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: DXXXXXX-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 HELICOIL HOLES TO BE PREPARED ACCORDING TO EMHART HELICOIL PRODUCT CATALOG, HC2000, REV 4
10. ALL HELICOIL INSERTS TO BE INSTALLED BY LIGO PERSONNEL AFTER DELIVERY OF FINISHED PARTS. USE MINIATURE 10-THREADED INSERTS
11. ALL MATERIALS 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. PINS WILL BE PORCELAIN COATED PER LIGO SPECIFICATION E0900038 AFTER FABRICATION. THE INDICATED HOLES WILL BE MASKED PRIOR TO PORCELAIN COATING TO APPROXIMATELY .2-.32 HOLE DIAMETER CONSISTENT 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 9, 10, 13 and 14 DO NOT APPLY TO THIS PART

| REV. | DATE | DCN # | DRAWING TREE # |
|---|---|---|---|
| | | | |
| | | | |
| | | | |
| | | | |

## V25AM-33-B CABLE ASSEMBLY CIRCUIT SUMMARY
## VµD25 M/1S-33-4_µD9 F/5S:B

**FROM**

**CONNECTOR J1 - 25 PIN MALE MICRO_D CONNECTOR**

| PIN | WIRE NAME | COLOR | LENGTH | TWISTED PAIR |
|---|---|---|---|---|
| E1 | (CONNECTOR SHELL) | | | |
| | | | | |
| E1 | (CABLE 1 SHIELD) | | | (CABLE 1 SHIELD) |
| E1 | (CABLE 1) WIRE 1 | White | 33 in. | SINGLE WIRE |
| E14 | (CABLE 1) WIRE 14 | White | 33 in. | TP-1A |
| E2 | (CABLE 1) WIRE 2 | White | 33 in. | TP-1A |
| E15 | (CABLE 1) WIRE 15 | White | 33 in. | TP-2A |
| E3 | (CABLE 1) WIRE 3 | White | 33 in. | TP-2A |
| E16 | (CABLE 1) WIRE 16 | White | 33 in. | TP-3A |
| E4 | (CABLE 1) WIRE 4 | White | 33 in. | TP-3A |
| | | | | |
| E1 | (CABLE 2 SHIELD) | | | (CABLE 2 SHIELD) |
| E17 | (CABLE 2) WIRE 17 | White | 33 in. | TP-1B |
| E5 | (CABLE 2) WIRE 5 | White | 33 in. | TP-1B |
| E18 | (CABLE 2) WIRE 18 | White | 33 in. | TP-2B |
| E6 | (CABLE 2) WIRE 6 | White | 33 in. | TP-2B |
| E19 | (CABLE 2) WIRE 19 | White | 33 in. | TP-3B |
| E7 | (CABLE 2) WIRE 7 | White | 33 in. | TP-3B |
| | | | | |
| E1 | (CABLE 3 SHIELD) | | | (CABLE 3 SHIELD) |
| E20 | (CABLE 3) WIRE 20 | White | 33 in. | TP-1C |
| E8 | (CABLE 3) WIRE 8 | White | 33 in. | TP-1C |
| E21 | (CABLE 3) WIRE 21 | White | 33 in. | TP-2C |
| E9 | (CABLE 3) WIRE 9 | White | 33 in. | TP-2C |
| E22 | (CABLE 3) WIRE 22 | White | 33 in. | TP-3C |
| E10 | (CABLE 3) WIRE 10 | White | 33 in. | TP-3C |
| | | | | |
| E1 | (CABLE 4 SHIELD) | | | (CABLE 4 SHIELD) |
| E23 | (CABLE 4) WIRE 23 | White | 33 in. | TP-1D |
| E11 | (CABLE 4) WIRE 11 | White | 33 in. | TP-1D |
| E24 | (CABLE 4) WIRE 24 | White | 33 in. | TP-2D |
| E12 | (CABLE 4) WIRE 12 | White | 33 in. | TP-2D |
| E25 | (CABLE 4) WIRE 25 | White | 33 in. | TP-3D |
| E13 | (CABLE 4) WIRE 13 | White | 33 in. | TP-3D |

| TEST LIST | | TEST LIST | | TEST LIST | | TEST LIST | |
|---|---|---|---|---|---|---|---|
| FROM | TO | FROM | TO | FROM | TO | FROM | TO |
| J1 | J2 | J1 | J3 | J1 | J4 | J1 | J5 |
| PIN | PIN | PIN | PIN | PIN | PIN | PIN | PIN |
| J1 - 1, SHELL | J2 - 5 - SHELL | J1 - 1, SHELL | J3 - 5 - SHELL | J1 - 1, SHELL | J4 - 5 - SHELL | J1 - 1, SHELL | J5 - 5 - SHELL |
| **J1 - 14** | J2 - 1 | J1 - 17 | J3 - 1 | **J1 - 20** | J4 - 1 | J1 - 23 | J5 -1 |
| **J1 - 2** | J2 - 6 | J1 - 5 | J3 - 6 | **J1 - 8** | J4 - 6 | J1 - 11 | J5 -6 |
| J1 - 15 | J2 - 2 | **J1 - 18** | J3 - 2 | J1 - 21 | J4 - 2 | **J1 - 24** | J5 -2 |
| J1 - 3 | J2 - 7 | **J1 - 6** | J3 - 7 | J1 - 9 | J4 - 7 | **J1 - 12** | J5 -7 |
| **J1 - 16** | J2 - 4 | J1 - 19 | J3 - 4 | **J1 - 22** | J4 - 4 | J1 - 25 | J5 -4 |
| **J1 - 4** | J2 - 9 | J1 - 7 | J3 - 9 | **J1 - 10** | J4 - 9 | J1 - 13 | J5 -9 |

## V25AM-33-B CABLE ASSEMBLY CIRCUIT SUMMARY

| FROM | TO |
|---|---|
| CONN J1 | CONNECTOR J2 - 9 PIN FEMALE MICRO_D CONNECTOR (PEEK) |

| PIN | PIN | WIRE NAME | SIGNAL |
|---|---|---|---|
| E1 | A5 | (CABLE 1) SHIELD | SHIELD |
| E1 | A5 | (CONNECTOR SHELL) | SHIELD |
| E1 | A5 | (CABLE 1) WIRE 1 | SHIELD |
| E14 | A1 | (CABLE 1) WIRE 14 | PD1-K |
| E2 | A6 | (CABLE 1) WIRE 2 | PD1-A |
| E15 | A2 | (CABLE 1) WIRE 15 | LED1-A |
| E3 | A7 | (CABLE 1) WIRE 3 | LED1-K |
| E16 | A4 | (CABLE 1) WIRE 16 | COIL1-FN |
| E4 | A9 | (CABLE 1) WIRE 4 | COIL1-ST |
| | | | |

## V25AM-33-B CABLE ASSEMBLY CIRCUIT SUMMARY

| FROM | TO |
|---|---|
| CONN J1 | CONNECTOR J3 - 9 PIN FEMALE MICRO_D CONNECTOR (PEEK) |

| PIN | PIN | WIRE NAME | SIGNAL |
|---|---|---|---|
| E1 | B5 | (CONNECTOR SHELL) | SHIELD |
| E1 | B5 | (CABLE 2) SHIELD | SHIELD |
| E1 | B5 | (CABLE 2) WIRE 1 | SHIELD |
| E17 | B1 | (CABLE 2) WIRE 17 | PD2-K |
| E5 | B6 | (CABLE 2) WIRE 5 | PD2-A |
| E18 | B2 | (CABLE 2) WIRE 18 | LED2-A |
| E6 | B7 | (CABLE 2) WIRE 6 | LED2-K |
| E19 | B4 | (CABLE 2) WIRE 19 | COIL2-FN |
| E7 | B9 | (CABLE 2) WIRE 7 | COIL2-ST |
| | | | |

## V25AM-33-B CABLE ASSEMBLY CIRCUIT SUMMARY

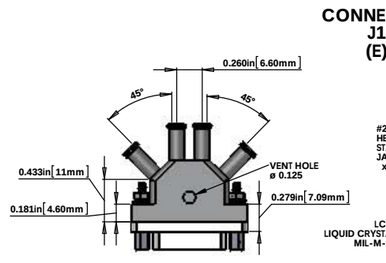
| FROM | TO |
|---|---|
| CONN J1 | CONNECTOR J4 - 9 PIN FEMALE MICRO_D CONNECTOR (PEEK) |

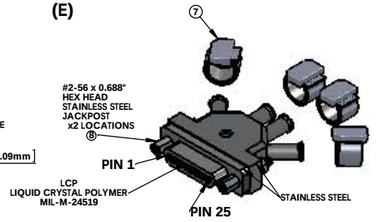
| PIN | PIN | WIRE NAME | SIGNAL |
|---|---|---|---|
| E1 | C5 | (CONNECTOR SHELL) | SHIELD |
| E1 | C5 | (CABLE 3) SHIELD | SHIELD |
| E1 | C5 | (CABLE 3) WIRE 1 | SHIELD |
| E20 | C1 | (CABLE 3) WIRE 20 | PD3-K |
| E8 | C6 | (CABLE 3) WIRE 8 | PD3-A |
| E21 | C2 | (CABLE 3) WIRE 21 | LED3-A |
| E9 | C7 | (CABLE 3) WIRE 9 | LED3-K |
| E22 | C4 | (CABLE 3) WIRE 22 | COIL3-FN |
| E10 | C9 | (CABLE 3) WIRE 10 | COIL3-ST |
| | | | |

## V25AM-33-B CABLE ASSEMBLY CIRCUIT SUMMARY

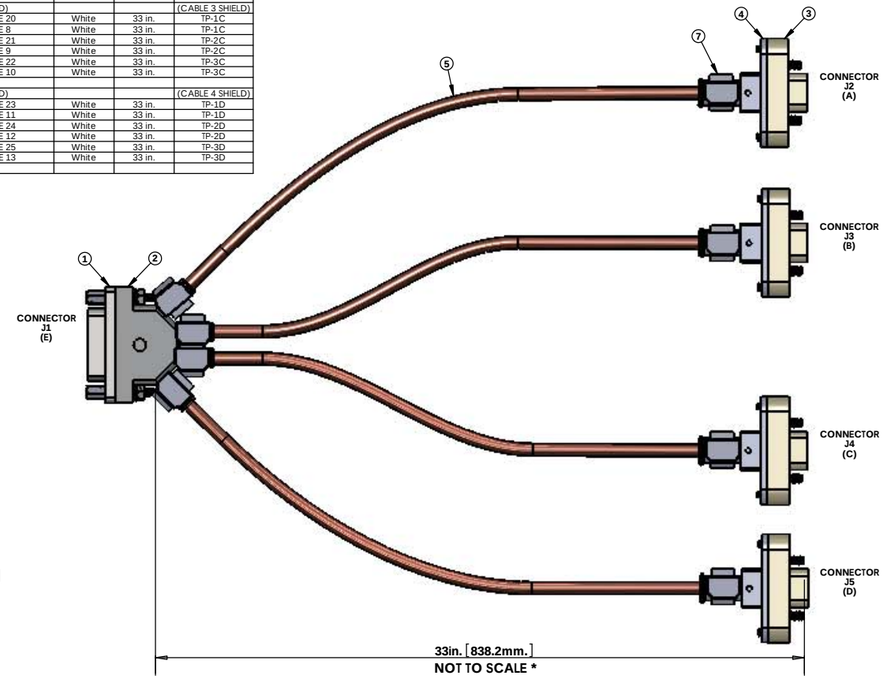
| FROM | TO |
|---|---|
| CONN J1 | CONNECTOR J5 - 9 PIN FEMALE MICRO_D CONNECTOR (PEEK) |

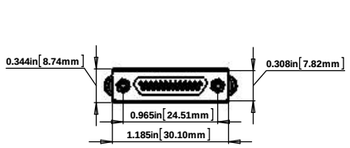
| PIN | PIN | WIRE NAME | SIGNAL |
|---|---|---|---|
| E1 | D5 | (CONNECTOR SHELL) | SHIELD |
| E1 | D5 | (CABLE 4) SHIELD | SHIELD |
| E1 | D5 | (CABLE 4) WIRE 1 | SHIELD |
| E23 | D1 | (CABLE 4) WIRE 23 | PD4-K |
| E11 | D6 | (CABLE 4) WIRE 11 | PD4-A |
| E24 | D2 | (CABLE 4) WIRE 24 | LED4-A |
| E12 | D7 | (CABLE 4) WIRE 12 | LED2-K |
| E25 | D4 | (CABLE 4) WIRE 25 | COIL4-FN |
| E13 | D9 | (CABLE 4) WIRE 13 | COIL4-ST |
| | | | |

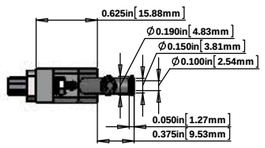


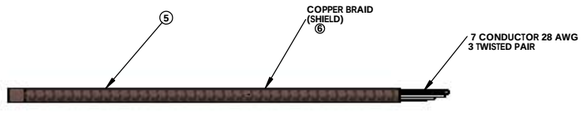




CONNECTOR J1 (E)

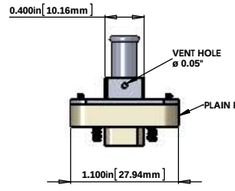


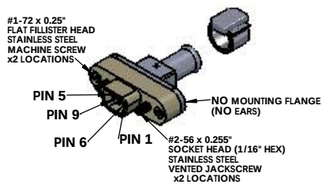



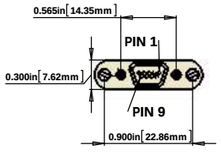



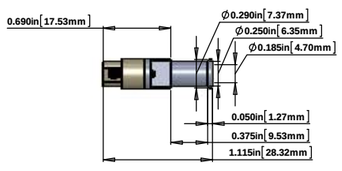



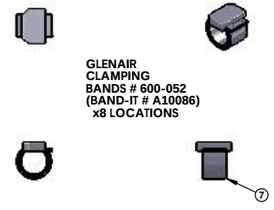

CONNECTOR J2, J3, J4, J5 (A, B, C, D)




## BILL OF MATERIALS

| ITEM NO. | PART NUMBER | DESCRIPTION | QTY. | LENGTH |
|---|---|---|---|---|
| ① | GLENAIR # MWDM3L-25PSP-598A TICOR # 040-1243-0025 OR EQUIVLAVENT | MicroD25 MALE CONNECTOR (J1) FOR UHV (STAINLESS STEEL OVER LCP) | 1 | |
| ② | | MicroD25 CONNECTOR 4-PORT BACKSHELL FOR UHV (STAINLESS STEEL) WITH ø0.100" i.d. PORTS | 1 | |
| ③ | TICOR # TS0094 WITH 60in. FLYING LEADS WITH BACKSHELL OR EQUILVALENT | MicroD9 FEMALE CONNECTOR (J2,J3,J4,J5) FOR UHV (PEEK) | 4 | |
| ④ | | MicroD9 CONNECTOR BACKSHELL FOR UHV (STAINLESS STEEL) WITH ø0.185" i.d. PORT | 4 | |
| ⑤ | C1 | 7 COND. (3 TWISTED PAIR) CABLE WITH ⑥ COPPER BRAID (SHIELD) | 4 | 33in.* |
| ⑥ | CONTINENTAL PART # 24x3x408C | COPPER BRAID - CONTINENTAL CORDAGE PART # 24x3x40BC | 4 | |
| ⑦ | 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 | |
| ⑧ | GLENAIR # 500-069-2-1 OR EQUILVALENT | #2-56 x 0.688" HEX HEAD (1/8") STAINLESS STEEL JACKPOST | 2 | |

* NOTE: THE OVERALL LENGTH IS MEASURED FROM PIN TIP (25 PIN) TO PIN TIP (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 LENGTH.

NOTES: ( UNLESS OTHERWISE SPECIFIED )

A. MATERIAL: a. 25 PIN MicroD CONNECTOR SHELL - J1 (E) STAINLESS STEEL OVER LCP - (LIQUID CRYSTAL POLYMER per MIL-M-24519).
b. 9 PIN MicroD CONNECTOR SHELL - J2 (A), J3 (B), J4 (C), J5 (D) - PEEK - VICTREX 450GL30.
c. CONTACTS - BERYLLIUM COPPER ALLOY C17300,
0.000050 MIN. GOLD OVER NICKEL.
d. HARDWARE: STAINLESS STEEL, PASSIVATED.
e. PEEK BRAID - PEEK VICTREX GRADE TDS-450CA30 CARBON LOADED - SUPPLIED BY LIGO.

B. CABLE 7 COND. 28 AWG, ( 40 STRD 44 AWG ) WITH PFA INSULATION.
3 TWISTED PAIRS ( 4 TO 5 TWISTS PER INCH ).
OVERALL 40AWG COPPER BRAID 90% 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.

## VµD25 M/1S-33-4_µD9 F/5S:B

**STANDARD USE FOR THIS CABLE**

| SUBSYSTEM | STANDARD USE |
|---|---|
| SUS | QUAD SUSPENSIONS PUM |

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 APPROXIMATELY 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 | FINISH µinch

LIGO CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY

SYSTEM | SUB-SYSTEM SUS

NEXT ASSY

PART NAME: CUSTOM CABLE SPECIFICATION V25AM-33-B

| | | | | | |
|---|---|---|---|---|---|
| DESIGNER | J. HEEFNER | APR/15/2012 | SIZE | DWG. NO. | REV. |
| DRAFTER | E. BROWN | JUL/05/2012 | E | D1000565 | v6 |
| CHECKER | | | | | |
| APPROVAL | | | SCALE: 2:1 | PROJECTION: | SHEET 1 OF 1 |

D1000565-v6 (.dwg = V25AM-33-B_PART FROM REV - DRAWING FROM REV: X-001)