Harness 1 - MPI 12V Power

OBC - J4 (MPI Power)					EPS - J10 VD3_OBC[0]	
Picoblade	4-pin	4x		200.0 mm	Microlock	4-pin
12V_MPI	1	OBC - J4 (MPI Power):1:12V_MPI	1:VT	EPS - J10 VD3_OBC[0]:4:VD3_OBC(0)	4	VD3_OBC(0)
12V_MPI	2	OBC - J4 (MPI Power):2:12V_MPI	2:BK	EPS - J10 VD3_OBC[0]:3:VD3_OBC(0)	3	VD3_OBC(0)
GND	3	OBC - J4 (MPI Power):3:GND	3:OG	EPS - J10 VD3_OBC[0]:2:GND	2	GND
GND	4	OBC - J4 (MPI Power):4:GND	4:YE	EPS - J10 VD3_OBC[0]:1:GND	1	GND
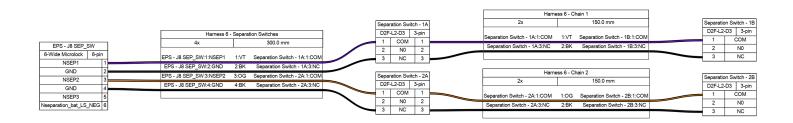
Harness 2 - Boom Burnwire Power

Burnwire PCB - J2					EPS - VD3_OBC[1]	
6-pin		5x		300.0 mm	8-pin	
VDC	1	Burnwire PCB - J2:1:VDC	1	EPS - VD3_OBC[1]:1:VD3_OBC(1)	1	VD3_OBC(1)
VDC	2	Burnwire PCB - J2:2:VDC	2	EPS - VD3_OBC[1]:2:VD3_OBC(1)	2	VD3_OBC(1)
VDC	3	Burnwire PCB - J2:4:GND	3	EPS - VD3_OBC[1]:3:GND	3	GND
GND	4	Burnwire PCB - J2:5:GND	4	EPS - VD3_OBC[1]:5:GND	4	GND
GND	5	Burnwire PCB - J2:6:GND	5	EPS - VD3_OBC[1]:7:GND	5	GND
GND	6				6	I2C_SCL
					7	GND
					8	I2C_SDA

Harness 3 - Boom Burn Wire to OBC

OBC - J8 (BW)					Burnwire PCB - J1	
Picoblade	4-pin	4x		300.0 mm	4-pin	
BOOM_CTRL_1	1	OBC - J8 (BW):1:BOOM_CTRL_1	1	Burnwire PCB - J1:3:BOOM_CTRL_1	1	GND
GND	2	OBC - J8 (BW):2:GND	2	Burnwire PCB - J1:1:GND	2	GND
BOOM_CTRL_2	3	OBC - J8 (BW):3:BOOM_CTRL_2	3	Burnwire PCB - J1:4:BOOM_CTRL_2	3	BOOM_CTRL_1
GND	4	OBC - J8 (BW):4:GND	4	Burnwire PCB - J1:2:GND	4	BOOM_CTRL_2

Harness 4 - COTS Solar Panel PWR

COTS Solar Panel PWR-1		
Picoblade	2-pin	
V+ (Solar Cell P junction)	1	
V- (GND)	2	

COTS Solar Panel PWR-2		
Picoblade	2-pin	
V+ (Solar Cell P junction)	1	
V- (GND)	2	

Harness 4 - COTS Solar Panel PWR			
4x			
COTS Solar Panel PWR-1:1:V+ (Solar Cell P junction)	1	EPS - J11_CH0, J11_CH1, J11_CH2, J303:2:SP+	
COTS Solar Panel PWR-1:2:V- (GND)	2	EPS - J11_CH0, J11_CH1, J11_CH2, J303:3:GND	
COTS Solar Panel PWR-2:1:V+ (Solar Cell P junction)	3	EPS - J11_CH0, J11_CH1, J11_CH2, J303:6:SP+	
COTS Solar Panel PWR-2:2:V- (GND)	4	EPS - J11_CH0, J11_CH1, J11_CH2, J303:7:GND	

EPS - J11_CH0, J11_CH1, J11_CH2, J303	
Picolock	8-pin
1	SP+
2	SP+
3	GND
4	GND
5	SP+
6	SP+
7	GND
8	GND

Harness 5 - EPS to PBP

EPS - J2 (Battery)	
Microlock	15-pin
HEATERS_ON	1
VBAT_NEG	2
TH_R_BATT(1)	3
TH_R_BATT(0)	4
VBAT_NEG	5
VBAT_NEG	6
VBAT_POS	7
VBAT_POS	8
VBAT_POS	9
VBAT_POS	10
VBAT_NEG	11
VBAT_NEG	12
VBAT_NEG	13
VBAT_NEG	14
NC	15

Harness 5 - EPS to PBP			
15x			
EPS - J2 (Battery):1:HEATERS_ON	1:VT	EPS - PBP - Connector 1:1	
EPS - J2 (Battery):2:VBAT_NEG	2:BK	EPS - PBP - Connector 1:2	
EPS - J2 (Battery):3:TH_R_BATT(1)	3:OG	EPS - PBP - Connector 1:3	
EPS - J2 (Battery):4:TH_R_BATT(0)	4:YE	EPS - PBP - Connector 1:4	
EPS - J2 (Battery):5:VBAT_NEG	5:GN	EPS - PBP - Connector 1:5	
EPS - J2 (Battery):6:VBAT_NEG	6:BU	EPS - PBP - Connector 1:6	
EPS - J2 (Battery):7:VBAT_POS	7:RD	EPS - PBP - Connector 1:7	
EPS - J2 (Battery):8:VBAT_POS	8:PK	EPS - PBP - Connector 1:8	
EPS - J2 (Battery):9:VBAT_POS	9:TQ	EPS - PBP - Connector 2:1	
EPS - J2 (Battery):10:VBAT_POS	10:RD	EPS - PBP - Connector 2:2	
EPS - J2 (Battery):11:VBAT_NEG	11:BU	EPS - PBP - Connector 2:3	
EPS - J2 (Battery):12:VBAT_NEG	12:BG	EPS - PBP - Connector 2:4	
EPS - J2 (Battery):13:VBAT_NEG	13:SR	EPS - PBP - Connector 2:5	
EPS - J2 (Battery):14:VBAT_NEG	14:IV	EPS - PBP - Connector 2:6	
EPS - J2 (Battery):15:NC	15:OL	EPS - PBP - Connector 2:7	

EPS - PBP - Connector 1	
Picolock	8-pin
1	
2	
3	
4	
5	
6	
7	
8	

EPS - PBP - Connector 2	
Picolock	7-pin
1	
2	
3	
4	
5	
6	
7	

Harness 6

EPS - J8 SEP_SW		
6-Wide Microlock	6-pin	
NSEP1	1	
GND	2	
NSEP2	3	
GND	4	
NSEP3	5	
Nseparation_bat_LS_NEG	6	

Harness 6 - Separation Switches		
4x		300.0 mm
EPS - J8 SEP_SW:1:NSEP1	1:VT	Separation Switch - 1A:1:COM
EPS - J8 SEP_SW:2:GND	2:BK	Separation Switch - 1A:3:NC
EPS - J8 SEP_SW:3:NSEP2	3:OG	Separation Switch - 2A:1:COM
EPS - J8 SEP_SW:4:GND	4:BK	Separation Switch - 2A:3:NC

Separation Switch - 1A		
D2F-L2-D3	3-pin	
1	COM	1
2	N0	2
3	NC	3

Separation Switch - 2A		
D2F-L2-D3	3-pin	
1	COM	1
2	N0	2
3	NC	3

Harness 6 - Chain 1		
2x		150.0 mm
Separation Switch - 1A:1:COM	1:VT	Separation Switch - 1B:1:COM
Separation Switch - 1A:3:NC	2:BK	Separation Switch - 1B:3:NC

Harness 6 - Chain 2		
2x		150.0 mm
Separation Switch - 2A:1:COM	1:OG	Separation Switch - 2B:1:COM
Separation Switch - 2A:3:NC	2:BK	Separation Switch - 2B:3:NC

Separation Switch - 1B		
D2F-L2-D3	3-pin	
1	COM	
2	N0	
3	NC	

Separation Switch - 2B		
D2F-L2-D3	3-pin	
1	COM	
2	N0	
3	NC	

Harness 7 - GNSS Connector

OBC - J3 (GPS)			Harness 7 - GNSS Connector				GNSS via DMC3 P1	
Picoblade	8-pin		8x				Picoblade	8-pin
NC	1		OBC - J3 (GPS):1:NC	1	GNSS via DMC3 P1:1:NC		1	NC
NC	2		OBC - J3 (GPS):2:NC	2	GNSS via DMC3 P1:2:NC		2	NC
MOSI_USART3_TX	3		OBC - J3 (GPS):3:MOSI_USART3_TX	3	GNSS via DMC3 P1:4:UART1 TX (MOSI)		3	UART1 RX (MISO)
MISO_USART3_RX	4		OBC - J3 (GPS):4:MISO_USART3_RX	4	GNSS via DMC3 P1:3:UART1 RX (MISO)		4	UART1 TX (MOSI)
NC	5		OBC - J3 (GPS):5:NC	5	GNSS via DMC3 P1:5:AUX 1		5	AUX 1
NC	6		OBC - J3 (GPS):6:NC	6	GNSS via DMC3 P1:6:AUX 2		6	AUX 2
GPS_PPS	7		OBC - J3 (GPS):7:GPS_PPS	7	GNSS via DMC3 P1:7:AUX 3 (PPS)		7	AUX 3 (PPS)
NC	8		OBC - J3 (GPS):8:NC	8	GNSS via DMC3 P1:8:AUX 4		8	AUX 4

Harness 8 - MPI Connector
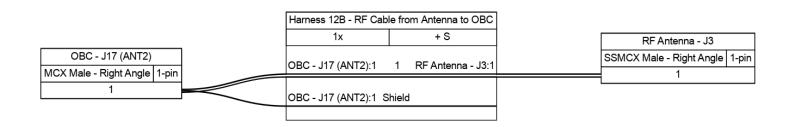
OBC - J10 (MPI)			Harness 8 - MPI Connector				MPI Connector	
Picoblade	10-pin		9x				2.54mm Header	10-pin
12V_MPI	1		OBC - J10 (MPI):1:12V_MPI	1:VT	MPI Connector:10:12V_MPI		10	12V_MPI
12V_MPI	2		OBC - J10 (MPI):2:12V_MPI	2:BK	MPI Connector:9:12V_MPI		9	12V_MPI
GND	3		OBC - J10 (MPI):3:GND	3:OG	MPI Connector:8:GND		8	GND
5V	4		OBC - J10 (MPI):4:5V	4:YE	MPI Connector:7:5V		7	5V
GND	5		OBC - J10 (MPI):5:GND	5:GN	MPI Connector:6:GND		6	GND
MOSI_TX_P	6		OBC - J10 (MPI):6:MOSI_TX_P	6:BU	MPI Connector:3:RI		5	DO
MOSI_TX_N	7		OBC - J10 (MPI):7:MOSI_TX_N	7:RD	MPI Connector:2:RI*		4	DO*
MISO_RX_P	8		OBC - J10 (MPI):8:MISO_RX_P	8:PK	MPI Connector:5:DO		3	RI
MISO_RX_N	9		OBC - J10 (MPI):9:MISO_RX_N	9:TQ	MPI Connector:4:DO*		2	RI*
NC	10						1	NC
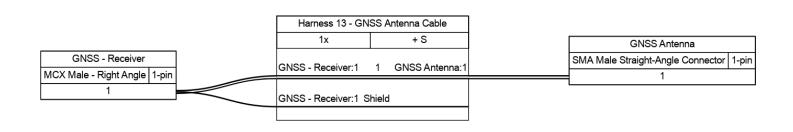
Harness 9 - Camera Connector

OBC - J7 (Camera)			Harness 9 - Camera Connector				Camera	
Picoblade	6-pin		6x	250.0 mm			Picoblade	6-pin
3V3_CAM	1		OBC - J7 (Camera):1:3V3_CAM	1:VT	Camera:1:VDD		1	VDD
CAM_EN	2		OBC - J7 (Camera):2:CAM_EN	2:BK	Camera:2:ON		2	ON
MOSI_UART4_TX	3		OBC - J7 (Camera):3:MOSI_UART4_TX	3:OG	Camera:3:RXD		3	RXD
MISO_UART4_RX	4		OBC - J7 (Camera):4:MISO_UART4_RX	4:YE	Camera:4:TXD		4	TXD
NC	5		OBC - J7 (Camera):5:NC	5:GN	Camera:5:FLASH		5	FLASH
GND	6		OBC - J7 (Camera):6:GND	6:BU	Camera:6:GND		6	GND

Harness 10 - Antenna Deployment Connector

OBC - J13 (Antenna)			Harness 10 - Antenna Deployment Connector			UHF Antenna	
Picoblade	10-pin		9x	250.0 mm		Omnetics A28000-009	9-pin
3V3_ANT_DEPLOY	1		OBC - J13 (Antenna):1:3V3_ANT_DEPLOY	1:VT	UHF Antenna:1:VCC	1	VCC
12C2_SDA	2		OBC - J13 (Antenna):2:12C2_SDA	2:BK	UHF Antenna:2:SDA_A	2	SDA_A
GND	3		OBC - J13 (Antenna):3:GND	3:OG	UHF Antenna:3:GND	3	GND
12C3_SDA	4		OBC - J13 (Antenna):4:12C3_SDA	4:YE	UHF Antenna:4:SDA_B	4	SDA_B
GND	5		OBC - J13 (Antenna):5:GND	5:GN	UHF Antenna:5:GND	5	GND
3V3_ANT_DEPLOY	6		OBC - J13 (Antenna):6:3V3_ANT_DEPLOY	6:BU	UHF Antenna:6:VCC	6	VCC
12C2_SCL	7		OBC - J13 (Antenna):7:12C2_SCL	7:RD	UHF Antenna:7:SCL_A	7	SCL_A
12C3_SCL	8		OBC - J13 (Antenna):8:12C3_SCL	8:PK	UHF Antenna:8:SCL_B	8	SCL_B
GND	9		OBC - J13 (Antenna):9:GND	9:TQ	UHF Antenna:9:GND	9	GND
NC	10						

Harness 11 - RF Cable from AX100 to OBC

OBC - J18 (COMS)		Harness 11 - RF Cable from AX100 to OBC				AX100 - J4	
MCX Male - Right Angle	1-pin	RG-316	1x	+ S	150.0 mm	MCX Male - Right Angle	1-pin
1		OBC - J18 (COMS):1 1 AX100 - J4:1				1	
		OBC - J18 (COMS):1 Shield					

Harness 12A - RF Cable from Antenna to OBC

OBC - J20 (ANT1)		Harness 12A - RF Cable from Antenna to OBC		RF Antenna - J2	
MCX Male - Right Angle	1-pin	1x	+ S	SSMCX Male - Right Angle	1-pin
1		OBC - J20 (ANT1):1 1 RF Antenna - J2:1		1	
		OBC - J20 (ANT1):1 Shield			

Harness 12B - RF Cable from Antenna to OBC

OBC - J17 (ANT2)		
MCX Male - Right Angle	1-pin	
1		

Harness 12B - RF Cable from Antenna to OBC	
1x	+ S
OBC - J17 (ANT2):1 1 RF Antenna - J3:1	
OBC - J17 (ANT2):1 Shield	

RF Antenna - J3	
SSMCX Male - Right Angle	1-pin
1	

Harness 13 - GNSS Antenna Cable

GNSS - Receiver		
MCX Male - Right Angle	1-pin	
1		

Harness 13 - GNSS Antenna Cable	
1x	+ S
GNSS - Receiver:1 1 GNSS Antenna:1	
GNSS - Receiver:1 Shield	

GNSS Antenna	
SMA Male Straight-Angle Connector	1-pin
1	

Harness 14 - Solar Panel RBF

OBC - J15 (RBF)	
4-pin	
RBF_1	1
DEBUG_LED	2
GND	3
GND	4

Harness 14 - Solar Panel RBF		
4x		
OBC - J15 (RBF):1:RBF_1	1:VT	1U In-House Solar Panel - LED/RBF Connector:1:COM_RBF_1
OBC - J15 (RBF):2:DEBUG_LED	2:OG	1U In-House Solar Panel - LED/RBF Connector:3:LED_1_POSITIVE
OBC - J15 (RBF):3:GND	3:BK	1U In-House Solar Panel - LED/RBF Connector:2:NO_RBF_1
OBC - J15 (RBF):4:GND	4:BK	1U In-House Solar Panel - LED/RBF Connector:4:LED_1_NEGATIVE

1U In-House Solar Panel - LED/RBF Connector	
4-pin	
1	COM_RBF_1
2	NO_RBF_1
3	LED_1_POSITIVE
4	LED_1_NEGATIVE

EPS - J9 (Umbilical 2)

Microlock	15-pin
RAIL_PWR	1
RAIL_PWR	2
RAIL_PWR	3
RAIL_PWR	4
GND	5
GND	6
GND	7
GND	8
UART_RX_H2_21	9
UART_TX_H2_22	10
I2C_EXT_SCL	11
I2C_EXT_SDA	12
GND	13
UART_TX_3V3_OUT1	14
UART_RX_3V3_IN1	15

Harness 15 - EPS UART to OBC

4x

EPS - J9 (Umbilical 2):14:UART_TX_3V3_OUT1	1:VT	OBC - J14:1:MISO_UART5_RX
EPS - J9 (Umbilical 2):15:UART_RX_3V3_IN1	2:OG	OBC - J14:2:MOSI_UART5_TX
EPS - J9 (Umbilical 2):7:GND	3:BK	OBC - J14:3:GND
EPS - J9 (Umbilical 2):8:GND	4:BK	OBC - J14:4:GND

OBC - J14

Picoblade	4-pin
1	MISO_UART5_RX
2	MOSI_UART5_TX
3	GND
4	GND

EPS - J10 (Umbilical 1)

Microlock	14-pin
GND	1
N_ABF_PLACED_0	2
N_SEPARATION_1	3
N_BAT_ENA_HS	4
N_SEPARATION_2	5
N_SAT_ENA_HS	6
N_SEPARATION_3	7
BAT_ENA_LS_POS	8
BAT_ENA_LS_RBF	9
BAT_ENA_LS_NEG	10
GND	11
GND	12
N_ABF_PLACED_1	13
GND	14

Harness 16 - ABF Connector (Loopback/Pigtail)

5x

EPS - J10 (Umbilical 1):1:GND	1:RD
EPS - J10 (Umbilical 1):3:N_SEPARATION_1	2:BK
EPS - J10 (Umbilical 1):5:N_SEPARATION_2	3:VT
EPS - J10 (Umbilical 1):7:N_SEPARATION_3	4:OG
EPS - J10 (Umbilical 1):13:N_ABF_PLACED_1	5:BK

Harness 17 - OBC to AX100/DMC3

2x

OBC - J9 ("UART"):1:MOSI_TX	1	AX100 via DMC3 P2:1:MOSI_RX
OBC - J9 ("UART"):2:MISO_RX	2	AX100 via DMC3 P2:2:MISO_TX

OBC - J9 ("UART")

4-pin	
MOSI_TX	1
MISO_RX	2
GND	3
GND	4

AX100 via DMC3 P2

8-pin	
1	MOSI_RX
2	MISO_TX
3	NC
4	NC
5	NC
6	NC
7	NC
8	NC

OBC - J12 / Harness 51 - Umbilical / USB-to-UART

OBC - J12		
Picoblade	10-pin	
V_BAT		1
GND		2
MISO_LPUART1_RX		3
MOSI_LPUART_TX		4
GND		5
3V3		6
5V		7
GND		8
GND		9
GND		10

Harness 51 - Umbilical		
5x		
OBC - J12:3:MISO_LPUART1_RX	1	USB-to-UART:1:MOSI_TX
OBC - J12:4:MOSI_LPUART_TX	2	USB-to-UART:2:MISO_RX
OBC - J12:5:GND	3	USB-to-UART:3:GND
OBC - J12:6:3V3	4	USB-to-UART:4:5V
OBC - J12:7:5V	5	USB-to-UART:5:3V3

USB-to-UART		
5-pin		
1	MOSI_TX	
2	MISO_RX	
3	GND	
4	5V	
5	3V3	

OBC - J11 / Harness 52 - Programmer Connector / ST-LINK

OBC - J11		
Picoblade	6-pin	
3V		1
SWCLK		2
GND		3
SWDIO		4
NRST		5
SWO		6

Harness 52 - Programmer Connector		
6x		
OBC - J11:1:3V	1	ST-LINK:7:3V3
OBC - J11:2:SWCLK	2	ST-LINK:2:SWCLK
OBC - J11:3:GND	3	ST-LINK:5:GND
OBC - J11:4:SWDIO	4	ST-LINK:4:SWDIO
OBC - J11:5:NRST	5	ST-LINK:1:RST
	6	

ST-LINK		
2.54mm Header	10-pin	
1	RST	
2	SWCLK	
3	SWIM	
4	SWDIO	
5	GND	
6	GND	
7	3V3	
8	5V	
9	5V	
10		

EPS - J9 (Umbilical 2) / Harness 53 - Umbilical Power Injection to EPS / Bench Power Supply / OBC - J14

EPS - J9 (Umbilical 2)		
16-pin		
RAIL_PWR		1
RAIL_PWR		2
RAIL_PWR		3
RAIL_PWR		4
GND		5
GND		6
GND		7
GND		8
UART_RX_H2_21		9
UART_TX_H2_22		10
I2C_EXT_SCL		11
I2C_EXT_SDA		12
GND		13
UART_TX_3V3_OUT1		14
UART_TX_3V3_OUT1		15
UART_RX_3V3_IN1		16

Harness 53 - Umbilical Power Injection to EPS			
6x			
EPS - J9 (Umbilical 2):1:RAIL_PWR	1:RD	Bench Power Supply:1:POSTIVE (+)	
EPS - J9 (Umbilical 2):5:GND	2:BK	Bench Power Supply:2:GND (-)	
EPS - J9 (Umbilical 2):14:UART_TX_3V3_OUT1	3:VT	OBC - J14:1:MISO_UART5_RX	
EPS - J9 (Umbilical 2):15:UART_TX_3V3_OUT1	4:OG	OBC - J14:2:MOSI_UART5_TX	
EPS - J9 (Umbilical 2):7:GND	5:BK	OBC - J14:3:GND	
EPS - J9 (Umbilical 2):8:GND	6:BK	OBC - J14:4:GND	

Bench Power Supply		
3-pin		
1	POSTIVE (+)	
2	GND (-)	
3	COM	

OBC - J14		
Picoblade	4-pin	
1	MISO_UART5_RX	
2	MOSI_UART5_TX	
3	GND	
4	GND	

Harness 54 - EPS Separation Switch Cable

Separation Switches		Harness 54		EPS - J8	
3-pin		4x		6-Wide Microlock	6-pin
COM	1	Separation Switches:3:NC → 1 → EPS - J8:1:NSEP1		1	NSEP1
2		Separation Switches:1:COM → 2 → EPS - J8:2:GND		2	GND
NC	3	3		3	NSEP2
		4		4	GND
				5	NSEP3
				6	Nseparation_bat_LS_NEG

Harness 55 - EPS Solar Panel Charging Cable with 10 Ohm Resistor

EPS - J11_CH0, J11_CH1, J11_CH2, J303		Harness 55		Bench Power Supply	
Picolock	8-pin	2x		3-pin	
SP+	1	EPS - J11_CH0, J11_CH1, J11_CH2, J303:1:SP+ → 1 → Bench Power Supply:1:POSTIVE (+)		1	POSTIVE (+)
SP+	2	EPS - J11_CH0, J11_CH1, J11_CH2, J303:3:GND → 2 → Bench Power Supply:2:GND (-)		2	GND (-)
GND	3			3	COM
GND	4				
SP+	5				
SP+	6				
GND	7				
GND	8				

Harness 56 - New Programmer Connector

OBC - J11		Harness 56		ST-LINK	
Picoblade	6-pin	6x		2.54mm Header	10-pin
3V	1	OBC - J11:1:3V → 1 → ST-LINK:7:3V3		1	RST
SWCLK	2	OBC - J11:2:SWCLK → 2 → ST-LINK:2:SWCLK		2	SWCLK
GND	3	OBC - J11:3:GND → 3 → ST-LINK:5:GND		3	SWIM
SWDIO	4	OBC - J11:4:SWDIO → 4 → ST-LINK:4:SWDIO		4	SWDIO
NRST	5	OBC - J11:5:NRST → 5 → ST-LINK:1:RST		5	GND
SWO	6	6		6	GND
				7	3V3
				8	5V
				9	5V
				10	