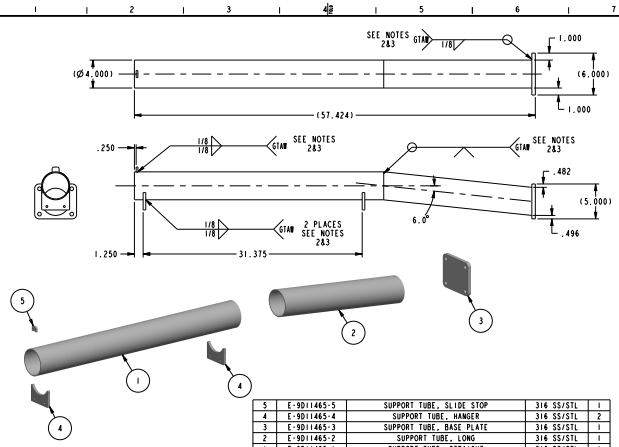
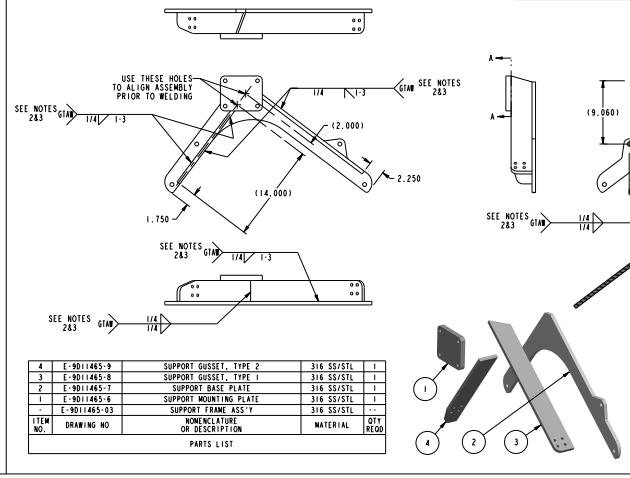
NO.	REVISION	WP NO.	BY	CH	SUP	APPROVED	DATE
0	ISSUED PER ECN #7725	2064	MS	JM	LM	M. SIBILIA	5/27/2016



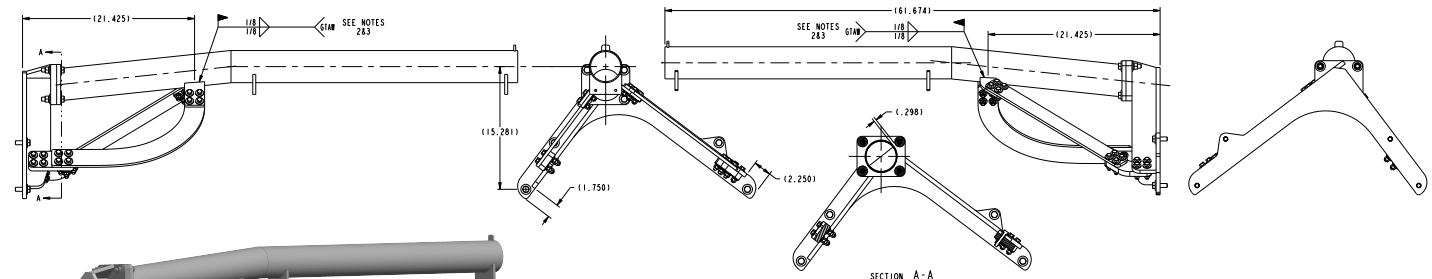
ITEM NO.	DRAWING NO	NOMENCLATURE OR DESCRIPTION	MATERIAL	QTY REQD
5	E-9D11465-5	SUPPORT TUBE, SLIDE STOP	316 SS/STL	1
4	E-9D11465-4	SUPPORT TUBE, HANGER	316 SS/STL	2
3	E-9D11465-3	SUPPORT TUBE, BASE PLATE	316 SS/STL	1
2	E-9D11465-2	SUPPORT TUBE, LONG	316 SS/STL	1
1	E-9D11465-1	SUPPORT TUBE, STRAIGHT	316 SS/STL	1
-	E-9D11465-02	SUPPORT TUBE ASS'Y	316 SS/STL	--

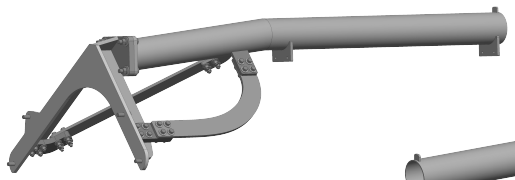
PARTS LIST

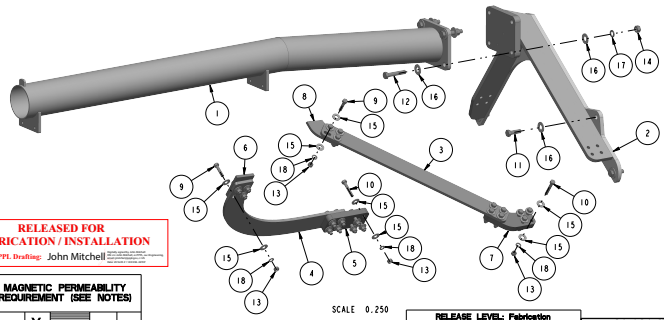


ITEM NO.	DRAWING NO	NOMENCLATURE OR DESCRIPTION	MATERIAL	QTY REQD
4	E-9D11465-9	SUPPORT GUSSET, TYPE 2	316 SS/STL	1
3	E-9D11465-8	SUPPORT GUSSET, TYPE 1	316 SS/STL	1
2	E-9D11465-7	SUPPORT BASE PLATE	316 SS/STL	1
1	E-9D11465-6	SUPPORT MOUNTING PLATE	316 SS/STL	1
-	E-9D11465-03	SUPPORT FRAME ASS'Y	316 SS/STL	--

PARTS LIST







ITEM NO.	DRAWING NO	NOMENCLATURE OR DESCRIPTION	MATERIAL	QTY REQD
18	151339	3/8 SPLIT LOCK WASHER	316 S/S	24
17	151337	1/2 SPLIT LOCK WASHER	316 S/S	4
16	151321	1/2 FLAT WASHER	316 S/S	12
15	151319	3/8 FLAT WASHER	316 S/S	48
14	150262	1/2-13 UNC-2B HEX NUT	18-8 SS	4
13	150260	3/8-16 UNC-2B HEX NUT	316 S/S	24
12	150061	1/2-13 UNC-2A x 2 1/2 LG HEX HEAD BOLT	316 S/S	4
11	150059	1/2-13 UNC-2A x 1 1/2 LG HEX HEAD BOLT	316 S/S	4
10	150052	3/8-16 UNC-2A x 2" LG HEX HEAD BOLT	316 S/S	16
9	150050	3/8-16 UNC-2A x 1 1/2 LG HEX HEAD BOLT	316 S/S	8
8	E-9D11465-17	SUPPORT GUSSET, TYPE 2	316 SS/STL	1
7	E-9D11465-16	SUPPORT BRACKET INSULATOR, TYPE 2	G-10	1
6	E-9D11465-15	SUPPORT GUSSET, TYPE 1	316 SS/STL	1
5	E-9D11465-14	SUPPORT BRACKET INSULATOR, TYPE 1	G-10	1
4	E-9D11465-13	SUPPORT BRACKET, TYPE 2	316 SS/STL	1
3	E-9D11465-12	SUPPORT BRACKET, TYPE 1	316 SS/STL	1
2	E-9D11465-03	SUPPORT FRAME ASS'Y	316 SS/STL	1
1	E-9D11465-02	SUPPORT TUBE ASS'Y	316 SS/STL	1
-	E-9D11465-01	SUPPORT TUBE AND FRAME ASS'Y	316 SS/STL	--
ITEM NO.	DRAWING NO	NOMENCLATURE OR DESCRIPTION	MATERIAL	QTY REQD

PARTS LIST

NSX4-E-9D11465

NOTES:

1. REMOVE ALL SHARP CORNERS AND BURRS.
2. WELDING SHALL BE PERFORMED IN ACCORDANCE WITH ASME B31.3.
3. WELD INSPECTION SHALL BE PERFORMED IN ACCORDANCE WITH THE ACCEPTANCE CRITERIA OF B31.3, CATEGORY D.
4. MAGNETIC PERMEABILITY OF S/S PARTS USING SEVERN GAUGE SHALL NOT EXCEED THE FOLLOWING:
   BASE MATERIAL: 1.05 mu
   MACHINED: 1.4 mu
   WELDED: 2.0 mu
5. SHEET 4 TO BE USED AS A TEMPLATE FOR A ONE TO ONE IN FIELD CLEARANCE CHECK.

RELEASED FOR FABRICATION / INSTALLATION
PPPL Drafting: John Mitchell

GENERAL NOTES

1. PPPL APPROVED DRAWINGS TAKE PRECEDENCE OVER MODEL DIMENSIONS.
2. WHEN MODELS ARE PROVIDED, VENDOR MUST VERIFY THAT MODEL DIMENSIONS CONFORM WITH PPPL APPROVED DRAWINGS PRIOR TO FABRICATION.

MAGNETIC PERMEABILITY REQUIREMENT (SEE NOTES)

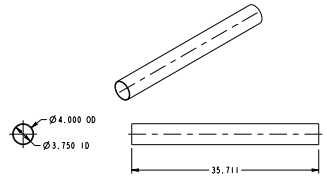
YES	X	NO

COMPUTER GENERATED DRAWING MANUAL CHANGES NOT PERMITTED	CENTRAL FILES: UNLESS OTHERWISE SPECIFIED	PRINCETON PLASMA PHYSICS LABORATORY PRINCETON UNIVERSITY NATIONAL SPHERICAL TORUS EXPERIMENT
Pro E	DIMENSIONS ARE IN INCHES MACHINE SURFACES	DIAGNOSTIC SYSTEMS BAY L, MID-PLANE, FUSION PRODUCTS SUPPORT TUBE AND FRAME ASS'Y
DO NOT SCALE INFORMATION BY SCALING DRAWING	BREAK SHARP EDGES .005/.020	
SCALE:	TOLERANCES NON-CUMULATIVE	DIV: MECH. ENG. DATE: 4/20/2016
NEXT ASSEMBLY	DECIMAL INCH / FRACTIONS	ENG: M. SIBILIA / APPROVED
E-9D11460	.X ±.100 / .XX ±.030 / .XXX ±.010 / ANGULAR ±0°-15' / 1/2 ±1/16 / 1/4 ±1/32 / 1/8 ±1/64 / UNDER 1/8" ±1/128	DSN: M. SIBILIA / M. SIBILIA; DWN: J. MITCHELL / 5-27-16
		E-9D11465
		SHEET 1 OF 4 REV 0

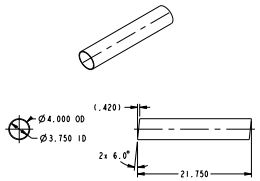
RELEASE LEVEL: Fabrication
DWG VERSION NO: 0.2

WELDING ENGINEER
APPVD: DATE:

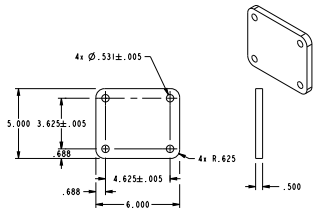
NO.	REVISION	WP NO.	BY	CH	SUP	APPROVED	DATE



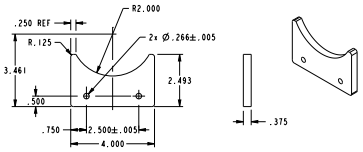
E-9D11465-1	SUPPORT TUBE, STRAIGHT	316 SS/STL
PART NUMBER	DESCRIPTION	MATERIAL



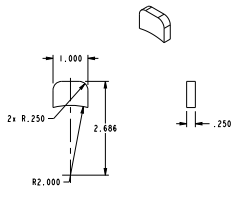
E-9D11465-2	SUPPORT TUBE, LONG	316 SS/STL
PART NUMBER	DESCRIPTION	MATERIAL



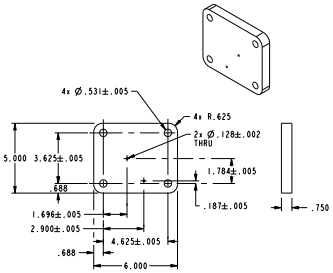
E-9D11465-3	SUPPORT TUBE, BASE PLATE	316 SS/STL
PART NUMBER	DESCRIPTION	MATERIAL



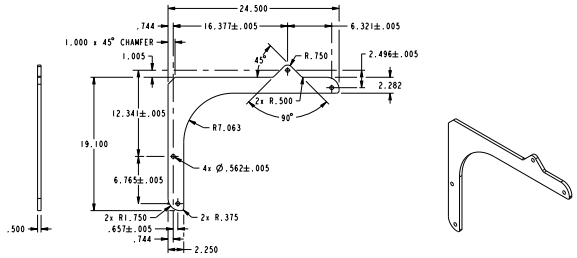
E-9D11465-4	SUPPORT TUBE, HANGER	316 SS/STL
PART NUMBER	DESCRIPTION	MATERIAL



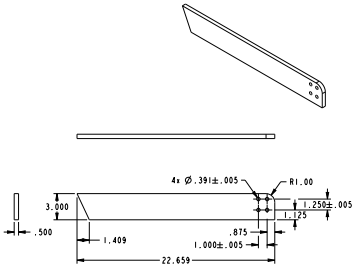
E-9D11465-5	SUPPORT TUBE, SLIDE STOP	316 SS/STL
PART NUMBER	DESCRIPTION	MATERIAL



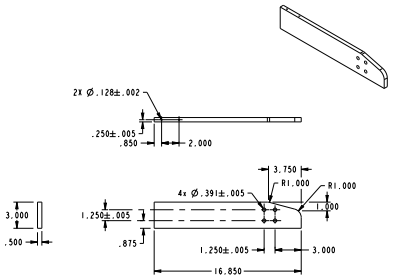
E-9D11465-6	SUPPORT MOUNTING PLATE	316 SS/STL
PART NUMBER	DESCRIPTION	MATERIAL



E-9D11465-7	SUPPORT BASE PLATE	316 SS/STL
PART NUMBER	DESCRIPTION	MATERIAL



E-9D11465-8	SUPPORT GUSSET, TYPE 1	316 SS/STL
PART NUMBER	DESCRIPTION	MATERIAL



E-9D11465-9	SUPPORT GUSSET, TYPE 2	316 SS/STL
PART NUMBER	DESCRIPTION	MATERIAL

FOR NOTES AND BILL OF MATERIAL SEE SHEET 1

GENERAL NOTES

1. PPPL APPROVED DRAWINGS TAKE PRECEDENCE OVER MODEL DIMENSIONS.
2. WHEN MODELS ARE PROVIDED, VENDOR MUST VERIFY THAT MODEL DIMENSIONS CONFORM WITH PPPL APPROVED DRAWINGS PRIOR TO FABRICATION.

MAGNETIC PERMEABILITY REQUIREMENT (SEE NOTES)

YES X NO

RELEASED FOR FABRICATION / INSTALLATION

PPPL Drafting: John Mitchell

Digitally signed by John Mitchell
DN: cn=John Mitchell, o=Princeton Plasma Physics Laboratory, ou=Engineering, email=jmitchell@pppl.gov, c=US
Date: 2014.05.01 14:02:17 -04'00'

RELEASE LEVEL: Fabrication

DWG VERSION NO: 0.10

WELDING ENGINEER APPVD: DATE:

COMPUTER GENERATED DRAWING MANUAL CHANGES NOT PERMITTED

Pro E

DO NOT SCALE INFORMATION BY SCALING DRAWING

SCALE:

NEXT ASSEMBLY: E-9D11460

CENTRAL FILES:

UNLESS OTHERWISE SPECIFIED

DIMENSIONS ARE IN INCHES MACHINE SURFACES

BREAK SHARP EDGES .005/.020

TOLERANCES NON-CUMULATIVE

DECIMAL: .XXX ±.100 .XX ±.030 .XXXX ±0°-15' FRACTIONS ±1/64 ANGLES ±1/2°

PRINCETON PLASMA PHYSICS LABORATORY
PRINCETON UNIVERSITY
NATIONAL SPHERICAL TORUS EXPERIMENT

DIAGNOSTIC SYSTEMS
BAY L MID-PLANE, FUSION PRODUCTS
SUPPORT TUBE AND FRAME ASS'Y

DIV: MECH. ENG. DATE: 4/21/2014

ENG: M. SIBILIA

DSN: M. SIBILIA

CHK: J. MITCHELL

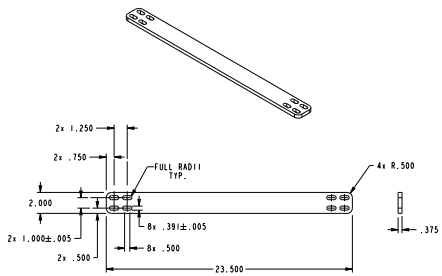
APPROVED: M. SIBILIA

E-9D11465

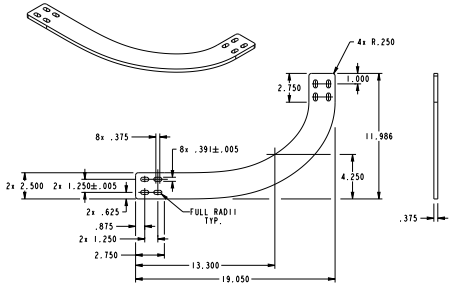
SHEET 2 OF 4 REV 0

NSTX-E-9D11465

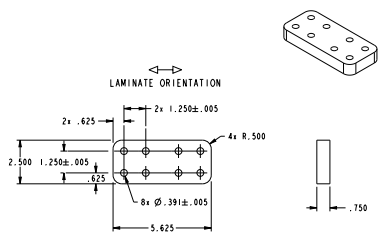
NO.	REVISION	WP NO.	BY	CH	SUP	APPROVED	DATE



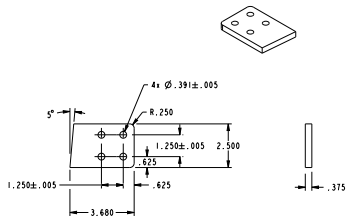
E-9011465-12	SUPPORT BRACKET, TYPE 1	316 SS/STL
PART NUMBER	DESCRIPTION	MATERIAL



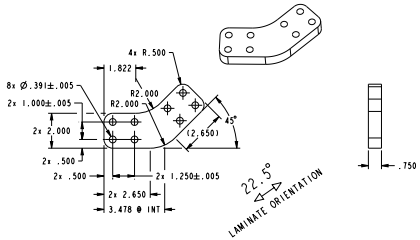
E-9011465-13	SUPPORT BRACKET, TYPE 2	316 SS/STL
PART NUMBER	DESCRIPTION	MATERIAL



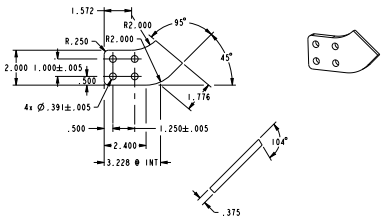
E-9011465-14	SUPPORT BRACKET INSULATOR, TYPE 1	G-10
PART NUMBER	DESCRIPTION	MATERIAL



E-9011465-15	SUPPORT GUSSET, TYPE 1	316 SS/STL
PART NUMBER	DESCRIPTION	MATERIAL



E-9011465-16	SUPPORT BRACKET INSULATOR, TYPE 2	G-10
PART NUMBER	DESCRIPTION	MATERIAL



E-9011465-17	SUPPORT GUSSET, TYPE 2	316 SS/STL
PART NUMBER	DESCRIPTION	MATERIAL

FOR NOTES AND BILL OF MATERIAL SEE SHEET 1

GENERAL NOTES

1. PPPL APPROVED DRAWINGS TAKE PRECEDENCE OVER MODEL DIMENSIONS.
2. WHEN MODELS ARE PROVIDED, VENDOR MUST VERIFY THAT MODEL DIMENSIONS CONFORM WITH PPPL APPROVED DRAWINGS PRIOR TO FABRICATION.

MAGNETIC PERMEABILITY REQUIREMENT (SEE NOTES)

YES	X	NO

RELEASED FOR FABRICATION / INSTALLATION

PPPL Drafting: John Mitchell

RELEASE LEVEL: Fabrication

DWG VERSION NO: 0.5

WELDING ENGINEER

APPVD: DATE:

COMPUTER GENERATED DRAWING MANUAL CHANGES NOT PERMITTED

DO NOT VERIFY INFORMATION BY SCALING DRAWING

SCALE:

NEXT ASSEMBLY: E-9011460

CENTRAL FILES:

UNLESS OTHERWISE SPECIFIED

Pro E

DIMENSIONS ARE IN INCHES MACHINE SURFACES 63

BREAK SHARP EDGES .005/.020

TOLERANCES NON-CUMULATIVE

DECIMAL: INCH — A .X ±.100; B .XX ±.030; C .XXX ±.010; FRACTIONS ±1/16; ±0°-30'; ±0.010; ±0.005

ANGULAR ±0°-15'

PRINCETON PLASMA PHYSICS LABORATORY
PRINCETON UNIVERSITY
NATIONAL SPHERICAL TORUS EXPERIMENT

DIAGNOSTIC SYSTEMS
BAY L MID-PLANE, FUSION PRODUCTS
SUPPORT TUBE AND FRAME ASS'Y

DIV: MECH, ENG.

DATE: 4/20/2016

ENG: M. SIBILIA

DSN: M. SIBILIA

CHK: J. MITCHELL

APPROVED

M. SIBILIA

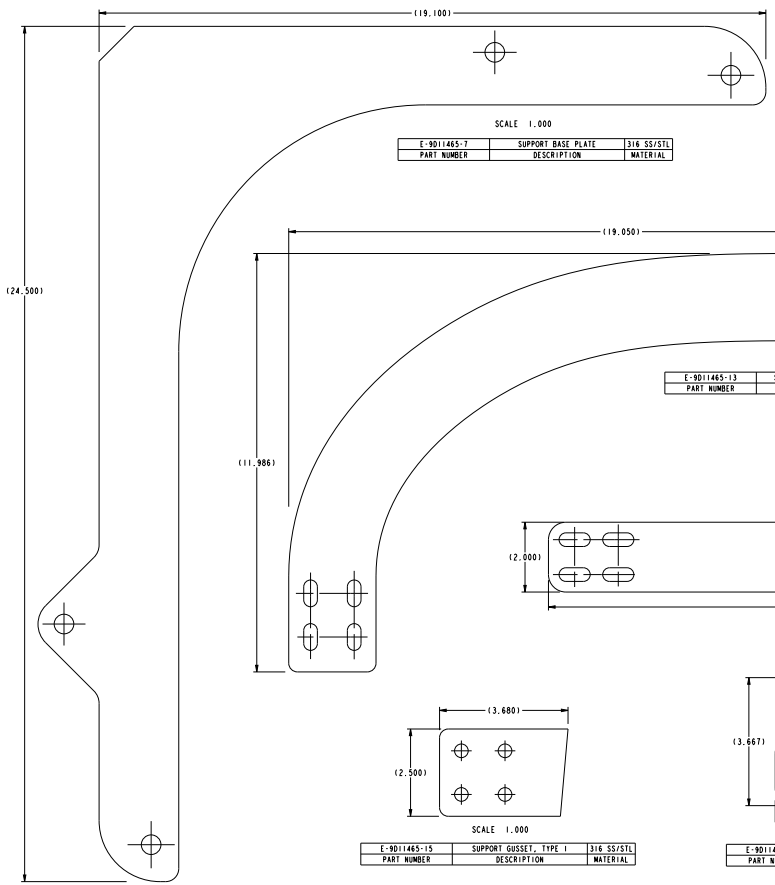
E-9011465

SHEET 3 OF 4

REV 0

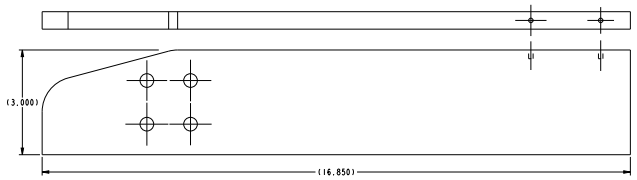
NSTX-E-9011465

NO.	REVISION	WP NO.	BY	CH	SUP	APPROVED	DATE



SCALE 1.000

E-9D11465-7	SUPPORT BASE PLATE	316 SS/STL
PART NUMBER	DESCRIPTION	MATERIAL

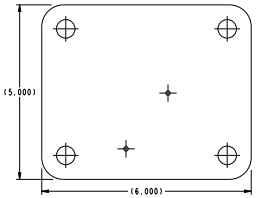


SCALE 1.000

E-9D11465-9	SUPPORT GUSSET, TYPE 2	316 SS/STL
PART NUMBER	DESCRIPTION	MATERIAL

SCALE 1.000

E-9D11465-13	SUPPORT BRACKET, TYPE 2	316 SS/STL
PART NUMBER	DESCRIPTION	MATERIAL



SCALE 1.000

E-9D11465-6	SUPPORT MOUNTING PLATE	316 SS/STL
PART NUMBER	DESCRIPTION	MATERIAL

SCALE 1.000

E-9D11465-12	SUPPORT BRACKET, TYPE 1	316 SS/STL
PART NUMBER	DESCRIPTION	MATERIAL

SCALE 1.000

E-9D11465-15	SUPPORT GUSSET, TYPE 1	316 SS/STL
PART NUMBER	DESCRIPTION	MATERIAL

SCALE 1.000

E-9D11465-16	SUPPORT BRACKET INSULATOR, TYPE 2	G-10
PART NUMBER	DESCRIPTION	MATERIAL

SCALE 1.000

E-9D11465-17	SUPPORT GUSSET, TYPE 2	316 SS/STL
PART NUMBER	DESCRIPTION	MATERIAL

SCALE 1.000

E-9D11465-14	SUPPORT BRACKET INSULATOR, TYPE 1	G-10
PART NUMBER	DESCRIPTION	MATERIAL

SCALE 1.000

E-9D11465-8	SUPPORT GUSSET, TYPE 1	316 SS/STL
PART NUMBER	DESCRIPTION	MATERIAL

FOR NOTES AND BILL OF MATERIAL SEE SHEET 1

GENERAL NOTES

1. PPPL APPROVED DRAWINGS TAKE PRECEDENCE OVER MODEL DIMENSIONS.
2. WHEN MODELS ARE PROVIDED, VENDOR MUST VERIFY THAT MODEL DIMENSIONS CONFORM WITH PPPL APPROVED DRAWINGS PRIOR TO FABRICATION.

MAGNETIC PERMEABILITY REQUIREMENT (SEE NOTES)

YES X NO

RELEASED FOR FABRICATION / INSTALLATION

PPPL Drafting: John Mitchell

RELEASE LEVEL: Fabrication

DWG VERSION NO: 0.6

MELDING ENGINEER

APPVD: DATE:

COMPUTER GENERATED DRAWING MANUAL CHANGES NOT PERMITTED

DO NOT VERIFY INFORMATION BY SCALING DRAWING

SCALE:

NEXT ASSEMBLY: E-9D11460

CENTRAL FILES:

UNLESS OTHERWISE SPECIFIED

Pro E

DIMENSIONS ARE IN INCHES MACHINE SURFACES 63

BREAK SHARP EDGES .005/.020

TOLERANCES NON-CUMULATIVE

DECIMAL INCH: .X ±.100 .XX ±.030 .XXX ±.010 .XXXX ±0°-15'

FRACTIONS ±1/16 ±1/32 ±1/64 ±0°-30'

PRINCETON PLASMA PHYSICS LABORATORY
PRINCETON UNIVERSITY
NATIONAL SPHERICAL TORUS EXPERIMENT

DIAGNOSTIC SYSTEMS
BAY L MID-PLANE, FUSION PRODUCTS
SUPPORT TUBE AND FRAME ASS'Y

DIV: MECH. ENG. DATE: 4/20/2016

ENG: M. SIBILIA

DSN: M. SIBILIA

CHK: J. MITCHELL

APPROVED: M. SIBILIA

E-9D11465

SHEET 4 OF 4 REV 0

NSTX-E-9D11465