NOTES:

101. ALL DIMENSIONS ARE IN MILLIMETERS (mm) AND VALUES ARE IN SI UNITS. DIMENSIONS AND VALUES IN BRACKETS ARE U.S. CUSTOMARY UNITS (inch) CONVERTED FROM MILLIMETERS / SI UNITS.

105 PERMANENTLY MARKED PER EG-1002-1985 AND SAE AS478,15B2, APPROXIMATELY WHERE SHOWN IN 3mm HGH CHARACTERS

107. INSPECTION / ACCEPTANCE TO BE MEASURED AND RECORDED IN SI UNITS.

901. SPACECLAIM SHOWN IN THIS DOCUMENT APPLY FOR THE MAGNET ASSEMBLY LISTED IN TABLE ITEM 1.

902. MAGNET SUB-COMPONENT ENVELOPES REPRESENT MAXIMUM ALLOWABLE SIZES OF RESPECTIVE SUB-COMPONENTS AT MMC THAT ALL COMPONENTS OF RESPECTIVE SUB-COMPONENTS MUST RESIDE IN.

903. DESIGNATED COMPONENT SPACECLAIM LOCATIONS DEFINED WITH RESPECT TO OVERALL MAGNET ASSY. SPACECLAIM SPECIFICATIONS DEFINED BY VIEWS OF SPACECLAIM AND ALL COMPONENTS WITHIN SPACECLAIM.

904. SEE TABLE ITEM 2, MECHANICAL REQUIREMENTS DOCUMENT FOR COIL SPECIFICATIONS .

905. SEE TABLE ITEM 1, DRAWING FOR ELECTRICAL CIRCUIT DIAGRAMS AND THERMAL SWITCH TERMINAL BLOCK LABELLING.

906. SEE TABLE ITEM 2, MECHANICAL REQUIREMENTS DOCUMENT FOR PREFERRED INSULATION STYLE.

907. MINIMUM BEND RADIUS OF COIL LEADS 2X OUTSIDE DIMENSION OF COIL CONDUCTOR.

908. THERMAL SWITCHES ON EXHAUST OF EACH HYDRAULIC CIRCUIT. THERMAL SWITCHES PLACED PROXIMAL TO COIL PACK. INCLUDE ELECTRICALLY INSULATING CAP ON EACH THERMAL SWITCH. SEE TABLE ITEM 2, MECHANICAL REQUIREMENTS DOCUMENT FOR THERMAL SWITCH SPECIFICATION.

909. SEE TABLE ITEM 2, MECHANICAL REQUIREMENTS DOCUMENT FOR BUSBAR MAX CROSS SECTION CURRENT DENSITY.

910. SEE TABLE ITEM 2, MECHANICAL REQUIREMENTS DOCUMENT FOR BUS ENCLOSURE DESIGN REQUIREMENTS.

911. BUSBAR TABS FOR POWER INPUT AND OUTPUT CONNECTIONS TO BE DESIGNED TO ACCOMODATE LUGS SPECIFIED IN MECHANICAL REQUIREMENTS DOCUMENT.

912 MANIFOLD BASE PLATE MUST BE ELECTRICALLY GROUNDED TO THE YOKE

913 DATUM A, B, AND C SHOWN ON SHEET 1 APPLIES TO SHEET 3, 4, 5, AND 6.

914 VENDOR MUST SUPPLY JIC/AN SSTL END CAP FITTINGS.

915. ALL HOSES MUST SATISFY MINIMUM BEND RADIUS AS SPECIFIED IN MECHANICAL REQUIREMENTS DOCUMENT.

916. SEE TABLE ITEM 2, MECHANICAL REQUIREMENTS DOCUMENT FOR HOSE AND FITTING SPECIFICATIONS.

917. SEE TABLE ITEM 2, MECHANICAL REQUIREMENTS DOCUMENT FOR HOSE BUNDLING SPECIFICATIONS.

918. SEE TABLE ITEM 2, MECHANICAL REQUIREMENTS DOCUMENT FOR PREFERRED INSULATION STYLE.

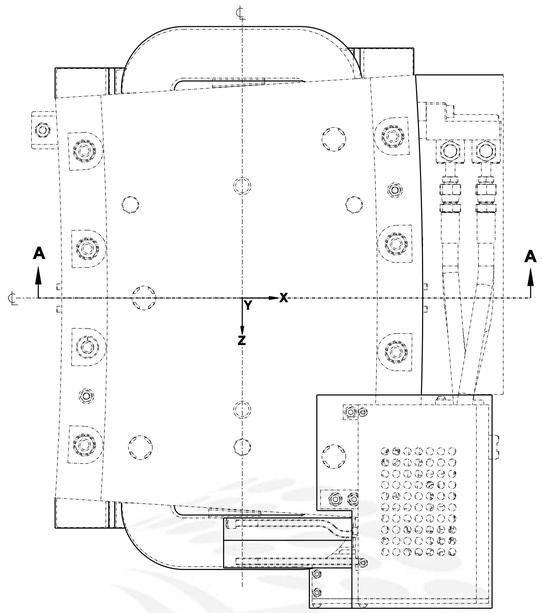
919. SEE TABLE ITEM 2, MECHANICAL REQUIREMENTS DOCUMENT MINIMUM BEND RADIUS OF CORRECTOR COIL LEADS.

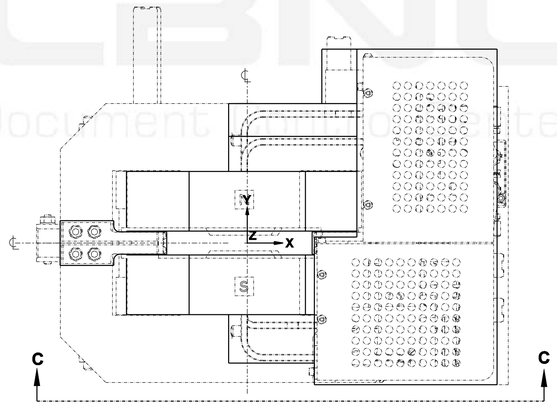
920. TERMINAL BLOCKS MUST ACCOMODATE LUGS SPECIFIED IN THE MECHANICAL REQUIREMENTS DOCUMENT

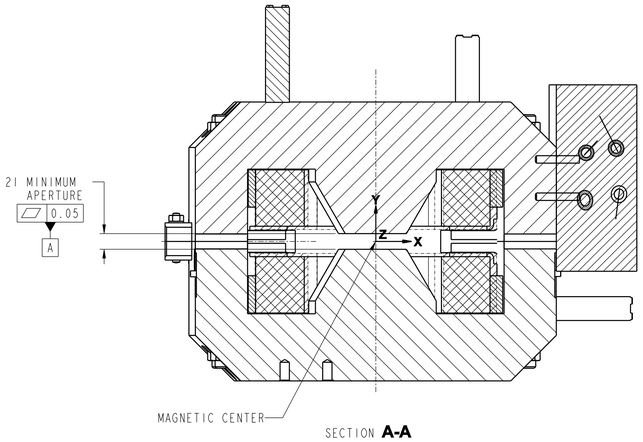
921. ORIENT TERMINAL BLOCKS AS SHOWN.

ABBREVIATIONS:

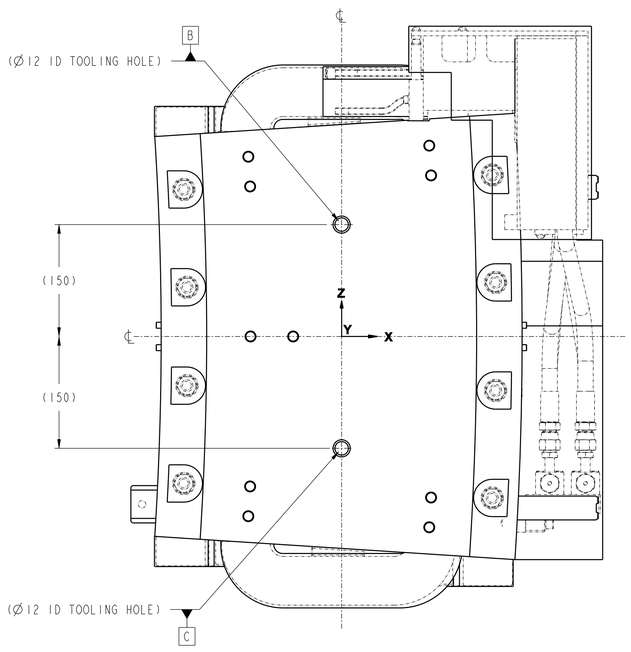
- ALS-U = ADVANCE LIGHT SOURCE UPGRADE
- ASSY = ASSEMBLY
- BTA = BOOSTER-TO-ACCUMULATOR RING TRANSFER LINE
- CKT = CIRCUIT
- LBNL = LAWRENCE BERKELEY NATIONAL LABORATORY
- LCW = LOW-CONDUCTIVITY WATER
- TB = TERMINAL BLOCK
- TBENDD= BENDING DIPOLE, TYPE D







SECTION **A-A**



VIEW **C-C**

ITEM No.	DRAWING DESCRIPTION	DRAWING No.
1	BTA MAGNET DIPOLE-TBENDD	AL-1252-2198
2	BTA MAGNET DIPOLE COMMON MECHANICAL REQUIREMENTS	AL-1462-7396

BUILD TO SPEC

CHANGE DESCRIPTION (SEE LBNL PDM FOR REV HISTORY)	BASELINE RELEASE
AUTHOR	San Mateo, Ed
CHECKED BY	ssoezeri,CASwenson
CHECKED AT	Aug 4 2021 6:11:30 PM PDT
RELEASED BY	CASwenson
RELEASED AT	Aug 4 2021 6:11:44 PM PDT

UNLESS OTHERWISE SPECIFIED

ESTIMATED MASS: 677.528 KG

TOLERANCE: X.±1.0 ,X±0.1 ,XX±0.05
FRACTIONS: ± -/--
ANGLES: ±1°
MACH. SURFS.:3.2um ✓ or better

REFERENCE
-THREADS ARE CLASS G or H
-BREAK EDGES 0.5 MAX, ON MACHINED WORK
-REMOVE BURRS, WELD SPLATTER & LOOSE SCALE

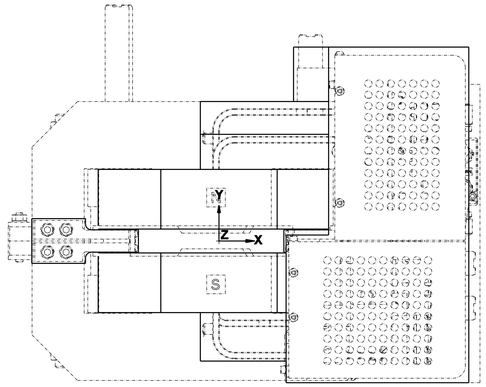
PROJECT NAME	ADVANCED LIGHT SOURCE
DRW REF DOC	EG-1000-0923
DRAWING UNITS	mm-kg-s
SCALE	1:4 PRINT NOT TO SCALE
THIRD ANGLE	
SHEET SIZE	D
SHEET	1 OF 6

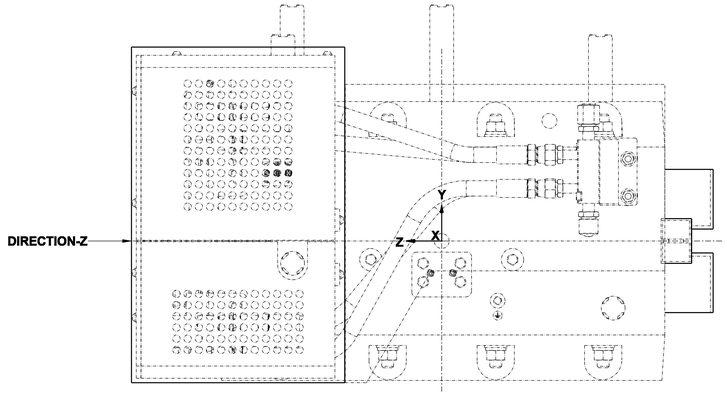
ERNEST ORLANDO LAWRENCE
BERKELEY NATIONAL LABORATORY
UNIVERSITY OF CALIFORNIA

ALS-U - BOOSTER TO ACCUMULATOR TRANSFER LINE
MAGNETS - GENERAL
BTA-TBENDD

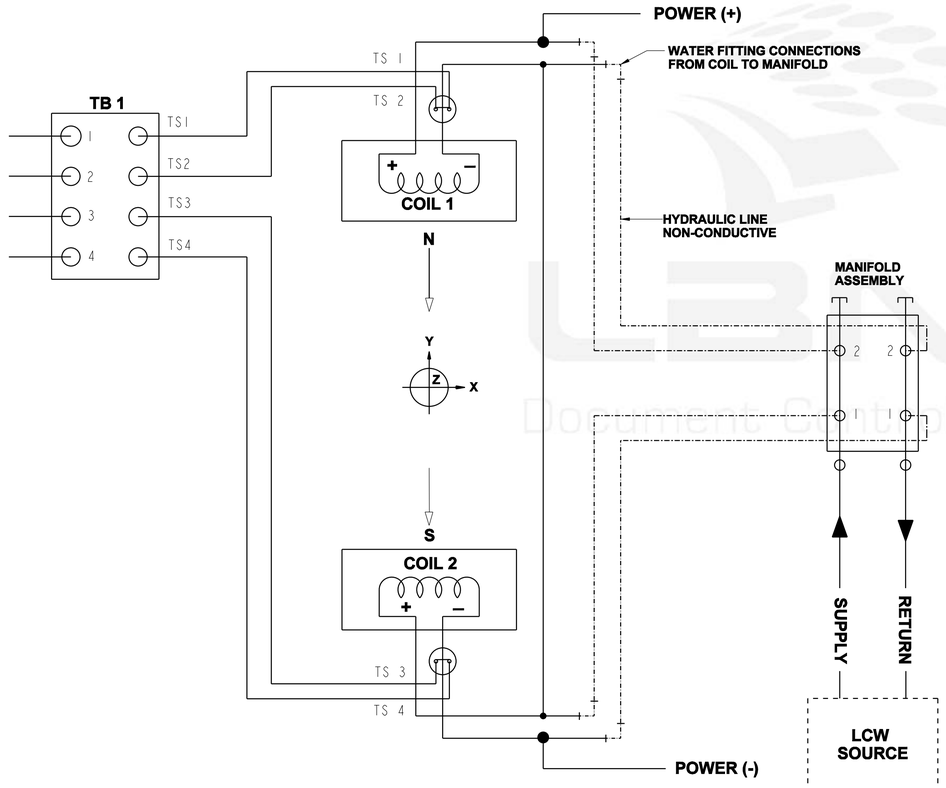
CATEGORY CODE	LIFECYCLE STATE	ITEM NUMBER	REV
AL7210	Released	AL-1240-9666	A

REV: A SH: 1
DWG. NO. AL-1240-9666





VIEWED FROM DIRECTION-Z

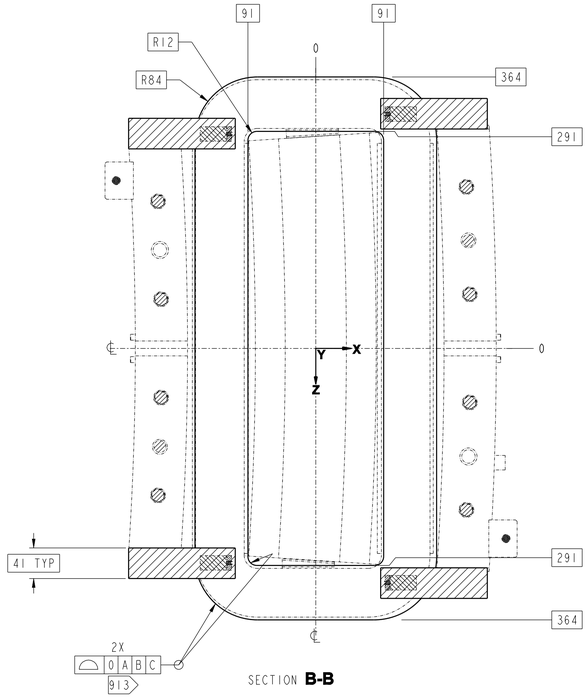


MAIN COIL WIRING DIAGRAM
VIEWED FROM DIRECTION -Z

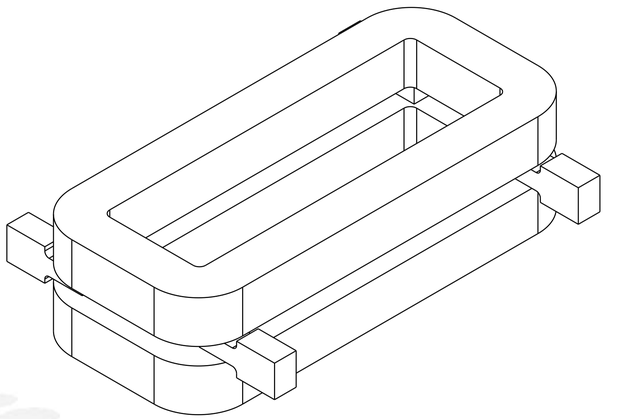
MAIN COIL LCW CONNECTIONS
WATER MANIFOLD HYDRAULIC CIRCUIT

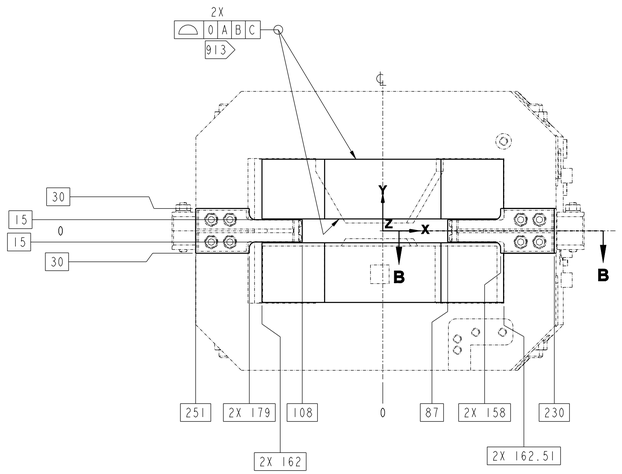
UNLESS OTHERWISE SPECIFIED ESTIMATED MASS 677.528 KG TOLERANCE X.±1.0 .X±0.1 .XX±0.05 FRACTIONS: ± -/-- ANGLES: ±1° MACH. SURFS.:3.2um ✓ or better REFERENCE -THREADS ARE CLASS G or H -BREAK EDGES 0.5 MAX, ON MACHINED WORK -REMOVE BURRS, WELD SPLATTER & LOOSE SCALE	PROJECT NAME ADVANCED LIGHT SOURCE DRW REF DOC: EG-1000-0923 DRAWING UNITS: mm-kg-s SCALE: 1:4 PRINT NOT TO SCALE THIRD ANGLE SHEET SIZE: D SHEET: 2 OF 6	ERNEST ORLANDO LAWRENCE BERKELEY NATIONAL LABORATORY UNIVERSITY OF CALIFORNIA BERKELEY LAB ALS-U - BOOSTER TO ACCUMULATOR TRANSFER LINE MAGNETS - GENERAL BTA-TBENDD		
		CATEGORY CODE: AL7210	LIFECYCLE STATE: Released	ITEM NUMBER: AL-1240-9666 REV: A

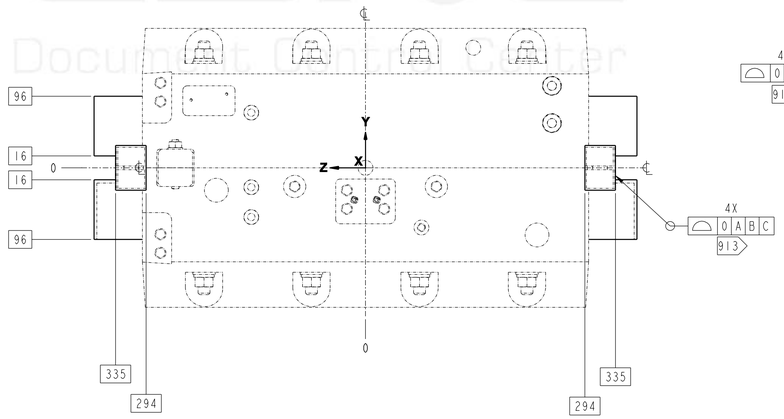
REV | SH: A | 2
DWG. NO: AL-1240-9666

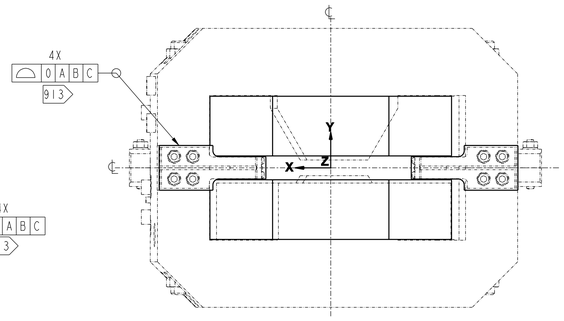


SECTION **B-B**





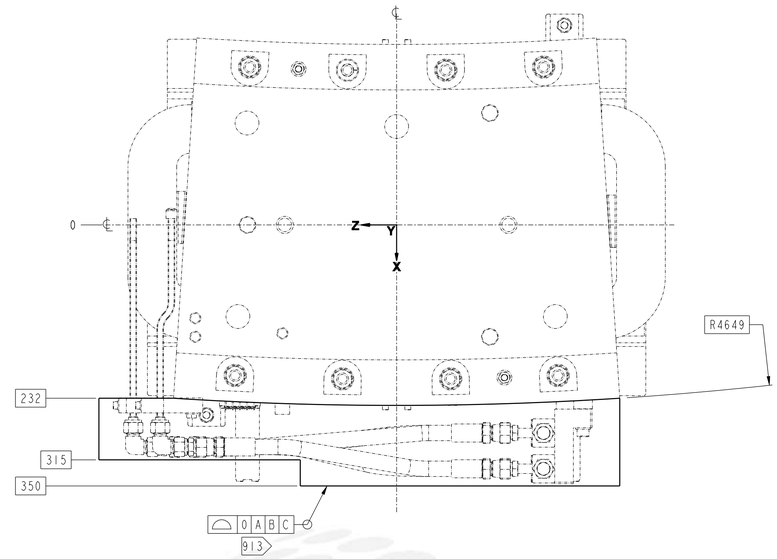


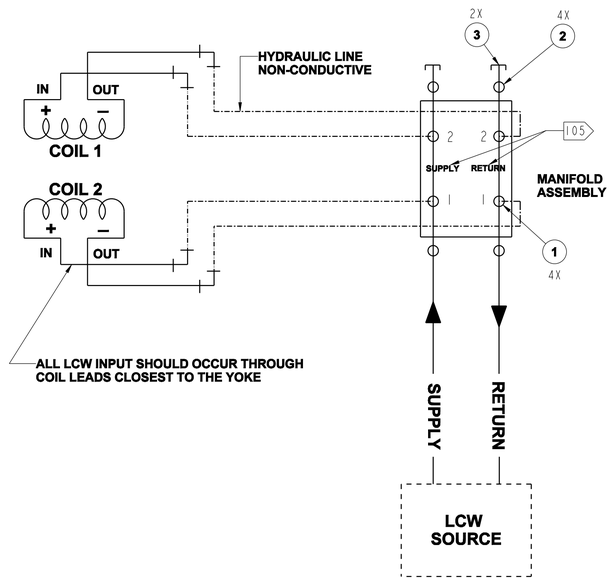


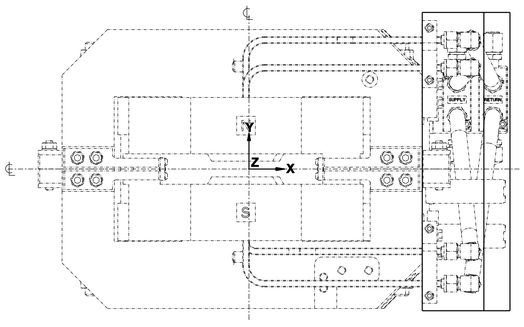
MIAN COIL AND SUPPORT SPACECLAIM

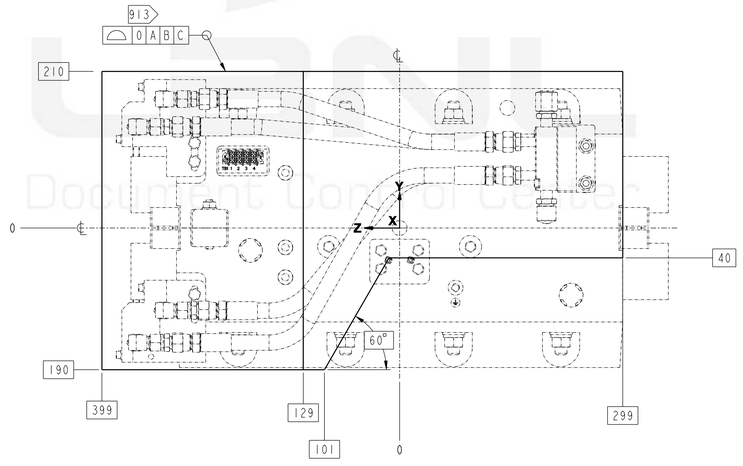
UNLESS OTHERWISE SPECIFIED ESTIMATED MASS 677.528 KG TOLERANCE X.±1.0 .X±0.1 .XX±0.05 FRACTIONS: ± -/-- ANGLES: ±1° MACH. SURFS.: 3.2um ✓ or better REFERENCE -THREADS ARE CLASS G or H -BREAK EDGES 0.5 MAX, ON MACHINED WORK -REMOVE BURRS, WELD SPLATTER & LOOSE SCALE	PROJECT NAME ADVANCED LIGHT SOURCE DRW REF DOC EG-1000-0923 DRAWING UNITS mm-kg-s SCALE 1 : 4 PRINT NOT TO SCALE THIRD ANGLE SHEET SIZE D SHEET 3 OF 6	ERNEST ORLANDO LAWRENCE BERKELEY NATIONAL LABORATORY UNIVERSITY OF CALIFORNIA BERKELEY LAB ALS-U - BOOSTER TO ACCUMULATOR TRANSFER LINE MAGNETS - GENERAL BTA-TBENDD	
		CATEGORY CODE AL7210	LIFECYCLE STATE Released
		ITEM NUMBER AL-1240-9666	REV A

DWG. NO. AL-1240-9666 REV. A SH. 3









914

FITTING ID	MANUFACTURER	PART No.	QTY
1	SWAGELOK	SS-8-TA-1-8AN	4
2	SWAGELOK	SS-10-TA-1-10AN	4
3	McMASTER CARR OR EQUIV	50715K516	2

UNLESS OTHERWISE SPECIFIED
ESTIMATED MASS
677.528 KG
TOLERANCE
X.±1.0 , X±0.1 , XX±0.05
FRACTIONS: ± -/--
ANGLES: ±1°
MACH. SURFS.: 3.2um ✓ or better
REFERENCE
-THREADS ARE CLASS G or H
-BREAK EDGES 0.5 MAX, ON MACHINED WORK
-REMOVE BURRS, WELD SPLATTER & LOOSE SCALE

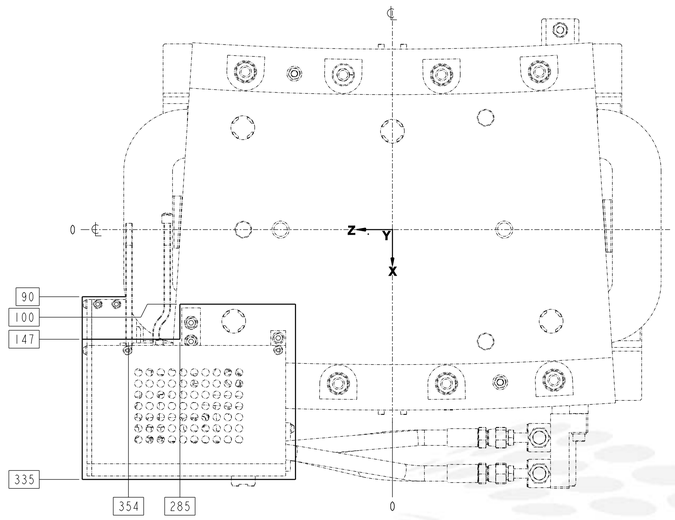
PROJECT NAME
ADVANCED LIGHT SOURCE
DRW REF DOC: EG-1000-0923
DRAWING UNITS: mm-kg-s
SCALE: 1:4
THIRD ANGLE
PRINT NOT TO SCALE
SHEET SIZE: D
SHEET: 4 OF 6

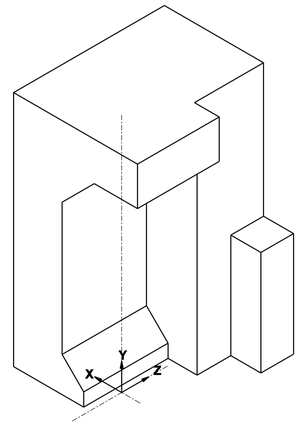
ERNEST ORLANDO LAWRENCE
BERKELEY NATIONAL LABORATORY
UNIVERSITY OF CALIFORNIA
BERKELEY LAB

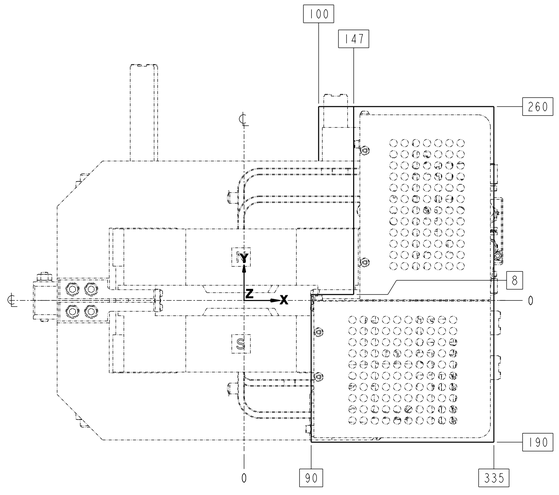
ALS-U - BOOSTER TO ACCUMULATOR TRANSFER LINE
MAGNETS - GENERAL
BTA-TBENDD

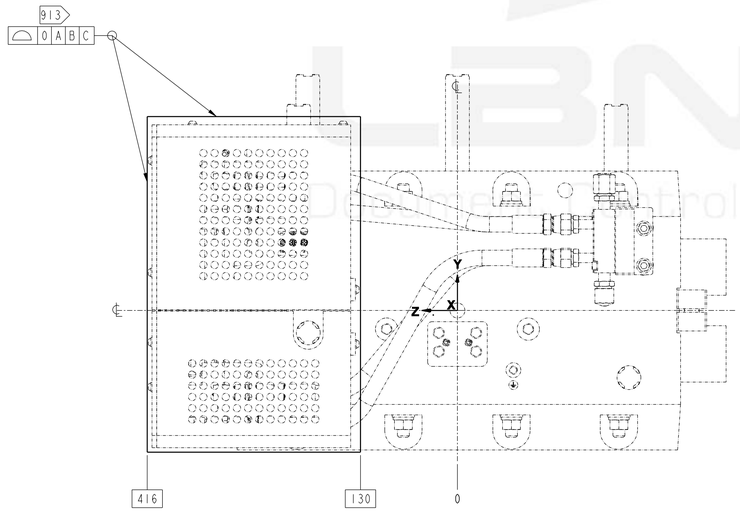
CATEGORY CODE	LIFECYCLE STATE	ITEM NUMBER	REV
AL7210	Released	AL-1240-9666	A

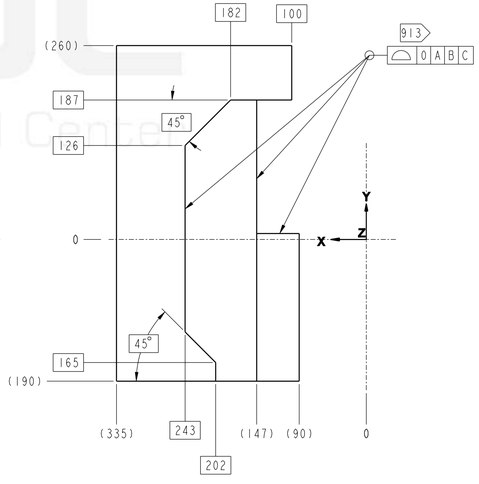
REV: SH: A 4
DWG. NO: AL-1240-9666

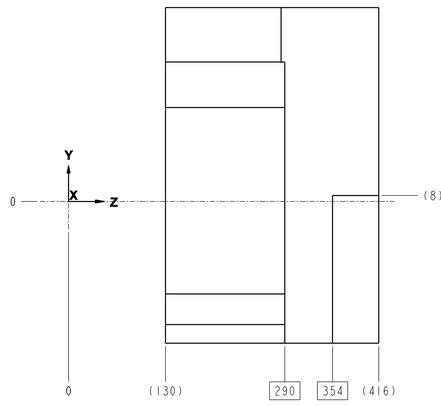






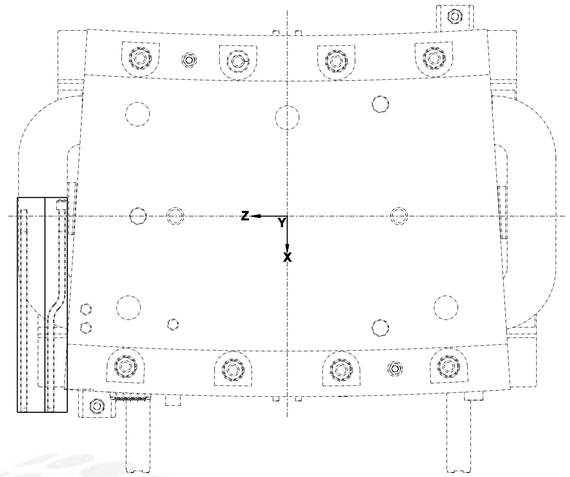


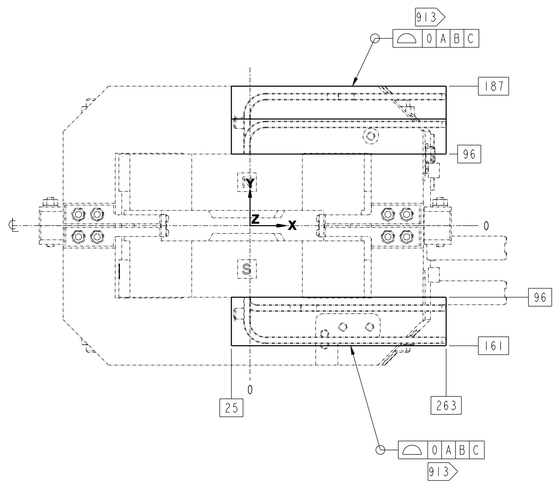


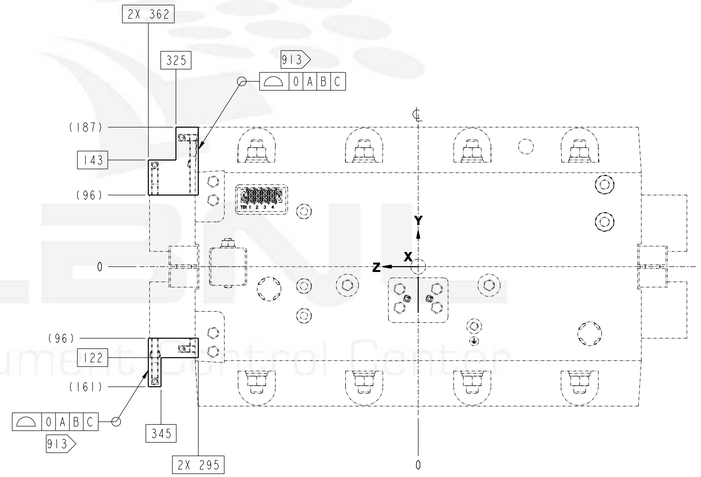


UNLESS OTHERWISE SPECIFIED ESTIMATED MASS 677.528 KG TOLERANCE X.±1.0 , X±0.1 , XX±0.05 FRACTIONS: ± -/-- ANGLES: ±1° MACH. SURFS.: 3.2um ✓ or better REFERENCE -THREADS ARE CLASS G or H -BREAK EDGES 0.5 MAX, ON MACHINED WORK -REMOVE BURRS, WELD SPLATTER & LOOSE SCALE	PROJECT NAME ADVANCED LIGHT SOURCE DRW REF DOC: EG-1000-0923 DRAWING UNITS: mm-kg-s SCALE: 1:4 PRINT NOT TO SCALE THIRD ANGLE SHEET SIZE: D SHEET: 5 OF 6	ERNEST ORLANDO LAWRENCE BERKELEY NATIONAL LABORATORY UNIVERSITY OF CALIFORNIA ALS-U - BOOSTER TO ACCUMULATOR TRANSFER LINE MAGNETS - GENERAL BTA-TBENDD	
		CATEGORY CODE: AL7210	LIFECYCLE STATE: Released
		ITEM NUMBER: AL-1240-9666	REV: A

DWG. NO AL-1240-9666 REV SH A 5







COIL LEAD SPACECLAIM

UNLESS OTHERWISE SPECIFIED ESTIMATED MASS 677.528 KG TOLERANCE X.±1.0 .X±0.1 .XX±0.05 FRACTIONS: ± -/-- ANGLES: ±1° MACH. SURFS.: 3.2um ✓ or better REFERENCE -THREADS ARE CLASS G or H -BREAK EDGES 0.5 MAX, ON MACHINED WORK -REMOVE BURRS, WELD SPLATTER & LOOSE SCALE	PROJECT NAME ADVANCED LIGHT SOURCE DRW REF DOC EG-1000-0923 DRAWING UNITS mm-kg-s SCALE 1:4 PRINT NOT TO SCALE THIRD ANGLE SHEET SIZE D SHEET 6 OF 6	ERNEST ORLANDO LAWRENCE BERKELEY NATIONAL LABORATORY UNIVERSITY OF CALIFORNIA BERKELEY LAB ALS-U - BOOSTER TO ACCUMULATOR TRANSFER LINE MAGNETS - GENERAL BTA-TBENDD	
		CATEGORY CODE AL7210	LIFECYCLE STATE Released
		ITEM NUMBER AL-1240-9666	REV A

DWG. NO. AL-1240-9666 REV. A SH. 6