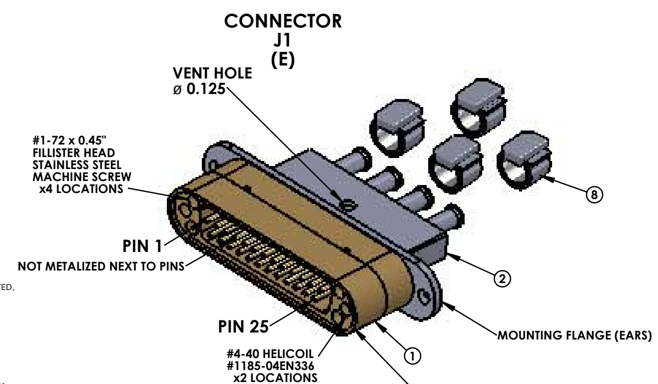
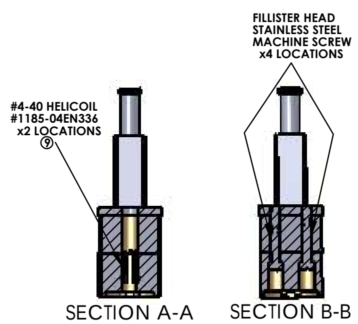
NOTES CONTINUED:

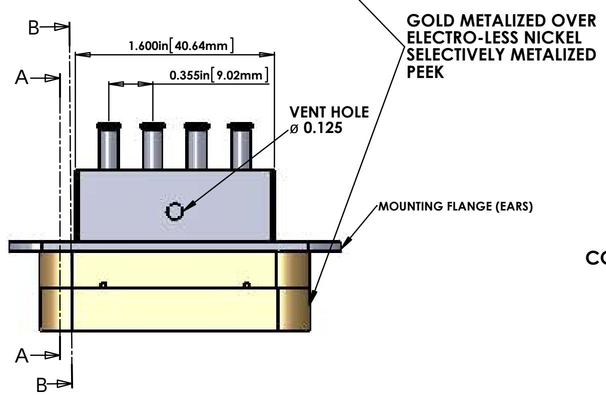
(5) SCRIBE, ENGRAVE, OR MECHANICALLY STAMP (NO INKS OR DYES) DRAWING PART NUMBER AND REVISION ON NOTED SURFACE FOLLOWED ON THE NEXT LINE BY A THREE DIGIT SERIAL NUMBER. SERIAL NUMBERS START AT 001 FOR THE FIRST ARTICLE AND PROCEED CONSECUTIVELY. USE .07" HIGH CHARACTERS. EXAMPLE: DXXXXXXX-VY, S/N 001. A VIBRATORY TOOL MAY BE USED.

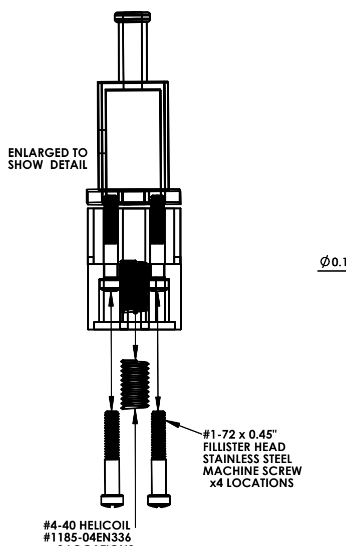
6. APPROXIMATE WEIGHT = X.XXX LB.
7. MACHINE ALL SURFACES TO REMOVE OXIDES AND MILL FINISH, USE OF ABRASIVE REMOVAL TECHNIQUES IS NOT ALLOWED. REFER TO LIGO-E0900364
8. ALL PARTS SHALL BE MANUFACTURED IN ACCORDANCE WITH LIGO SPECIFICATION E0900364.
9. ALL HELI-COIL HOLES TO BE PREPARED ACCORDING TO EMHART HELI-COIL PRODUCT CATALOG, HC2000, REV 4
10. ALL HELI-COIL INSERTS TO BE INSTALLED BY LIGO PERSONNEL, AFTER DELIVERY OF FINISHED PARTS, USE NITRONIC 60 THREADED INSERTS.
11. ALL MATERIAL IS TO BE VIRGIN MATERIAL (i.e. NO WELD REPAIRS, PLUGS OR RECYCLED MATERIAL). NO REPAIRS SHALL BE MADE UNLESS APPROVED IN ADVANCE, AND IN WRITING, BY LIGO LABORATORY. REFER TO LIGO-E0900364.
12. SURFACE FINISH TO BE AS-PROCESSED FROM MILL/SUPPLIER, FREE FROM SCRATCHES OR GOUGES.
13. PART WILL BE PORCELAIN COATED PER LIGO SPECIFICATION E1000083 AFTER FABRICATION. THE INDICATED HOLES WILL BE MASKED PRIOR TO PORCELAIN COATING TO APPROXIMATELY 2.5-3X HOLE DIAMETER CENTERED ON BOTH SIDES OF THE HOLE.
14. DIMENSIONS APPLY BEFORE PORCELAIN COATING UNLESS SPECIFIED.
15. BEND RADIUS: UNLESS OTHERWISE NOTED, THE BEND RADIUS SHOULD BE THE MINIMUM REQUIRED TO FORM WITHOUT CRACKING OR REQUIRING ADDITIONAL WORK WHEN FORMING. IN PARTICULAR IF SHEET METAL IS TO BE PORCELAIN COATED, THE BEND RADIUS SHALL BE A MINIMUM OF .12" OUTSIDE RADIUS OF BEND UNLESS OTHERWISE NOTED.

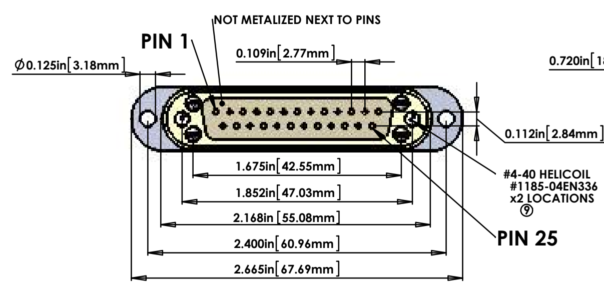
NOTES 13 and 14 DO NOT APPLY TO THIS PART

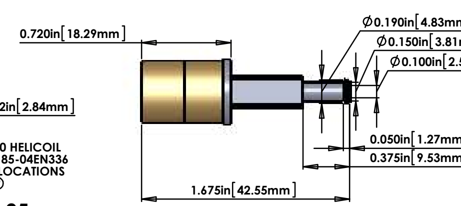


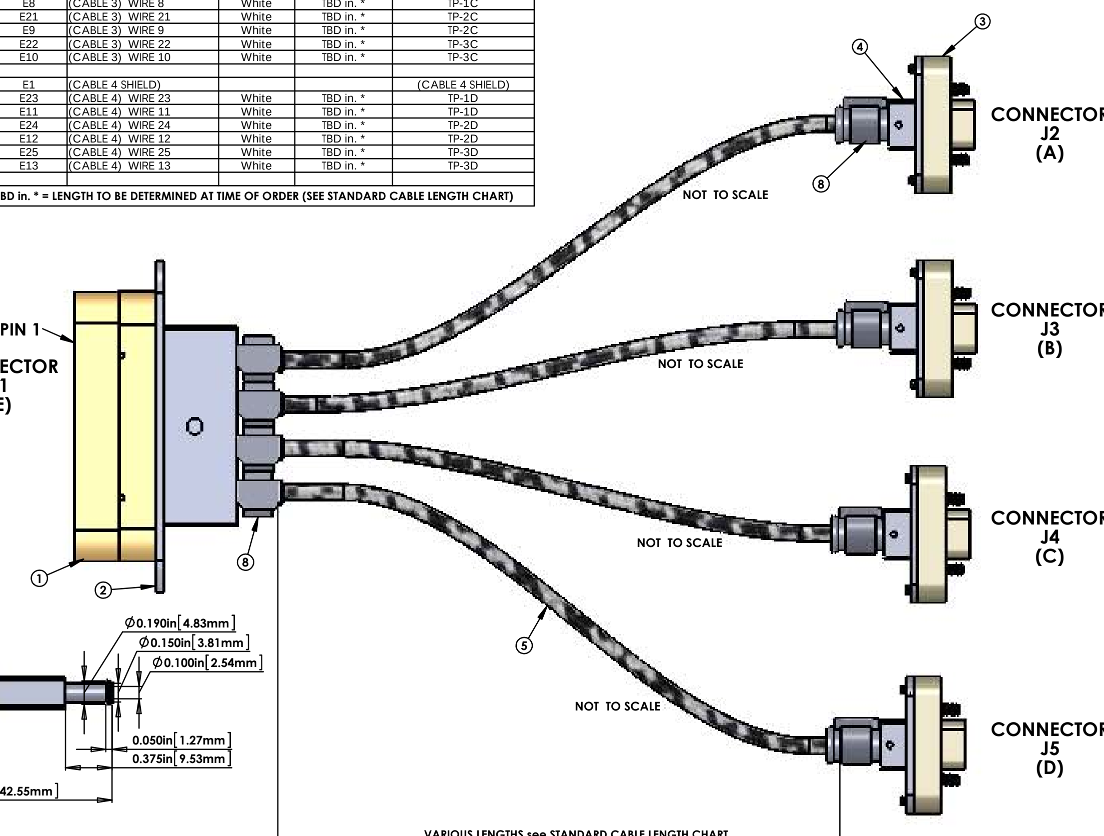












V25X-TBD CABLE ASSEMBLY CIRCUIT SUMMARY
V-DB25 M/1-TBD-4_µD9 F/5

FROM

CONNECTOR J1 - 25 PIN MALE SUBMINI_D CONNECTOR (GOLD METALIZED PEEK)

PIN	WIRE NAME	COLOR	LENGTH	TWISTED PAIR
N/C	(CONNECTOR SHELL)			
E1	(CABLE 1 SHIELD)			(CABLE 1 SHIELD)
E1	(CABLE 1) WIRE 1	White	TBD in. *	SINGLE WIRE
E14	(CABLE 1) WIRE 14	White	TBD in. *	TP-1A
E2	(CABLE 1) WIRE 2	White	TBD in. *	TP-1A
E15	(CABLE 1) WIRE 15	White	TBD in. *	TP-2A
E3	(CABLE 1) WIRE 3	White	TBD in. *	TP-2A
E16	(CABLE 1) WIRE 16	White	TBD in. *	TP-3A
E4	(CABLE 1) WIRE 4	White	TBD in. *	TP-3A
E1	(CABLE 2 SHIELD)			(CABLE 2 SHIELD)
E17	(CABLE 2) WIRE 17	White	TBD in. *	TP-1B
E5	(CABLE 2) WIRE 5	White	TBD in. *	TP-1B
E18	(CABLE 2) WIRE 18	White	TBD in. *	TP-2B
E6	(CABLE 2) WIRE 6	White	TBD in. *	TP-2B
E19	(CABLE 2) WIRE 19	White	TBD in. *	TP-3B
E7	(CABLE 2) WIRE 7	White	TBD in. *	TP-3B
E1	(CABLE 3 SHIELD)			(CABLE 3 SHIELD)
E20	(CABLE 3) WIRE 20	White	TBD in. *	TP-1C
E8	(CABLE 3) WIRE 8	White	TBD in. *	TP-1C
E21	(CABLE 3) WIRE 21	White	TBD in. *	TP-2C
E9	(CABLE 3) WIRE 9	White	TBD in. *	TP-2C
E22	(CABLE 3) WIRE 22	White	TBD in. *	TP-3C
E10	(CABLE 3) WIRE 10	White	TBD in. *	TP-3C
E1	(CABLE 4 SHIELD)			(CABLE 4 SHIELD)
E23	(CABLE 4) WIRE 23	White	TBD in. *	TP-1D
E11	(CABLE 4) WIRE 11	White	TBD in. *	TP-1D
E24	(CABLE 4) WIRE 24	White	TBD in. *	TP-2D
E12	(CABLE 4) WIRE 12	White	TBD in. *	TP-2D
E25	(CABLE 4) WIRE 25	White	TBD in. *	TP-3D
E13	(CABLE 4) WIRE 13	White	TBD in. *	TP-3D

TBD in. * = LENGTH TO BE DETERMINED AT TIME OF ORDER (SEE STANDARD CABLE LENGTH CHART)

REV.	DATE	DCN #	DRAWING TREE #

TEST LIST

FROM J1 PIN	TO J2 PIN
J1 - 1, SHELL	J2 - 5 - SHELL
J1 - 14	J2 - 1
J1 - 2	J2 - 6
J1 - 15	J2 - 2
J1 - 3	J2 - 7
J1 - 16	J2 - 4
J1 - 4	J2 - 9

TEST LIST

FROM J1 PIN	TO J3 PIN
J1 - 1, SHELL	J3 - 5 - SHELL
J1 - 17	J3 - 1
J1 - 5	J3 - 6
J1 - 18	J3 - 2
J1 - 6	J3 - 7
J1 - 19	J3 - 4
J1 - 7	J3 - 9

TEST LIST

FROM J1 PIN	TO J4 PIN
J1 - 1, SHELL	J4 - 5 - SHELL
J1 - 20	J4 - 1
J1 - 8	J4 - 6
J1 - 21	J4 - 2
J1 - 9	J4 - 7
J1 - 22	J4 - 4
J1 - 10	J4 - 9

TEST LIST

FROM J1 PIN	TO J5 PIN
J1 - 1, SHELL	J5 - 5 - SHELL
J1 - 23	J5 -1
J1 - 11	J5 -6
J1 - 24	J5 -2
J1 - 12	J5 -7
J1 - 25	J5 -4
J1 - 13	J5 -9

V25X CABLE ASSEMBLY CIRCUIT SUMMARY

TO

CONNECTOR J2 - 9 PIN FEMALE MICRO_D CONNECTOR (PEEK)

PIN	WIRE NAME	SIGNAL
N/C	(CABLE 1) SHIELD	SHIELD
A5	(CABLE 1) WIRE 1	SHIELD
A1	(CABLE 1) WIRE 14	PD1-K
A6	(CABLE 1) WIRE 2	PD1-A
A2	(CABLE 1) WIRE 15	LED1-A
A7	(CABLE 1) WIRE 3	LED1-K
A4	(CABLE 1) WIRE 16	COIL1-FN
A9	(CABLE 1) WIRE 4	COIL1-ST

V25X CABLE ASSEMBLY CIRCUIT SUMMARY

TO

CONNECTOR J3 - 9 PIN FEMALE MICRO_D CONNECTOR (PEEK)

PIN	WIRE NAME	SIGNAL
N/C	(CABLE 2) SHIELD	SHIELD
B5	(CABLE 2) WIRE 1	SHIELD
B1	(CABLE 2) WIRE 17	PD2-K
B6	(CABLE 2) WIRE 5	PD2-A
B2	(CABLE 2) WIRE 18	LED2-A
B7	(CABLE 2) WIRE 6	LED2-K
B4	(CABLE 2) WIRE 19	COIL2-FN
B9	(CABLE 2) WIRE 7	COIL2-ST

V25X CABLE ASSEMBLY CIRCUIT SUMMARY

TO

CONNECTOR J4 - 9 PIN FEMALE MICRO_D CONNECTOR (PEEK)

PIN	WIRE NAME	SIGNAL
N/C	(CABLE 3) SHIELD	SHIELD
C5	(CABLE 3) WIRE 1	SHIELD
C1	(CABLE 3) WIRE 20	PD3-K
C6	(CABLE 3) WIRE 8	PD3-A
C2	(CABLE 3) WIRE 21	LED3-A
C7	(CABLE 3) WIRE 9	LED3-K
C4	(CABLE 3) WIRE 22	COIL3-FN
C9	(CABLE 3) WIRE 10	COIL3-ST

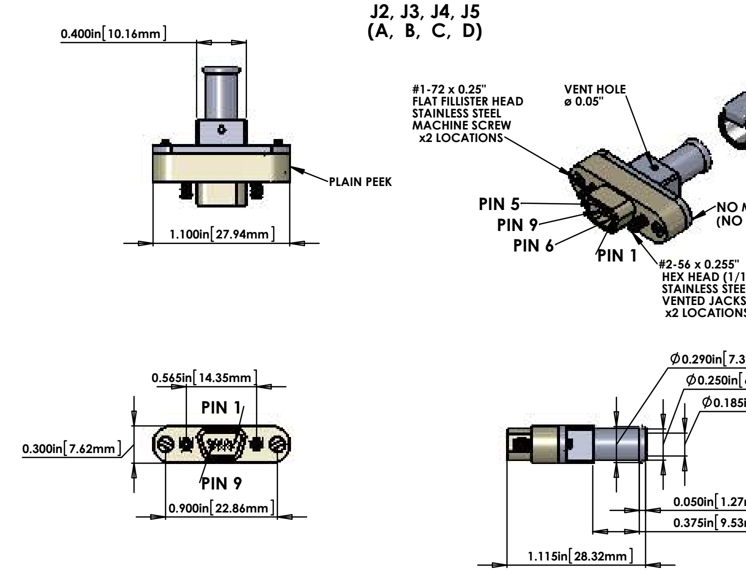
V25X CABLE ASSEMBLY CIRCUIT SUMMARY

TO

CONNECTOR J5 - 9 PIN FEMALE MICRO_D CONNECTOR (PEEK)

PIN	WIRE NAME	SIGNAL
N/C	(CABLE 4) SHIELD	SHIELD
D5	(CABLE 4) WIRE 1	SHIELD
D1	(CABLE 4) WIRE 23	PD4-K
D6	(CABLE 4) WIRE 11	PD4-A
D2	(CABLE 4) WIRE 24	LED4-A
D7	(CABLE 4) WIRE 12	LED2-K
D4	(CABLE 4) WIRE 25	COIL4-FN
D9	(CABLE 4) WIRE 13	COIL4-ST

CONNECTOR J2, J3, J4, J5 (A, B, C, D)



STANDARD CABLE LENGTH CHART

DESIGNATOR	INCHES	FEET and INCHES
V25X-60	60	5 ft.
V25X-66	66	5 ft. 6 in.
V25X-78	78	6 ft. 6 in.
V25X-88	88	7 ft. 4 in.
V25X-96	96	8 ft.
V25X-125	125	10 ft. 5 in.
V25X-TBD	TBD * ADDITIONAL CUSTOM LENGTHS	* LENGTH To Be Determined AT TIME OF ORDER

BILL OF MATERIALS

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.	LENGTH
①	TICOR #TS0125-1 (TS0149-25CG20BS4-100F) or EQUILIVENT	CUSTOM DB25 MALE CONNECTOR (J1) FOR UHV (GOLD METALIZED PEEK)	1	
②		CUSTOM DB25 CONNECTOR BACKSHELL FOR UHV (STAINLESS)		
③	TICOR #TS0094 WITH FLYING LEADS or EQUILIVENT	CUSTOM DB9 (DE9) FEMALE CONNECTOR (J2,J3,J4,J5) FOR UHV (PEEK)	4	
④		CUSTOM DB9 CONNECTOR BACKSHELL FOR UHV (STAINLESS)		
⑤	C1	6 COND. (3 TWISTED PAIR) CABLE + 1 WIRE (TO ATTACH SHIELD) (WITH ⑥ COPPER BRAID (SHIELD). AND ⑦ PEEK OVERBRAID).	4	VARIOUS LENGTHS* see STANDARD CABLE LENGTH CHART
⑥	CONTINENTAL PART #24x3x40BC	COPPER BRAID - CONTINENTAL CORDAGE PART #24x3x40BC	4	
⑦	PART #6759	PEEK BRAID - PART #6759 MANUFACTURED WITH ZEUS 0.016" BLACK PEEK DRAWN MONOFILAMENT	4	
⑧	GLENAIR # 600-052 or BAND-IT # A10086	GLENAIR #600-052 STANDARD BRAID CLAMP or BAND-IT PART # A10086 (0.240" WIDE) ("BAG OF 100" #A10089)	8	
⑨	HELICOIL #1185-04EN336	#4-40 Nitronic 60® HELICOIL 0.336" LENGTH	2	0.336"

* NOTE: THE OVERALL LENGTH IS MEASURED FROM BACKSHELL (25 PIN) TO BACKSHELL (9 PIN) OF THE CABLE. USE WHATEVER LENGTH IS NECESSARY FOR THE INTERNAL WIRING OF THE CONNECTORS AND STRIP LENGTH TO ACHIEVE THE CORRECT OVERALL LENGTHS.

SUS, AOS - SUSPENSION CUSTOM CABLE

V-DB25 M/1-TBD-4_µD9 F/5

STANDARD USE FOR THIS CABLE

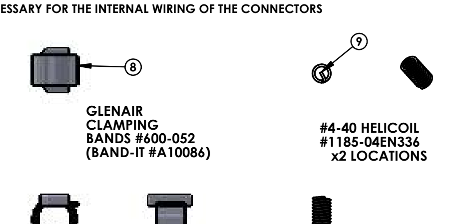
SUBSYSTEM	STANDARD USE
SUS	QUAD SUSPENSIONS TOP
SUS	HAM SMALL TRIPLE SUSPENSION (HSTS)
SUS	HAM LARGE TRIPLE SUSPENSION (HLTS)
AOS	TRANSMISSION MONITOR SUSPENSION (TMS)

ELECTRICAL NOTES: (UNLESS OTHERWISE SPECIFIED)

A. MATERIAL:
a. J1 - CONNECTOR SHELL - GOLD OVER ELECTRO-LESS NICKEL SELECTIVELY METALIZED PEEK VICTREX 450GL30.
b. J2, J3, J4, J5 - CONNECTOR SHELL- PEEK VICTREX 450GL30.
c. BACKSHELL - STAINLESS STEEL WITH VENT HOLE.
d. CONTACTS - BERYLLIUM COPPER ALLOY C17300. 0.000050 MIN. GOLD OVER NICKEL.
e. HARDWARE: STAINLESS STEEL, PASSIVATED.
f. PEEK BRAID - PEEK VICTREX GRADE TDS-450CA30 CARBON LOADED - SUPPLIED BY LIGO.

B. CABLE 6 COND. 28 AWG, (65 STRD 46 AWG) WITH PFA INSULATION COONER WIRE #CZ2205.
3 TWISTED PAIRS (4 TO 5 TWISTS PER INCH).
OVERALL 40AWG COPPER BRAID 90% COVERAGE.
OVERALL PEEK BRAID MIN. 50% COVERAGE.
OVERALL CABLE O.D. WILL BE APPROX. 0.240 IN.

C. CONNECTORS WILL BE SUPPLIED WITH HARDWARE. SCREWS SHOULD BE THE PROPER LENGTH FOR MATING.



NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)	
DIMENSIONS ARE IN	1. INTERPRET DRAWING PER ASME Y14.5-1994.
TOLERANCES: .XX ± .XXX ±	2. REMOVE ALL SHARP EDGES, .005-.015. FOR MACHINED PARTS. ROUND ALL EDGES APPROXIMATLEY R.02 FOR SHEET METAL PARTS.
ANGULAR± °	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	FINISH µinch

LIGO CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY

SYSTEM	SUB-SYSTEM	NEXT ASSY
	SUS, AOS	

PART NAME: CUSTOM CABLE SPECIFICATION V25X-TBD

DESIGNER	J. HEEFNER	JUN/05/2012
DRAFTER	E. BROWN	JUN/05/2012
CHECKER		
APPROVAL		

SIZE: E | DWG. NO.: D1000234 | REV.: v8

SCALE: 2:1 | PROJECTION: | SHEET 1 OF 1