4. CONCENTRICITY .010 TIR 5. MACHINED ANGLES ±1/2° 6. FORMED ANGLES ±1° 7. BREAK SHARP CORNERS AND REMOVE ALL BURRS 8. WHOLE NUMBERS AND FRACTIONS ±1/16 9. X DECIMALS ±.030 10. XX DECIMALS ±.010 11. XXX DECIMALS ±.005			<p>REMOTE SYSTEMS GROUP NUCLEAR SCIENCE & TECHNOLOGY DIVISION</p>	
DES V GRAVES 06/02/2005 DRW T OQUIN 06/02/2005 CHK ENG V GRAVES 06/02/2005 QA			<p>NUFACT HG JET EXPERIMENT TARGET TRANSPORTER ASSY TRANSPORTER BASEPLATE WELDMENT</p>		
DRAWING APPROVALS DATE			CAD FILE BASE WELDMENT HJT	PREV ASSY 203-HJT-0200	SCALE 1:10
SIZE DWG NO.			SHEET 3 of 3		
C			REV 2		
203-HJT-0201			203-HJT-0201		