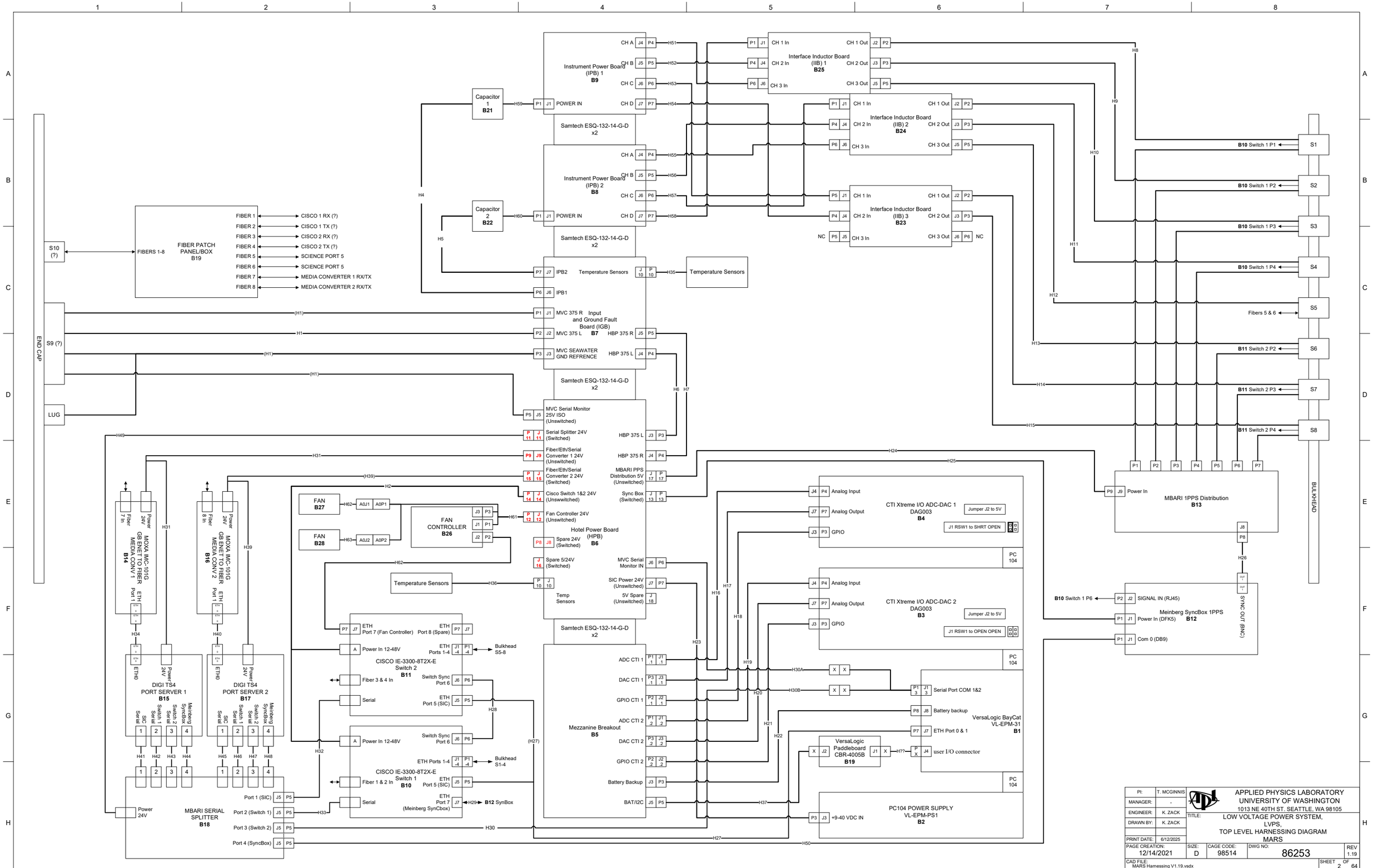
REF DESIG	DESCRIPTION	PAGE
A1H1	MVC-LVPS Bulkhead Connector	3-4
A1H2	Cisco Switch 1 Power	5
A1H3	Cisco Switch 2 Power	6
A1H4	IGB - CAP1	7
A1H5	IGB - CAP2	8
A1H6	HPB 375L In	9
A1H7	HPB 375R In	10
A1H8	IPS 1 CHA 375V Out ODI	11
A1H9	IPS 1 CHB 375V Out ODI	12
A1H10	IPS 1 CHC 375V Out ODI	13
A1H11	IPS 1 CHD 375V Out ODI	14
A1H12	IPS 2 CHA 375V Out ODI	15
A1H13	IPS 2 CHB 375V Out ODI	16
A1H14	IPS 2 CHC 375V Out ODI	17
A1H15	IPS 2 CHD 375V Out ODI	18
A1H16	CTI ADC I/O 1	19-20
A1H17	CTI DAC I/O 1	21
A1H18	CTI GPIO I/O 1	22
A1H19	CTI ADC I/O 2	23-24
A1H20	CTI DAC I/O 2	25
A1H21	CTI GPIO I/O 2	26
~~A1H22~~	~~BAYCAT BATTERY BACKUP~~	~~27~~
A1H23	PC104 PSU POWER	28
A1H24	1PPS DISTRIBUTION POWER	29
A1H25	MEINBERG SYNC 1PPS POWER	30
A1H26	1PPS SIGNAL	31
A1H27	PC104 ETHERNET	32
A1H28	SWITCH 1-2 BRIDGE	33
A1H29	MEINBERG SYNC ETHERNET	34
A1H30	PC104 MVC CONTROLLER SERIAL	35
A1H31	MEDIA CONV - PORT SERVER 1 POWER	36

REF DESIG	DESCRIPTION	PAGE
A1H32	CISCO 2 CONSOLE	37
A1H33	CISCO 1 CONSOLE	38
A1H34	MEDIA CONV - PORT SERVER 1 DATA	39
A1H35	IGB TEMP SENSORS	40
A1H36	HPB TEMP SENSORS	41-42
A1H37	PC104-PADDLEBOARD I2C	43
A1H38	PADDLEBOARD-BOB I2C	44
A1H39	MEDIA CONV - PORT SERVER 2 POWER	45
A1H40	MEDIA CONV - PORT SERVER 2 DATA	46
A1H41	PORT SERVER 1 PORT 1 - SERIAL SPLITTER	47
A1H42	PORT SERVER 1 PORT 2 - SERIAL SPLITTER	47
A1H43	PORT SERVER 1 PORT 3 - SERIAL SPLITTER	47
A1H44	PORT SERVER 1 PORT 4 - SERIAL SPLITTER	47
A1H45	PORT SERVER 2 PORT 1 - SERIAL SPLITTER	47
A1H46	PORT SERVER 2 PORT 2 - SERIAL SPLITTER	47
A1H47	PORT SERVER 2 PORT 3 - SERIAL SPLITTER	47
A1H48	PORT SERVER 2 PORT 4 - SERIAL SPLITTER	47
A1H49	SERIAL SPLITTER POWER	48
A1H50	MEINBERG CONSOLE	49
A1H51	IPS 1 CHA 375V Out IIB	50
A1H52	IPS 1 CHB 375V Out IIB	51
A1H53	IPS 1 CHC 375V Out IIB	52
A1H54	IPS 1 CHD 375V Out IIB	53
A1H55	IPS 2 CHA 375V Out IIB	54
A1H56	IPS 2 CHB 375V Out IIB	55
A1H57	IPS 2 CHC 375V Out IIB	56
A1H58	IPS 2 CHD 375V Out IIB	57
A1H59	CAP1 TO IPB1 375V	58
A1H60	CAP2 TO IPB2 375V	59
A1H61	FAN CONTROLLER POWER	60
A1H62	FAN CONTROLLER ETHERNET	

Ref Des	Component
B1	Baycat CPU
B2	PC104 Power Supply
B3	ADC-DAC 2
B4	ADC-DAC 1
B5	BOB
B6	HPB
B7	IGB
B8	IPB 2
B9	IPB 1
B10	CISCO 1
B11	CISCO 2
B12	Meinberg SyncBox
B13	1PPS Distribution
B14	Media Converter 1
B15	Port Server 1
B16	Port Server 2
B17	Media Converter 2
B18	Serial Splitter
B19	I/O Paddleboard
B20	Fiber Patch Box
B21	Capacitor 1
B22	Capacitor 2
B23	IIB1
B24	IIB2
B25	IIB3
B26	Fan Controller
B27	Fan 1
B28	Fan 2

HPB	Function	Switched?
J5	24V - ISO MVC & MVC RS232	No
J6	PC-104 RS232	N/A
J7	24V - PC104	No
J8	24V - CISCO 1	Yes
J9	24V - Spare	No
J10	Temp Sensors	N\A
J11	24V - CISCO 2	Yes
J12	24V - Spare	No
J13	24V - Sync Box	Yes
J14	24V - Spare	No
J15	24V - Media Converter 1	Yes
J16	24V - Serial Splitter (Spare)	Yes
J17	5V - PPS Distribution	Yes
J18	5V - Spare	No
J19	+187L	N/A
J20	-187L	N/A
J21	+187R	N/A
J22	+187L	N/A

Double click to open Excel spreadsheet



PI:	T. MCGINNIS	APPLIED PHYSICS LABORATORY UNIVERSITY OF WASHINGTON 1013 NE 40TH ST. SEATTLE, WA 98105	
MANAGER:	-	TITLE: LOW VOLTAGE POWER SYSTEM, LVPS, TOP LEVEL HARNESSING DIAGRAM MARS	
ENGINEER:	K. ZACK		
DRAWN BY:	K. ZACK		
PRINT DATE:	6/12/2025		
PAGE CREATION: 12/14/2021	SIZE: D	CAGE CODE: 98514	DWG NO: 86253 REV 1.19
CAD FILE: MARS Harnessing V1.19.vsdx			SHEET 2 OF 64

H1

WARNING:
CONTACT ORDER
NOT SEQUENTIAL

J1 BULKHEAD
SEACON MINR-84

To J1
BULKHEAD

350V+_1 \ P187_R_OUT 3	10 AWG	RED 16 AWG
350V_COM_1 \ N187_R_OUT 4	10 AWG	BLACK 16 AWG
350V+_2 \ P187_L_OUT 6	10 AWG	RED 16 AWG
350V_COM_2 \ N187_L_OUT 5	10 AWG	BLACK 16 AWG
ISO_24V_IN 63	16 AWG	
NC	16 AWG	
IS0_RS232_RXD 69	22 AWG	
ISO_24V_GND 62	16 AWG	
ISO_GND / RS232_RTN 70	16 AWG	
ISO_RS232_TXD 68	22 AWG	
SEAWATER GROUND ??	16 AWG	

B7P1
M80-263F202-00-00

To **B7**
IGB

A P187_R_IN	
B N187_R_IN	
A P187_L_IN	
B N187_L_IN	

B7P2
M80-263F202-00-00

B6P5
M80-4800605

TOOLING:
*USE T-CONTACT

To **B6**
HPB

RED 22 AWG 1.1mm Ø	1 ISO_24V*
RED 22 AWG 1.1mm Ø	2 ISO_24V*
WHT 22 AWG 1.1mm Ø	3 ISO_RS232_RX
BLK 22 AWG 1.1mm Ø	4 ISO_GND*
BLK 22 AWG 1.1mm Ø	5 ISO_GND / RS232_RTN*
WHT 22 AWG 1.1mm Ø	6 ISO_RS232_TX

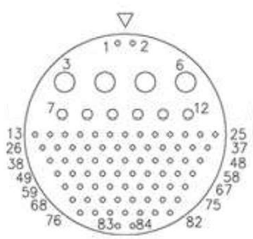
CHASSIS LUG

CHASSIS LUG — GRN 22 AWG 1.1mm Ø

B7P3
M80-4800405

To **B7**
IGB

GRN 22 AWG 1.1mm Ø	1 SEAWATER GROUND ELECTRODE
GRN 22 AWG 1.1mm Ø	2 CHASSIS
NC	3 SEAWATER GROUND ELECTRODE
GRN 22 AWG 1.1mm Ø	4 CHASSIS



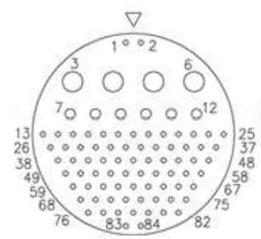
4#10/6#16/74#22 (84 LONG)

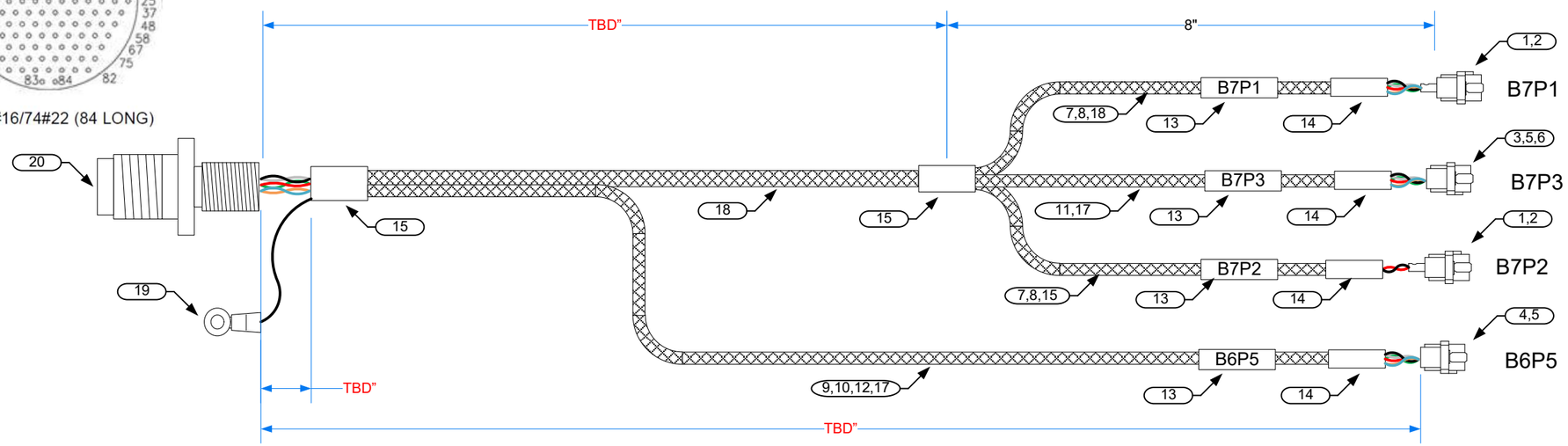
From Bryan Touryan-Schaefer, 05/12/2025. Dwg Updated 06/12/2025.

Seacon Pin Number	Signal	Power Can Connector
3	350V+_1	Phoenix A Pin2
4	350V_COM_1	Phoenix A Pin1
5	350V_COM_2	Phoenix B Pin1
6	350V+_2	Phoenix B Pin2
62	24V Return	Harwin Pin 1
63	24V+	Harwin Pin 2
68	UW_232 TxD	Harwin Pin 3
69	UW_232 RxD	Harwin Pin 4
70	RS232 RTN	Harwin Pin 5

PI:	T. MCGINNIS	APPLIED PHYSICS LABORATORY UNIVERSITY OF WASHINGTON 1013 NE 40TH ST. SEATTLE, WA 98105			
MANAGER:	-				
ENGINEER:	K. ZACK	TITLE: J1 Bulkhead MVC – LVPS Power and Data MARS			
DRAWN BY:	K. ZACK				
PRINT DATE:	6/12/2025				
PAGE CREATION: 12/14/2021		SIZE: B	CAGE CODE: 98514	DWG NO: 86253	REV 1.08
CAD FILE: MARS Harnessing V1.19.vsdx				SHEET 3	OF 64

H1





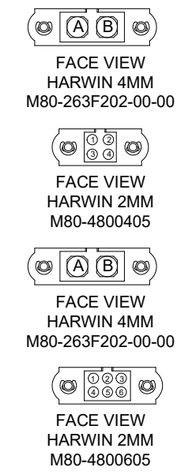
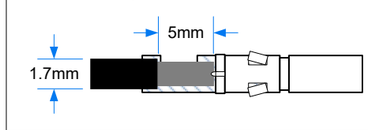


TABLE A1H1: PARTS LIST

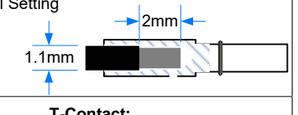
ITEM #	Qty.	Mfg. Part Number	Vendor	DESCRIPTION
1	2	M80-263F202-00-00	HARWIN	20A 2 PIN DATAMATE POWER
2	4	M80-327	HARWIN	CONN SOCKET 10AWG CRIMP/SLD GOLD
3	1	M80-4800405	HARWIN	DATAMATE FEMALE 4-PIN
4	1	M80-4800605	HARWIN	DATAMATE FEMALE 6-PIN
5	4	M80-2060005	HARWIN	DATAMATE 22AWG FEMALE CRIMP T-CONTACT
6	2	M80-0110005	HARWIN	DATAMATE 22AWG FEMALE CRIMP
7	TBD	AT161929 BK005	ALPHA	16 AWG BLACK WIRE PTFE
8	TBD	AT161929 RD005	ALPHA	16 AWG RED WIRE PTFE
9	TBD	2845/19 BK001	ALPHA	22 AWG BLACK WIRE PTFE 1.07mm Ø
10	TBD	2845/19 RD001	ALPHA	22 AWG RED WIRE PTFE 1.07mm Ø
11	TBD	2845/19 GR001	ALPHA	22 AWG GRN WIRE PTFE 1.07mm Ø
12	TBD	2845/19 WH001	ALPHA	22 AWG WHT WIRE PTFE 1.07mm Ø
13	2"	STOCK	STOCK	3/8" HEAT SHRINK LABEL
14	2"	STOCK	STOCK	1/2" ADHESIVE HEAT SHRINK
15	2"	STOCK	STOCK	3/4" ADHESIVE HEAT SHRINK
16	2"	STOCK	STOCK	1/8" CLEAR HEAT SHRINK
17	TBD	PTN0.25BK-100	Techflex	Techflex 1/4"Flexo PET General Purpose Sleeving
18	TBD	PTN0.50BK-100	Techflex	Techflex 1/2"Flexo PET General Purpose Sleeving
19	1	STOCK	STOCK	CRIMP EYE
20	1	MINR-84-FCR/L-PBOF-P	SEACON	J1 BULKHEAD

NOTE:

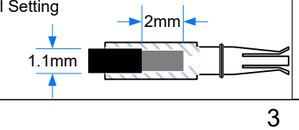
Power Contact (16AWG):
Z80-290 - Extraction tool
5x – Contact Replacement In Insulator



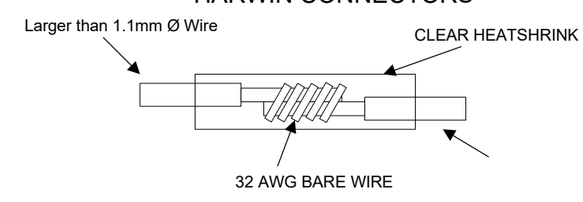
Large Bore Signal Contact:
M22520/2-01 - Hand Crimp Tool
T5747 – Positioner
6 – Crimp Tool Setting



T-Contact:
M22520/2-01 - Hand Crimp Tool
Z80-444 – Positioner
6 – Crimp Tool Setting



22 AWG SPLICES FOR
HARWIN CONNECTORS

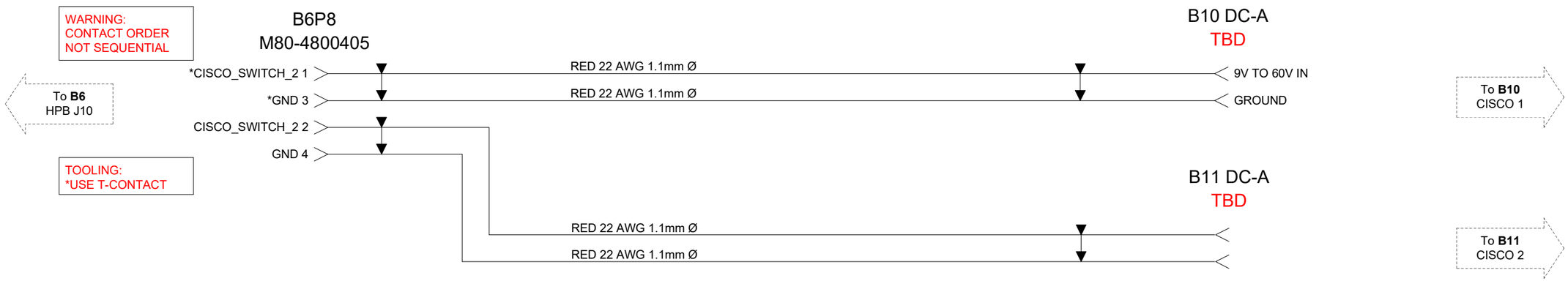


PI:	T. MCGINNIS	APPLIED PHYSICS LABORATORY UNIVERSITY OF WASHINGTON 1013 NE 40TH ST. SEATTLE, WA 98105			
MANAGER:	-				
ENGINEER:	K. ZACK	TITLE: J1 Bulkhead MVC – LVPS Power and Data MARS			
DRAWN BY:	K. ZACK				
PRINT DATE:	6/12/2025				
PAGE CREATION: 12/14/2021		SIZE: B	CAGE CODE: 98514	DWG NO: 86253	REV 1.08
CAD FILE: MARS Harnessing V1.19.vsdx				SHEET 4	OF 64

H2

WARNING:
CONTACT ORDER
NOT SEQUENTIAL

TOOLING:
*USE T-CONTACT



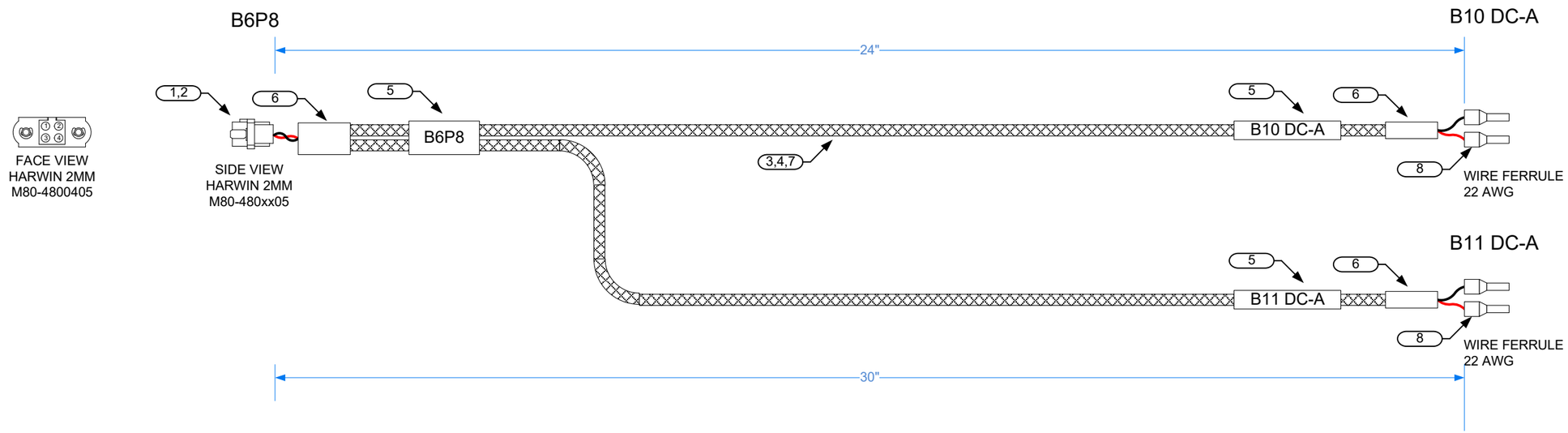
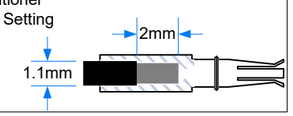


TABLE A1H2: PARTS LIST

ITEM #	Qty.	Mfg. Part Number	Vendor	DESCRIPTION
1	1	M80-4800405	HARWIN	DATAMATE FEMALE 4-PIN
2	2	M80-2060005	HARWIN	DATAMATE 22AWG FEMALE CRIMP T-CONTACT
3	TBD	2845/19 BK001	HARWIN	22 AWG BLACK WIRE PTFE 1.07mm Ø
4	TBD	2845/19 RD001	HARWIN	22 AWG RED WIRE PTFE 1.07mm Ø
5	2"	STOCK	STOCK	3/8" HEAT SHRINK LABEL
6	2"	STOCK	STOCK	1/2" ADHESIVE HEAT SHRINK
7	TBD	PTN0.25BK-200	Techflex	Techflex 1/4"Flexo PET General Purpose Sleeving
8	4	FSD75-8-D	Panduit Corp	CONN FERRULE DIN 22AWG WHITE

T-Contact:
M22520/2-01 - Hand Crimp Tool
Z80-444 – Positioner
6 – Crimp Tool Setting



PI:	T. MCGINNIS
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ENGINEER:	K. ZACK
DRAWN BY:	K. ZACK
PRINT DATE:	6/12/2025

APPLIED PHYSICS LABORATORY
UNIVERSITY OF WASHINGTON
1013 NE 40TH ST. SEATTLE, WA 98105

TITLE:
H2 CISCO Switch 1 & 2
Switch Power
MARS

PAGE CREATION:	SIZE:	CAGE CODE:	DWG NO:	REV
12/14/2021	B	98514	86253	1.08

CAD FILE: MARS Harnessing V1.19.vsdx

SHEET 5 OF 64

H3

WARNING:
CONTACT ORDER
NOT SEQUENTIAL

B6P11
M80-4800405

B11 DC-A
FERRELS

To **B6**
HPB J11

To **B11**
CISCO 2

TOOLING:
*USE T-CONTACT

*CISCO_SWITCH_2 1	RED 22 AWG 1.1mm Ø		9V TO 60V IN
*GND 3	BLK 22 AWG 1.1mm Ø		GROUND
CISCO_SWITCH_2 2	NC		
GND 4	NC		

NOT USED –
COMBINED WITH H2

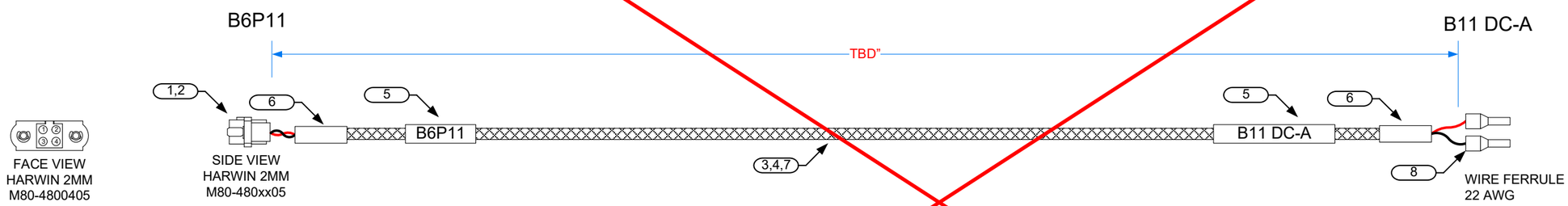
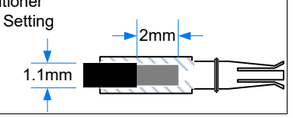


TABLE A1H3: PARTS LIST

ITEM #	Qty.	Mfg. Part Number	Vendor	DESCRIPTION
1	1	M80-4800405	HARWIN	DATAMATE FEMALE 4-PIN
2	2	M80-2060005	HARWIN	DATAMATE 22AWG FEMALE CRIMP T-CONTACT
3	TBD	2845/19 BK001	HARWIN	22 AWG BLACK WIRE PTFE 1.07mm Ø
4	TBD	2845/19 RD001	HARWIN	22 AWG RED WIRE PTFE 1.07mm Ø
5	2"	STOCK	STOCK	3/8" HEAT SHRINK LABEL
6	2"	STOCK	STOCK	1/2" ADHESIVE HEAT SHRINK
7	TBD	PTN0.25BK-200	Techflex	Techflex 1/4"Flexo PET General Purpose Sleeving
8	2	FSD75-8-D	Panduit Corp	CONN FERRULE DIN 22AWG WHITE

T-Contact:
M22520/2-01 - Hand Crimp Tool
Z80-444 – Positioner
6 – Crimp Tool Setting



PI:	T. MCGINNIS
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ENGINEER:	K. ZACK
DRAWN BY:	K. ZACK
PRINT DATE:	6/12/2025

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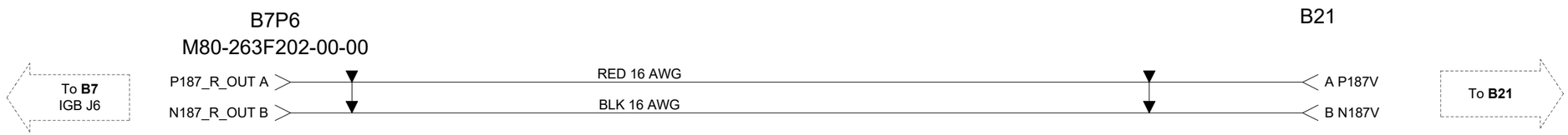
UNIVERSITY OF WASHINGTON
1013 NE 40TH ST. SEATTLE, WA 98105

TITLE:
H3 CISCO Switch 2
Switch Power
MARS

PAGE CREATION:	SIZE:	CAGE CODE:	DWG NO:	REV
12/14/2021	B	98514	86253	1.08

CAD FILE:
MARS Harnessing V1.19.vsdx

SHEET 6 OF 64



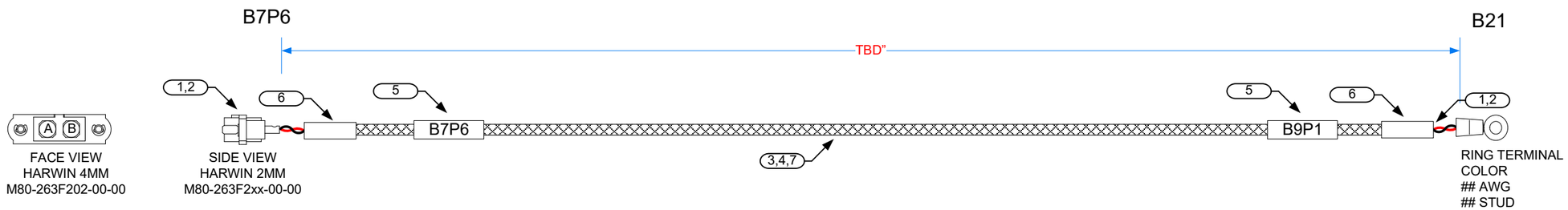


TABLE A1H4: PARTS LIST

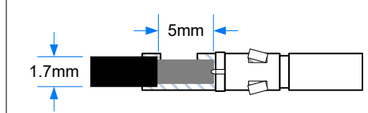
ITEM #	Qty.	Mfg. Part Number	Vendor	DESCRIPTION
1	2	M80-263F202-00-00	HARWIN	20A 2 PIN DATAMATE POWER
2	4	M80-327	HARWIN	CONN SOCKET 16AWG CRIMP/SLD GOLD
3	TBD		HARWIN	16 AWG BLACK WIRE PTFE
4	TBD		HARWIN	16 AWG RED WIRE PTFE
5	2"	STOCK	STOCK	3/8" HEAT SHRINK LABEL
6	2"	STOCK	STOCK	1/2" ADHESIVE HEAT SHRINK
7	TBD	PTN0.25BK-200	Techflex	Techflex 1/4"Flexo PET General Purpose Sleeving

NOTE:

Power Contact (16AWG):

Z80-290 - Extraction tool

5x – Contact Replacement In Insulator



PI:	T. MCGINNIS
MANAGER:	-
ENGINEER:	K. ZACK
DRAWN BY:	K. ZACK
PRINT DATE:	6/12/2025

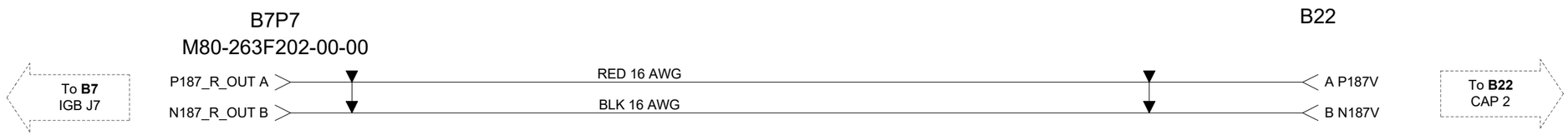
APPLIED PHYSICS LABORATORY
UNIVERSITY OF WASHINGTON
1013 NE 40TH ST. SEATTLE, WA 98105

TITLE:
H4 IGB-CAP1
375V Power
MARS

PAGE CREATION:	SIZE:	CAGE CODE:	DWG NO:	REV
12/14/2021	B	98514	86253	1.08

CAD FILE: MARS Harnessing V1.19.vsdx

H5



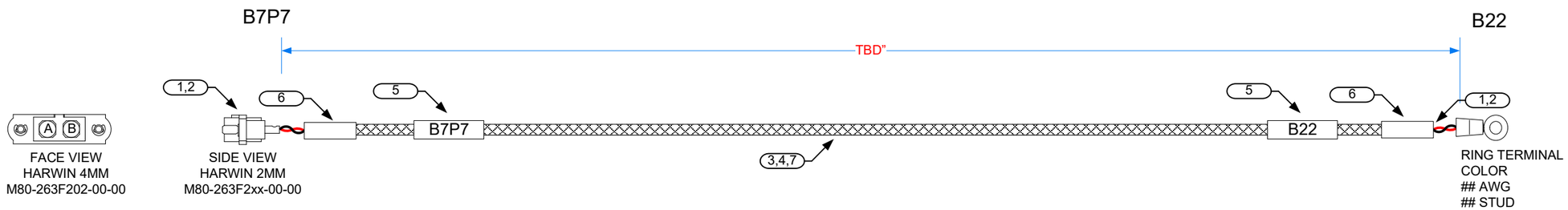


TABLE A1H5: PARTS LIST

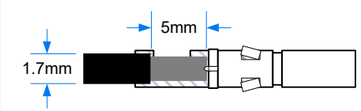
ITEM #	Qty.	Mfg. Part Number	Vendor	DESCRIPTION
1	2	M80-263F202-00-00	HARWIN	20A 2 PIN DATAMATE POWER
2	4	M80-327	HARWIN	CONN SOCKET 16AWG CRIMP/SLD GOLD
3	TBD	AT161929 BK005	HARWIN	16 AWG BLACK WIRE PTFE
4	TBD	AT161929 RD005	HARWIN	16 AWG RED WIRE PTFE
5	2"	STOCK	STOCK	3/8" HEAT SHRINK LABEL
6	2"	STOCK	STOCK	1/2" ADHESIVE HEAT SHRINK
7	TBD	PTN0.25BK-200	Techflex	Techflex 1/4"Flexo PET General Purpose Sleeving

NOTE:

Power Contact (16AWG):

Z80-290 - Extraction tool

5x – Contact Replacement In Insulator



PI:	T. MCGINNIS
MANAGER:	-
ENGINEER:	K. ZACK
DRAWN BY:	K. ZACK
PRINT DATE:	6/12/2025

APPLIED PHYSICS LABORATORY
UNIVERSITY OF WASHINGTON
1013 NE 40TH ST. SEATTLE, WA 98105

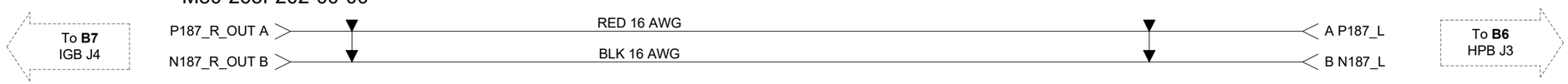
TITLE:
H5 IGB-CAP2
375V Power
MARS

PAGE CREATION:	SIZE:	CAGE CODE:	DWG NO:	REV
12/14/2021	B	98514	86253	1.08

CAD FILE: MARS Harnessing V1.19.vsdx

SHEET 8 OF 64

H6



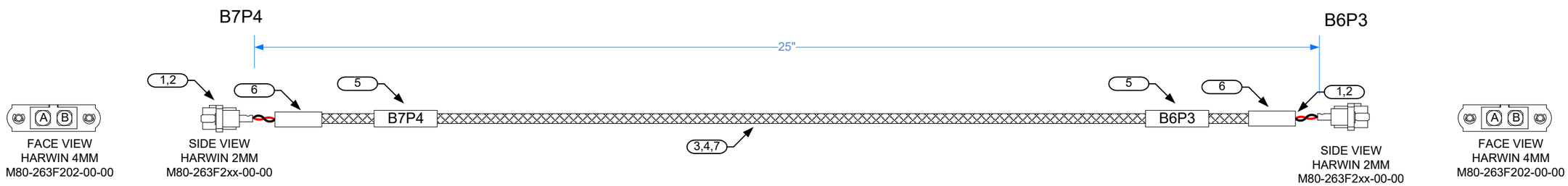


TABLE A1H6: PARTS LIST

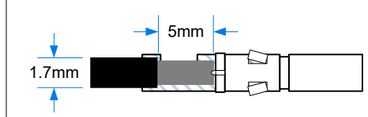
ITEM #	Qty.	Mfg. Part Number	Vendor	DESCRIPTION
1	2	M80-263F202-00-00	HARWIN	20A 2 PIN DATAMATE POWER
2	4	M80-327	HARWIN	CONN SOCKET 16AWG CRIMP/SLD GOLD
3	TBD	AT161929 BK005	HARWIN	16 AWG BLACK WIRE PTFE
4	TBD	AT161929 RD005	HARWIN	16 AWG RED WIRE PTFE
5	2"	STOCK	STOCK	3/8" HEAT SHRINK LABEL
6	2"	STOCK	STOCK	1/2" ADHESIVE HEAT SHRINK
7	TBD	PTN0.25BK-200	Techflex	Techflex 1/4"Flexo PET General Purpose Sleeving

NOTE:

Power Contact (16AWG):

Z80-290 - Extraction tool

5x – Contact Replacement In Insulator



PI:	T. MCGINNIS
MANAGER:	-
ENGINEER:	K. ZACK
DRAWN BY:	K. ZACK
PRINT DATE:	6/12/2025

APPLIED PHYSICS LABORATORY
UNIVERSITY OF WASHINGTON
1013 NE 40TH ST. SEATTLE, WA 98105

TITLE:
H6 HOTEL POWER BOARD POWER
375V Power LEFT
MARS

PAGE CREATION:	SIZE:	CAGE CODE:	DWG NO:	REV
12/14/2021	B	98514	86253	1.08

CAD FILE: MARS Harnessing V1.19.vsdx

SHEET 9 OF 64

H7

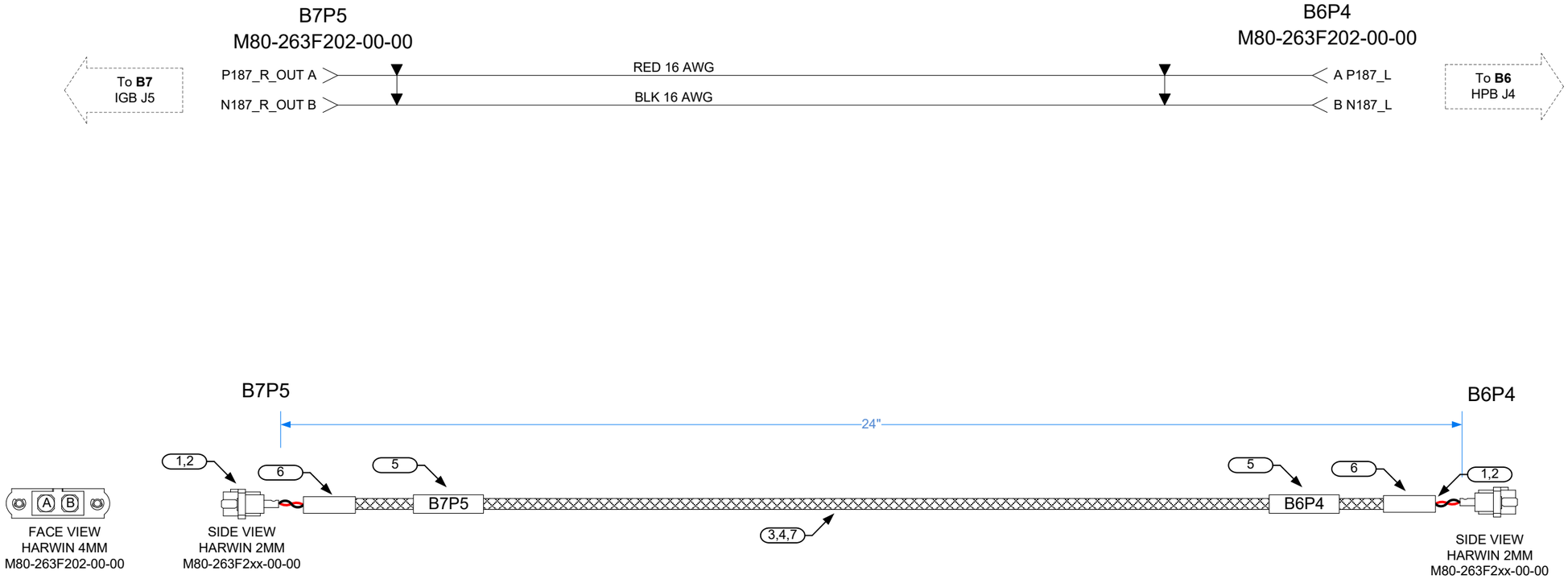


TABLE A1H7: PARTS LIST

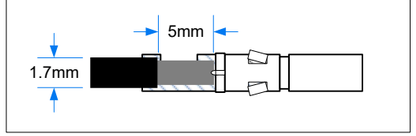
ITEM #	Qty.	Mfg. Part Number	Vendor	DESCRIPTION
1	2	M80-263F202-00-00	HARWIN	20A 2 PIN DATAMATE POWER
2	4	M80-327	HARWIN	CONN SOCKET 16AWG CRIMP/SLD GOLD
3	TBD	AT161929 BK005	HARWIN	16 AWG BLACK WIRE PTFE
4	TBD	AT161929 RD005	HARWIN	16 AWG RED WIRE PTFE
5	2"	STOCK	STOCK	3/8" HEAT SHRINK LABEL
6	2"	STOCK	STOCK	1/2" ADHESIVE HEAT SHRINK
7	TBD	PTN0.25BK-200	Techflex	Techflex 1/4"Flexo PET General Purpose Sleeving

NOTE:

Power Contact (16AWG):

Z80-290 - Extraction tool

5x – Contact Replacement In Insulator



PI:	T. MCGINNIS
MANAGER:	-
ENGINEER:	K. ZACK
DRAWN BY:	K. ZACK
PRINT DATE:	6/12/2025

APPLIED PHYSICS LABORATORY
UNIVERSITY OF WASHINGTON
1013 NE 40TH ST. SEATTLE, WA 98105

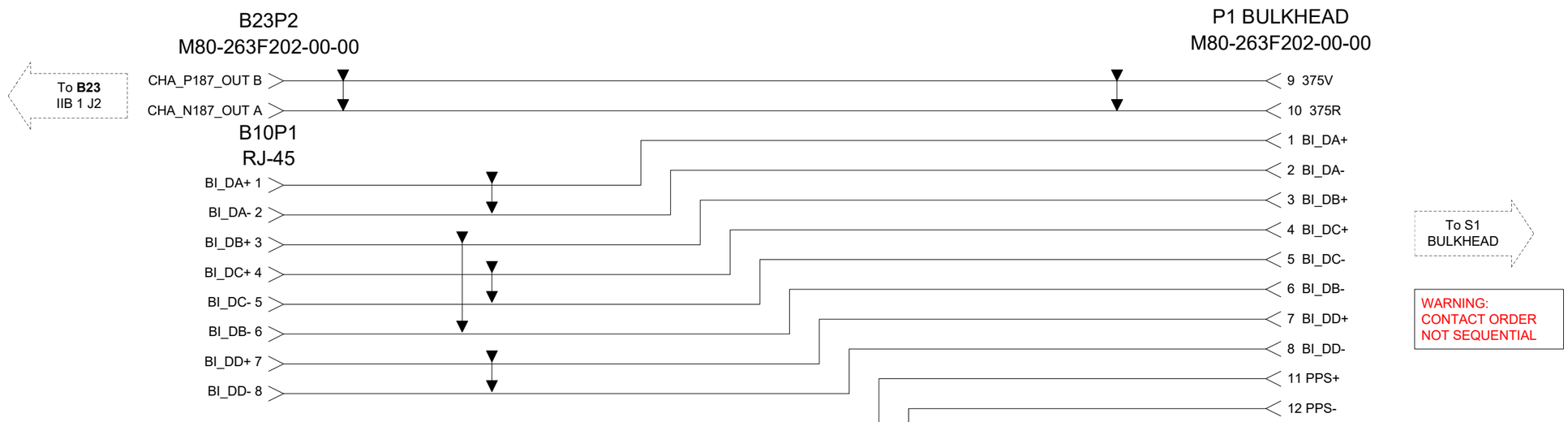
TITLE:
H6 HOTEL POWER BOARD POWER
375V Power RIGHT
MARS

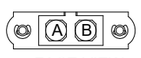
PAGE CREATION:	SIZE:	CAGE CODE:	DWG NO:	REV
12/14/2021	B	98514	86253	1.08

CAD FILE: MARS Harnessing V1.19.vsdx

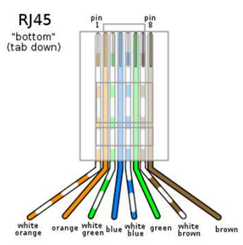
SHEET 10 OF 64

H8





FACE VIEW
HARWIN 4MM
M80-263F202-00-00



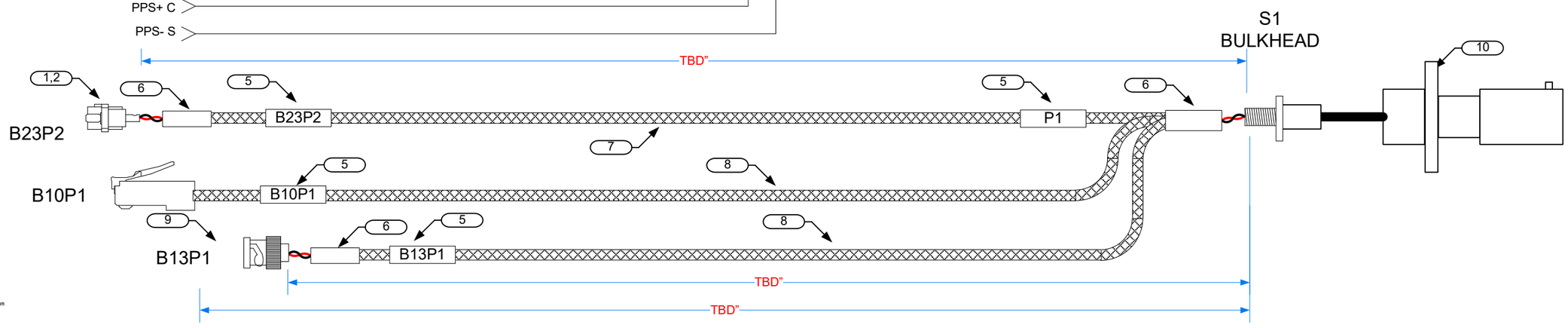
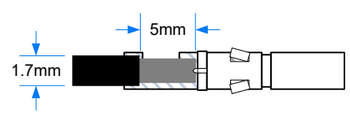


TABLE A1H8: PARTS LIST

ITEM #	Qty.	Mfg. Part Number	Vendor	DESCRIPTION
1	1	M80-263F202-00-00	HARWIN	20A 2 PIN DATAMATE POWER
2	2	M80-327	HARWIN	CONN SOCKET 16AWG CRIMP/SLD GOLD
2	1	STOCK	STOCK	RJ45 CONNECTOR
5	2"	STOCK	STOCK	1/2" HEAT SHRINK LABEL
6	2"	STOCK	STOCK	3/4" ADHESIVE HEAT SHRINK
7	TBD	PTN0.50BK-200	Techflex	Techflex 1/2"Flexo PET General Purpose Sleeving
8	TBD	PTN0.25BK-200	Techflex	Techflex 1/4"Flexo PET General Purpose Sleeving
9	1	STOCK	STOCK	GENERIC BNC SOLDER
9	TBD	TBD	TBD	WET MATE PENETRATOR CONNECTOR

NOTE:
Power Contact (16AWG):
Z80-290 - Extraction tool
5x – Contact Replacement In Insulator



PI:	T. MCGINNIS	APPLIED PHYSICS LABORATORY UNIVERSITY OF WASHINGTON 1013 NE 40TH ST. SEATTLE, WA 98105			
MANAGER:	-				
ENGINEER:	K. ZACK	TITLE: H8 S1 BULKHEAD IPB 1 CHA 375V OUTPUT MARS			
DRAWN BY:	K. ZACK				
PRINT DATE:	6/12/2025				
PAGE CREATION: 12/14/2021		SIZE: B	CAGE CODE: 98514	DWG NO: 86253	REV 1.08
CAD FILE: MARS Harnessing V1.19.vsdx				SHEET 11 OF 64	

H9

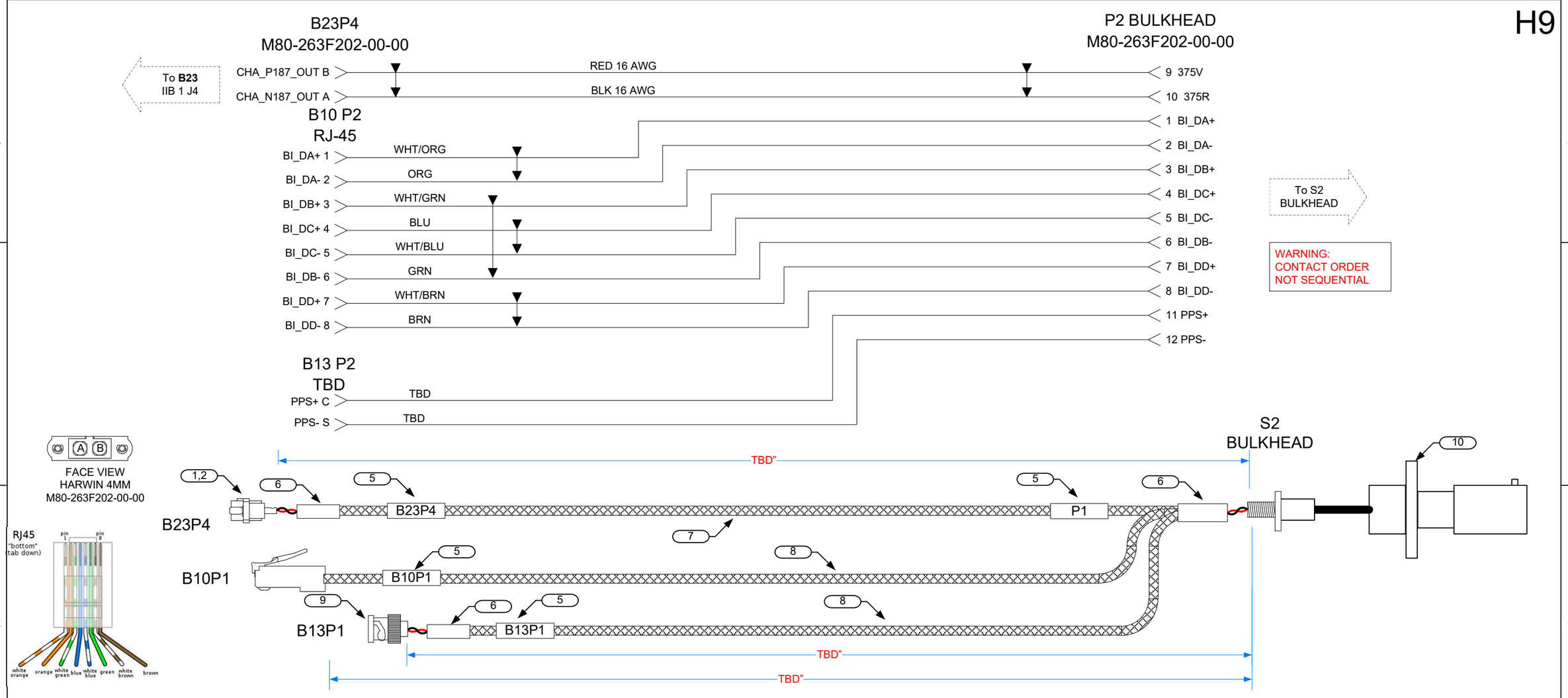


TABLE A1H9: PARTS LIST

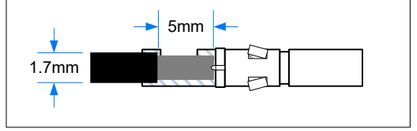
ITEM #	Qty.	Mfg. Part Number	Vendor	DESCRIPTION
1	1	M80-263F202-00-00	HARWIN	20A 2 PIN DATAMATE POWER
2	2	M80-327	HARWIN	CONN SOCKET 16AWG CRIMP/SLD GOLD
2	1	STOCK	STOCK	RJ45 CONNECTOR
5	2"	STOCK	STOCK	1/2" HEAT SHRINK LABEL
6	2"	STOCK	STOCK	3/4" ADHESIVE HEAT SHRINK
7	TBD	PTN0.50BK-200	Techflex	Techflex 1/2"Flexo PET General Purpose Sleeving
8	TBD	PTN0.25BK-200	Techflex	Techflex 1/4"Flexo PET General Purpose Sleeving
9	1	STOCK	STOCK	GENERIC BNC SOLDER
10	TBD	TBD	TBD	WET MATE PENETRATOR CONNECTOR

NOTE:

Power Contact (16AWG):

Z80-290 - Extraction tool

5x – Contact Replacement In Insulator



PI:	T. MCGINNIS	APPLIED PHYSICS LABORATORY UNIVERSITY OF WASHINGTON 1013 NE 40TH ST. SEATTLE, WA 98105			
MANAGER:	-				
ENGINEER:	K. ZACK	TITLE: H9 S2 BULKHEAD IPB 1 CHB 375V OUTPUT MARS			
DRAWN BY:	K. ZACK				
PRINT DATE:	6/12/2025				
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CAD FILE: MARS Harnessing V1.19.vsdx					SHEET 12 OF 64

H10

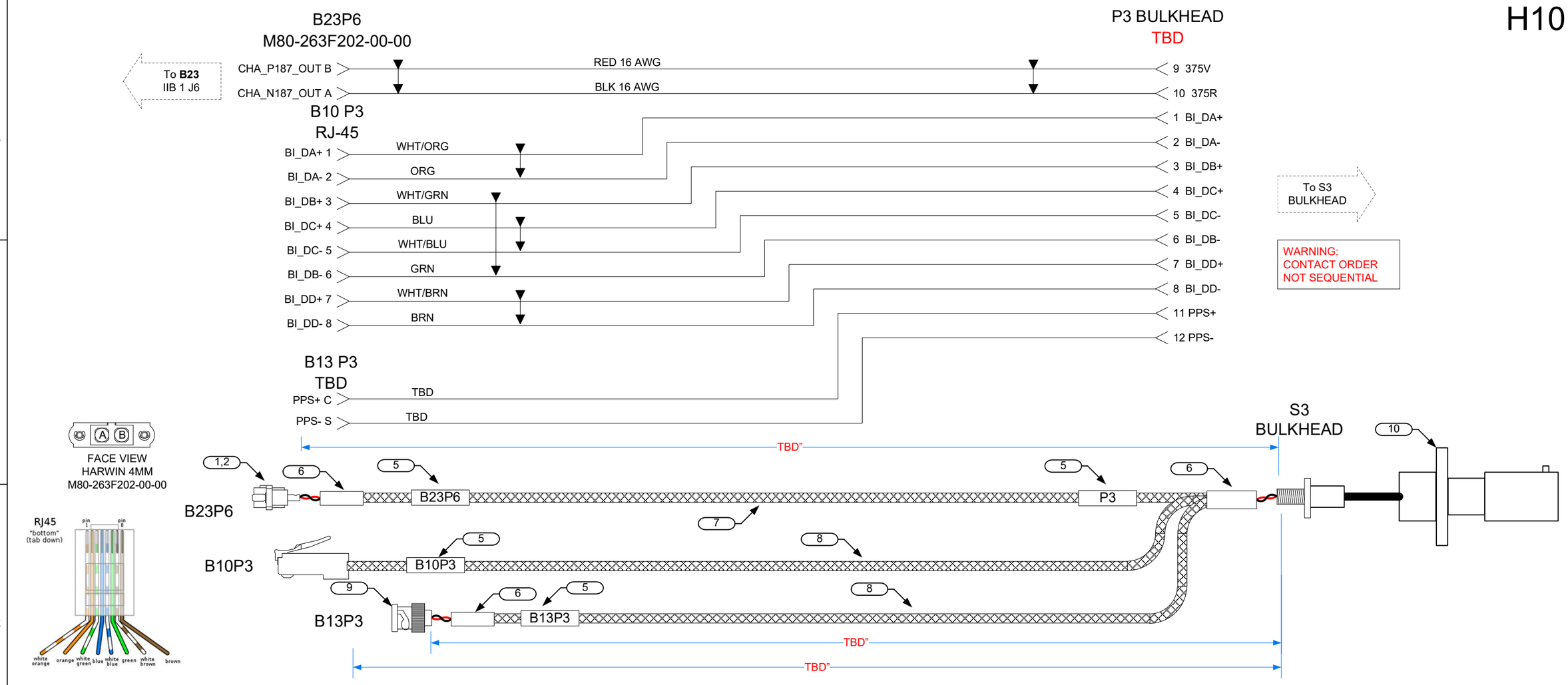


TABLE A1H10: PARTS LIST

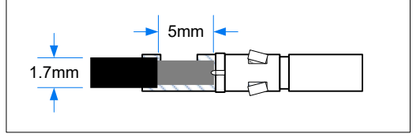
ITEM #	Qty.	Mfg. Part Number	Vendor	DESCRIPTION
1	1	M80-263F202-00-00	HARWIN	20A 2 PIN DATAMATE POWER
2	2	M80-327	HARWIN	CONN SOCKET 16AWG CRIMP/SLD GOLD
2	1	STOCK	STOCK	RJ45 CONNECTOR
5	2"	STOCK	STOCK	1/2" HEAT SHRINK LABEL
6	2"	STOCK	STOCK	3/4" ADHESIVE HEAT SHRINK
7	TBD	PTN0.50BK-200	Techflex	Techflex 1/2"Flexo PET General Purpose Sleeving
8	TBD	PTN0.25BK-200	Techflex	Techflex 1/4"Flexo PET General Purpose Sleeving
9	1	STOCK	STOCK	GENERIC BNC SOLDER
10	TBD	TBD	TBD	WET MATE PENETRATOR CONNECTOR

NOTE:

Power Contact (16AWG):

Z80-290 - Extraction tool

5x – Contact Replacement In Insulator



PI:	T. MCGINNIS	APPLIED PHYSICS LABORATORY UNIVERSITY OF WASHINGTON 1013 NE 40TH ST. SEATTLE, WA 98105			
MANAGER:	-				
ENGINEER:	K. ZACK	TITLE: H10 S3 BULKHEAD IPB 1 CHC 375V OUTPUT MARS			
DRAWN BY:	K. ZACK				
PRINT DATE:	6/12/2025				
PAGE CREATION: 12/14/2021	SIZE: B	CAGE CODE: 98514	DWG NO: 86253		REV 1.08
CAD FILE: MARS Harnessing V1.19.vsdx				SHEET 13 OF 64	

H11

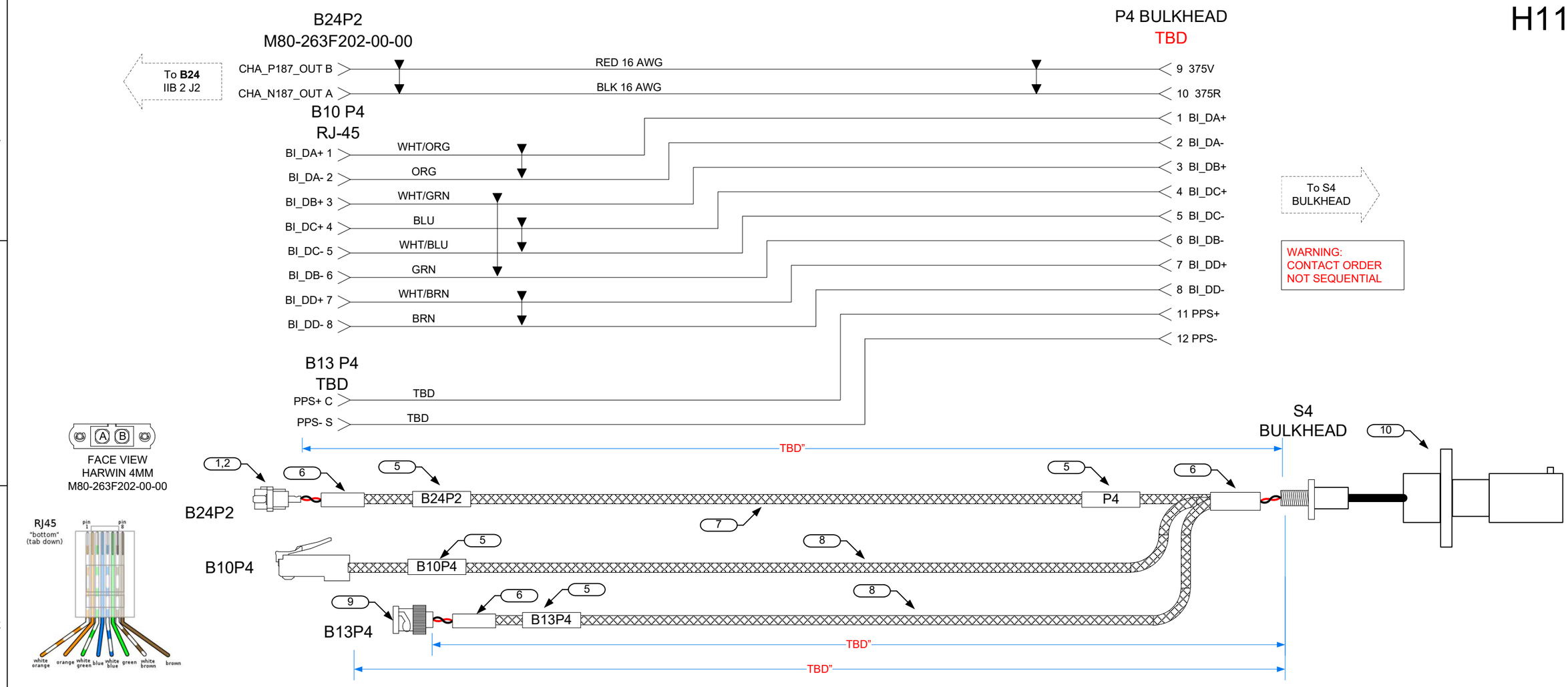


TABLE A1H11: PARTS LIST

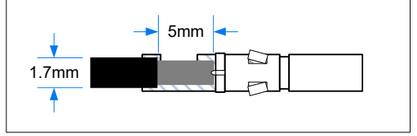
ITEM #	Qty.	Mfg. Part Number	Vendor	DESCRIPTION
1	1	M80-263F202-00-00	HARWIN	20A 2 PIN DATAMATE POWER
2	2	M80-327	HARWIN	CONN SOCKET 16AWG CRIMP/SLD GOLD
2	1	STOCK	STOCK	RJ45 CONNECTOR
5	2"	STOCK	STOCK	1/2" HEAT SHRINK LABEL
6	2"	STOCK	STOCK	3/4" ADHESIVE HEAT SHRINK
7	TBD	PTN0.50BK-200	Techflex	Techflex 1/2"Flexo PET General Purpose Sleeving
8	TBD	PTN0.25BK-200	Techflex	Techflex 1/4"Flexo PET General Purpose Sleeving
9	1	STOCK	STOCK	GENERIC BNC SOLDER
10	TBD	TBD	TBD	WET MATE PENETRATOR CONNECTOR

NOTE:

Power Contact (16AWG):

Z80-290 - Extraction tool

5x – Contact Replacement In Insulator



PI:	T. MCGINNIS	APPLIED PHYSICS LABORATORY UNIVERSITY OF WASHINGTON 1013 NE 40TH ST. SEATTLE, WA 98105			
MANAGER:	-				
ENGINEER:	K. ZACK	TITLE: H11 S4 BULKHEAD IPB 1 CHD 375V OUTPUT MARS			
DRAWN BY:	K. ZACK				
PRINT DATE:	6/12/2025				
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CAD FILE: MARS Harnessing V1.19.vsdx				SHEET 14 OF 64	

H12

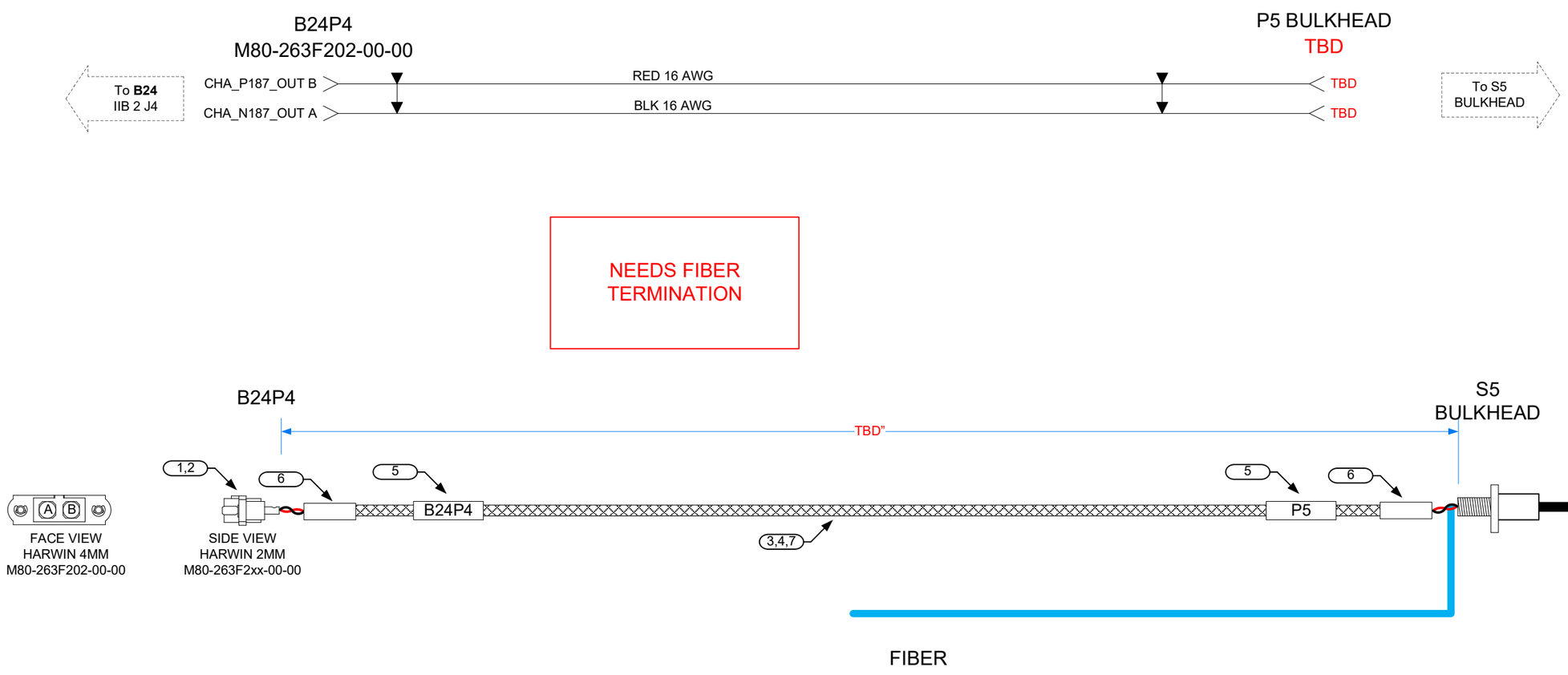


TABLE A1H12: PARTS LIST

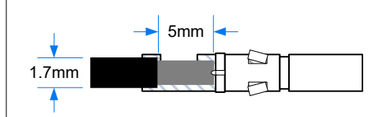
ITEM #	Qty.	Mfg. Part Number	Vendor	DESCRIPTION
1	1	M80-263F202-00-00	HARWIN	20A 2 PIN DATAMATE POWER
2	2	M80-327	HARWIN	CONN SOCKET 16AWG CRIMP/SLD GOLD
3	TBD	AT161929 BK005	HARWIN	16 AWG BLACK WIRE PTFE
4	TBD	AT161929 RD005	HARWIN	16 AWG RED WIRE PTFE
5	2"	STOCK	STOCK	1/2" HEAT SHRINK LABEL
6	2"	STOCK	STOCK	3/4" ADHESIVE HEAT SHRINK
7	TBD	PTN0.50BK-200	Techflex	Techflex 1/2"Flexo PET General Purpose Sleeving

NOTE:

Power Contact (16AWG):

Z80-290 - Extraction tool

5x – Contact Replacement In Insulator



PI:	T. MCGINNIS
MANAGER:	-
ENGINEER:	K. ZACK
DRAWN BY:	K. ZACK
PRINT DATE:	6/12/2025

APPLIED PHYSICS LABORATORY
UNIVERSITY OF WASHINGTON
1013 NE 40TH ST. SEATTLE, WA 98105

TITLE:
H12 S5 BULKHEAD
IPB 2 CHA 375V OUTPUT
MARS

PAGE CREATION:	SIZE:	CAGE CODE:	DWG NO:	REV
12/14/2021	B	98514	86253	1.08

CAD FILE: MARS Harnessing V1.19.vsdx

SHEET 15 OF 64

H13

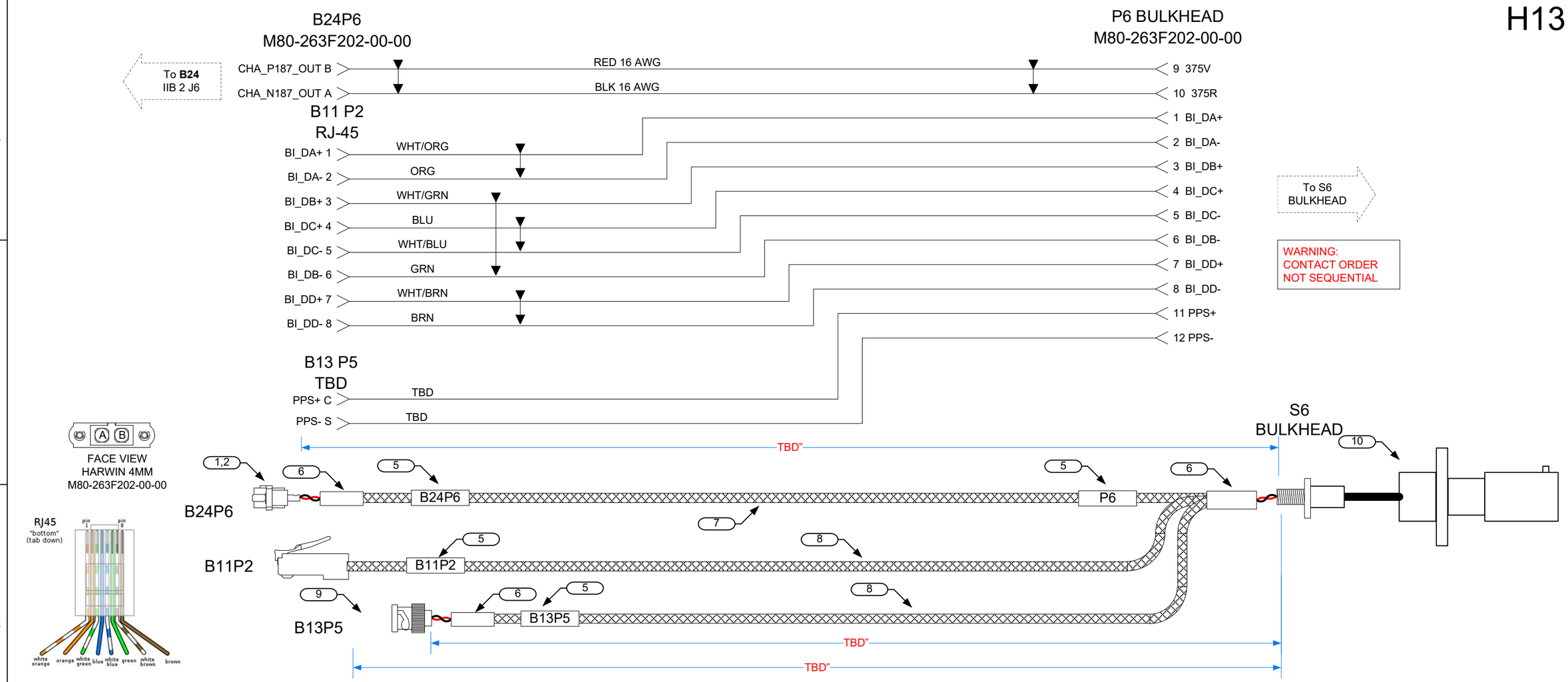


TABLE A1H13: PARTS LIST

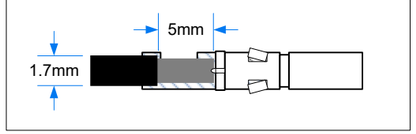
ITEM #	Qty.	Mfg. Part Number	Vendor	DESCRIPTION
1	1	M80-263F202-00-00	HARWIN	20A 2 PIN DATAMATE POWER
2	2	M80-327	HARWIN	CONN SOCKET 16AWG CRIMP/SLD GOLD
2	1	STOCK	STOCK	RJ45 CONNECTOR
5	2"	STOCK	STOCK	1/2" HEAT SHRINK LABEL
6	2"	STOCK	STOCK	3/4" ADHESIVE HEAT SHRINK
7	TBD	PTN0.50BK-200	Techflex	Techflex 1/2"Flexo PET General Purpose Sleeving
8	TBD	PTN0.25BK-200	Techflex	Techflex 1/4"Flexo PET General Purpose Sleeving
9	1	STOCK	STOCK	GENERIC BNC SOLDER
10	TBD	TBD	TBD	WET MATE PENETRATOR CONNECTOR

NOTE:

Power Contact (16AWG):

Z80-290 - Extraction tool

5x – Contact Replacement In Insulator



PI:	T. MCGINNIS	APPLIED PHYSICS LABORATORY UNIVERSITY OF WASHINGTON 1013 NE 40TH ST. SEATTLE, WA 98105			
MANAGER:	-				
ENGINEER:	K. ZACK	TITLE: H13 S6 BULKHEAD IPB 2 CHB 375V OUTPUT MARS			
DRAWN BY:	K. ZACK				
PRINT DATE:	6/12/2025				
PAGE CREATION: 12/14/2021		SIZE: B	CAGE CODE: 98514	DWG NO: 86253	REV 1.08
CAD FILE: MARS Harnessing V1.19.vsdx				SHEET 16 OF 64	

H14

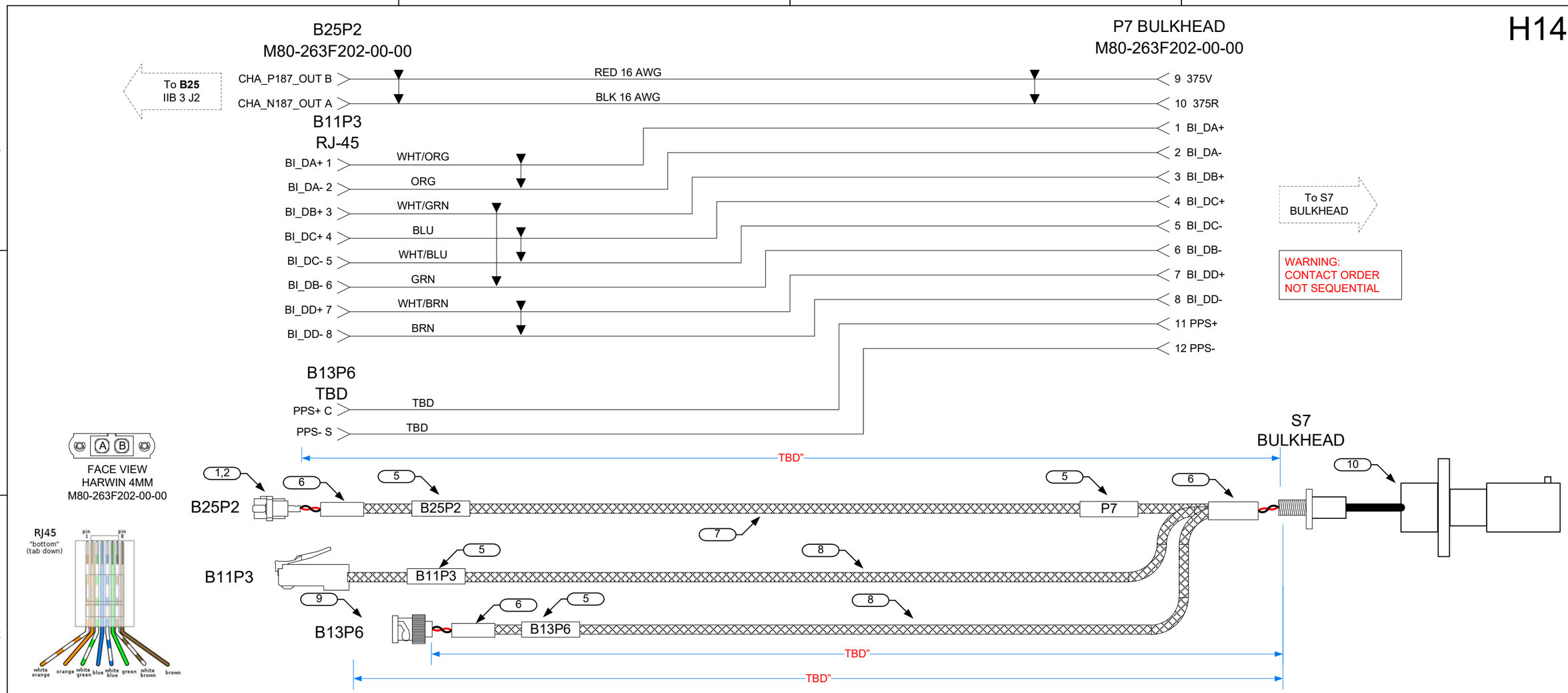


TABLE A1H14: PARTS LIST

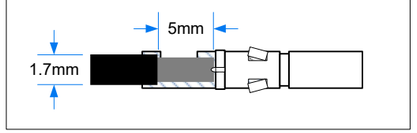
ITEM #	Qty.	Mfg. Part Number	Vendor	DESCRIPTION
1	1	M80-263F202-00-00	HARWIN	20A 2 PIN DATAMATE POWER
2	2	M80-327	HARWIN	CONN SOCKET 16AWG CRIMP/SLD GOLD
2	1	STOCK	STOCK	RJ45 CONNECTOR
5	2"	STOCK	STOCK	1/2" HEAT SHRINK LABEL
6	2"	STOCK	STOCK	3/4" ADHESIVE HEAT SHRINK
7	TBD	PTN0.50BK-200	Techflex	Techflex 1/2"Flexo PET General Purpose Sleeving
8	TBD	PTN0.25BK-200	Techflex	Techflex 1/4"Flexo PET General Purpose Sleeving
9	1	STOCK	STOCK	GENERIC BNC SOLDER
10	TBD	TBD	TBD	WET MATE PENETRATOR CONNECTOR

NOTE:

Power Contact (16AWG):

Z80-290 - Extraction tool

5x – Contact Replacement In Insulator



PI:	T. MCGINNIS	APPLIED PHYSICS LABORATORY UNIVERSITY OF WASHINGTON 1013 NE 40TH ST. SEATTLE, WA 98105			
MANAGER:	-				
ENGINEER:	K. ZACK	TITLE: H14 S7 BULKHEAD IPB 2 CHC 375V OUTPUT MARS			
DRAWN BY:	K. ZACK				
PRINT DATE:	6/12/2025				
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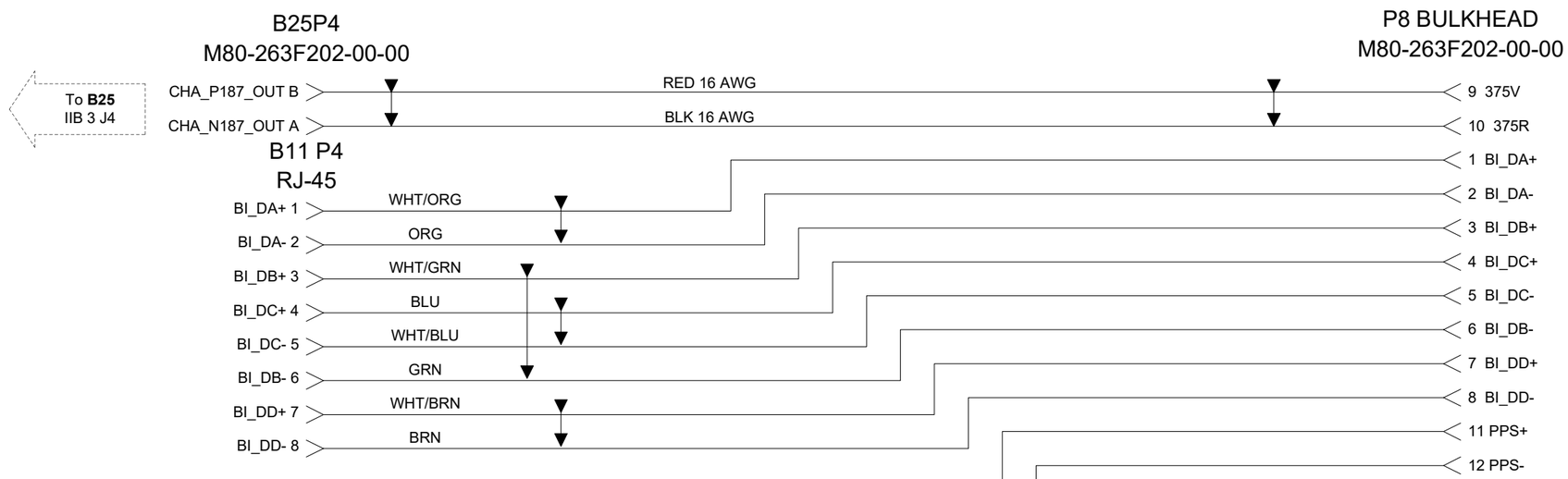
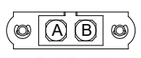
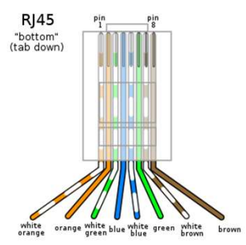
CAD FILE: MARS Harnessing V1.19.vsdx				SHEET 17 OF 64	

H15





FACE VIEW
HARWIN 4MM
M80-263F202-00-00



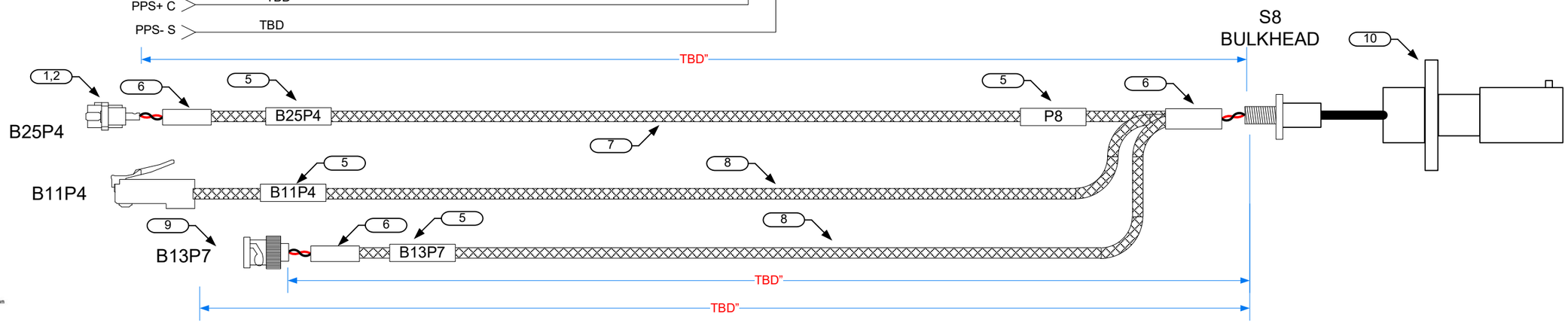
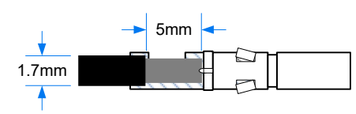


TABLE A1H15: PARTS LIST

ITEM #	Qty.	Mfg. Part Number	Vendor	DESCRIPTION
1	1	M80-263F202-00-00	HARWIN	20A 2 PIN DATAMATE POWER
2	2	M80-327	HARWIN	CONN SOCKET 16AWG CRIMP/SLD GOLD
2	1	STOCK	STOCK	RJ45 CONNECTOR
5	2"	STOCK	STOCK	1/2" HEAT SHRINK LABEL
6	2"	STOCK	STOCK	3/4" ADHESIVE HEAT SHRINK
7	TBD	PTN0.50BK-200	Techflex	Techflex 1/2"Flexo PET General Purpose Sleeving
8	TBD	PTN0.25BK-200	Techflex	Techflex 1/4"Flexo PET General Purpose Sleeving
9	1	STOCK	STOCK	GENERIC BNC SOLDER
10	TBD	TBD	TBD	WET MATE PENETRATOR CONNECTOR

NOTE:
Power Contact (16AWG):
Z80-290 - Extraction tool
5x – Contact Replacement In Insulator



PI:	T. MCGINNIS	APPLIED PHYSICS LABORATORY UNIVERSITY OF WASHINGTON 1013 NE 40TH ST. SEATTLE, WA 98105			
MANAGER:	-				
ENGINEER:	K. ZACK	TITLE: H15 S8 BULKHEAD IPB 2 CHD 375V OUTPUT MARS			
DRAWN BY:	K. ZACK				
PRINT DATE:	6/12/2025				
PAGE CREATION: 12/14/2021		SIZE: B	CAGE CODE: 98514	DWG NO: 86253	REV 1.08
CAD FILE: MARS Harnessing V1.19.vsdx				SHEET 18 OF 64	

B4J4
D89140-0031HK

B5J1.1
D89140-0031HK

ADC0 SE-CH0 1	1 IPB1_CHA_I
ADC0 SE-CH1 2	2 IPB1_CHB_I
ADC0 SE-CH2 3	3 IPB1_CHC_I
ADC0 SE-CH3 4	4 IPB1_CHD_I
ADC0 SE-CH4 5	5 HPB_MEDIA_CURRENT
ADC0 SE-CH5 6	6 NC
ADC0 SE-CH6 7	7 NC
ADC0 SE-CH7 8	8 NC
GND 9	9 GND
GND 10	10 GND
ADC1SE-CH0 11	11 GF_SIG
ADC1 SE-CH1 12	12 NC
ADC1 SE-CH2 13	13 NC
ADC1 SE-CH3 14	14 NC
ADC1 SE-CH4 15	15 NC
ADC1 SE-CH5 16	16 NC
ADC1 SE-CH6 17	17 NC
ADC1 SE-CH7 18	18 NC
GND 19	19 GND
GND 20	20 GND
ADC2 SE-CH0 21	21 NC
ADC2 SE-CH1 22	22 GF_AMP_TEMP_F
ADC2 SE-CH2 23	23 IGB_TEMP_F
ADC2 SE-CH3 24	24 HPB_VICOR1_TEMP_F
ADC2 SE-CH4 25	25 HPB_VICOR2_TEMP_F
ADC2 SE-CH5 26	26 HPB_VICOR3_TEMP_F
ADC2 SE-CH6 27	27 HPB_TEMP0_F
ADC2 SE-CH7 28	28 HPB_TEMP1_F

To **B4**
CTI 1 P4

To **B5**
BOB P1.1

CONTINUED ON NEXT PAGE

PI:	T. MCGINNIS
MANAGER:	-
ENGINEER:	K. ZACK
DRAWN BY:	K. ZACK
PRINT DATE:	6/12/2025

APPLIED PHYSICS LABORATORY
UNIVERSITY OF WASHINGTON
1013 NE 40TH ST. SEATTLE, WA 98105

TITLE:
H16-PG1 CTI Xtreme I/O 1
ADC
MARS

PAGE CREATION:	SIZE:	CAGE CODE:	DWG NO:	REV
12/14/2021	B	98514	86253	1.08

CAD FILE: MARS Harnessing V1.19.vsdx

H16

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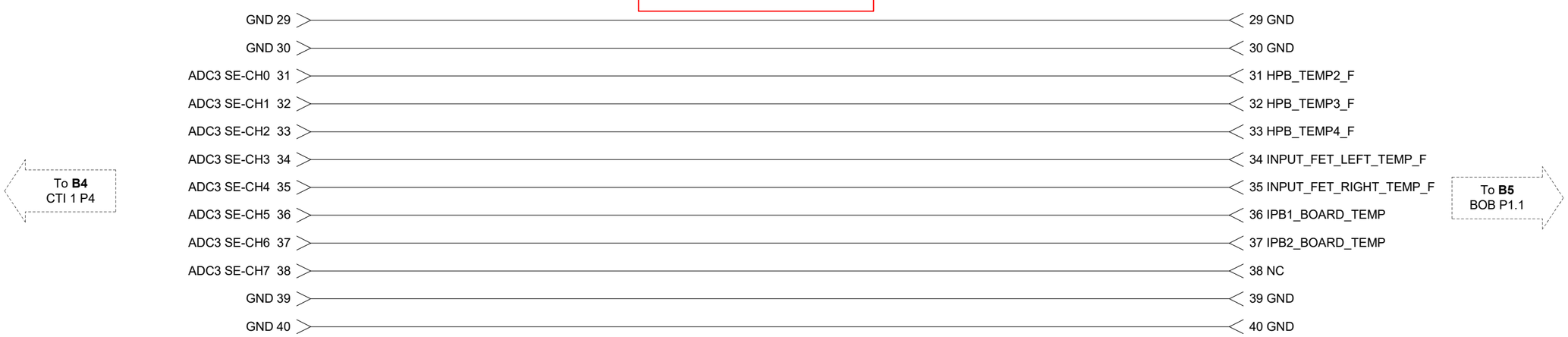


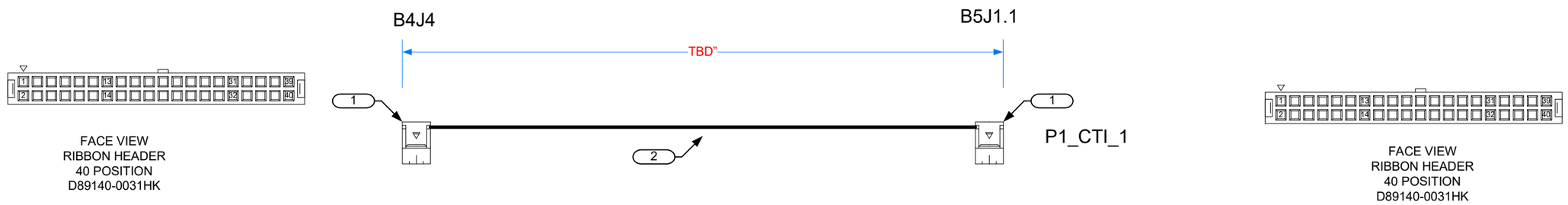


TABLE A1H16: PARTS LIST

ITEM #	Qty.	Mfg. Part Number	Vendor	DESCRIPTION
1	2	D89140-0031HK	3M	CONN RCPT 40P IDC 26-28AWG GOLD
2	TBD"	C3302/40 100	HARWIN	CBL RIBN 40COND 0.05 MULT 100'

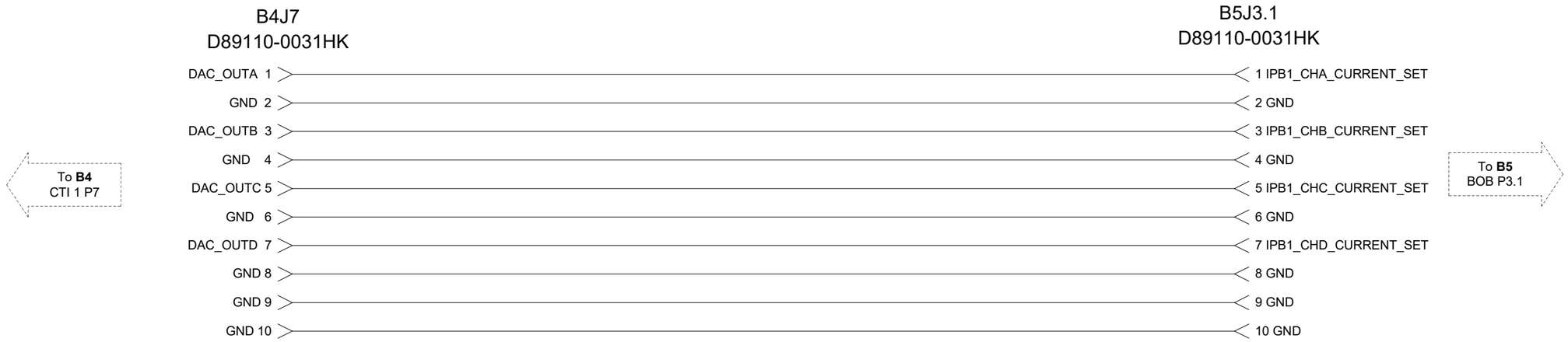
PI:	T. MCGINNIS	APPLIED PHYSICS LABORATORY UNIVERSITY OF WASHINGTON 1013 NE 40TH ST. SEATTLE, WA 98105
MANAGER:	-	
ENGINEER:	K. ZACK	TITLE: H16-PG2 CTI Xtreme I/O 1 ADC MARS
DRAWN BY:	K. ZACK	
PRINT DATE:	6/12/2025	

PAGE CREATION:	SIZE:	CAGE CODE:	DWG NO:	REV
12/14/2021	B	98514	86253	1.08

CAD FILE: MARS Harnessing V1.19.vsdx

SHEET 20 OF 64

H17



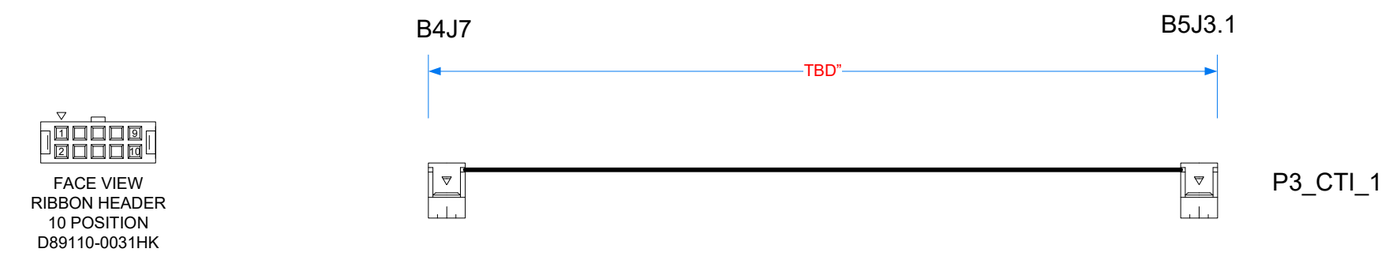


TABLE A1H17: PARTS LIST

ITEM #	Qty.	Mfg. Part Number	Vendor	DESCRIPTION
1	2	D89110-0031HK	3M	CONN RCPT 10P IDC 26-28AWG GOLD
2	TBD"	C3302/40 100	3M	CBL RIBN 10COND 0.05 MULT 100'

PI:	T. MCGINNIS	APPLIED PHYSICS LABORATORY UNIVERSITY OF WASHINGTON 1013 NE 40TH ST. SEATTLE, WA 98105			
MANAGER:	-				
ENGINEER:	K. ZACK	TITLE: H17 CTI Xtreme I/O 1 DAC MARS			
DRAWN BY:	K. ZACK				
PRINT DATE:	6/12/2025				
PAGE CREATION: 12/14/2021		SIZE: B	CAGE CODE: 98514	DWG NO: 86253	REV 1.08
CAD FILE: MARS Harnessing V1.19.vsdx				SHEET 21 OF 64	

H18

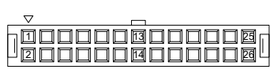
B4J3
D89126-0031HK

B5J2.1
D89126-0031HK

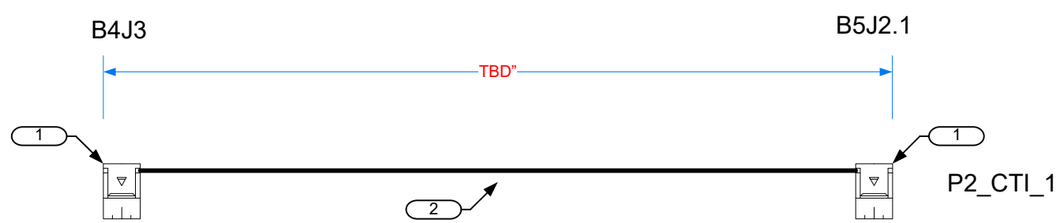
To **B4**
CTI 1 P3

To **B5**
BOB P2.1

GPIO0 1	1 GF_SOURCE_SEL_A
GPIO1 2	2 GF_SOURCE_SEL_B
GPIO2 3	3 GF_SOURCE_SEL_C
GPIO3 4	4 GF_SOURCE_SEL_EN
GPIO4 5	5 GF_ANNODE_SEL_EN
GPIO5 6	6 GF_CHASSIS_SEL_EN
GPIO6 7	7 IPB1_CHA_RLY_EN
GPIO7 8	8 IPB1_CHA_FET_EN
GPIO8 9	9 IPB1_CHB_RLY_EN
GPIO9 10	10 IPB1_CHB_FET_EN
GPIO10 11	11 IPB1_CHC_RLY_EN
GPIO11 12	12 IPB1_CHC_FET_EN
GPIO12 13	13 IPB1_CHD_RLY_EN
GPIO13 14	14 IPB1_CHD_FET_EN
GPIO14 15	15 IPB1_RESET
GPIO15 16	16 NC
GND 17-26	17-26 GND



FACE VIEW
RIBBON HEADER
26 POSITION
D89126-0031HK



FACE VIEW
RIBBON HEADER
26 POSITION
D89126-0031HK

TABLE A1H18: PARTS LIST

ITEM #	Qty.	Mfg. Part Number	Vendor	DESCRIPTION
1	2	D89126-0031HK	3M	CONN RCPT 26P IDC 26-28AWG GOLD
2	TBD"	C3302/26 100	3M	CBL RIBN 26COND 0.05 MULT 100'

PI:	T. MCGINNIS
MANAGER:	-
ENGINEER:	K. ZACK
DRAWN BY:	K. ZACK
PRINT DATE:	6/12/2025

APPLIED PHYSICS LABORATORY
UNIVERSITY OF WASHINGTON
1013 NE 40TH ST. SEATTLE, WA 98105

TITLE:
H18 CTI Xtreme I/O 1
GPIO
MARS

PAGE CREATION:	SIZE:	CAGE CODE:	DWG NO:	REV
12/14/2021	B	98514	86253	1.08

CAD FILE:
MARS Harnessing V1.19.vsdx

SHEET 22 OF 64

B3J4
D89140-0031HK

B5J1.2
D89140-0031HK

ADC0 SE-CH0 1	1 IPB2_CHA_I
ADC0 SE-CH1 2	2 IPB2_CHB_I
ADC0 SE-CH2 3	3 IPB2_CHC_I
ADC0 SE-CH3 4	4 IPB2_CHD_I
ADC0 SE-CH4 5	5 HPB_CISCO1_CURRENT
ADC0 SE-CH5 6	6 HPB_CISCO2_CURRENT
ADC0 SE-CH6 7	7 HPB_SYNCBOX_CURRENT
ADC0 SE-CH7 8	8 HPB_ISO24V_CURRENT
GND 9	9 GND
GND 10	10 GND
ADC1SE-CH0 11	11 HPB_24V_CURRENT
ADC1 SE-CH1 12	12 HPB_5V_CURRENT
ADC1 SE-CH2 13	13 HPB_24V_VOLTAGE
ADC1 SE-CH3 14	14 HPB_5V_VOLTAGE
ADC1 SE-CH4 15	15 24V_UNSWCH_BUS_CURRENT
ADC1 SE-CH5 16	16 MVC_L_CURRENT
ADC1 SE-CH6 17	17 MVC_R_CURRENT
ADC1 SE-CH7 18	18 MVC_L_VOLTAGE
GND 19	19 GND
GND 20	20 GND
ADC2 SE-CH0 21	21 MVC_R_VOLTAGE
ADC2 SE-CH1 22	22 NC
ADC2 SE-CH2 23	23 NC
ADC2 SE-CH3 24	24 NC
ADC2 SE-CH4 25	25 NC
ADC2 SE-CH5 26	26 NC
ADC2 SE-CH6 27	27 NC
ADC2 SE-CH7 28	28 NC

To **B3**
CTI 2 P4

To **B4**
BOB P1.2

CONTINUED ON NEXT PAGE

PI:	T. MCGINNIS
MANAGER:	-
ENGINEER:	K. ZACK
DRAWN BY:	K. ZACK
PRINT DATE:	6/12/2025

APPLIED PHYSICS LABORATORY
UNIVERSITY OF WASHINGTON
1013 NE 40TH ST. SEATTLE, WA 98105

TITLE:
H19-PG1 CTI Xtreme I/O 2
ADC
MARS

PAGE CREATION:	SIZE:	CAGE CODE:	DWG NO:	REV
12/14/2021	B	98514	86253	1.08

CAD FILE: MARS Harnessing V1.19.vsdx

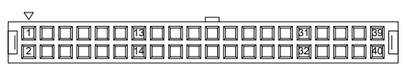
H19

CONTINUED FROM PRIOR PAGE

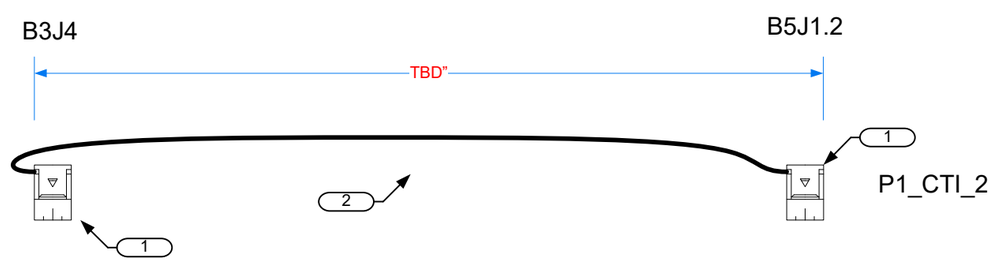
B3J4 D89140-0031HK		B5J1.2 D89140-0031HK
GND 29		29 GND
GND 30		30 GND
ADC3 SE-CH0 31		31 FAULT_SENSE_HPB
ADC3 SE-CH1 32		32 FAULT_SENSE_IPB1
ADC3 SE-CH2 33		33 FAULT_SENSE_IPB2
ADC3 SE-CH3 34		34 NC
ADC3 SE-CH4 35		35 NC
ADC3 SE-CH5 36		36 NC
ADC3 SE-CH6 37		37 NC
ADC3 SE-CH7 38		38 NC
GND 39		39 GND
GND 40		40 GND

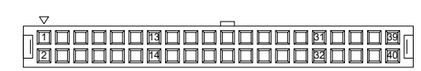
To **B3** CTI 2 P4

To **B5** BOB P1.2



FACE VIEW
RIBBON HEADER
40 POSITION
D89140-0031HK





FACE VIEW
RIBBON HEADER
40 POSITION
D89140-0031HK

TABLE A1H19: PARTS LIST

ITEM #	Qty.	Mfg. Part Number	Vendor	DESCRIPTION
1	2	D89140-0031HK	3M	CONN RCPT 40P IDC 26-28AWG GOLD
2	TBD"	C3302/40 100	HARWIN	CBL RIBN 40COND 0.05 MULT 100'

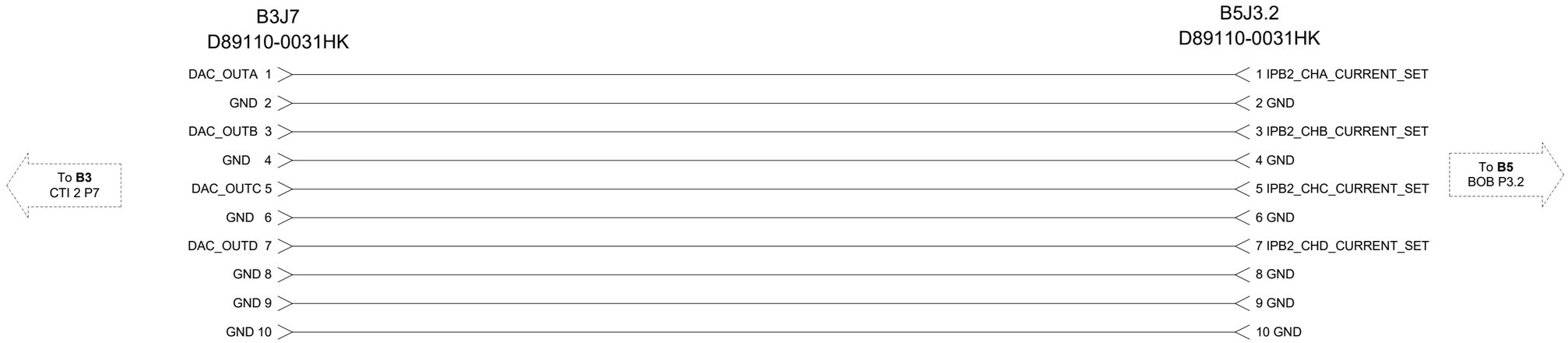
PI:	T. MCGINNIS	APPLIED PHYSICS LABORATORY UNIVERSITY OF WASHINGTON 1013 NE 40TH ST. SEATTLE, WA 98105
MANAGER:	-	
ENGINEER:	K. ZACK	TITLE: H19-PG2 CTI Xtreme I/O 2 ADC MARS
DRAWN BY:	K. ZACK	
PRINT DATE:	6/12/2025	

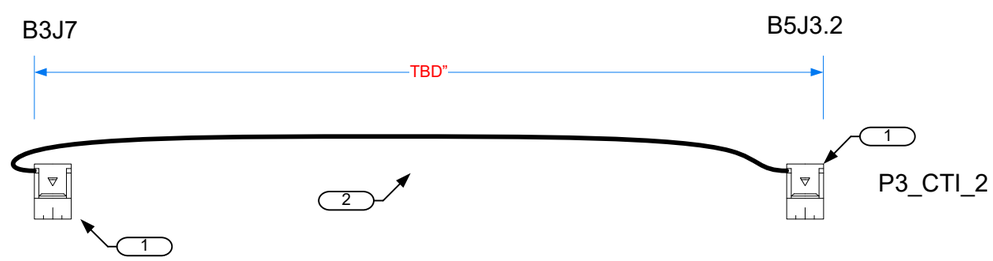
PAGE CREATION:	SIZE:	CAGE CODE:	DWG NO:	REV
12/14/2021	B	98514	86253	1.08

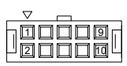
CAD FILE: MARS Harnessing V1.19.vsdx

SHEET 24 OF 64

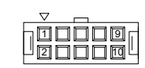
H20







FACE VIEW
RIBBON HEADER
10 POSITION
D89110-0031HK



FACE VIEW
RIBBON HEADER
10 POSITION
D89110-0031HK

TABLE A1H20: PARTS LIST

ITEM #	Qty.	Mfg. Part Number	Vendor	DESCRIPTION
1	2	D89110-0031HK	3M	CONN RCPT 10P IDC 26-28AWG GOLD
2	TBD"	C3302/40 100	3M	CBL RIBN 10COND 0.05 MULT 100'

PI:	T. MCGINNIS	APPLIED PHYSICS LABORATORY UNIVERSITY OF WASHINGTON 1013 NE 40TH ST. SEATTLE, WA 98105			
MANAGER:	-				
ENGINEER:	K. ZACK	TITLE: H20 CTI Xtreme I/O 2 DAC MARS			
DRAWN BY:	K. ZACK				
PRINT DATE:	6/12/2025				
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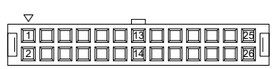
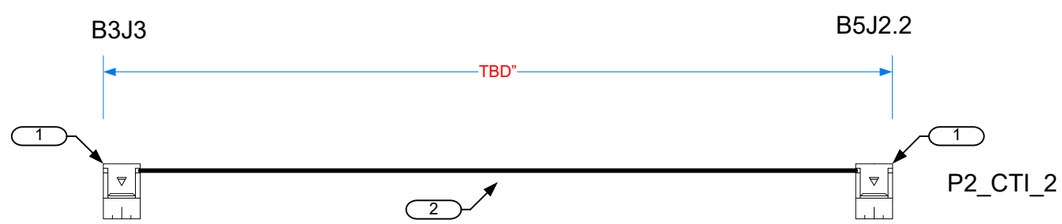
CAD FILE: MARS Harnessing V1.19.vsdx				SHEET 25 OF 64	

H21



FACE VIEW
RIBBON HEADER
26 POSITION
D89126-0031HK



FACE VIEW
RIBBON HEADER
26 POSITION
D89126-0031HK

TABLE A1H21: PARTS LIST

ITEM #	Qty.	Mfg. Part Number	Vendor	DESCRIPTION
1	2	D89126-0031HK	3M	CONN RCPT 26P IDC 26-28AWG GOLD
2	TBD"	C3302/26 100	3M	CBL RIBN 26COND 0.05 MULT 100'

PI:	T. MCGINNIS	APPLIED PHYSICS LABORATORY UNIVERSITY OF WASHINGTON 1013 NE 40TH ST. SEATTLE, WA 98105
MANAGER:	-	
ENGINEER:	K. ZACK	TITLE:
DRAWN BY:	K. ZACK	H21 CTI Xtreme I/O 2 GPIO MARS
PRINT DATE:	6/12/2025	

PAGE CREATION:	SIZE:	CAGE CODE:	DWG NO:	REV
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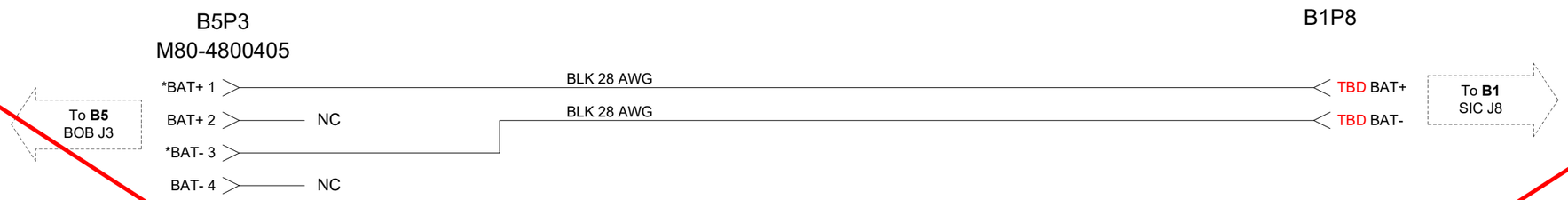
CAD FILE: MARS Harnessing V1.19.vsdx

SHEET 26 OF 64

H22



*TOOLING:
USE 28-32 AWG
DATAMATE CRIMP

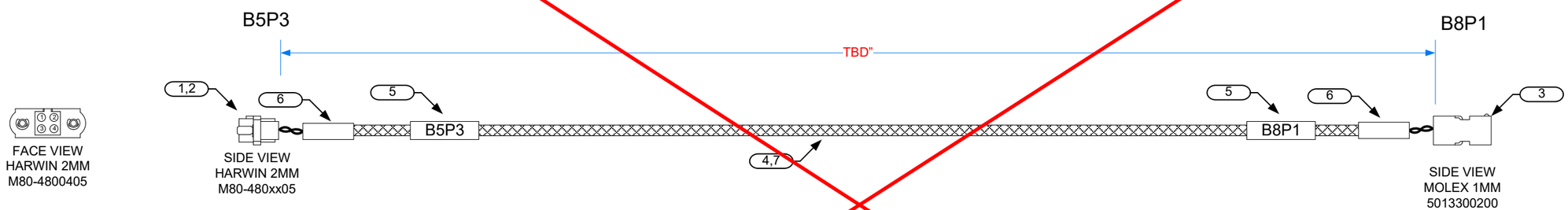
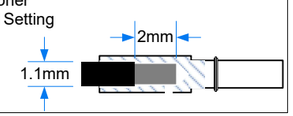


TABLE A1H22: PARTS LIST

ITEM #	Qty.	Mfg. Part Number	Vendor	DESCRIPTION
1	1	M80-4800405	HARWIN	DATAMATE FEMALE 4-PIN
2	2	M80-0130005	HARWIN	CONN SOCKET 24-28AWG CRIMP GOLD
3	1	5013300200	Molex	CONN RCPT HSG 2POS 1.00MM
4	2	0797581018	Molex	PICO-CLASP 150MM 28AWG PRE-CRIMP
5	2"	STOCK	STOCK	3/8" HEAT SHRINK LABEL
6	2"	STOCK	STOCK	1/4" ADHESIVE HEAT SHRINK
7	TBD	PTN0.13BK-200	Techflex	Techflex 1/8"Flexo PET General Purpose Sleeving

SMALL Bore Signal Contact:
M22520/2-01 - Hand Crimp Tool
T5747 – Positioner
6 – Crimp Tool Setting



PI:	T. MCGINNIS
MANAGER:	-
ENGINEER:	K. ZACK
DRAWN BY:	K. ZACK
PRINT DATE:	6/12/2025

APPLIED PHYSICS LABORATORY
UNIVERSITY OF WASHINGTON
1013 NE 40TH ST. SEATTLE, WA 98105

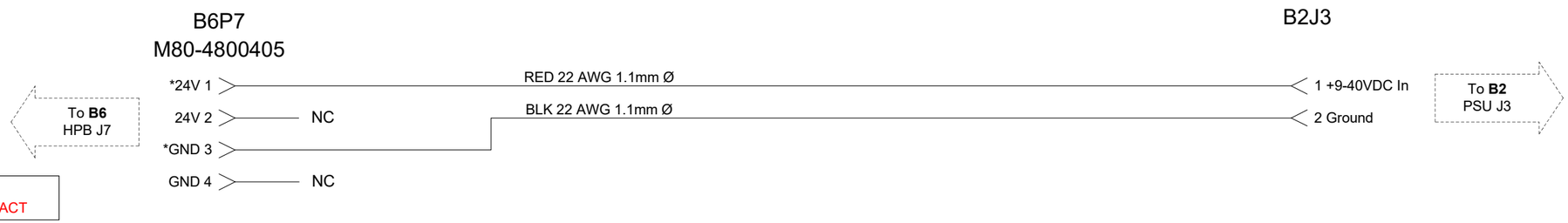
TITLE:
H22 BAYCAT BATTERY BACKUP
MARS

PAGE CREATION:	SIZE:	CAGE CODE:	DWG NO:	REV
12/14/2021	B	98514	86253	1.08

CAD FILE: MARS Harnessing V1.19.vsdx

SHEET 27 OF 64

H23



TOOLING:
*USE T-CONTACT

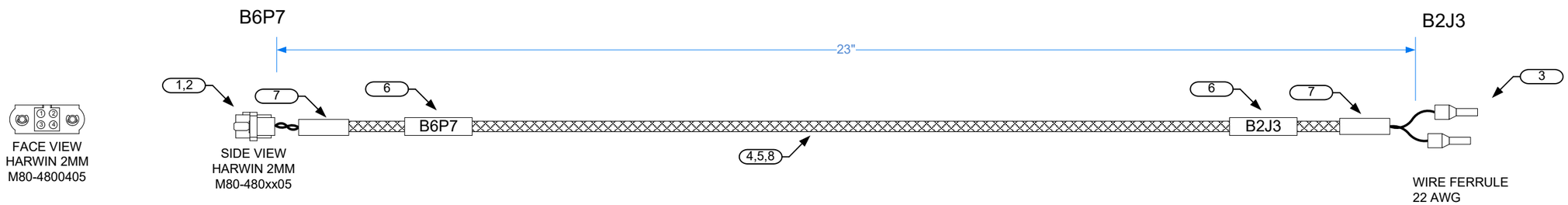
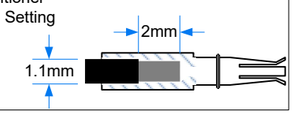


TABLE A1H23: PARTS LIST

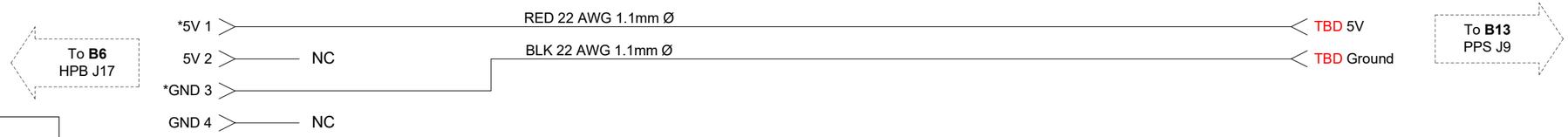
ITEM #	Qty.	Mfg. Part Number	Vendor	DESCRIPTION
1	1	M80-4800405	HARWIN	DATAMATE FEMALE 4-PIN
2	2	M80-2060005	HARWIN	DATAMATE 22AWG FEMALE CRIMP T-CONTACT
3	2	FSD75-8-D	Panduit Corp	CONN FERRULE DIN 22AWG WHITE
4	TBD	2845/19 BK001	Alpha	22 AWG BLACK WIRE PTFE 1.07mm Ø
5	TBD	2845/19 RD001	Alpha	22 AWG RED WIRE PTFE 1.07mm Ø
6	2"	STOCK	STOCK	3/8" HEAT SHRINK LABEL
7	2"	STOCK	STOCK	1/4" ADHESIVE HEAT SHRINK
8	TBD	PTN0.13BK-200	Techflex	Techflex 1/8"Flexo PET General Purpose Sleeving

T-Contact:
M22520/2-01 - Hand Crimp Tool
Z80-444 – Positioner
6 – Crimp Tool Setting



PI:	T. MCGINNIS	APPLIED PHYSICS LABORATORY UNIVERSITY OF WASHINGTON 1013 NE 40TH ST. SEATTLE, WA 98105			
MANAGER:	-				
ENGINEER:	K. ZACK	TITLE:			
DRAWN BY:	K. ZACK	H23 PC104 PSU POWER MARS			
PRINT DATE:	6/12/2025				
PAGE CREATION: 12/14/2021		SIZE: B	CAGE CODE: 98514	DWG NO: 86253	REV 1.08
CAD FILE: MARS Harnessing V1.19.vsdx				SHEET 28 OF 64	

H24



TOOLING:
*USE T-CONTACT

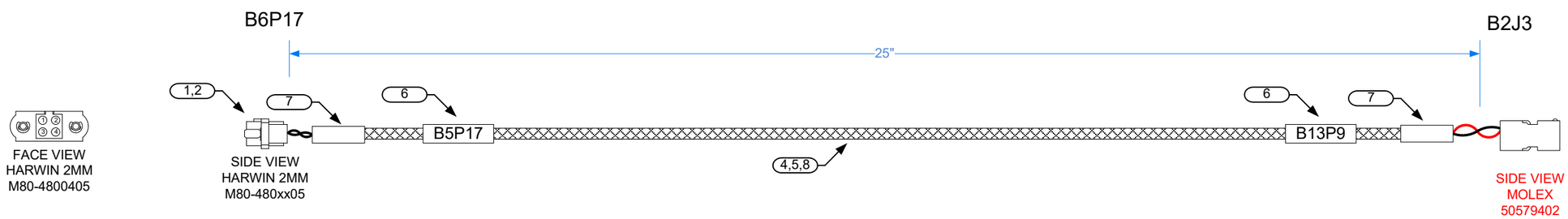
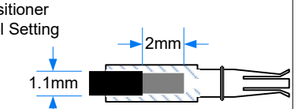


TABLE A1H24: PARTS LIST

ITEM #	Qty.	Mfg. Part Number	Vendor	DESCRIPTION
1	1	M80-4800405	HARWIN	DATAMATE FEMALE 4-PIN
2	2	M80-2060005	HARWIN	DATAMATE 22AWG FEMALE CRIMP T-CONTACT
3	1	50579402	MOLEX	TBD
4	TBD	2845/19 BK001	Alpha	22 AWG BLACK WIRE PTFE 1.07mm Ø
5	TBD	2845/19 RD001	Alpha	22 AWG RED WIRE PTFE 1.07mm Ø
6	2"	STOCK	STOCK	3/8" HEAT SHRINK LABEL
7	2"	STOCK	STOCK	1/4" ADHESIVE HEAT SHRINK
8	TBD	PTN0.13BK-200	Techflex	Techflex 1/8"Flexo PET General Purpose Sleeving

T-Contact:
M22520/2-01 - Hand Crimp Tool
Z80-444 – Positioner
6 – Crimp Tool Setting



PI:	T. MCGINNIS
MANAGER:	-
ENGINEER:	K. ZACK
DRAWN BY:	K. ZACK
PRINT DATE:	6/12/2025

APPLIED PHYSICS LABORATORY
UNIVERSITY OF WASHINGTON
1013 NE 40TH ST. SEATTLE, WA 98105

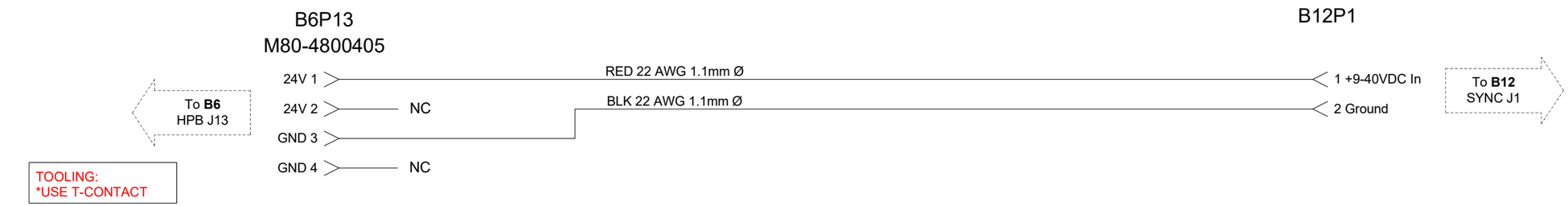
TITLE:
H24 MBARI 1PPS DISTRO POWER
MARS

PAGE CREATION:	SIZE:	CAGE CODE:	DWG NO:	REV
12/14/2021	B	98514	86253	1.08

CAD FILE: MARS Harnessing V1.19.vsdx

SHEET 29 OF 64

H25



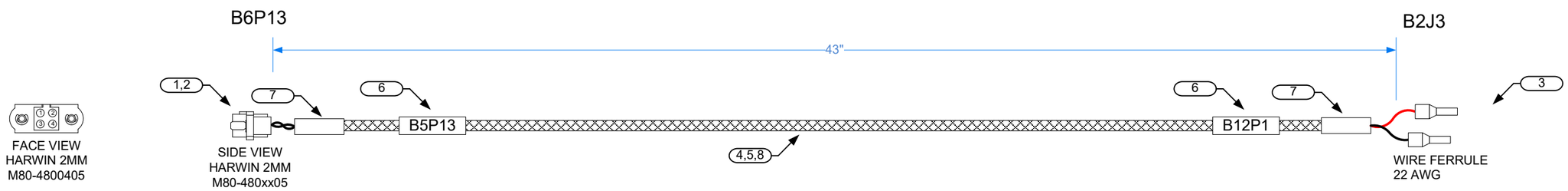
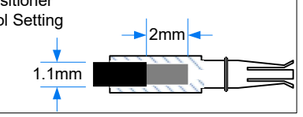


TABLE A1H25: PARTS LIST

ITEM #	Qty.	Mfg. Part Number	Vendor	DESCRIPTION
1	1	M80-4800405	HARWIN	DATAMATE FEMALE 4-PIN
2	2	M80-2060005	HARWIN	DATAMATE 22AWG FEMALE CRIMP T-CONTACT
3	1	FSD75-8-D	Panduit Corp	CONN FERRULE DIN 22AWG WHITE
4	TBD	2845/19 BK001	Alpha	22 AWG BLACK WIRE PTFE 1.07mm Ø
5	TBD	2845/19 RD001	Alpha	22 AWG RED WIRE PTFE 1.07mm Ø
6	2"	STOCK	STOCK	3/8" HEAT SHRINK LABEL
7	2"	STOCK	STOCK	1/4" ADHESIVE HEAT SHRINK
8	TBD	PTN0.13BK-200	Techflex	Techflex 1/8"Flexo PET General Purpose Sleeving

T-Contact:
M22520/2-01 - Hand Crimp Tool
Z80-444 – Positioner
6 – Crimp Tool Setting



PI:	T. MCGINNIS
MANAGER:	-
ENGINEER:	K. ZACK
DRAWN BY:	K. ZACK
PRINT DATE:	6/12/2025

APPLIED PHYSICS LABORATORY
UNIVERSITY OF WASHINGTON
1013 NE 40TH ST. SEATTLE, WA 98105

TITLE:
H25 MEINBERG SYNC 1PPS POWER
MARS

PAGE CREATION:	SIZE:	CAGE CODE:	DWG NO:	REV
12/14/2021	B	98514	86253	1.08

CAD FILE: MARS Harnessing V1.19.vsdx

SHEET 30 OF 64

H26

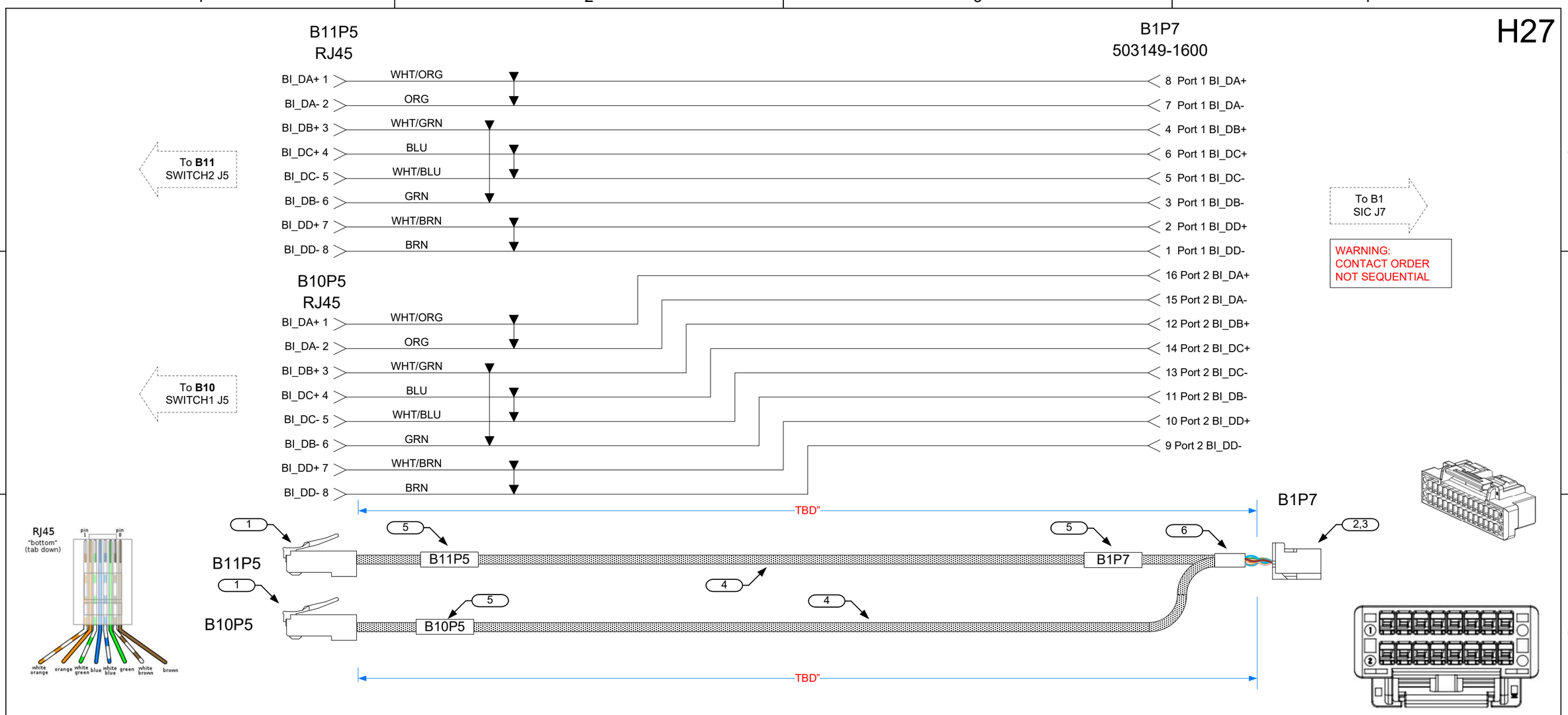
NEED TO CONFIRM COAX CABLE TYPE AND CONNECTORS – Purchase from Pasternak or other

TABLE A1H26: PARTS LIST

ITEM #	Qty.	Mfg. Part Number	Vendor	DESCRIPTION

PI:	T. MCGINNIS	APPLIED PHYSICS LABORATORY UNIVERSITY OF WASHINGTON 1013 NE 40TH ST. SEATTLE, WA 98105			
MANAGER:	-				
ENGINEER:	K. ZACK	TITLE:			
DRAWN BY:	K. ZACK	H26 1PPS SIGNAL MARS			
PRINT DATE:	6/12/2025				
PAGE CREATION: 12/14/2021		SIZE: B	CAGE CODE: 98514	DWG NO: 86253	REV 1.08
CAD FILE: MARS Harnessing V1.19.vsdx					SHEET 31 OF 64

H27



PLAN TO USE
EXISTING
VERSALOGIC CABLE

TABLE A1H27: PARTS LIST

ITEM #	Qty.	Mfg. Part Number	Vendor	DESCRIPTION
1	2	STOCK	STOCK	RJ45 CONNECTOR
2	2	503149-1600	Molex	Molex CLIK-Mate 503149 16 Pin
3	16	2130287000	Molex	CRIMP TERM 1.5 #24-26 C AU0.76
4	TBD	74006 BK002	Alpha Wire	CABLE CAT5E 8COND 26AWG BLK 100'
5	2"	STOCK	STOCK	1/2" HEAT SHRINK LABEL
6	2"	STOCK	STOCK	3/4" ADHESIVE HEAT SHRINK

PI:	T. MCGINNIS
MANAGER:	-
ENGINEER:	K. ZACK
DRAWN BY:	K. ZACK
PRINT DATE:	6/12/2025

APPLIED PHYSICS LABORATORY
UNIVERSITY OF WASHINGTON
1013 NE 40TH ST. SEATTLE, WA 98105

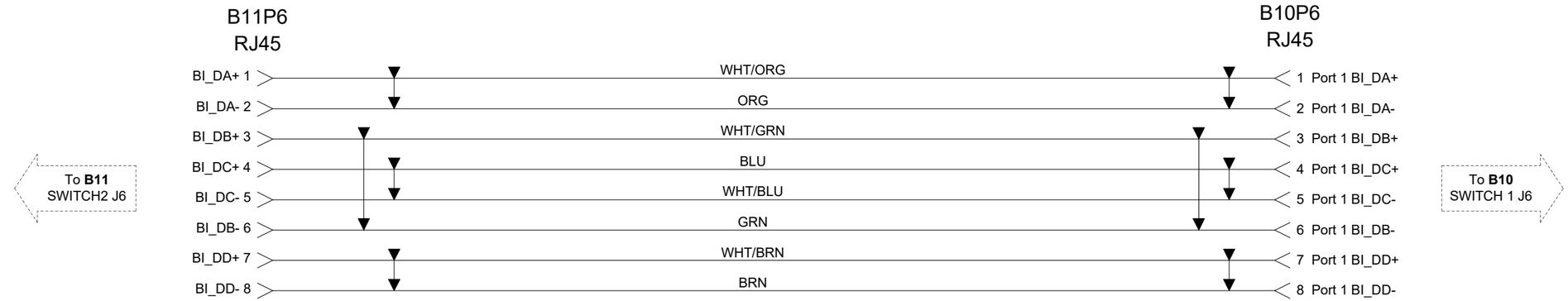
TITLE:
H27 PC104 ETHERNET
MARS

PAGE CREATION:	SIZE:	CAGE CODE:	DWG NO:	REV
12/14/2021	B	98514	86253	1.08

CAD FILE: MARS Harnessing V1.19.vsdx

SHEET 32 OF 64

H28



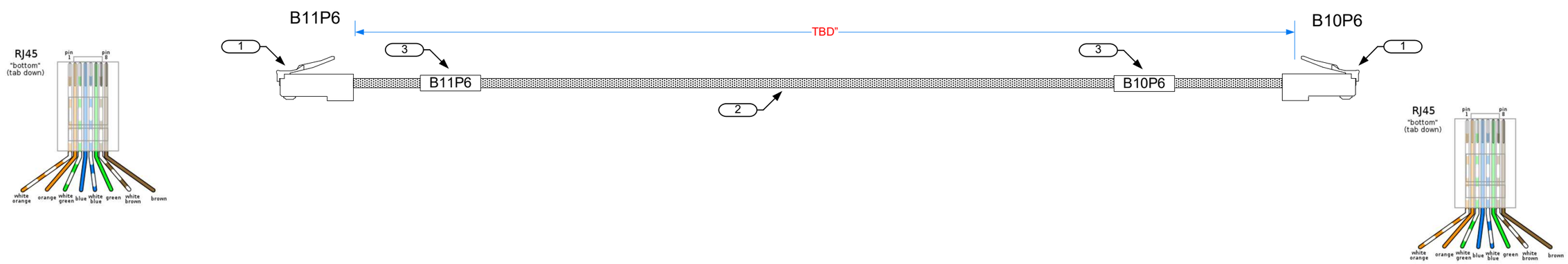


TABLE A1H28: PARTS LIST

ITEM #	Qty.	Mfg. Part Number	Vendor	DESCRIPTION
	2	STOCK	STOCK	RJ45 CONNECTOR
2	TBD	74006 BK002	Alpha Wire	CABLE CAT5E 8COND 26AWG BLK 100'
3	2"	STOCK	STOCK	1/2" HEAT SHRINK LABEL

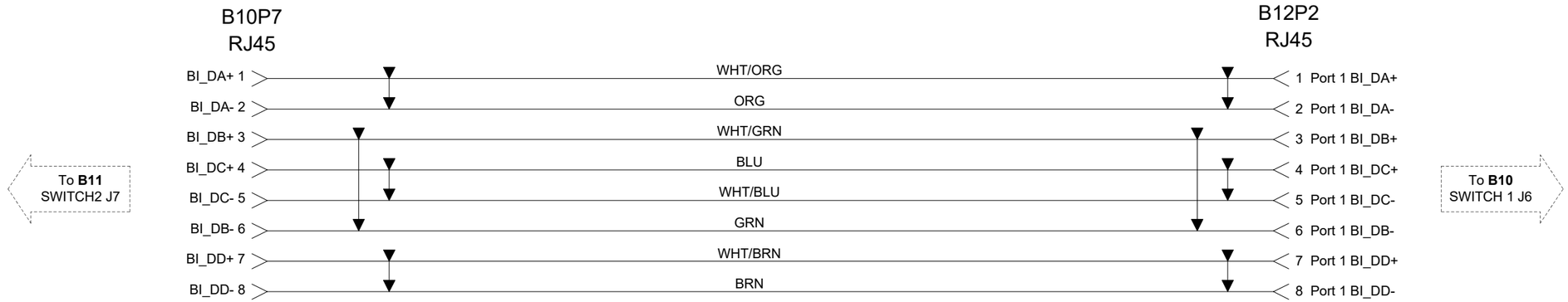
PI:	T. MCGINNIS	APPLIED PHYSICS LABORATORY UNIVERSITY OF WASHINGTON 1013 NE 40TH ST. SEATTLE, WA 98105
MANAGER:	-	
ENGINEER:	K. ZACK	TITLE:
DRAWN BY:	K. ZACK	H28 SWITCH 1 SWITCH 2 BRIDGE MARS
PRINT DATE:	6/12/2025	

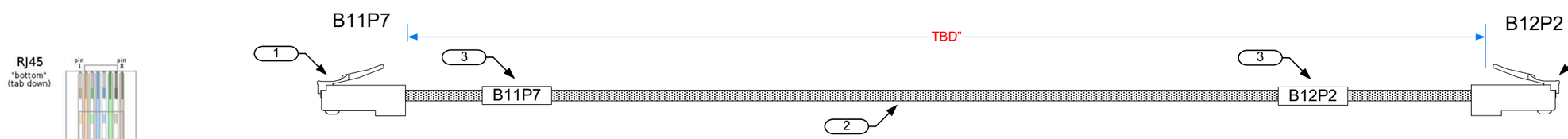
PAGE CREATION:	SIZE:	CAGE CODE:	DWG NO:	REV
12/14/2021	B	98514	86253	1.08

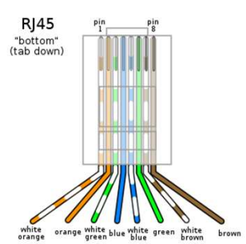
CAD FILE: MARS Harnessing V1.19.vsdx

SHEET 33 OF 64

H29







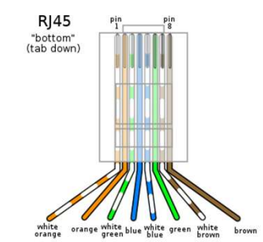


TABLE A1H29: PARTS LIST

ITEM #	Qty.	Mfg. Part Number	Vendor	DESCRIPTION
	2	STOCK	STOCK	RJ45 CONNECTOR
2	TBD	74006 BK002	Alpha Wire	CABLE CAT5E 8COND 26AWG BLK 100'
3	2"	STOCK	STOCK	1/2" HEAT SHRINK LABEL

PI:	T. MCGINNIS	APPLIED PHYSICS LABORATORY UNIVERSITY OF WASHINGTON 1013 NE 40TH ST. SEATTLE, WA 98105
MANAGER:	-	
ENGINEER:	K. ZACK	TITLE:
DRAWN BY:	K. ZACK	H29 Meinberg SyncBox Ethernet MARS
PRINT DATE:	6/12/2025	

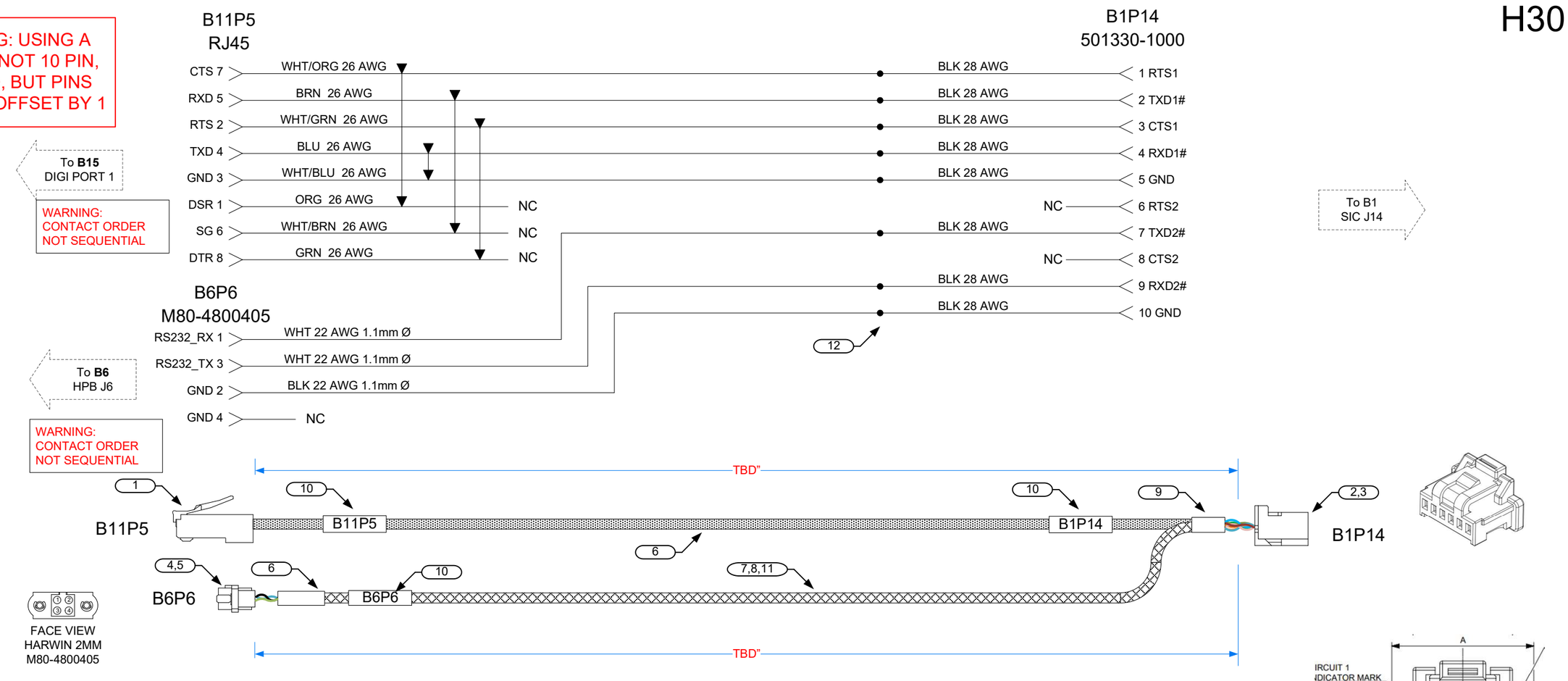
PAGE CREATION:	SIZE:	CAGE CODE:	DWG NO:	REV
12/14/2021	B	98514	86253	1.08

CAD FILE: MARS Harnessing V1.19.vsdx

SHEET 34 OF 64

H30

*WARNING: USING A 8PIN RJ45 NOT 10 PIN, OK TO DO, BUT PINS NUMBERS OFFSET BY 1



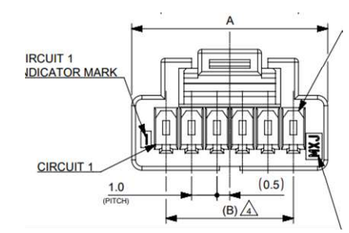


TABLE A1H30: PARTS LIST

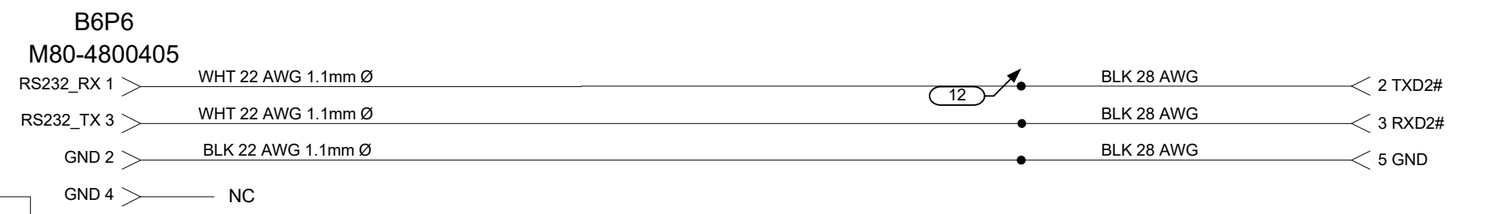
ITEM #	Qty.	Mfg. Part Number	Vendor	DESCRIPTION
1	1	STOCK	STOCK	RJ45 CONNECTOR
2	1	503149-1600	Molex	Molex Pico-Clasp 501330 10 POS Connector
3	10	0797581019	Molex	PICO-CLASP 300MM 28AWG PRE-CRIMP
4	1	M80-4800405	HARWIN	DATAMATE FEMALE 4-PIN
5	2	M80-0110005	HARWIN	DATAMATE 22AWG FEMALE CRIMP
6	TBD	74006 BK002	Alpha Wire	CABLE CAT5E 8COND 26AWG BLK 100'
7	TBD	2845/19 BK001	HARWIN	22 AWG BLACK WIRE PTFE 1.07mm Ø
8	TBD	2845/19 WH001	HARWIN	22 AWG WHITE WIRE PTFE 1.07mm Ø
9	2"	STOCK	STOCK	3/8" HEAT SHRINK LABEL
10	2"	STOCK	STOCK	1/2" ADHESIVE HEAT SHRINK
11	TBD	PTN0.25BK-200	Techflex	Techflex 1/4"Flexo PET General Purpose Sleeving
12	2"	STOCK	STOCK	1/8" CLEAR HEAT SHRINK

From RJ-45	Signal	Direction	Signal	To DB-9
10	DCD	←	DCD	1
6	RxD	←	RxD	2
5	TxD	→	TxD	3
9	DTR	→	DTR	4
7	SG	↔	SG	5
2	DSR	←	DSR	6
3	RTS	→	RTS	7
8	CTS	←	CTS	8
1	RI	←	RI	9
4	GND	↔	GND	Shell

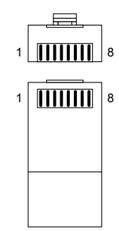
PI:	T. MCGINNIS	APPLIED PHYSICS LABORATORY UNIVERSITY OF WASHINGTON 1013 NE 40TH ST. SEATTLE, WA 98105			
MANAGER:	-				
ENGINEER:	K. ZACK	TITLE:			
DRAWN BY:	K. ZACK	H30 PC104 MVC CONTROLLER & CONSOLE SERIAL MARS			
PRINT DATE:	6/12/2025				
PAGE CREATION: 12/14/2021	SIZE: B	CAGE CODE: 98514	DWG NO: 86253		REV 1.08
CAD FILE: MARS Harnessing V1.19.vsdx				SHEET 35 OF 64	

H30

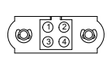
*WARNING: USING A 8PIN RJ45 NOT 10 PIN, OK TO DO, BUT PINS NUMBERS OFFSET BY 1



NOT SURE IF CORRECT POLARITY on DE-9 TO MATE WITH VENDOR CABLE



RJ45
PLUG
FACE AND
BOTTOM
VIEWS



FACE VIEW
HARWIN 2MM
M80-4800405

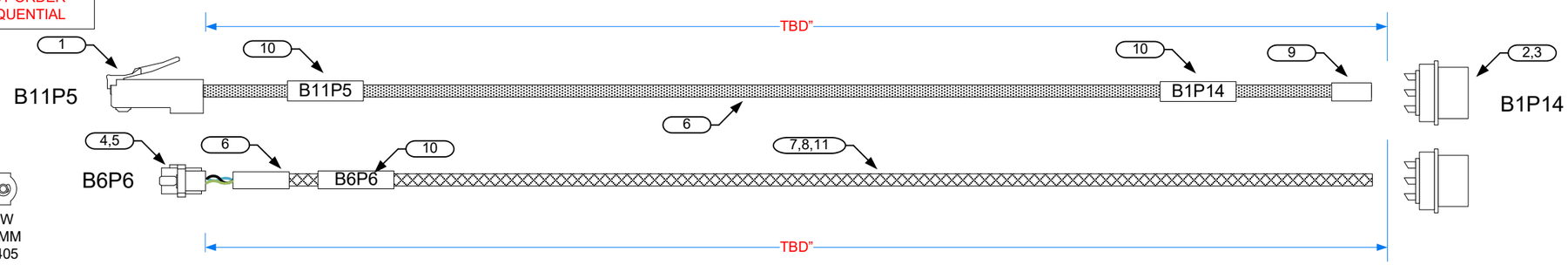


TABLE A1H30: PARTS LIST

ITEM #	Qty.	Mfg. Part Number	Vendor	DESCRIPTION
1	1	STOCK	STOCK	RJ45 CONNECTOR
2	1	503149-1600	Molex	Molex Pico-Clasp 501330 10 POS Connector
3	10	0797581019	Molex	PICO-CLASP 300MM 28AWG PRE-CRIMP
4	1	M80-4800405	HARWIN	DATAMATE FEMALE 4-PIN
5	2	M80-0110005	HARWIN	DATAMATE 22AWG FEMALE CRIMP
6	TBD	74006 BK002	Alpha Wire	CABLE CAT5E 8COND 26AWG BLK 100'
7	TBD	2845/19 BK001	HARWIN	22 AWG BLACK WIRE PTFE 1.07mm Ø
8	TBD	2845/19 WH001	HARWIN	22 AWG WHITE WIRE PTFE 1.07mm Ø
9	2"	STOCK	STOCK	3/8" HEAT SHRINK LABEL
10	2"	STOCK	STOCK	1/2" ADHESIVE HEAT SHRINK
11	TBD	PTN0.25BK-200	Techflex	Techflex 1/4"Flexo PET General Purpose Sleeving
12	2"	STOCK	STOCK	1/8" CLEAR HEAT SHRINK

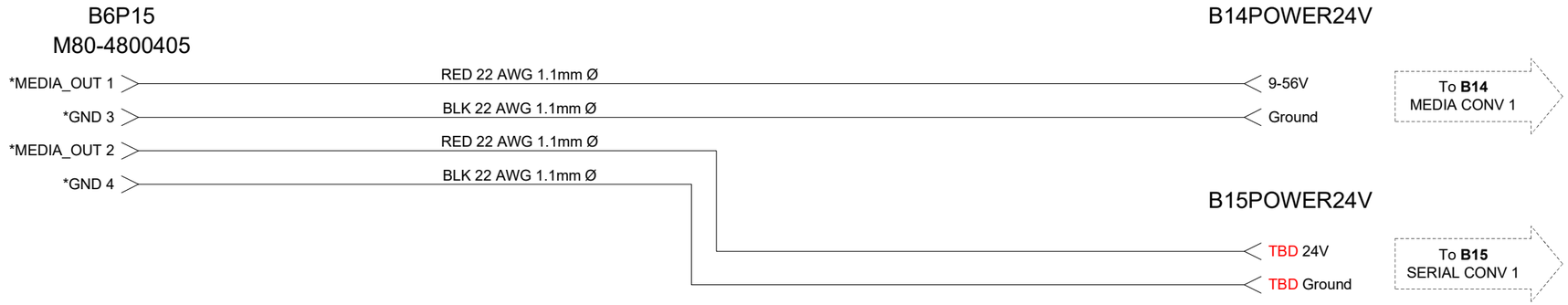
From RJ-45	Signal	Direction	Signal	To DB-9
10	DCD	←	DCD	1
6	RxD	←	RxD	2
5	TxD	→	TxD	3
9	DTR	→	DTR	4
7	SG	↔	SG	5
2	DSR	←	DSR	6
3	RTS	→	RTS	7
8	CTS	←	CTS	8
1	RI	←	RI	9
4	GND	↔	GND	Shell

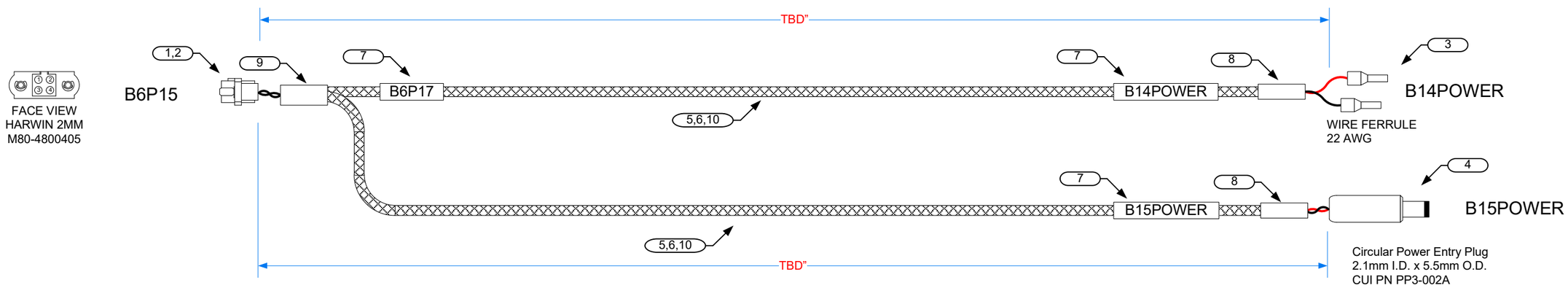
PI:	T. MCGINNIS	APPLIED PHYSICS LABORATORY UNIVERSITY OF WASHINGTON 1013 NE 40TH ST. SEATTLE, WA 98105			
MANAGER:	-				
ENGINEER:	K. ZACK	TITLE:			
DRAWN BY:	K. ZACK	H30 PC104 MVC CONTROLLER & CONSOLE SERIAL MARS			
PRINT DATE:	6/12/2025				
PAGE CREATION: 12/14/2021	SIZE: B	CAGE CODE: 98514	DWG NO: 86253		REV 1.08
CAD FILE: MARS Harnessing V1.19.vsdx				SHEET 36	OF 64

H31

TOOLING:
*USE T-CONTACT

WARNING:
CONTACT ORDER
NOT SEQUENTIAL



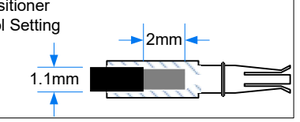


NEED TO CONFIRM
CONNECTORS

TABLE A1H31: PARTS LIST

ITEM #	Qty.	Mfg. Part Number	Vendor	DESCRIPTION
1	1	M80-4800405	HARWIN	DATAMATE FEMALE 4-PIN
2	4	M80-2060005	HARWIN	DATAMATE 22AWG FEMALE CRIMP T-CONTACT
3	2	FSD75-8-D	Panduit Corp	CONN FERRULE DIN 22AWG WHITE
4	1	PP3-002A	CUI Devices	CONN PWR PLUG 2.1X5.5MM SOLDER
5	TBD	2845/19 BK001	Alpha	22 AWG BLACK WIRE PTFE 1.07mm Ø
6	TBD	2845/19 RD001	Alpha	22 AWG RED WIRE PTFE 1.07mm Ø
7	2"	STOCK	STOCK	3/8" HEAT SHRINK LABEL
8	2"	STOCK	STOCK	1/4" ADHESIVE HEAT SHRINK
9	2"	STOCK	STOCK	1/2" ADHESIVE HEAT SHRINK
10	TBD	PTN0.13BK-200	Techflex	Techflex 1/8"Flexo PET General Purpose Sleeving

T-Contact:
M22520/2-01 - Hand Crimp Tool
Z80-444 – Positioner
6 – Crimp Tool Setting



PI:	T. MCGINNIS	APPLIED PHYSICS LABORATORY UNIVERSITY OF WASHINGTON 1013 NE 40TH ST. SEATTLE, WA 98105			
MANAGER:	-				
ENGINEER:	K. ZACK	TITLE: H31 FIBER TO ETH TO SERIAL 1 POWER MARS			
DRAWN BY:	K. ZACK				
PRINT DATE:	6/12/2025				
PAGE CREATION: 12/14/2021	SIZE: B	CAGE CODE: 98514	DWG NO: 86253		REV 1.08
CAD FILE: MARS Harnessing V1.19.vsdx				SHEET 37	OF 64

H32

WARNING:
CONTACT MAY BE WRONG, NON STANDARD LACKING DOCUMENTATION

To **B11** SWITCH 2

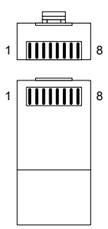
WARNING:
CONTACT ORDER NOT SEQUENTIAL

*WARNING: USING A 8PIN RJ45 NOT 10 PIN, OK TO DO, BUT PINS NUMBERS OFFSET BY 1

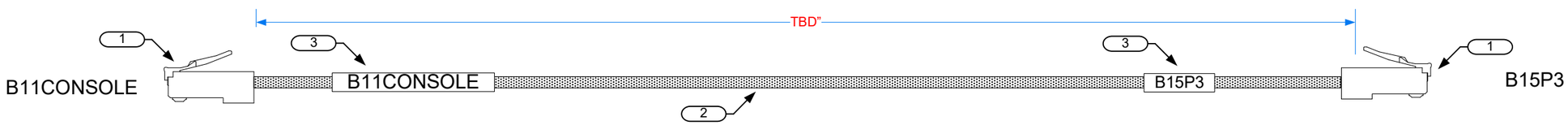
To **B15** DIGI PORT

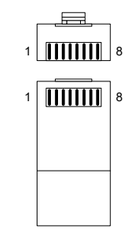
WARNING:
CONTACT ORDER NOT SEQUENTIAL

B11CONSOLE RJ45		B15P3 RJ45
CTS 7	WHT/ORG 26 AWG	2 RTS
RXD 5	BRN 26 AWG	4 TXD
RTS 1	ORG 26 AWG	7 CTS
TXD 3	BLU 26 AWG	5 RXD
GND 4	WHT/BLU 26 AWG	3 GND
DSR 6	WHT/GRN 26 AWG	8 DTR
NC 8	WHT/BRN 26 AWG	6 SG
DTR 2	GRN 26 AWG	1 DSR



RJ45 PLUG FACE AND BOTTOM VIEWS





RJ45 PLUG FACE AND BOTTOM VIEWS

B15P2

From RJ-45	Signal	Direction	Signal	To DB-9
10	DCD	←	DCD	1
6	RxD	←	RxD	2
5	TxD	→	TxD	3
9	DTR	→	DTR	4
7	SG	↔	SG	5
2	DSR	←	DSR	6
3	RTS	→	RTS	7
8	CTS	←	CTS	8
1	RI	←	RI	9
4	GND	↔	GND	Shell

TABLE A1H32: PARTS LIST

ITEM #	Qty.	Mfg. Part Number	Vendor	DESCRIPTION
1	2	STOCK	STOCK	RJ45 CONNECTOR
6	TBD	74006 BK002	Alpha Wire	CABLE CAT5E 8COND 26AWG BLK 100'
9	2"	STOCK	STOCK	3/8" HEAT SHRINK LABEL

PI:	T. MCGINNIS	APPLIED PHYSICS LABORATORY UNIVERSITY OF WASHINGTON 1013 NE 40TH ST. SEATTLE, WA 98105
MANAGER:	-	
ENGINEER:	K. ZACK	TITLE:
DRAWN BY:	K. ZACK	H32 CISCO 2 CONSOLE MARS
PRINT DATE:	6/12/2025	

PAGE CREATION:	SIZE:	CAGE CODE:	DWG NO:	REV
12/14/2021	B	98514	86253	1.08

CAD FILE: MARS Harnessing V1.19.vsdx

SHEET 38 OF 64

H33

WARNING:
CONTACT MAY BE WRONG, NON STANDARD LACKING DOCUMENTATION

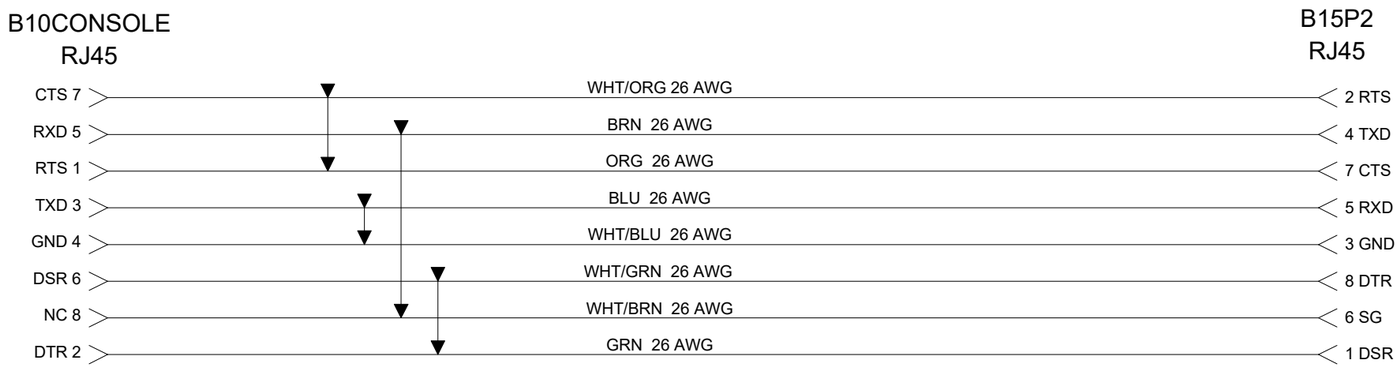
To **B10** SWITCH 1

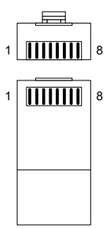
WARNING:
CONTACT ORDER NOT SEQUENTIAL

*WARNING: USING A 8PIN RJ45 NOT 10 PIN, OK TO DO, BUT PINS NUMBERS OFFSET BY 1

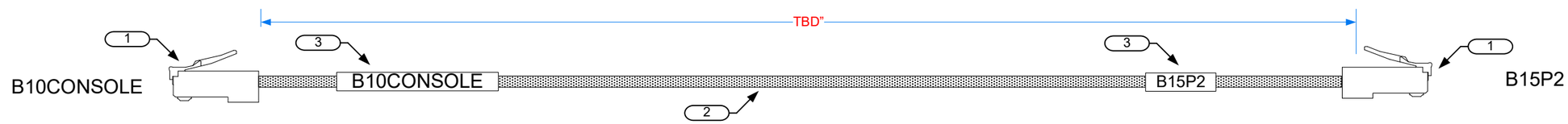
To **B15** DIGI PORT

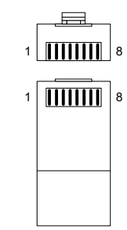
WARNING:
CONTACT ORDER NOT SEQUENTIAL





RJ45
PLUG
FACE AND
BOTTOM
VIEWS





RJ45
PLUG
FACE AND
BOTTOM
VIEWS

B15P2

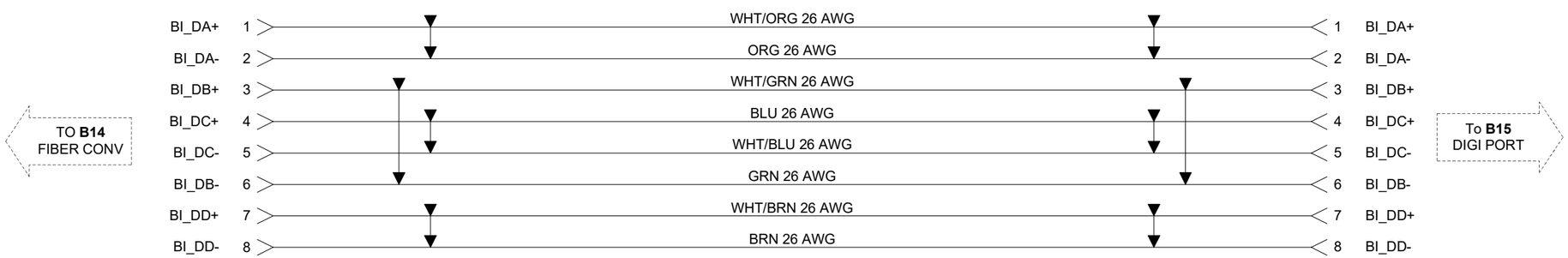
From RJ-45	Signal	Direction	Signal	To DB-9
10	DCD	←	DCD	1
6	RxD	←	RxD	2
5	TxD	→	TxD	3
9	DTR	→	DTR	4
7	SG	↔	SG	5
2	DSR	←	DSR	6
3	RTS	→	RTS	7
8	CTS	←	CTS	8
1	RI	←	RI	9
4	GND	↔	GND	Shell

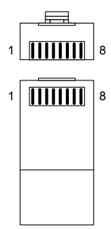
TABLE A1H33: PARTS LIST

ITEM #	Qty.	Mfg. Part Number	Vendor	DESCRIPTION
1	2	STOCK	STOCK	RJ45 CONNECTOR
6	TBD	74006 BK002	Alpha Wire	CABLE CAT5E 8COND 26AWG BLK 100'
9	2"	STOCK	STOCK	3/8" HEAT SHRINK LABEL

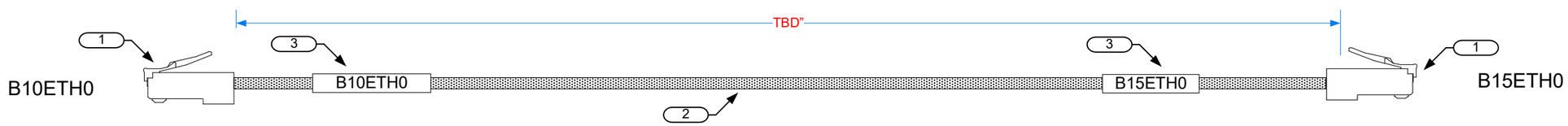
PI:	T. MCGINNIS	APPLIED PHYSICS LABORATORY UNIVERSITY OF WASHINGTON 1013 NE 40TH ST. SEATTLE, WA 98105			
MANAGER:	-				
ENGINEER:	K. ZACK	TITLE:			
DRAWN BY:	K. ZACK	H33 CISCO 1 CONSOLE MARS			
PRINT DATE:	6/12/2025				
PAGE CREATION: 12/14/2021		SIZE: B	CAGE CODE: 98514	DWG NO: 86253	REV 1.08
CAD FILE: MARS Harnessing V1.19.vsdx					SHEET 39 OF 64

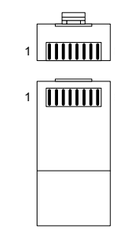
H34





RJ45
PLUG
FACE AND
BOTTOM
VIEWS





RJ45
PLUG
FACE AND
BOTTOM
VIEWS

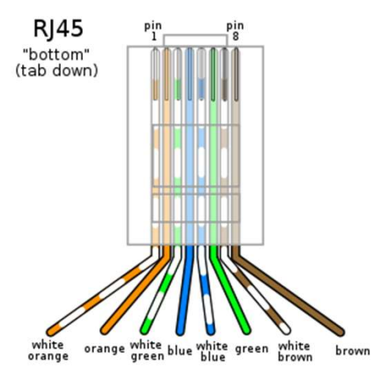


TABLE A1H34: PARTS LIST

ITEM #	Qty.	Mfg. Part Number	Vendor	DESCRIPTION
1	2	STOCK	STOCK	RJ45 CONNECTOR
6	TBD	74006 BK002	Alpha Wire	CABLE CAT5E 8COND 26AWG BLK 100'
9	2"	STOCK	STOCK	3/8" HEAT SHRINK LABEL

PI:	T. MCGINNIS
MANAGER:	-
ENGINEER:	K. ZACK
DRAWN BY:	K. ZACK
PRINT DATE:	6/12/2025

APPLIED PHYSICS LABORATORY
UNIVERSITY OF WASHINGTON
1013 NE 40TH ST. SEATTLE, WA 98105

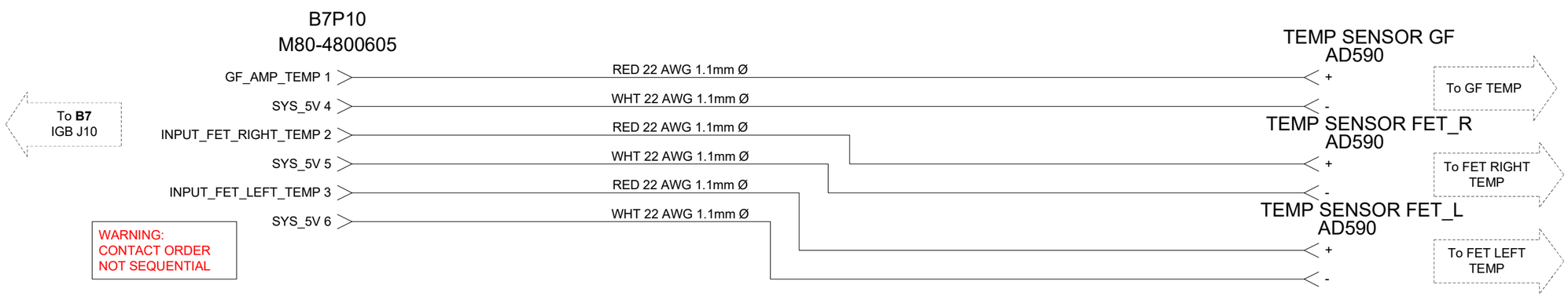
TITLE:
H34 FIBER CONVERTER TO SERIAL CONVERTER 1
PATCH CABLE
MARS

PAGE CREATION:	SIZE:	CAGE CODE:	DWG NO:	REV
12/14/2021	B	98514	86253	1.08

CAD FILE: MARS Harnessing V1.19.vsdx

SHEET 40 OF 64

H35



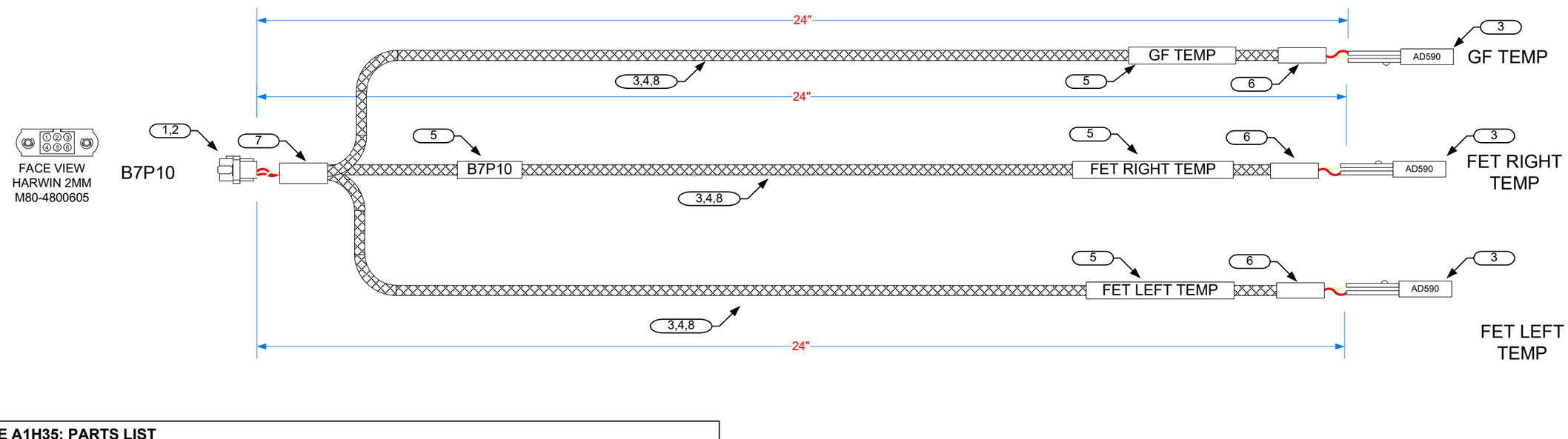
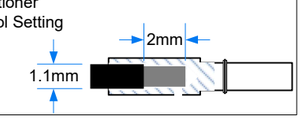


TABLE A1H35: PARTS LIST

ITEM #	Qty.	Mfg. Part Number	Vendor	DESCRIPTION
1	1	M80-4800605	HARWIN	DATAMATE FEMALE 6-PIN
2	6	M80-0110005	HARWIN	DATAMATE 22AWG FEMALE CRIMP
3	3	AD590JF	Analog Devices Inc.	SENSOR ANALOG -55C-150C 2FLATPK
3	TBD	2845/19 WH001	Alpha	22 AWG WHITE WIRE PTFE 1.07mm Ø
4	TBD	2845/19 RD001	Alpha	22 AWG RED WIRE PTFE 1.07mm Ø
5	2"	STOCK	STOCK	3/8" HEAT SHRINK LABEL
6	2"	STOCK	STOCK	1/4" ADHESIVE HEAT SHRINK
7	2"	STOCK	STOCK	1/2" ADHESIVE HEAT SHRINK
8	TBD	PTN0.13BK-200	Techflex	Techflex 1/8"Flexo PET General Purpose Sleeving

Large Bore Signal Contact:
M22520/2-01 - Hand Crimp Tool
T5747 – Positioner
6 – Crimp Tool Setting



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MANAGER:	-
ENGINEER:	K. ZACK
DRAWN BY:	K. ZACK
PRINT DATE:	6/12/2025

APPLIED PHYSICS LABORATORY
UNIVERSITY OF WASHINGTON
1013 NE 40TH ST. SEATTLE, WA 98105

TITLE:
H35 IGB TEMPERATURE SENSORS
MARS

PAGE CREATION:	SIZE:	CAGE CODE:	DWG NO:	REV
12/14/2021	B	98514	86253	1.08

CAD FILE: MARS Harnessing V1.19.vsdx

SHEET 41 OF 64

H36

B6P10
M80-4800605

To **B6**
HPB J10

WARNING:
CONTACT ORDER
NOT SEQUENTIAL

HBP_VICOR1_TEMP 1	RED 22 AWG 1.1mm Ø	TEMP SENSOR VICOR1 AD590 -
SYS_5V 8	WHT 22 AWG 1.1mm Ø	TEMP SENSOR VICOR1 AD590 +
HPB_VICOR2_TEMP 2	RED 22 AWG 1.1mm Ø	TEMP SENSOR VICOR2 AD590 -
SYS_5V 9	WHT 22 AWG 1.1mm Ø	TEMP SENSOR VICOR2 AD590 +
HPB_VICOR3_TEMP 3	RED 22 AWG 1.1mm Ø	TEMP SENSOR VICOR3 AD590 -
SYS_5V 10	WHT 22 AWG 1.1mm Ø	TEMP SENSOR VICOR3 AD590 +
HPB_VICOR3_TEMP 4	RED 22 AWG 1.1mm Ø	TEMP SENSOR VICOR4 AD590 -
SYS_5V 11	WHT 22 AWG 1.1mm Ø	TEMP SENSOR VICOR4 AD590 +
HPB_TEMP2 5	RED 22 AWG 1.1mm Ø	TEMP SENSOR TBD AD590 -
SYS_5V 12	WHT 22 AWG 1.1mm Ø	TEMP SENSOR TBD AD590 +
HPB_TEMP3 6	RED 22 AWG 1.1mm Ø	TEMP SENSOR TBD AD590 -
SYS_5V 13	WHT 22 AWG 1.1mm Ø	TEMP SENSOR TBD AD590 +
HPB_TEMP4 7	RED 22 AWG 1.1mm Ø	TEMP SENSOR TBD AD590 -
SYS_5V 14	WHT 22 AWG 1.1mm Ø	TEMP SENSOR TBD AD590 +

TO VICOR 1
TO VICOR 2
TO VICOR 3
TO VICOR 4
TO TBD
TO TBD
TO TBD

PI:	T. MCGINNIS
MANAGER:	-
ENGINEER:	K. ZACK
DRAWN BY:	K. ZACK
PRINT DATE:	6/12/2025

APPLIED PHYSICS LABORATORY
UNIVERSITY OF WASHINGTON
1013 NE 40TH ST. SEATTLE, WA 98105

TITLE:
H35 PG1 HPB TEMPERATURE SENSORS
MARS

PAGE CREATION:	SIZE:	CAGE CODE:	DWG NO:	REV
12/14/2021	B	98514	86253	1.08

CAD FILE: MARS Harnessing V1.19.vsdx

SHEET 42 OF 64

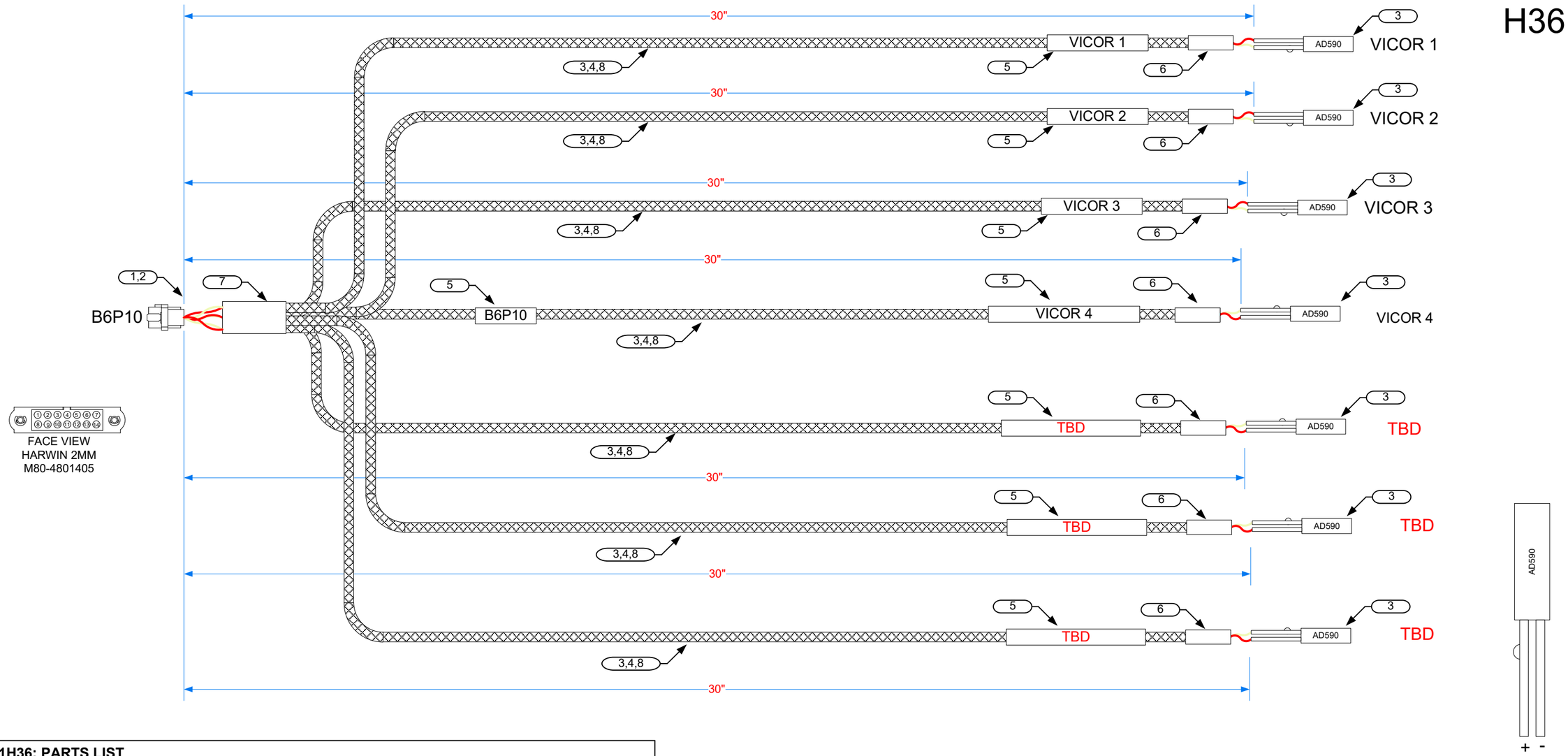
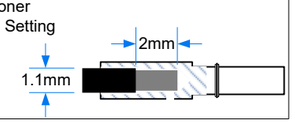


TABLE A1H36: PARTS LIST

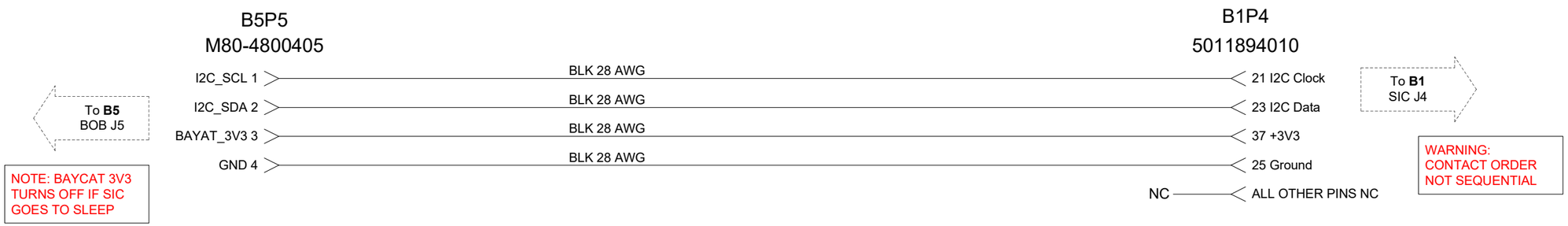
ITEM #	Qty.	Mfg. Part Number	Vendor	DESCRIPTION
1	1	M80-4801405	HARWIN	DATAMATE FEMALE 14-PIN
2	6	M80-0110005	HARWIN	DATAMATE 22AWG FEMALE CRIMP
3	3	AD590JF	Analog Devices Inc.	SENSOR ANALOG -55C-150C 2FLATPK
3	TBD	2845/19 WH001	Alpha	22 AWG WHITE WIRE PTFE 1.07mm Ø
4	TBD	2845/19 RD001	Alpha	22 AWG RED WIRE PTFE 1.07mm Ø
5	2"	STOCK	STOCK	3/8" HEAT SHRINK LABEL
6	2"	STOCK	STOCK	1/4" ADHESIVE HEAT SHRINK
7	2"	STOCK	STOCK	3/4" ADHESIVE HEAT SHRINK
8	TBD	PTN0.13BK-200	Techflex	Techflex 1/8"Flexo PET General Purpose Sleeving

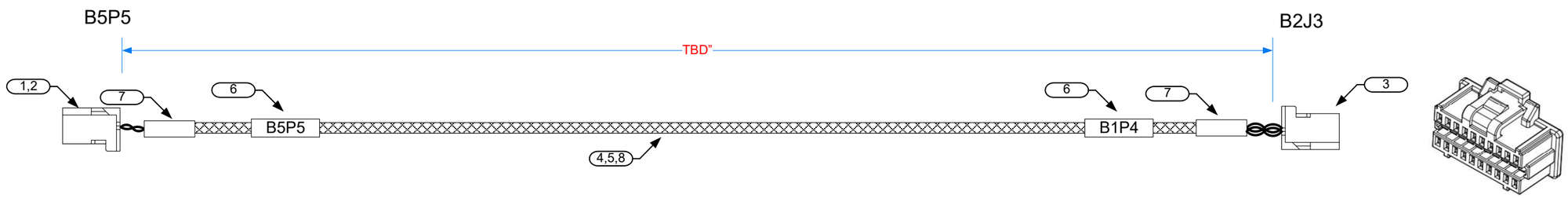
Large Bore Signal Contact:
M22520/2-01 - Hand Crimp Tool
T5747 – Positioner
6 – Crimp Tool Setting



PI:	T. MCGINNIS	APPLIED PHYSICS LABORATORY UNIVERSITY OF WASHINGTON 1013 NE 40TH ST. SEATTLE, WA 98105			
MANAGER:	-				
ENGINEER:	K. ZACK	TITLE: H36 PG2 HPB TEMPERATURE SENSORS MARS			
DRAWN BY:	K. ZACK				
PRINT DATE:	6/12/2025				
PAGE CREATION: 12/14/2021		SIZE: B	CAGE CODE: 98514	DWG NO: 86253	REV 1.08
CAD FILE: MARS Harnessing V1.19.vsdx				SHEET 43 OF 64	

H37





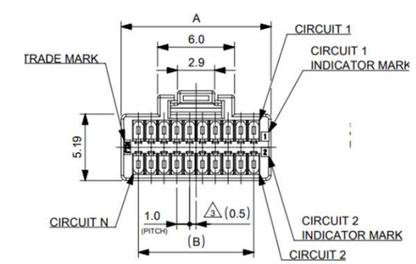
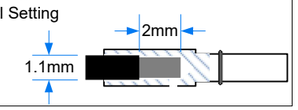


TABLE A1H37: PARTS LIST

ITEM #	Qty.	Mfg. Part Number	Vendor	DESCRIPTION
1	1	M80-4800405	HARWIN	DATAMATE FEMALE 4-PIN
2	4	M80-0130005	HARWIN	CONN SOCKET 24-28AWG CRIMP GOLD
3	1	5011894010	Molex	CONN RCPT HSG 40POS 1.00MM
4	4	0797581018	Molex	PICO-CLASP 150MM 28AWG PRE-CRIMP
5	2"	STOCK	STOCK	3/8" HEAT SHRINK LABEL
6	2"	STOCK	STOCK	1/4" ADHESIVE HEAT SHRINK
7	TBD	PTN0.13BK-200	Techflex	Techflex 1/8"Flexo PET General Purpose Sleeving

SMALL Bore Signal Contact:
M22520/2-01 - Hand Crimp Tool
T5747 – Positioner
6 – Crimp Tool Setting



PI:	T. MCGINNIS
MANAGER:	-
ENGINEER:	K. ZACK
DRAWN BY:	K. ZACK
PRINT DATE:	6/12/2025

APPLIED PHYSICS LABORATORY
UNIVERSITY OF WASHINGTON
1013 NE 40TH ST. SEATTLE, WA 98105

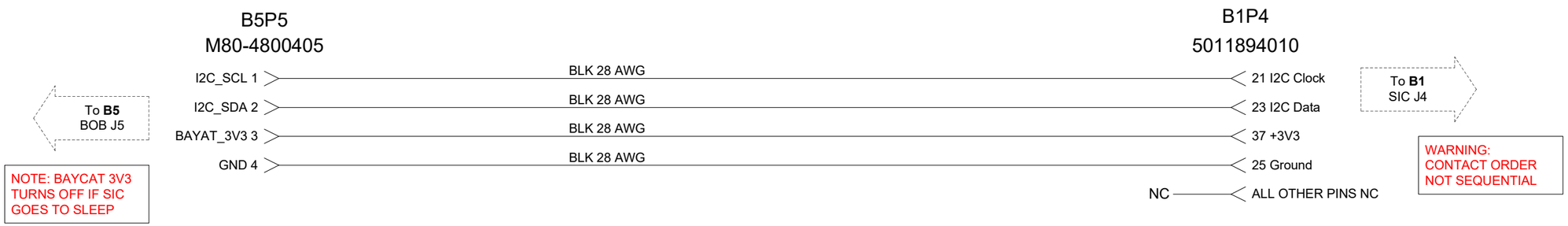
TITLE:
H37 PC104 TO PADDLEBOARD I2C
MARS

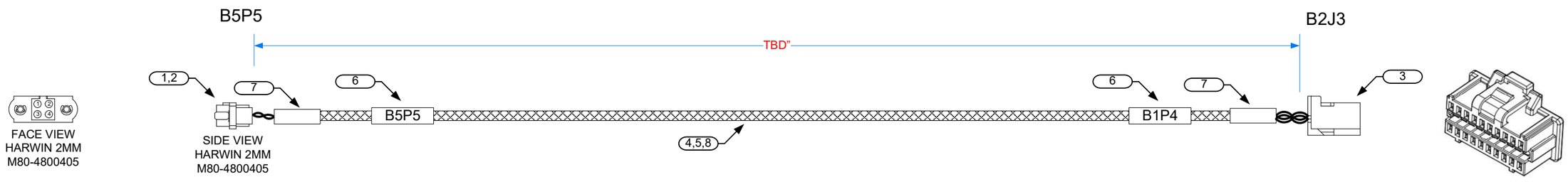
PAGE CREATION:	SIZE:	CAGE CODE:	DWG NO:	REV
12/14/2021	B	98514	86253	1.08

CAD FILE: MARS Harnessing V1.19.vsdx

SHEET 44 OF 64

H38





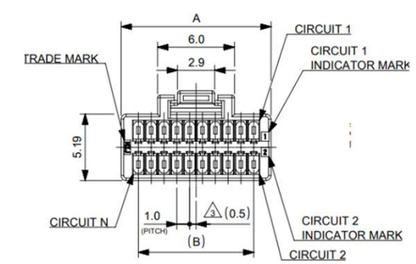
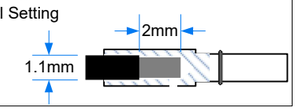


TABLE A1H37: PARTS LIST

ITEM #	Qty.	Mfg. Part Number	Vendor	DESCRIPTION
1	1	M80-4800405	HARWIN	DATAMATE FEMALE 4-PIN
2	4	M80-0130005	HARWIN	CONN SOCKET 24-28AWG CRIMP GOLD
3	1	5011894010	Molex	CONN RCPT HSG 40POS 1.00MM
4	4	0797581018	Molex	PICO-CLASP 150MM 28AWG PRE-CRIMP
5	2"	STOCK	STOCK	3/8" HEAT SHRINK LABEL
6	2"	STOCK	STOCK	1/4" ADHESIVE HEAT SHRINK
7	TBD	PTN0.13BK-200	Techflex	Techflex 1/8"Flexo PET General Purpose Sleeving

SMALL Bore Signal Contact:
M22520/2-01 - Hand Crimp Tool
T5747 – Positioner
6 – Crimp Tool Setting



PI:	T. MCGINNIS
MANAGER:	-
ENGINEER:	K. ZACK
DRAWN BY:	K. ZACK
PRINT DATE:	6/12/2025

APPLIED PHYSICS LABORATORY
UNIVERSITY OF WASHINGTON
1013 NE 40TH ST. SEATTLE, WA 98105

TITLE:
H38 PADDLEBOARD TO BOB I2C
MARS

PAGE CREATION:	SIZE:	CAGE CODE:	DWG NO:	REV
12/14/2021	B	98514	86253	1.08

CAD FILE: MARS Harnessing V1.19.vsdx

SHEET 45 OF 64

H39

TOOLING:
*USE T-CONTACT

To **B6**
HPB J9

WARNING:
CONTACT ORDER
NOT SEQUENTIAL

B6P9
M80-4800405

B14POWER24V

*MEDIA_OUT 1 — RED 22 AWG 1.1mm Ø — 9-56V
*GND 3 — BLK 22 AWG 1.1mm Ø — Ground

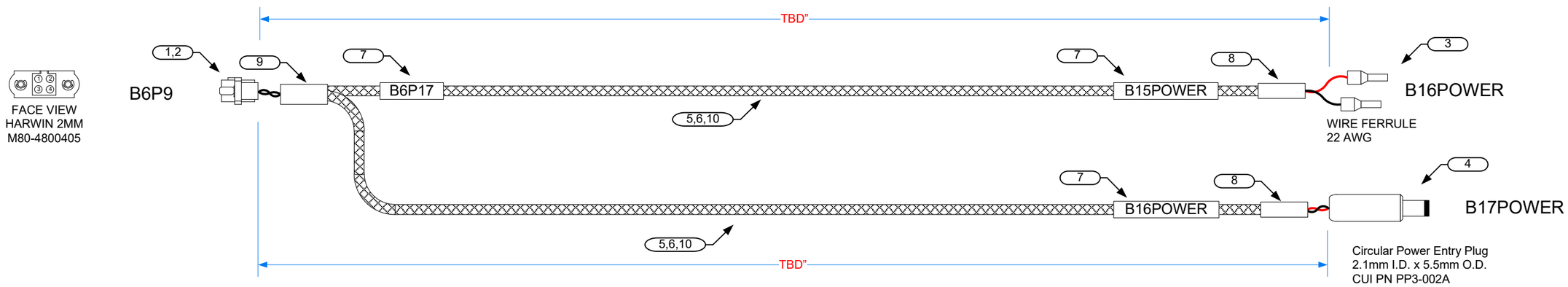
To **B16**
MEDIA CONV 2

*MEDIA_OUT 2 — RED 22 AWG 1.1mm Ø
*GND 4 — BLK 22 AWG 1.1mm Ø

B15POWER24V

TBD 24V
TBD Ground

To **B17**
SERIAL CONV 2

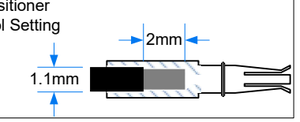


NEED TO CONFIRM
CONNECTORS

TABLE A1H31: PARTS LIST

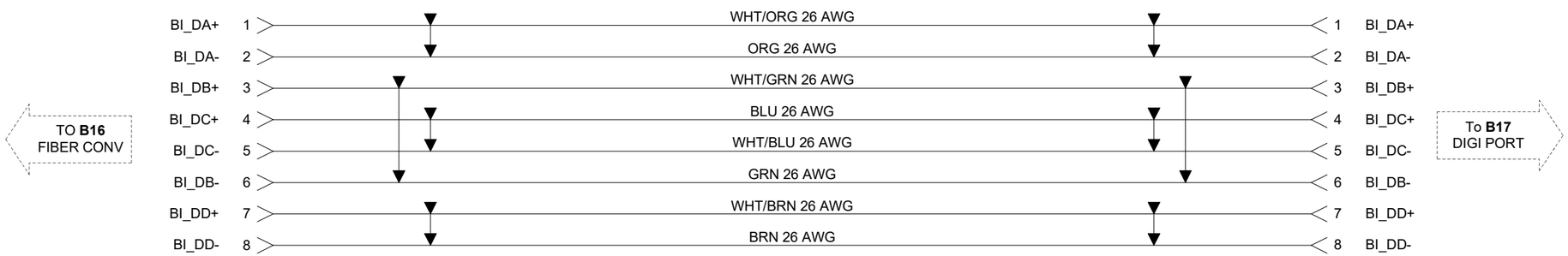
ITEM #	Qty.	Mfg. Part Number	Vendor	DESCRIPTION
1	1	M80-4800405	HARWIN	DATAMATE FEMALE 4-PIN
2	4	M80-2060005	HARWIN	DATAMATE 22AWG FEMALE CRIMP T-CONTACT
3	2	FSD75-8-D	Panduit Corp	CONN FERRULE DIN 22AWG WHITE
4	1	PP3-002A	CUI Devices	CONN PWR PLUG 2.1X5.5MM SOLDER
5	TBD	2845/19 BK001	Alpha	22 AWG BLACK WIRE PTFE 1.07mm Ø
6	TBD	2845/19 RD001	Alpha	22 AWG RED WIRE PTFE 1.07mm Ø
7	2"	STOCK	STOCK	3/8" HEAT SHRINK LABEL
8	2"	STOCK	STOCK	1/4" ADHESIVE HEAT SHRINK
9	2"	STOCK	STOCK	1/2" ADHESIVE HEAT SHRINK
10	TBD	PTN0.13BK-200	Techflex	Techflex 1/8"Flexo PET General Purpose Sleeving

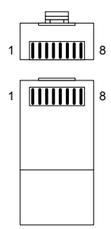
T-Contact:
M22520/2-01 - Hand Crimp Tool
Z80-444 – Positioner
6 – Crimp Tool Setting



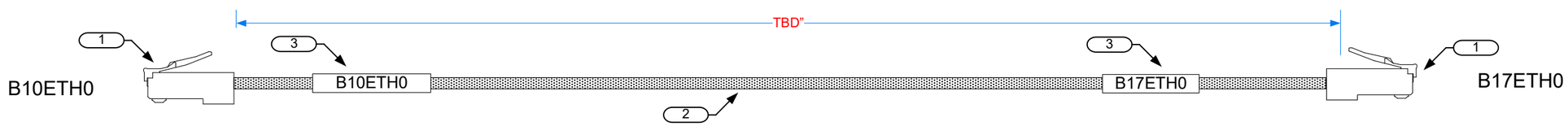
PI:	T. MCGINNIS	APPLIED PHYSICS LABORATORY UNIVERSITY OF WASHINGTON 1013 NE 40TH ST. SEATTLE, WA 98105			
MANAGER:	-				
ENGINEER:	K. ZACK	TITLE: H39 FIBER TO ETH TO SERIAL 2 POWER MARS			
DRAWN BY:	K. ZACK				
PRINT DATE:	6/12/2025				
PAGE CREATION: 12/14/2021	SIZE: B	CAGE CODE: 98514	DWG NO: 86253		REV 1.08
CAD FILE: MARS Harnessing V1.19.vsdx				SHEET 46	OF 64

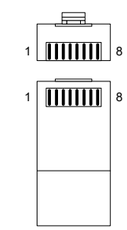
H40





RJ45
PLUG
FACE AND
BOTTOM
VIEWS





RJ45
PLUG
FACE AND
BOTTOM
VIEWS

NEED TO UPDATE
FOR CONV 2

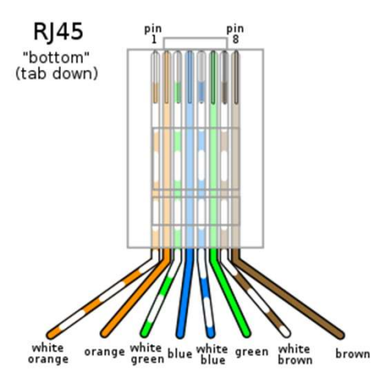


TABLE A1H34: PARTS LIST

ITEM #	Qty.	Mfg. Part Number	Vendor	DESCRIPTION
1	2	STOCK	STOCK	RJ45 CONNECTOR
6	TBD	74006 BK002	Alpha Wire	CABLE CAT5E 8COND 26AWG BLK 100'
9	2"	STOCK	STOCK	3/8" HEAT SHRINK LABEL

PI:	T. MCGINNIS
MANAGER:	-
ENGINEER:	K. ZACK
DRAWN BY:	K. ZACK
PRINT DATE:	6/12/2025

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UNIVERSITY OF WASHINGTON
1013 NE 40TH ST. SEATTLE, WA 98105

TITLE:
H34 FIBER CONVERTER TO SERIAL CONVERTER 2
PATCH CABLE
MARS

PAGE CREATION:	SIZE:	CAGE CODE:	DWG NO:	REV
12/14/2021	B	98514	86253	1.08

CAD FILE: MARS Harnessing V1.19.vsdx

SHEET 47 OF 64

H41-48

WARNING:
CONTACT MAY BE WRONG, NON STANDARD LACKING DOCUMENTATION

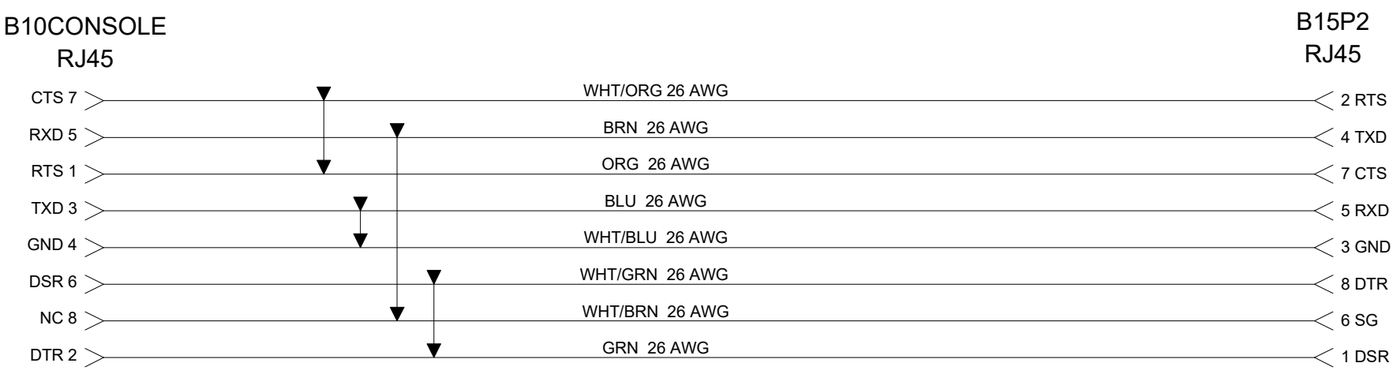
To **B10** SWITCH 1

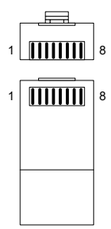
WARNING:
CONTACT ORDER NOT SEQUENTIAL

*WARNING: USING A 8PIN RJ45 NOT 10 PIN, OK TO DO, BUT PINS NUMBERS OFFSET BY 1

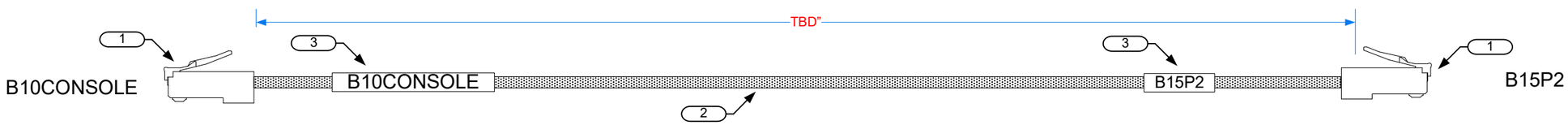
To **B15** DIGI PORT

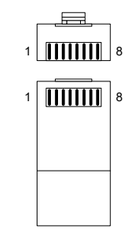
WARNING:
CONTACT ORDER NOT SEQUENTIAL





RJ45
PLUG
FACE AND
BOTTOM
VIEWS





RJ45
PLUG
FACE AND
BOTTOM
VIEWS

NEED TO UPDATE INFO ABOUT CONNECTED DEVICES FOR 8 CABLE ASSEMBLIES

B15P2

From RJ-45	Signal	Direction	Signal	To DB-9
10	DCD	←	DCD	1
6	RxD	←	RxD	2
5	TxD	→	TxD	3
9	DTR	→	DTR	4
7	SG	↔	SG	5
2	DSR	←	DSR	6
3	RTS	→	RTS	7
8	CTS	←	CTS	8
1	RI	←	RI	9
4	GND	↔	GND	Shell

TABLE A1H33: PARTS LIST

ITEM #	Qty.	Mfg. Part Number	Vendor	DESCRIPTION
1	2	STOCK	STOCK	RJ45 CONNECTOR
6	TBD	74006 BK002	Alpha Wire	CABLE CAT5E 8COND 26AWG BLK 100'
9	2"	STOCK	STOCK	3/8" HEAT SHRINK LABEL

PI:	T. MCGINNIS
MANAGER:	-
ENGINEER:	K. ZACK
DRAWN BY:	K. ZACK
PRINT DATE:	6/12/2025

APPLIED PHYSICS LABORATORY
UNIVERSITY OF WASHINGTON
1013 NE 40TH ST. SEATTLE, WA 98105

TITLE:
H41-48 PORT SERVER – SERIAL SPLITTER
MARS

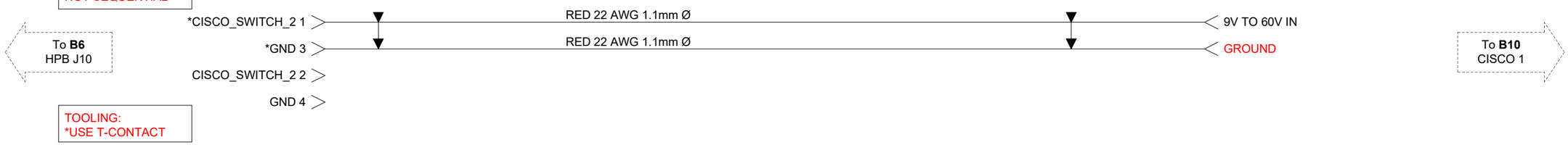
PAGE CREATION:	SIZE:	CAGE CODE:	DWG NO:	REV
12/14/2021	B	98514	86253	1.08

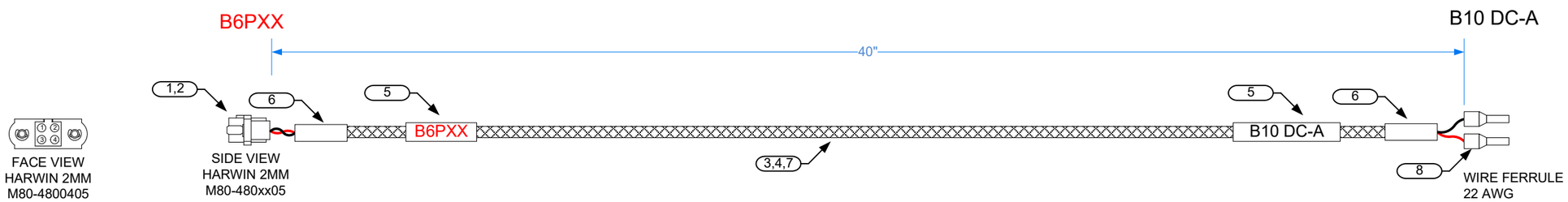
CAD FILE: MARS Harnessing V1.19.vsdx

SHEET 48 OF 64

WARNING:
CONTACT ORDER
NOT SEQUENTIAL

TOOLING:
*USE T-CONTACT



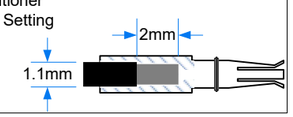


NEED TO UPDATE FOR
SERIAL SPLITTER POWER
CONNECTOR

TABLE A1H2: PARTS LIST

ITEM #	Qty.	Mfg. Part Number	Vendor	DESCRIPTION
1	1	M80-4800405	HARWIN	DATAMATE FEMALE 4-PIN
2	2	M80-2060005	HARWIN	DATAMATE 22AWG FEMALE CRIMP T-CONTACT
3	TBD	2845/19 BK001	HARWIN	22 AWG BLACK WIRE PTFE 1.07mm Ø
4	TBD	2845/19 RD001	HARWIN	22 AWG RED WIRE PTFE 1.07mm Ø
5	2"	STOCK	STOCK	3/8" HEAT SHRINK LABEL
6	2"	STOCK	STOCK	1/2" ADHESIVE HEAT SHRINK
7	TBD	PTN0.25BK-200	Techflex	Techflex 1/4"Flexo PET General Purpose Sleeving
8	2	FSD75-8-D	Panduit Corp	CONN FERRULE DIN 22AWG WHITE

T-Contact:
M22520/2-01 - Hand Crimp Tool
Z80-444 – Positioner
6 – Crimp Tool Setting



PI:	T. MCGINNIS	APPLIED PHYSICS LABORATORY UNIVERSITY OF WASHINGTON 1013 NE 40TH ST. SEATTLE, WA 98105			
MANAGER:	-				
ENGINEER:	K. ZACK	TITLE: H49 MBARI SERIAL SPLITTER POWER			
DRAWN BY:	K. ZACK				
		MARS			
PRINT DATE:	6/12/2025				
PAGE CREATION: 12/14/2021		SIZE: B	CAGE CODE: 98514	DWG NO: 86253	REV 1.08
CAD FILE: MARS Harnessing V1.19.vsdx				SHEET 49 OF 64	

H50

WARNING:
CONTACT MAY BE WRONG, NON STANDARD LACKING DOCUMENTATION

To **B18** SPLITTER

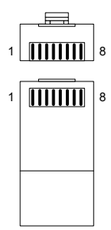
WARNING:
CONTACT ORDER NOT SEQUENTIAL

*WARNING: USING A 8PIN RJ45 NOT 10 PIN, OK TO DO, BUT PINS NUMBERS OFFSET BY 1

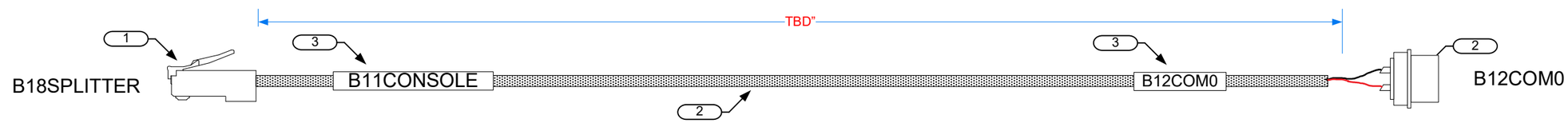
To **B12** SYNCBOX

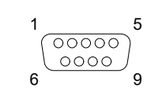
WARNING:
CONTACT ORDER NOT SEQUENTIAL

B11CONSOLE RJ45		B15P3 RJ45
CTS 7	WHT/ORG 26 AWG	2 RTS
RXD 5	BRN 26 AWG	4 TXD
RTS 1	ORG 26 AWG	7 CTS
TXD 3	BLU 26 AWG	5 RXD
GND 4	WHT/BLU 26 AWG	3 GND
DSR 6	WHT/GRN 26 AWG	8 DTR
NC 8	WHT/BRN 26 AWG	6 SG
DTR 2	GRN 26 AWG	1 DSR



RJ45 PLUG FACE AND BOTTOM VIEWS





FACE VIEW DE-9P

DSUB9 MALE

B15P2

From RJ-45	Signal	Direction	Signal	To DB-9
10	DCD	←	DCD	1
6	RxD	←	RxD	2
5	TxD	→	TxD	3
9	DTR	→	DTR	4
7	SG	↔	SG	5
2	DSR	←	DSR	6
3	RTS	→	RTS	7
8	CTS	←	CTS	8
1	RI	←	RI	9
4	GND	↔	GND	Shell

TABLE A1H32: PARTS LIST

ITEM #	Qty.	Mfg. Part Number	Vendor	DESCRIPTION
1	1	STOCK	STOCK	RJ45 CONNECTOR
2	1	STOCK	STOCK	9-PIN D-SUB, MALE, DE-9P
6	TBD	74006 BK002	Alpha Wire	CABLE CAT5E 8COND 26AWG BLK 100'
9	2"	STOCK	STOCK	3/8" HEAT SHRINK LABEL

PI:	T. MCGINNIS
MANAGER:	-
ENGINEER:	K. ZACK
DRAWN BY:	K. ZACK
PRINT DATE:	6/12/2025

APPLIED PHYSICS LABORATORY
UNIVERSITY OF WASHINGTON
1013 NE 40TH ST. SEATTLE, WA 98105

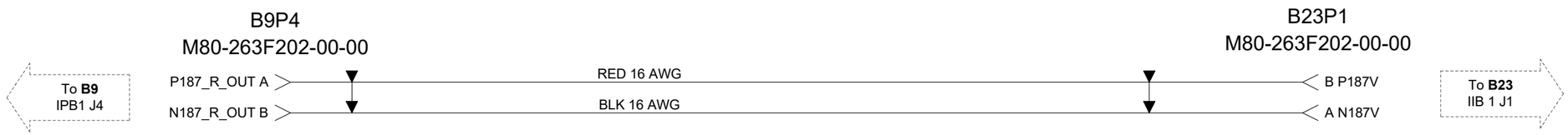
TITLE:
H50 MEINBERG SYNCBOX CONSOLE
MARS

PAGE CREATION:	SIZE:	CAGE CODE:	DWG NO:	REV
12/14/2021	B	98514	86253	1.08

CAD FILE: MARS Harnessing V1.19.vsdx

SHEET 50 OF 64

H51



NOTE:
PIN A = N187V - NEGATIVE
PIN B = P187V - POSITIVE

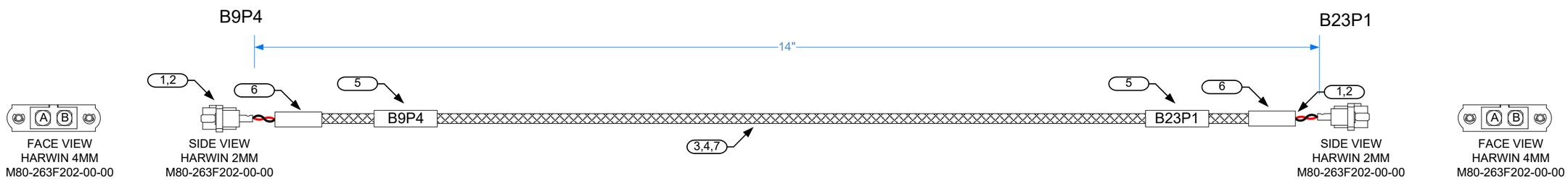
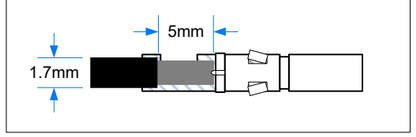


TABLE A1H4: PARTS LIST

ITEM #	Qty.	Mfg. Part Number	Vendor	DESCRIPTION
1	2	M80-263F202-00-00	HARWIN	20A 2 PIN DATAMATE POWER
2	4	M80-327	HARWIN	CONN SOCKET 16AWG CRIMP/SLD GOLD
3	TBD		HARWIN	16 AWG BLACK WIRE PTFE
4	TBD		HARWIN	16 AWG RED WIRE PTFE
5	2"	STOCK	STOCK	3/8" HEAT SHRINK LABEL
6	2"	STOCK	STOCK	1/2" ADHESIVE HEAT SHRINK
7	TBD	PTN0.25BK-200	Techflex	Techflex 1/4"Flexo PET General Purpose Sleeving

NOTE:
Power Contact (16AWG):
Z80-290 - Extraction tool
5x – Contact Replacement In Insulator



PI:	T. MCGINNIS
MANAGER:	-
ENGINEER:	K. ZACK
DRAWN BY:	K. ZACK
PRINT DATE:	6/12/2025

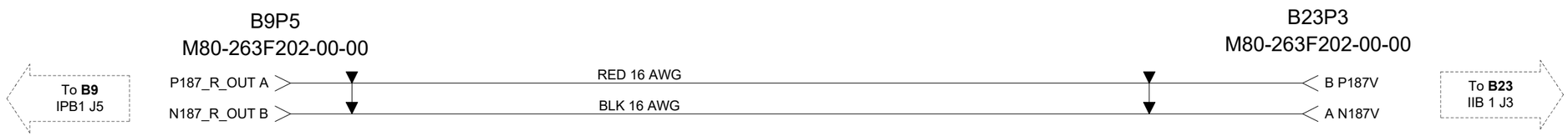
APPLIED PHYSICS LABORATORY
UNIVERSITY OF WASHINGTON
1013 NE 40TH ST. SEATTLE, WA 98105

TITLE:
H51 IPS 1 CHA 375V Out IIB 1
MARS

PAGE CREATION:	SIZE:	CAGE CODE:	DWG NO:	REV
12/14/2021	B	98514	86253	1.08

CAD FILE: MARS Harnessing V1.19.vsdx

SHEET 51 OF 64



NOTE:
PIN A = N187V - NEGATIVE
PIN B = P187V - POSITIVE

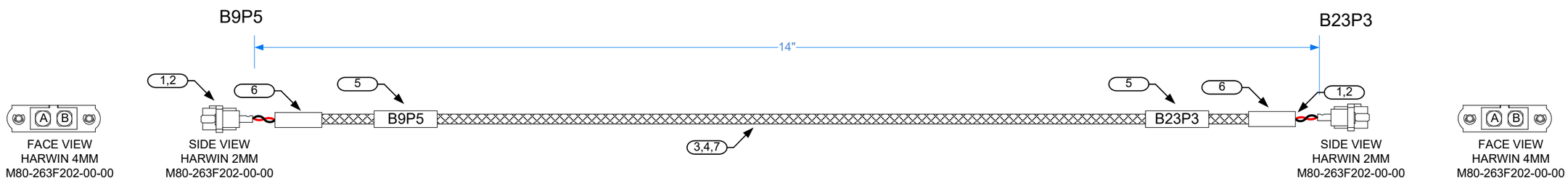
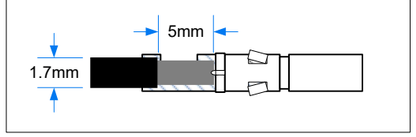


TABLE A1H4: PARTS LIST

ITEM #	Qty.	Mfg. Part Number	Vendor	DESCRIPTION
1	2	M80-263F202-00-00	HARWIN	20A 2 PIN DATAMATE POWER
2	4	M80-327	HARWIN	CONN SOCKET 16AWG CRIMP/SLD GOLD
3	TBD		HARWIN	16 AWG BLACK WIRE PTFE
4	TBD		HARWIN	16 AWG RED WIRE PTFE
5	2"	STOCK	STOCK	3/8" HEAT SHRINK LABEL
6	2"	STOCK	STOCK	1/2" ADHESIVE HEAT SHRINK
7	TBD	PTN0.25BK-200	Techflex	Techflex 1/4"Flexo PET General Purpose Sleeving

NOTE:
Power Contact (16AWG):
Z80-290 - Extraction tool
5x – Contact Replacement In Insulator



PI:	T. MCGINNIS
MANAGER:	-
ENGINEER:	K. ZACK
DRAWN BY:	K. ZACK
PRINT DATE:	6/12/2025

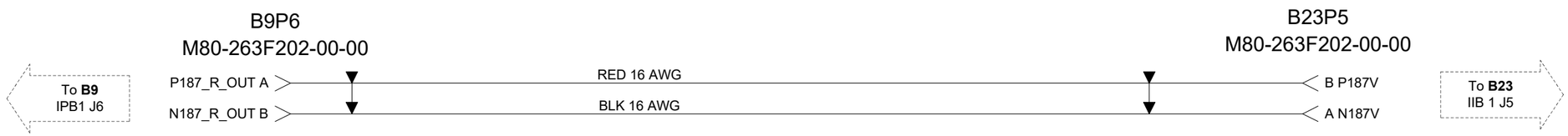
APPLIED PHYSICS LABORATORY
UNIVERSITY OF WASHINGTON
1013 NE 40TH ST. SEATTLE, WA 98105

TITLE:
H52 IPS 1 CHB 375V Out IIB 1
MARS

PAGE CREATION:	SIZE:	CAGE CODE:	DWG NO:	REV
12/14/2021	B	98514	86253	1.08

CAD FILE: MARS Harnessing V1.19.vsdx

SHEET 52 OF 64



NOTE:
PIN A = N187V - NEGATIVE
PIN B = P187V - POSITIVE

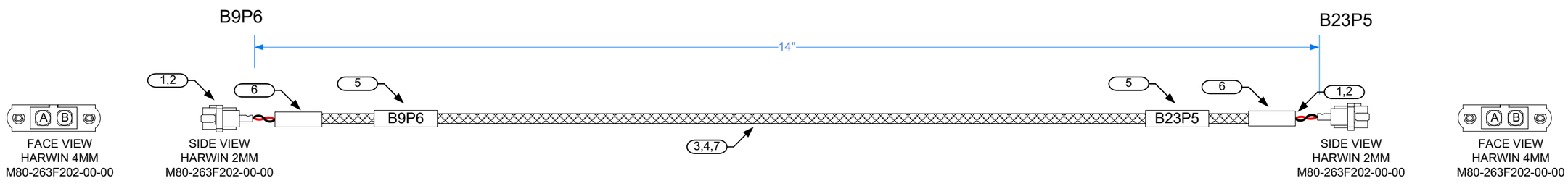
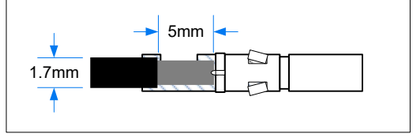


TABLE A1H4: PARTS LIST

ITEM #	Qty.	Mfg. Part Number	Vendor	DESCRIPTION
1	2	M80-263F202-00-00	HARWIN	20A 2 PIN DATAMATE POWER
2	4	M80-327	HARWIN	CONN SOCKET 16AWG CRIMP/SLD GOLD
3	TBD		HARWIN	16 AWG BLACK WIRE PTFE
4	TBD		HARWIN	16 AWG RED WIRE PTFE
5	2"	STOCK	STOCK	3/8" HEAT SHRINK LABEL
6	2"	STOCK	STOCK	1/2" ADHESIVE HEAT SHRINK
7	TBD	PTN0.25BK-200	Techflex	Techflex 1/4"Flexo PET General Purpose Sleeving

NOTE:
Power Contact (16AWG):
Z80-290 - Extraction tool
5x – Contact Replacement In Insulator



PI:	T. MCGINNIS
MANAGER:	-
ENGINEER:	K. ZACK
DRAWN BY:	K. ZACK
PRINT DATE:	6/12/2025

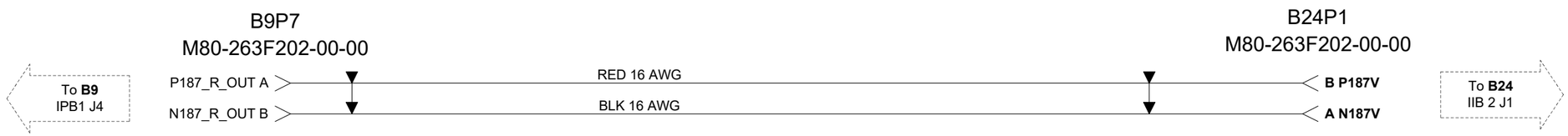
APPLIED PHYSICS LABORATORY
UNIVERSITY OF WASHINGTON
1013 NE 40TH ST. SEATTLE, WA 98105

TITLE:
H53 IPS 1 CHC 375V Out IIB 1
MARS

PAGE CREATION:	SIZE:	CAGE CODE:	DWG NO:	REV
12/14/2021	B	98514	86253	1.08

CAD FILE: MARS Harnessing V1.19.vsdx

SHEET 53 OF 64



NOTE:
PIN A = N187V - NEGATIVE
PIN B = P187V - POSITIVE

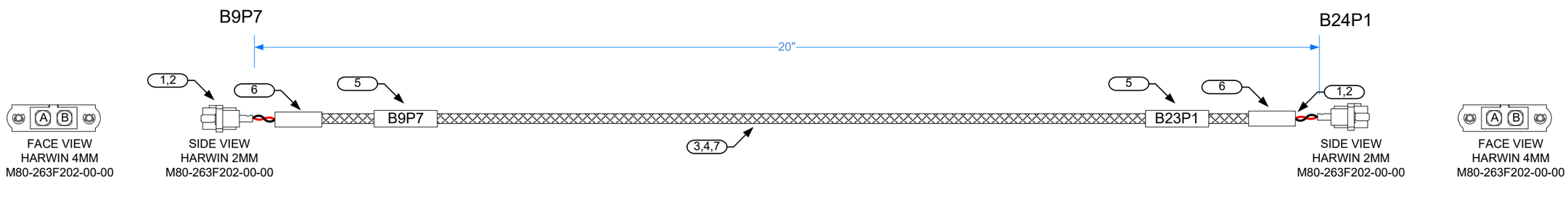
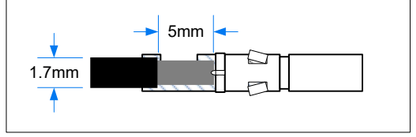


TABLE A1H4: PARTS LIST

ITEM #	Qty.	Mfg. Part Number	Vendor	DESCRIPTION
1	2	M80-263F202-00-00	HARWIN	20A 2 PIN DATAMATE POWER
2	4	M80-327	HARWIN	CONN SOCKET 16AWG CRIMP/SLD GOLD
3	TBD		HARWIN	16 AWG BLACK WIRE PTFE
4	TBD		HARWIN	16 AWG RED WIRE PTFE
5	2"	STOCK	STOCK	3/8" HEAT SHRINK LABEL
6	2"	STOCK	STOCK	1/2" ADHESIVE HEAT SHRINK
7	TBD	PTN0.25BK-200	Techflex	Techflex 1/4"Flexo PET General Purpose Sleeving

NOTE:
Power Contact (16AWG):
Z80-290 - Extraction tool
5x – Contact Replacement In Insulator



PI:	T. MCGINNIS
MANAGER:	-
ENGINEER:	K. ZACK
DRAWN BY:	K. ZACK
PRINT DATE:	6/12/2025

APPLIED PHYSICS LABORATORY
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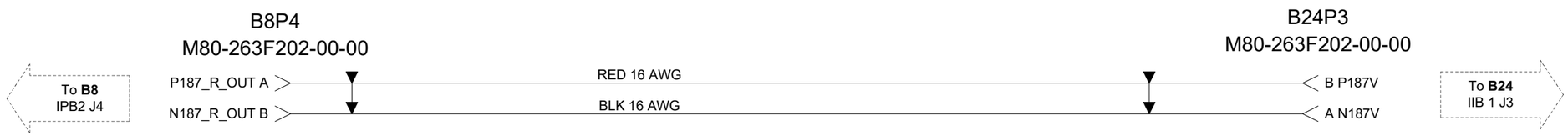
1013 NE 40TH ST. SEATTLE, WA 98105

TITLE:
H54 IPS 1 CHD 375V Out IIB 2
MARS

PAGE CREATION:	SIZE:	CAGE CODE:	DWG NO:	REV
12/14/2021	B	98514	86253	1.08

CAD FILE: MARS Harnessing V1.19.vsdx

SHEET 54 OF 64



NOTE:
PIN A = N187V - NEGATIVE
PIN B = P187V - POSITIVE

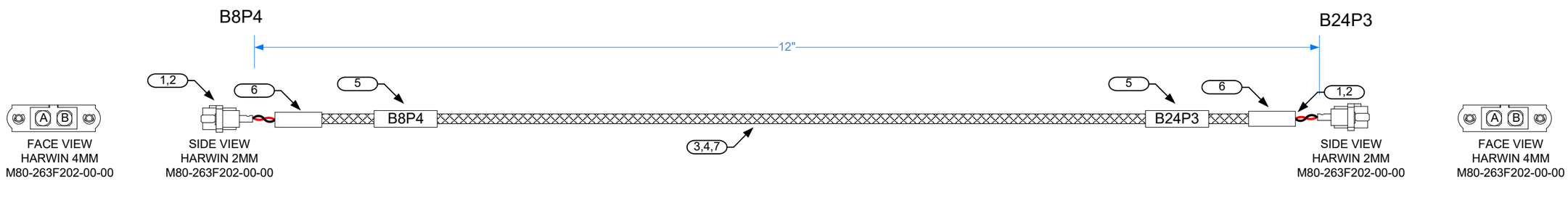
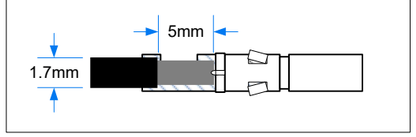


TABLE A1H4: PARTS LIST

ITEM #	Qty.	Mfg. Part Number	Vendor	DESCRIPTION
1	2	M80-263F202-00-00	HARWIN	20A 2 PIN DATAMATE POWER
2	4	M80-327	HARWIN	CONN SOCKET 16AWG CRIMP/SLD GOLD
3	TBD		HARWIN	16 AWG BLACK WIRE PTFE
4	TBD		HARWIN	16 AWG RED WIRE PTFE
5	2"	STOCK	STOCK	3/8" HEAT SHRINK LABEL
6	2"	STOCK	STOCK	1/2" ADHESIVE HEAT SHRINK
7	TBD	PTN0.25BK-200	Techflex	Techflex 1/4"Flexo PET General Purpose Sleeving

NOTE:
Power Contact (16AWG):
Z80-290 - Extraction tool
5x – Contact Replacement In Insulator



PI:	T. MCGINNIS
MANAGER:	-
ENGINEER:	K. ZACK
DRAWN BY:	K. ZACK
PRINT DATE:	6/12/2025

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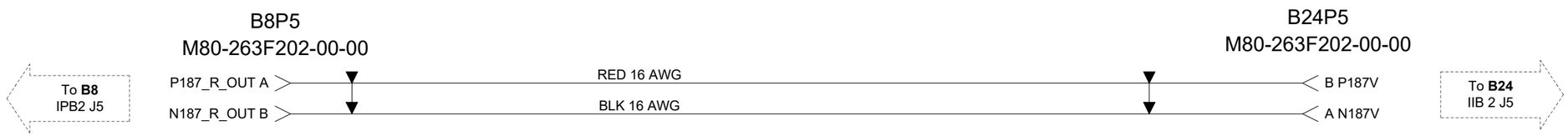
UNIVERSITY OF WASHINGTON
1013 NE 40TH ST. SEATTLE, WA 98105

TITLE:
H55 IPS 2 CHA 375V Out IIB 2
MARS

PAGE CREATION:	SIZE:	CAGE CODE:	DWG NO:	REV
12/14/2021	B	98514	86253	1.08

CAD FILE: MARS Harnessing V1.19.vsdx

SHEET 55 OF 64



NOTE:
PIN A = N187V - NEGATIVE
PIN B = P187V - POSITIVE

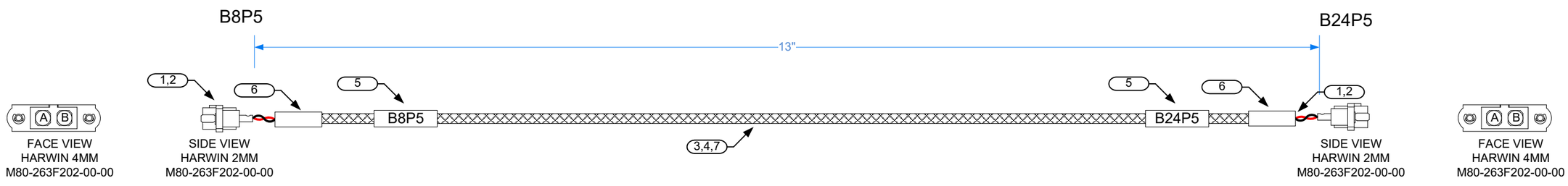
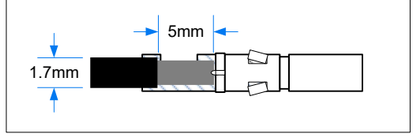


TABLE A1H4: PARTS LIST

ITEM #	Qty.	Mfg. Part Number	Vendor	DESCRIPTION
1	2	M80-263F202-00-00	HARWIN	20A 2 PIN DATAMATE POWER
2	4	M80-327	HARWIN	CONN SOCKET 16AWG CRIMP/SLD GOLD
3	TBD		HARWIN	16 AWG BLACK WIRE PTFE
4	TBD		HARWIN	16 AWG RED WIRE PTFE
5	2"	STOCK	STOCK	3/8" HEAT SHRINK LABEL
6	2"	STOCK	STOCK	1/2" ADHESIVE HEAT SHRINK
7	TBD	PTN0.25BK-200	Techflex	Techflex 1/4"Flexo PET General Purpose Sleeving

NOTE:
Power Contact (16AWG):
Z80-290 - Extraction tool
5x – Contact Replacement In Insulator



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MANAGER:	-
ENGINEER:	K. ZACK
DRAWN BY:	K. ZACK
PRINT DATE:	6/12/2025

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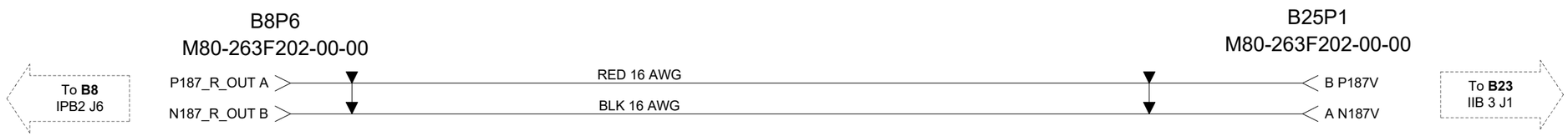
TITLE:
H56 IPS 2 CHB 375V Out IIB 2
MARS

PAGE CREATION:	SIZE:	CAGE CODE:	DWG NO:	REV
12/14/2021	B	98514	86253	1.08

CAD FILE: MARS Harnessing V1.19.vsdx

SHEET 56 OF 64



NOTE:
PIN A = N187V - NEGATIVE
PIN B = P187V - POSITIVE

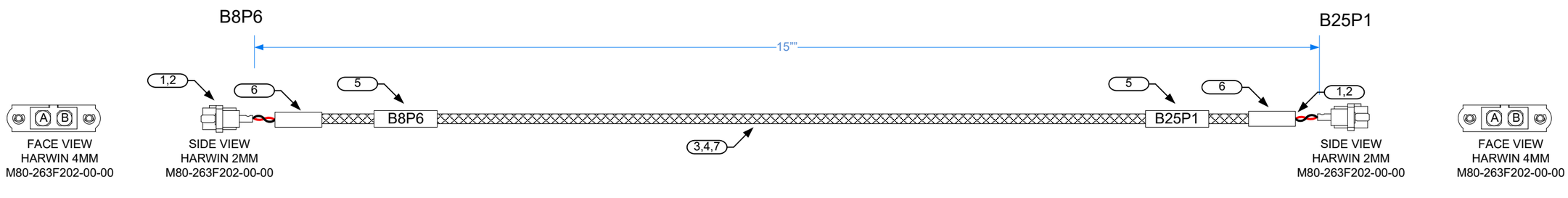
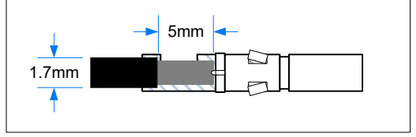


TABLE A1H4: PARTS LIST

ITEM #	Qty.	Mfg. Part Number	Vendor	DESCRIPTION
1	2	M80-263F202-00-00	HARWIN	20A 2 PIN DATAMATE POWER
2	4	M80-327	HARWIN	CONN SOCKET 16AWG CRIMP/SLD GOLD
3	TBD		HARWIN	16 AWG BLACK WIRE PTFE
4	TBD		HARWIN	16 AWG RED WIRE PTFE
5	2"	STOCK	STOCK	3/8" HEAT SHRINK LABEL
6	2"	STOCK	STOCK	1/2" ADHESIVE HEAT SHRINK
7	TBD	PTN0.25BK-200	Techflex	Techflex 1/4"Flexo PET General Purpose Sleeving

NOTE:
Power Contact (16AWG):
Z80-290 - Extraction tool
5x – Contact Replacement In Insulator



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MANAGER:	-
ENGINEER:	K. ZACK
DRAWN BY:	K. ZACK
PRINT DATE:	6/12/2025

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UNIVERSITY OF WASHINGTON
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TITLE:
H57 IPS 2 CHC 375V Out IIB 3
MARS

PAGE CREATION:	SIZE:	CAGE CODE:	DWG NO:	REV
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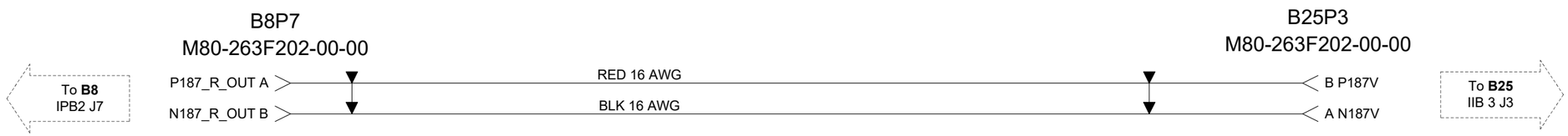
CAD FILE: MARS Harnessing V1.19.vsdx

SHEET 57 OF 64

H51



NOTE:
PIN A = N187V - NEGATIVE
PIN B = P187V - POSITIVE

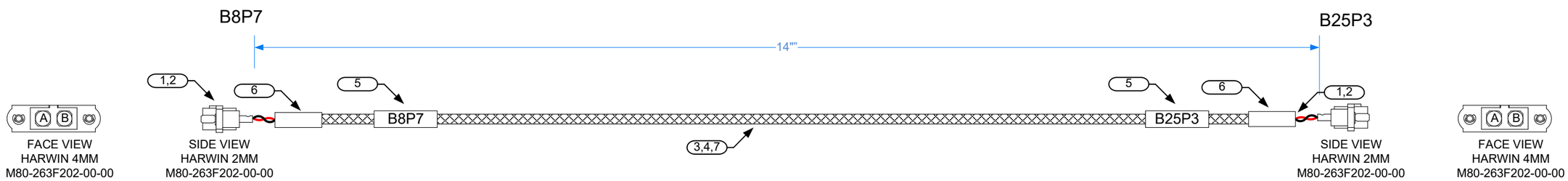
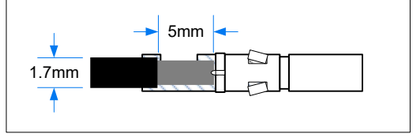


TABLE A1H4: PARTS LIST

ITEM #	Qty.	Mfg. Part Number	Vendor	DESCRIPTION
1	2	M80-263F202-00-00	HARWIN	20A 2 PIN DATAMATE POWER
2	4	M80-327	HARWIN	CONN SOCKET 16AWG CRIMP/SLD GOLD
3	TBD		HARWIN	16 AWG BLACK WIRE PTFE
4	TBD		HARWIN	16 AWG RED WIRE PTFE
5	2"	STOCK	STOCK	3/8" HEAT SHRINK LABEL
6	2"	STOCK	STOCK	1/2" ADHESIVE HEAT SHRINK
7	TBD	PTN0.25BK-200	Techflex	Techflex 1/4"Flexo PET General Purpose Sleeving

NOTE:
Power Contact (16AWG):
Z80-290 - Extraction tool
5x – Contact Replacement In Insulator



PI:	T. MCGINNIS
MANAGER:	-
ENGINEER:	K. ZACK
DRAWN BY:	K. ZACK
PRINT DATE:	6/12/2025

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UNIVERSITY OF WASHINGTON
1013 NE 40TH ST. SEATTLE, WA 98105

TITLE:
H51 IPS 1 CHA 375V Out IIB 1
MARS

PAGE CREATION:	SIZE:	CAGE CODE:	DWG NO:	REV
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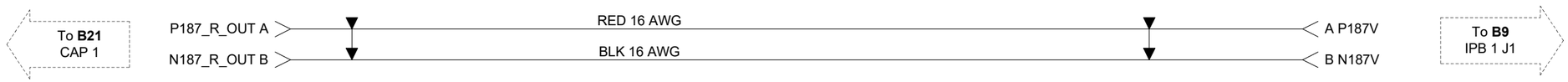
CAD FILE: MARS Harnessing V1.19.vsdx

SHEET 58 OF 64



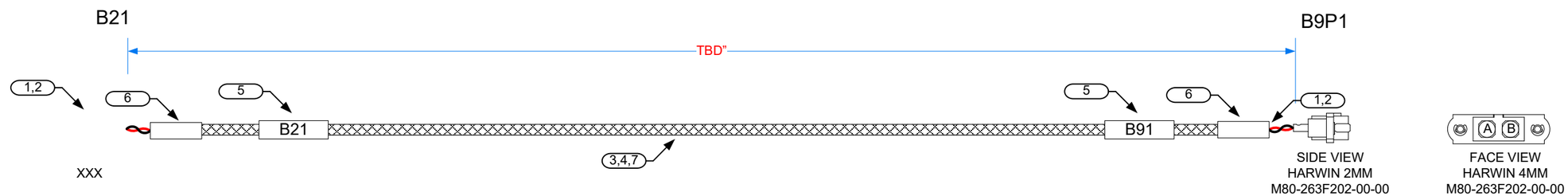


TABLE A1H4: PARTS LIST

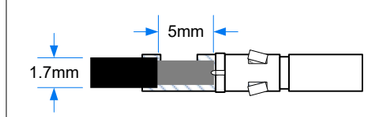
ITEM #	Qty.	Mfg. Part Number	Vendor	DESCRIPTION
1	2	M80-263F202-00-00	HARWIN	20A 2 PIN DATAMATE POWER
2	4	M80-327	HARWIN	CONN SOCKET 16AWG CRIMP/SLD GOLD
3	TBD		HARWIN	16 AWG BLACK WIRE PTFE
4	TBD		HARWIN	16 AWG RED WIRE PTFE
5	2"	STOCK	STOCK	3/8" HEAT SHRINK LABEL
6	2"	STOCK	STOCK	1/2" ADHESIVE HEAT SHRINK
7	TBD	PTN0.25BK-200	Techflex	Techflex 1/4"Flexo PET General Purpose Sleeving

NOTE:

Power Contact (16AWG):

Z80-290 - Extraction tool

5x – Contact Replacement In Insulator



PI:	T. MCGINNIS
MANAGER:	-
ENGINEER:	K. ZACK
DRAWN BY:	K. ZACK
PRINT DATE:	6/12/2025

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UNIVERSITY OF WASHINGTON
1013 NE 40TH ST. SEATTLE, WA 98105

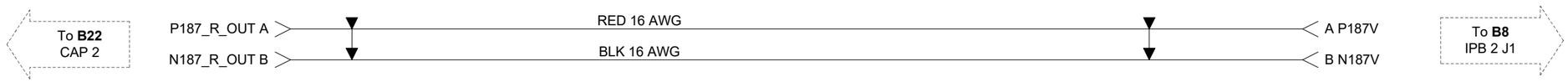
TITLE:

H59 CAP1 TO IPB1 375V
MARS

PAGE CREATION:	SIZE:	CAGE CODE:	DWG NO:	REV
12/14/2021	B	98514	86253	1.08

CAD FILE: MARS Harnessing V1.19.vsdx

SHEET 59 OF 64



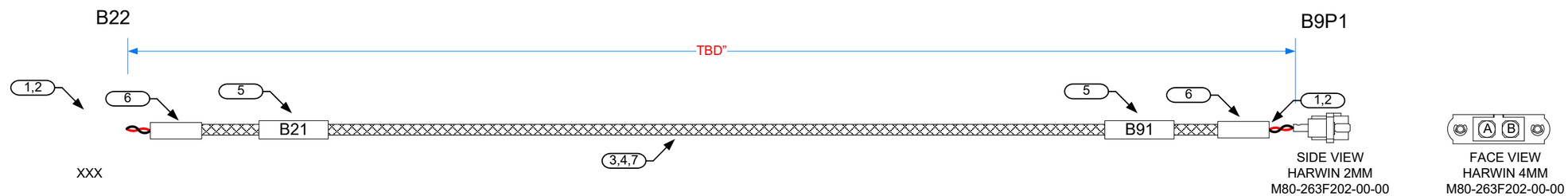


TABLE A1H4: PARTS LIST

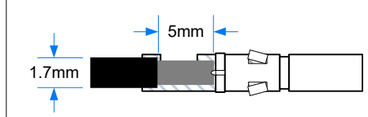
ITEM #	Qty.	Mfg. Part Number	Vendor	DESCRIPTION
1	2	M80-263F202-00-00	HARWIN	20A 2 PIN DATAMATE POWER
2	4	M80-327	HARWIN	CONN SOCKET 16AWG CRIMP/SLD GOLD
3	TBD		HARWIN	16 AWG BLACK WIRE PTFE
4	TBD		HARWIN	16 AWG RED WIRE PTFE
5	2"	STOCK	STOCK	3/8" HEAT SHRINK LABEL
6	2"	STOCK	STOCK	1/2" ADHESIVE HEAT SHRINK
7	TBD	PTN0.25BK-200	Techflex	Techflex 1/4"Flexo PET General Purpose Sleeving

NOTE:

Power Contact (16AWG):

Z80-290 - Extraction tool

5x – Contact Replacement In Insulator



PI:	T. MCGINNIS
MANAGER:	-
ENGINEER:	K. ZACK
DRAWN BY:	K. ZACK
PRINT DATE:	6/12/2025

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UNIVERSITY OF WASHINGTON
1013 NE 40TH ST. SEATTLE, WA 98105

TITLE:

H60 CAP2 TO IPB2 375V
MARS

PAGE CREATION:	SIZE:	CAGE CODE:	DWG NO:	REV
12/14/2021	B	98514	86253	1.08

CAD FILE: MARS Harnessing V1.19.vsdx

SHEET 60 OF 64

H61

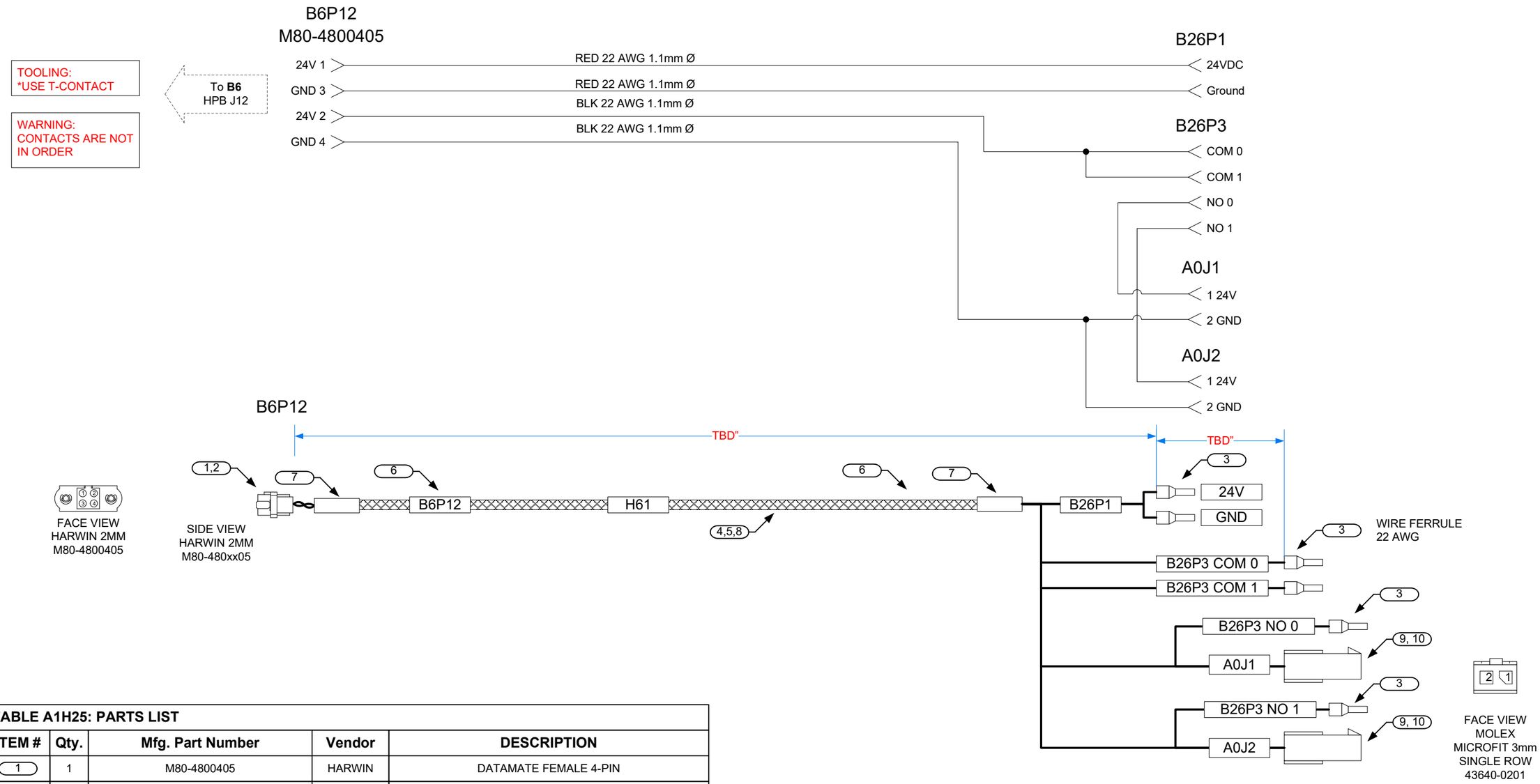
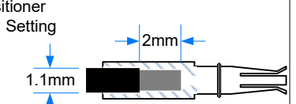


TABLE A1H25: PARTS LIST

ITEM #	Qty.	Mfg. Part Number	Vendor	DESCRIPTION
1	1	M80-4800405	HARWIN	DATAMATE FEMALE 4-PIN
2	2	M80-2060005	HARWIN	DATAMATE 22AWG FEMALE CRIMP T-CONTACT
3	6	FSD75-8-D	Panduit Corp	CONN FERRULE DIN 22AWG WHITE
4	TBD	2845/19 BK001	Alpha	22 AWG BLACK WIRE PTFE 1.07mm Ø
5	TBD	2845/19 RD001	Alpha	22 AWG RED WIRE PTFE 1.07mm Ø
6	2"	STOCK	STOCK	3/8" HEAT SHRINK LABEL
7	2"	STOCK	STOCK	1/4" ADHESIVE HEAT SHRINK
8	TBD	PTN0.13BK-200	Techflex	Techflex 1/8"Flexo PET General Purpose Sleeving
9	2	43640-200	MOLEX	MICROFIT 3mm SINGLE ROW 2 Position Jack
10	4	43031-0008	MOLEX	MICROFIT 3mm 15um GOLD Pin 20-24AWG

T-Contact:
M22520/2-01 - Hand Crimp Tool
Z80-444 – Positioner
6 – Crimp Tool Setting



PI:	T. MCGINNIS	APPLIED PHYSICS LABORATORY UNIVERSITY OF WASHINGTON 1013 NE 40TH ST. SEATTLE, WA 98105			
MANAGER:	-				
ENGINEER:	B. SALMI	TITLE: H61 FAN CONTROLLER AND FAN MARS			
DRAWN BY:	B. SALMI				
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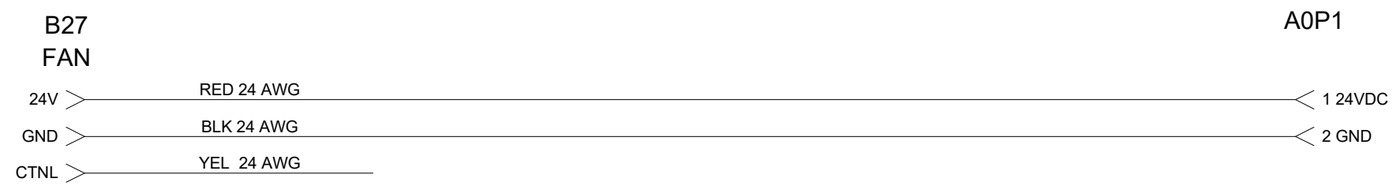

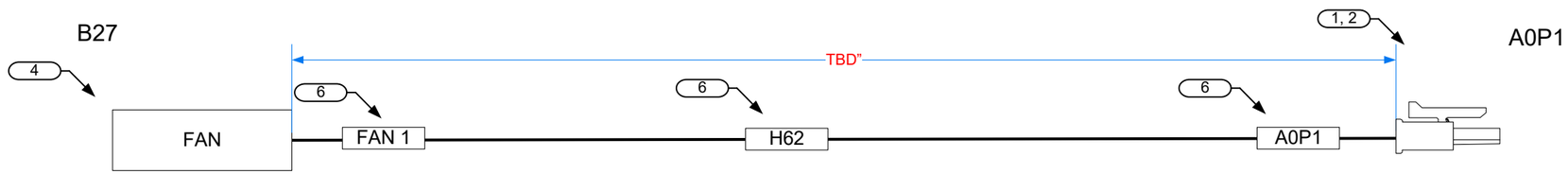

TABLE A1H25: PARTS LIST

ITEM #	Qty.	Mfg. Part Number	Vendor	DESCRIPTION
1	1	43645-0200	MOLEX	MICROFIT 3mm SINGLE ROW 2 Position Plug
2	2	43030-0008	MOLEX	MICROFIT 3mm 15um GOLD Socket 20-24AWG
3	1	9LG0824S4001	Sanyo Denki	HIGH RELIABILITY 24VDC FAN
4	TBD	2845/19 BK001	Alpha	22 AWG BLACK WIRE PTFE 1.07mm Ø
5	TBD	2845/19 RD001	Alpha	22 AWG RED WIRE PTFE 1.07mm Ø
6	2"	STOCK	STOCK	3/8" HEAT SHRINK LABEL
7				
8	TBD	PTN0.13BK-200	Techflex	Techflex 1/8"Flexo PET General Purpose Sleeving

PI:	T. MCGINNIS	APPLIED PHYSICS LABORATORY UNIVERSITY OF WASHINGTON 1013 NE 40TH ST. SEATTLE, WA 98105			
MANAGER:	-				
ENGINEER:	B. SALMI	TITLE: H62 FAN CONTROLLER AND FAN MARS			
DRAWN BY:	B. SALMI				
PRINT DATE:	6/12/2025				
PAGE CREATION: 12/14/2021		SIZE: B	CAGE CODE: 98514	DWG NO: 86253	REV 1.08
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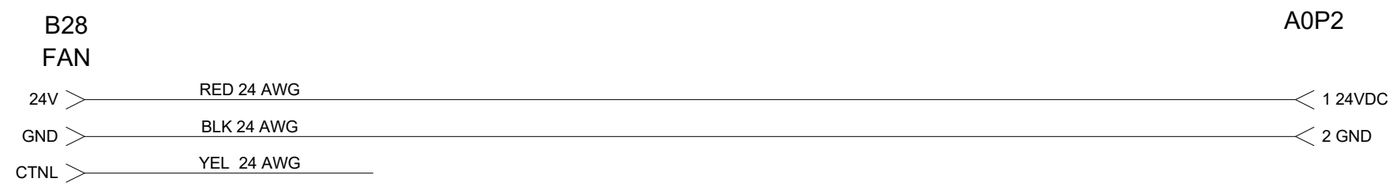

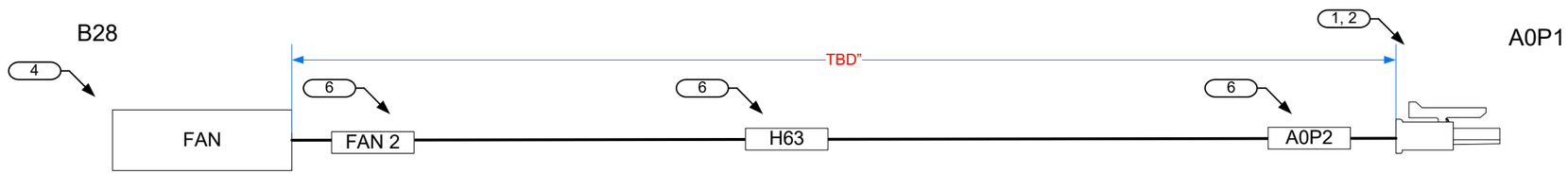

TABLE A1H25: PARTS LIST

ITEM #	Qty.	Mfg. Part Number	Vendor	DESCRIPTION
1	1	43645-0200	MOLEX	MICROFIT 3mm SINGLE ROW 2 Position Plug
2	2	43030-0008	MOLEX	MICROFIT 3mm 15um GOLD Socket 20-24AWG
3	1	9LG0824S4001	Sanyo Denki	HIGH RELIABILITY 24VDC FAN
4	TBD	2845/19 BK001	Alpha	22 AWG BLACK WIRE PTFE 1.07mm Ø
5	TBD	2845/19 RD001	Alpha	22 AWG RED WIRE PTFE 1.07mm Ø
6	2"	STOCK	STOCK	3/8" HEAT SHRINK LABEL
7				
8	TBD	PTN0.13BK-200	Techflex	Techflex 1/8"Flexo PET General Purpose Sleeving

PI:	T. MCGINNIS	APPLIED PHYSICS LABORATORY UNIVERSITY OF WASHINGTON 1013 NE 40TH ST. SEATTLE, WA 98105			
MANAGER:	-				
ENGINEER:	B. SALMI	TITLE:			
DRAWN BY:	B. SALMI	H62 FAN CONTROLLER AND FAN MARS			
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