1. FOR A COMPLETE EXPLANATION OF FLANGE DESIGNATORS, FLANGE NAMING CONVENTIONS AND SUBFLANGE TYPE, SEE LIGO D1101775.
2. FOR ISC ELECTRONICS CABLE LAYOUT, SEE D1200666.
3. FAST SHUTTER CUSTOM FEEDTHROUGH COMPRISED OF:
   1) Generic ZeroLengthReducer, 4.50" X 2.75" (150008, MDC or EQ.)
   2) Circular MIL SPEC connector on a 2.75 CF flange
4. D8: 500 L/S ION PUMP AND GATE VALVE.
   D7: 500 L/S TURBO PUMP AND GATE VALVE.

REV.	DATE	DCN #	DRAWING TREE #
v1	16 NOV 2010	-	-
v14	31 AUG 2022	E2200362-x0	-
v15	4-24-2024	E2300404-v3	-

FLANGE	SUBFLANGE	FLANGE TYPE	CONNECTOR	SUBSYSTEM	DESCRIPTION
D2-1A1	-1	A	Triax	SEI	H1 CPS - ISI CAP POS SENS Horizontal Corner 1
D2-1A2	-1	A	Triax	SEI	V1 CPS - ISI CAP POS SENS Vertical Corner 1
D2-2B1	-2	B	3PWR-1	SEI	V1 ISI COILS - ISI Vertical Corner 1
D2-2B2	-2	B	3PWR-2	SEI	H1 ISI COILS - ISI COILS Horizontal Corner 1
D2-3C1	-3	C	25D-1	SEI	H1V1 - ISI GS-13 Horizontal & Vertical Corner 1
D2-3C2	-3	C	25D-2	SEI	BDV1 - BEAM Diverter

FLANGE	AUX FLANGE	SUB FLANGE	FLANGE TYPE	CONNECTOR	SUBSYSTEM	DESCRIPTION
D1-1A1	5Wx1	-1	A	TRIAX	SEI	H2 CPS - ISI CAP POS SENS Horizontal Corner 2
D1-1A2	5Wx1	-1	A	TRIAX	SEI	V2 CPS - ISI CAP POS SENS Vertical Corner 2
D1-1B1	5Wx2	-2	B	3PWR-1	SEI	V2 ISI COILS - ISI Vertical Corner 2
D1-1B2	5Wx2	-2	B	3PWR-2	SEI	H2 ISI COILS - ISI COILS Horizontal Corner 2
D1-1C1	5Wx3	-3	C	25D-1	SEI	H2V2 - ISI GS-13 Horizontal & Vertical Corner 2
D1-1C2	5Wx3	-3	C	25D-2	PEM	SEPTUM ACCELEROMETER Reserved for Future
D1-1D1	5Wx4	-4	-	BLANK	-	OMA1 M1 & M2 -
D1-2C1		-5	C	25D-1	SUS	AMI - HITS M1 BOSEMS
D1-2C2		-5	C	25D-2	SUS	OMA3 - HCDS M1 BOSEMS
D1-3C1		-6	C	25D-1	SUS	OMA3 DCOILS - HCDS M2 DITHER
D1-3C2		-6	C	25D-2	SUS	OMA3 PZT - HCDS M2 PSAMS

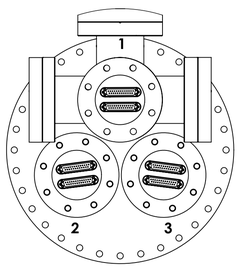
FLANGE	AUX FLANGE	SUB FLANGE	FLANGE TYPE	CONNECTOR	SUBSYSTEM	DESCRIPTION
D3-1C1	5Wx1	-1	C	25D-1	ISC	LO REF A RF36 OUT1 - 36MHz WFS Sensor 1 Head
D3-1C2	5Wx1	-1	C	25D-2	ISC	LO REF B RF36 OUT2 - 36MHz WFS Sensor 2 Head
D3-1C3	5Wx2	-2	C	25D-1	SUS	~~OMA1 - HPDS M1 BOSEMS~~
D3-1C4	5Wx2	-2	C	25D-2	SUS	~~OMA1 DCOILS - HPDS M2 DITHER~~
D3-1C5	5Wx3	-3	C	25D-1	SUS	OMB2 - HPDS M1 BOSEMS
D3-1C6	5Wx3	-3	C	25D-2	SUS	OMB2 PZT - HPDS M2 BOSEMS
D3-1C7	5Wx4	-4	-	-	-	~~PURGE AIR PORT~~
D3-2D1	-	-5	D	5 WAY COAX	ISC	LO REFL A Q1Q4 S1 - 36MHz WFS Sensor 1
D3-2D2	-	-5	D	5 WAY COAX	ISC	LO REFL A Q2Q3 S1 - 36MHz WFS Sensor 1
D3-3D1	-	-6	D	5 WAY COAX	ISC	LO REFL B Q1Q4 S2 - 36MHz WFS Sensor 2
D3-3D2	-	-6	D	5 WAY COAX	ISC	LO REFL B Q2Q3 S2 - 36MHz WFS Sensor 2

OM0 M1 OSEMs

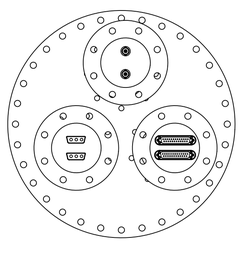
OM0 M3 OSEMs

FLANGE	SUB FLANGE	FLANGE TYPE	CONNECTOR	SUBSYSTEM	DESCRIPTION
D7-F1	-	F	25D-1	SUS	~~OMA2 - HPDS M1 BOSEMS~~
D7-F2	-	F	25D-2	SUS	~~OMA2 PZT - HPDS M2 PSAMS~~
D7-F3	-	F	25D-3	SUS	OBS F1F2F3SD - HRTS TRIPLE SUS TOP BOSEMS
D7-F4	-	F	25D-4	SUS	OBS LRRT - HRTS TRIPLE SUS TOP BOSEMS
D7-F5	-	F	25D-5	SUS	~~OMC F1F2F3SD - HAMS TRIPLE SUS TOP BOSEMS~~
D7-F6	-	F	25D-6	SUS	~~OMC LRRT - HAMS TRIPLE SUS TOP BOSEMS~~
D7-F7	-	F	25D-7	SUS	~~OMC DCOILS - HAMS M2 DITHER COILS~~
D7-F8	-	F	25D-8	SUS	OMB1 - HDDS M1 BOSEMS
D7-F9	-	F	25D-9	SUS	OMB1 DCOILS - HDDS M2 DITHER
D7-F10	-	F	25D-10	SUS	SPARE
D7-F11	-	F	25D-11	ISC	SPARE
D7-F12	-	F	25D-12	ISC	SPARE

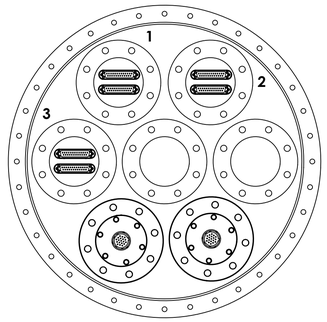
FLANGE	SUB FLANGE	FLANGE TYPE	CONNECTOR	SUBSYSTEM	DESCRIPTION
C1-1C1	-1	C	25D-1	ISC	PM LO-P1, ID-P1, 36-PM1, 36-PM2
C1-1C2	-1	C	25D-2	ISC	SPARE
C1-2C1	-2	C	25D-1	ISC	SPARE
C1-2C2	-2	C	25D-2	ISC	SPARE
C1-3C1	-3	C	25D-1	ISC	SPARE
C1-3C2	-3	C	25D-2	ISC	SPARE
C1-4C1	-4	-	BLANK	-	-
C1-5C1	-5	-	-	VAC	MKS 903 Gauge
C1-6D1	-6	-	-	ISC	FS1 - Fast Shutter 1
C1-7D1	-7	-	-	ISC	FS2 - Fast Shutter 2



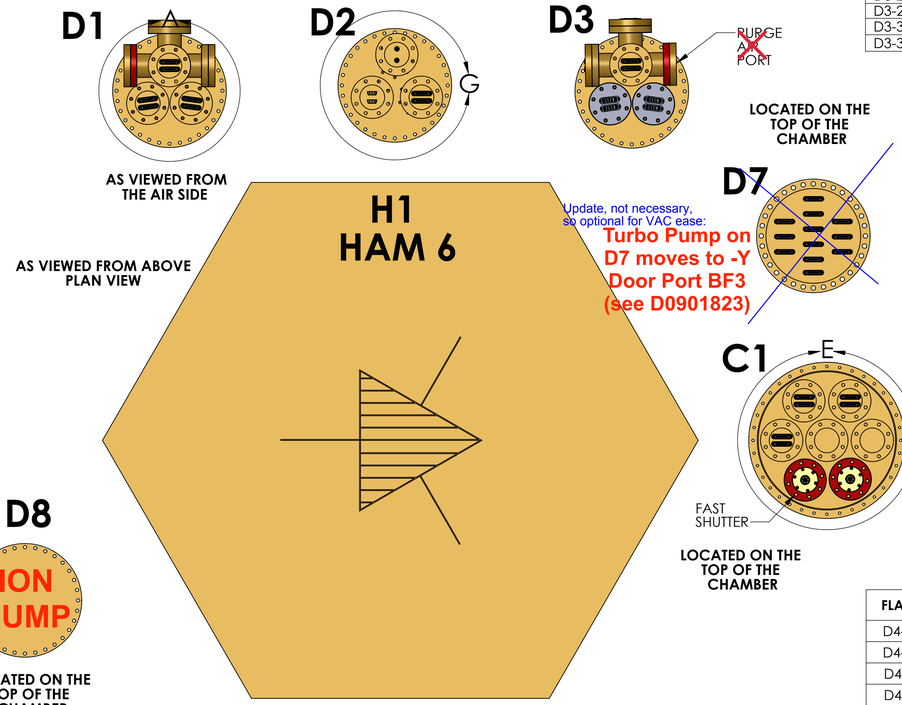
DETAIL A
(D1 CONFIGURATION)



DETAIL B
(D2 CONFIGURATION)



DETAIL E
(C1 CONFIGURATION



FLANGE	SUB FLANGE	FLANGE TYPE	CONNECTOR	SUBSYSTEM	DESCRIPTION
D8		BLANK			-- BLANK (FULL FLANGE) --

FLANGE	SUB FLANGE	FLANGE TYPE	CONNECTOR	SUBSYSTEM	DESCRIPTION
D6-F1	-	F	25D-1	ISC	OMCS - BHSS AOSEMS
D6-F2	-	F	25D-2	ISC	OMCS - BHSS AOSEMS
D6-F3	-	F	25D-3	ISC	OMB3 - HCDS M1 BOSEMS
D6-F4	-	F	25D-4	ISC	OMB3 DCOILS - HCDS M2 DITHER
D6-F5	-	F	25D-5	ISC	OMB3 PZT - HCDS M2 PSAMS
D6-F6	-	F	25D-6	ISC	OMCA QPDA - QPD1, QPD2
D6-F7	-	F	25D-7	ISC	OMCA DCPDs A&B - Primary GW CH OMCA DCPDs A&B
D6-F8	-	F	25D-8	ISC	OMCA PZTs - PZTs HI & LOW VOLTAGE
D6-F9	-	F	25D-9	SUS	OMCB QPDB - QPD1, QPD2
D6-F10	-	F	25D-10	SUS	OMCB DCPDs A&B - Primary GW CH OMCB DCPDs A&B
D6-F11	-	F	25D-11	SUS	OMCB PZTs - PZTs HI & LOW VOLTAGE
D6-F12	-	F	25D-12	SUS	AS C DC QPD

FLANGE	AUX FLANGE	SUB FLANGE	FLANGE TYPE	CONNECTOR	SUBSYSTEM	DESCRIPTION
D4-1A1	5WX1	1	A	TRIAX	SEI	H3 CPS -ISI CAP POS SENS Horizontal Corner 3
D4-1A2	5WX1	-1	A	TRIAX	SEI	V3 CPS - ISI CAP POS SENS Vertical Corner 3
D4-1B1	5WX2	-2	B	3PWR-1	SEI	V3 ISI COILS - ISI Vertical Corner 3
D4-1B2	5WX2	-2	B	3PWR-2	SEI	H3 ISI COILS - ISI COILS Horizontal Corner 3
D4-1C1	5WX3	-3	C	25D-1	SEI	H3V3 - ISI GS-13 Horizontal & Vertical Corner 3
D4-1C2	5WX3	-3	C	25D-2	SUS	AM2 - HTSS M1 BOSEMS
D4-1C3	5WX4	-4	-	BLANK	-	-
D4-2A1	-	-5	A	SMA	SQZ	OMCA DCPDA - SQZ 3.125MHz Pickoff
D4-2A2	-	-5	A	SMA	SQZ	OMCA DCPDB - SQZ 3.125MHz Pickoff
D4-3A1	-	-6	A	SMA	SQZ	OMCB DCPDA - SQZ 3.125MHz Pickoff
D4-3A2	-	-6	A	SMA	SQZ	OMCB DCPDB - SQZ 3.125MHz Pickoff

OMA2 M1 OSEMs

OMA2 M2 PSAMs

Purge should never go through a T

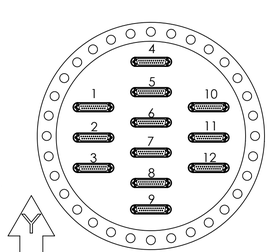
Rotate flange 120 deg

FLANGE	AUX FLANGE	SUB FLANGE	FLANGE TYPE	CONNECTOR	SUBSYSTEM	DESCRIPTION
D5-1C1	5Wx1	-1	C	25D-1	ISC	AS A RF36&45 OUT 1 - 36&45MHz WFS S1 Head
D5-1C2	5Wx1	-1	C	25D-2	ISC	AS B RF36&45 OUT 2 - 36&45MHz WFS S2 Head
D5-1D1	5Wx2	-2	D	5 WAY COAX-1	ISC	OMC A 36MHz - 36MHz REFL DC OUT
D5-1D2	5Wx2	-2	D	5 WAY COAX-2	ISC	SPARE
D5-1C3	5Wx3	-3	C	25D-1	ISC	OMC A - REFL DC OUT
D5-1C4	5Wx3	-3	C	25D-2	ISC	LO C QPD
D5-1C5	5Wx4	-4	-	BLANK	-	- Expand to 2x D25
D5-2D1	-	-5	D	5 WAY COAX-1	ISC	AS A RF36&45 Q1Q4 S1 - 36&45MHZ WFS Sensor 1
D5-2D2	-	-5	D	5 WAY COAX-2	ISC	AS A RF36&45 Q2Q3 S1 - 36&45MHz WFS Sensor 1
D5-3D1	-	-6	D	5 WAY COAX-1	ISC	~~AS B RF36&45 Q1Q4 S2 - 36&45MHz WFS Sensor 2~~
D5-3D2	-	-6	D	5 WAY COAX-2	ISC	~~AS B RF36&45 Q2Q3 S2 - 36&45MHz WFS Sensor 2~~

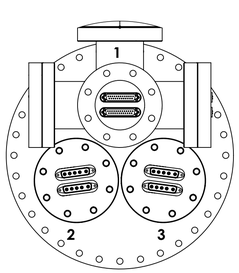
AS A Q1Q4
AS A Q2Q3

PURGE

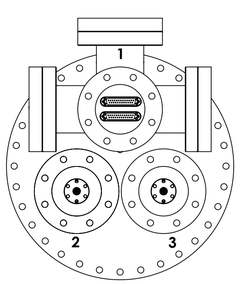
* SUBFLANGE TYPE >	A	B	C	D	E	F	G	CUSTOM	J
CONNECTORS >	TRIAX	3PWR	25D	5 WAY COAX (2 PER FLANGE)	5 WAY COAX (1 PER FLANGE)	25PIN FULL FLANGE	TRI-AXIAL	MIL. SPEC. CIRCULAR CONNECTOR	SMA
SUBSYSTEMS v									
SEI (ISI)	6	6	6						
SUS			23						
ISC			22	10		1		2	
I/O									
TCS									
PSL									
AOS									
SQZ									4
NOT ASSIGNED O5			8						
TOTALS (CONNECTORS)	6	6	59	10	0	24	0	2	4
TOTALS (FLANGES)	3	3	4	2	0	2	0	1	2



DETAIL C
(D6, D7 CONFIGURATION)



DETAIL D
(D5, D3 CONFIGURATION)



DETAIL F
(D4 CONFIGURATION)

NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)

DIMENSIONS ARE IN

TOLERANCES:
.XX ±
.XXX ±

ANGULAR ± °

1. INTERPRET DRAWING PER ASME Y14.5-1994.
2. REMOVE ALL SHARP EDGES, .005-.015. FOR MACHINED PARTS. ROUND ALL EDGES APPROXIMATLEY R.02 FOR SHEET METAL PARTS.
3. DO NOT SCALE FROM DRAWING.
4. ALL MACHINING FLUIDS MUST BE FULLY SYNTHETIC, FULLY WATER SOLUBLE AND FREE OF SULFUR, SILICONE, AND CHLORINE.

MATERIAL: N/A
FINISH: N/A µinch

LIGO — CALIFORNIA INSTITUTE OF TECHNOLOGY, MASSACHUSETTS INSTITUTE OF TECHNOLOGY

SYSTEM: ADVANCED LIGO
SUB-SYSTEM: ALL
NEXT ASSY: D0901822

PART NAME: FLANGE LAYOUT H1 HAM CHAMBER 6 (HAM6)

DESIGNER			SIZE	DWG. NO.	REV.
DRAFTER	E. BROWN	16 NOV 2010	D	D1002877	v15
CHECKER	SEE DCC	SEE DCC			
APPROVAL	SEE DCC	SEE DCC	SCALE: 1:12	PROJECTION:	SHEET 1 OF 1

PART PDM VERSION: v-008
DWG PDM VERSION: v-012
D1002877 flange layout Ham chamber H1 HAM6