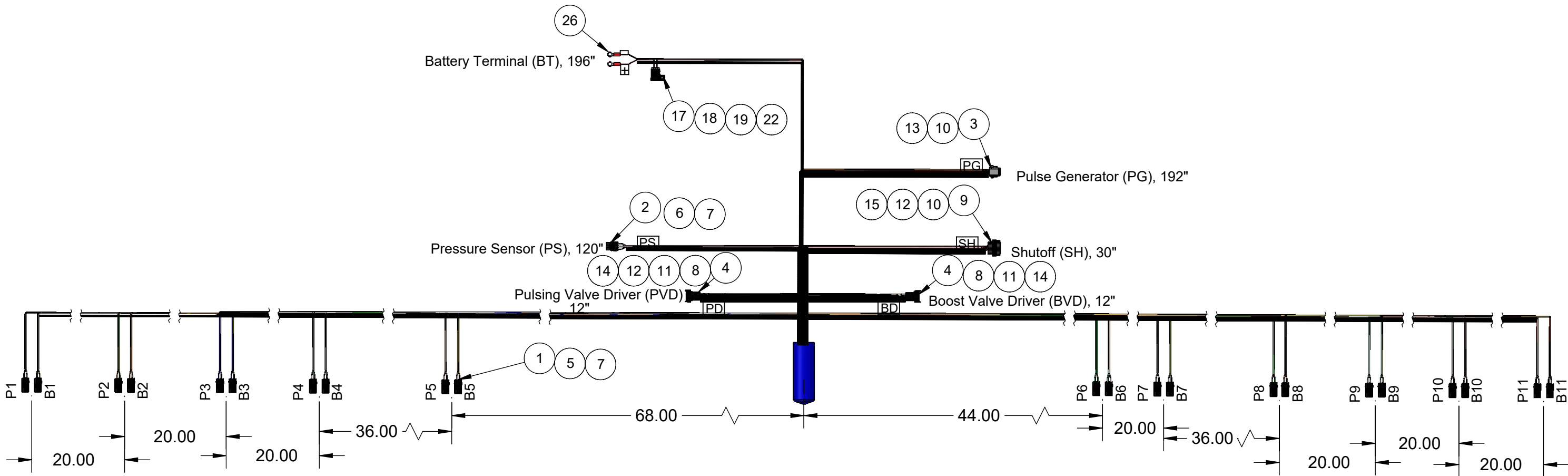


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REV	DESCRIPTION	DATE	BY
1	Preliminary Release	3/11/13	BLS



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DIMENSIONS ARE IN INCHES		<table><tr><td></td><td>Name</td><td>Date</td></tr><tr><td>Drawn</td><td>BLS</td><td>3/11/13</td></tr><tr><td>Checked</td><td></td><td></td></tr><tr><td>QA APP</td><td></td><td></td></tr></table>			Name	Date	Drawn	BLS	3/11/13	Checked			QA APP			<table><tr><td colspan="2">TITLE:</td></tr><tr><td colspan="2">Power Hub</td></tr><tr><td colspan="2">Turf, 11 Nozzle</td></tr><tr><td colspan="2">Toro</td></tr></table>		TITLE:		Power Hub		Turf, 11 Nozzle		Toro	
	Name			Date																					
Drawn	BLS			3/11/13																					
Checked																									
QA APP																									
TITLE:																									
Power Hub																									
Turf, 11 Nozzle																									
Toro																									
TOLERANCES:																									
FRACTIONAL ±																									
ANGULAR: MACH ± BEND ±																									
TWO PLACE DECIMAL ±																									
THREE PLACE DECIMAL ±																									
INTERPRET GEOMETRIC TOLERANCING PER:																									
MATERIAL		SIZE		DWG No:																					
FINISH		B		118600-105																					
				REV																					
				1																					
DO NOT SCALE DRAWING		SCALE: None		SHEET 1 of 7																					

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REV	DESCRIPTION	DATE	BY
1	Preliminary Release	3/11/13	BLS

58	708000-183	Wire, 18 Ga. Pink, GXL	342
57	708000-177/3	Wire, 18 Ga. Black/Orange, GXL	342
56	708000-186	Wire, 18 Ga. Orange, GXL	224
55	708000-185	Wire, 18 Ga. Violet, GXL	236
54	708000-184	Wire, 18 Ga. Gray, GXL	332
53	708000-182	Wire, 18 Ga. Yellow, GXL	236
52	708000-179/9	Wire, 18 Ga. BrownWhite, GXL	178
51	708000-179	Wire, 18 Ga. Brown, GXL	350
50	708000-178/9	Wire, 18 Ga. Blue/White, GXL	130
49	708000-178	Wire, 18 Ga. Blue, GXL	310
48	708000-177/9	Wire, 18 Ga. Black/White, GXL	270
47	708000-177	Wire, 18 Ga. Black, GXL	662
46	708000-176/9	Wire, 18 Ga. Red/White, GXL	312
45	708000-176	Wire, 18 Ga. Red, GXL	192
44	708000-175/6	Wire, 18 Ga. White/ Blue, GXL	342
43	708000-175/3	Wire, 18 Ga. White/Orange, GXL	484
42	708000-175/1	Wire, 18 Ga. White, Brown, GXL	262
41	708000-175/0	Wire, 18 Ga. White/Black, GXL	302
40	708000-175	Wire, 18 Ga. White, GXL	766
39	708000-174/9	Wire, 18 Ga. Green/White, GXL	216
38	708000-174/3	Wire, 18 Ga. Green/Orange, GXL	746
37	708000-174	Wire, 18 Ga. Green, GXL	604
36	708000-157	Wire, 14 Ga. Red, GXL	54

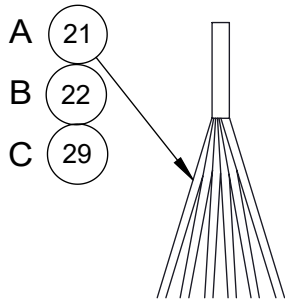
Item	Part Number	Description	Qty
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34	708000-150	Wire, 14 Ga. Black, GXL	68
33	708000-147	Wire, 12 Ga. Black, GXL	196
32	708000-146	Wire, 12 Ga. Red GXL	196
31	708000-165	Tube, Shrink, 1/2 x 1.25	1
30	708000-197	Sleeving, Split, 3/4" Black	68
29	708000-191	Sleeving, Exp, 1/2, Black	394
28	708000-196	Sleeving, Split, 1/2, Black	200
27	708000-190	Sleeving, Exp, 1/4, Black	160
26	715005-148	Terminal, Ring, 10-12 Ga. 3/8	2
25	708000-202	Tube, Shrink, 1/8 x 6	5
24	708000-162	Tube, Shrink, 1/4 x 1.25	3
23	708000-160	Tube, Shrink, 3/8 x 1.25	17
22	705725-134	Fuse, 10 Amp, Red	1
21	704005-148	Diode, 1A	33
20	715040-176	Tie, Cable, 8" Black	12
19	705726-136	Cap, Fuse Holder	1
18	705726-138	Terminal, Fuse	2
17	705726-140	Fuse Holder	1
16	716008-108	Tube, Dark Blue, 2.25 x 5	1
15	706530-324	Connector, Plug, 23 Pin, 14-18 Ga.	1
14	706530-317	Wedge, Receptical, 8 Pin, 14-18 Ga.	2
13	706530-318	Wedge, Plug, 8 Pin, 14-18 Ga.	1
12	706530-346	Plug, Cavity, 16-18 Ga.	11
11	706530-335	Terminal, Male, 16-18 Ga.	11
10	706530-336	Terminal, Female, 16-18 Ga.	19
9	706530-334	Terminal, Female, 14-16 Ga.	2
8	706530-333	Terminal, Male, 14-16 Ga.	4
7	706500-001	Seal, Cable, Green, 16-18 Ga.	47
6	706530-206	Terminal, Female, 18-20 Ga.	3
5	706530-205	Terminal, Male, 18-20 Ga.	44
4	706530-307	Connector Receptical, 8 Pin, 14-18 Ga	2
3	706530-308	Connector Plug, 8 pin, 14-18 Ga.	1
2	706500-503	Tower, 3 Pin	1
1	706510-502	Shroud, 2 Pin	22

Item	Part Number	Description			Qty
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REV	DESCRIPTION	DATE	BY
1	Preliminary Release	3/11/13	BLS



Wire Splice Procedure

1. Strip 1-1/2"
2. Twist Together
3. Dip Into Flux
4. Dip Into Solder Pot
5. Trim to 1"
6. Shrink Tube

**Wire Splice Detail
9 Splices by Color**

B & C - R/H Junction Splice (14)

(Wires w/o Length are Existing Wires)

- R/H Junct. 1, Black
 R/H Junct. 2, Brown
 R/H Junct. 3, Blue
 R/H Junct. 4, Black/White
 R/H Junct. 5, Brown/White
 R/H Junct. 6, Blue/White
 R/H Junct. 7, White/Black
 R/H Junct. 8, White/Brown
 R/H Junct. 9, White/Blue
 R/H Junct. 10, Pink
 R/H Junct. 11, Black/Orange
 PG-6, Violet, 18ga, 192"
 PVD-6, Violet, 18ga, 12"
 BVD-6, Violet, 18ga, 12"

B - Even PWM Signal Splice (3)

- PG-4, Yellow, 18ga, 192"
 PVD-4, Yellow, 18ga, 12"
 BVD-4, Yellow, 18ga, 12"

A - Battery Ground Splice (6)

- BT-, Black, 12ga, 196"
 PG-2, Black, 18ga, 192"
 PVD-2, Black, 14ga, 12"
 BVD-2, Black, 14ga, 12"
 SH-A, Black, 14ga, 30"
 PS-C, Black, 18ga, 120"

A - Even PWM Ground for PVD Splice (6)

- P2-B, Green, 18ga, 156"
 P4-B, Green, 18ga, 116"
 P10-B, Green, 18ga, 152"
 P6-B, Green, 18ga, 56"
 P8-B, Green, 18ga, 112"
 PVD-7, Green, 18ga, 12"

A - Odd PWM Ground for PVD Splice (7)

- P1-B, White, 18ga, 176"
 P3-B, White, 18ga, 136"
 P11-B, White, 18ga, 172"
 P5-B, White, 18ga, 80"
 P7-B, White, 18ga, 76"
 P9-B, White, 18ga, 132"
 PVD-8, White, 18ga, 12"

B - Odd PWM Signal Splice (3)

- PG-5, Green/White, 18ga, 192"
 PVD-5, Green/White, 18ga, 12"
 BVD-5, Green/White, 18ga, 12"

A - Battery Power Splice (5)

- BT+, Red, 12ga, 196"
 PG-1, Red, 18ga, 192"
 PVD-1, Red, 14ga, 12"
 BVD-1, Red, 14ga, 12"
 SH-X, Red, 14ga, 30"

A - Odd PWM Ground for BVD Splice (6)

- B2-B, White/Orange, 18ga, 156"
 B4-B, White/Orange, 18ga, 116"
 B10-B, White/Orange, 18ga, 152"
 B6-B, White/Orange, 18ga, 56"
 B8-B, White/Orange, 18ga, 112"
 BVD-8, White/Orange, 18ga, 12"

A - Even PWM Ground for BVD Splice (7)

- B1-B, Green/Orange, 18ga, 176"
 B3-B, Green/Orange, 18ga, 136"
 B11-B, Green/Orange, 18ga, 172"
 B5-B, Green/Orange, 18ga, 80"
 B7-B, Green/Orange, 18ga, 76"
 B9-B, Green/Orange, 18ga, 132"
 BVD-7, Green/Orange, 18ga, 12"

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DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ± ANGULAR: MACH ± BEND ± TWO PLACE DECIMAL ± THREE PLACE DECIMAL ± INTERPRET GEOMETRIC TOLERANCING PER:		Name BLS	Date 3/11/13
MATERIAL		Checked	
FINISH		QA APP	
DO NOT SCALE DRAWING		TITLE: Power Hub Turf, 11 Nozzle Toro	
		SIZE B	DWG No: 118600-105
		SCALE: None	REV 1
		SHEET 3 of 7	

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REV	DESCRIPTION	DATE	BY
1	Preliminary Release	3/11/13	BLS

Connector Termination Detail

BT - Battery Terminations

BT+, Red, 12ga.
BT-, Black, 12ga.

PG - Pulse Generator

1 - Power, Red, 18ga.
2 - Ground, Black, 18ga.
3 - PSI Signal, Gray, 18ga.
4 - Even PWM Signal, Yellow, 18ga.
5 - Odd PWM Signal, Green/White, 18ga.
6 - R/H, Violet, 18ga.
7 - Sensor Power, Red/White, 18ga.
8 - Boost Switch, Orange, 18ga.

PS - Pressure Sensor

A - PSI Signal, Gray, 18ga.
B - Sensor Power, Red/White, 18ga.
C - Sensor Ground, Black, 18ga.

SH - Shutoff Input

A - Battery Ground, Black, 14ga.
B - Boom #1, Black, 18ga.
C - Boom #2, Brown, 18ga.
D - Boom #3, Blue, 18ga.
E - Boom #4, Black/White, 18ga.
F - Boom #5, Brown/White, 18ga.
G - Boom #6, Blue/White, 18ga.
H - Boom #7, White/Black, 18ga.
J - Boom #8, White/Brown, 18ga.
K - Boom #9, White/Blue, 18ga.
L - Boom #10, Pink, 18ga.
M - Boom #11, Black/Orange 18ga.
X - Battery Power, Red, 14ga.

PVD - Pulsing Valve Driver

1 - Power, Red, 14ga.
2 - Ground, Black, 14ga.
3 - Plug
4 - Even PWM Signal, Yellow, 18ga.
5 - Odd Pwm Signal, Green/White, 18ga.
6 - R/H Input, Violet, 18ga.
7 - Even PWM Ground, Green, 18ga.
8 - Odd PWM Ground, White, 18ga.

BVD - Boost Valve Driver

1 - Power, Red, 14ga.
2 - Ground, Black, 14ga.
3 - Boost Switch, Orange, 18ga.
4 - Even PWM Signal, Yellow, 18ga.
5 - Odd Pwm Signal, Green/White, 18ga.
6 - R/H Input, Violet, 18ga.
7 - Even PWM Ground, Green/Orange, 18ga.
8 - Odd PWM Ground, White/Orange, 18ga.

P1-Pulsing Nozzle #1

A - Boom #1, Black, 18ga.
B - Odd PWM Ground, White, 18ga.

P2-Pulsing Nozzle #2

A - Boom #2, Brown, 18ga.
B - Even PWM Ground, Green, 18ga.

P3-Pulsing Nozzle #3

A - Boom #3, Blue, 18ga.
B - Odd PWM Ground, White, 18ga.

P4-Pulsing Nozzle #4

A - Boom #4, Black/White, 18ga.
B - Even PWM Ground, Green, 18ga.

P5-Pulsing Nozzle #5

A - Boom #5, Brown/White, 18ga.
B - Odd PWM Ground, White, 18ga.

P6-Pulsing Nozzle #6

A - Boom #6, Blue/White, 18ga.
B - Even PWM Ground, Green, 18ga.

P7-Pulsing Nozzle #7

A - Boom #7, White/Black, 18ga.
B - Odd PWM Ground, White, 18ga.

P8-Pulsing Nozzle #8

A - Boom #8, White/Brown, 18ga.
B - Even PWM Ground, Green, 18ga.

P9-Pulsing Nozzle #9

A - Boom #9, White/Blue, 18ga.
B - Odd PWM Ground, White, 18ga.

P10-Pulsing Nozzle #10

A - Boom #10, Pink, 18ga.
B - Even PWM Ground, Green, 18ga.

P11-Pulsing Nozzle #11

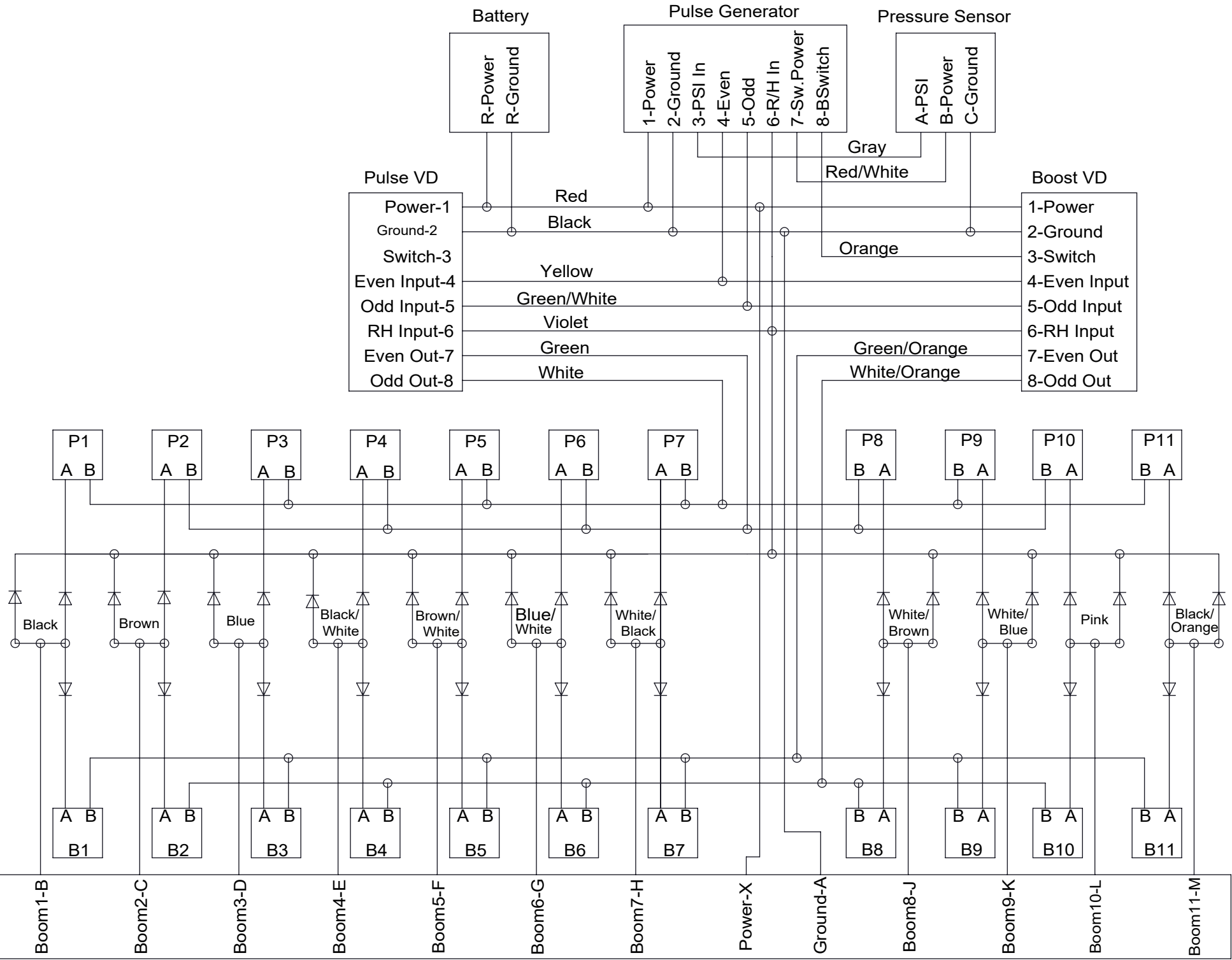
A - Boom #11, Black/Orange, 18ga.
B - Odd PWM Ground, White, 18ga.

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		Drawn	BLS	3/11/13			
		Checked					
		QA APP					
MATERIAL					SIZE B	DWG No: 118600-105	REV 1
FINISH					SCALE: None		SHEET 4 of 7
DO NOT SCALE DRAWING							

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REV	DESCRIPTION	DATE	BY
1	Preliminary Release	3/11/13	BLS

Schematic

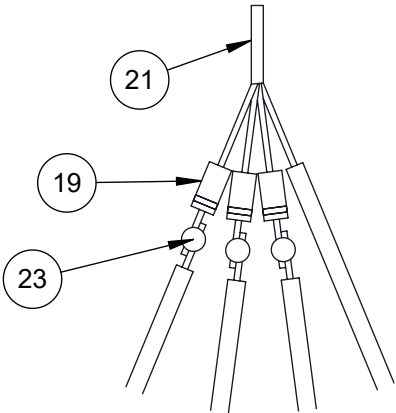


Shutoff

			CAPSTAN AG SYSTEMS, INC. 101 N. KANSAS AVE., TOPEKA, KS 66603		
	Name	Date	TITLE: Power Hub Turf, 11 Nozzle Toro		
Drawn	BLS	3/11/13			
Checked					
QA APP					
			SIZE B	DWG No: 118600-104	REV 1
			SCALE: None		SHEET 6 of 7

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1	Preliminary Release	3/11/13	BLS



Diode Splice Proceedure

1. Twist 3 Diodes & Wire Together
2. Dip Into Flux
3. Dip Into Solder Pot
4. Trim Sharp Point w Side Cutters
5. Solder Wires to Diodes
6. Shrink Tube Each Diode/Wire Joint
7. Shrink Tube Whole Splice Assembly

Diode Splice Detail
 11 Splices by Color

Nozzle 9 Diode Splice

P9-A to Diode, White/Blue, 18ga, 132"
 B9-A to Diode, White/Blue, 18ga, 132"
 R/H Junct. to Diode, White/Blue, 18ga, 8"
 SH-K to Splice, White/Blue, 18ga, 30"

Nozzle 10 Diode Splice

P10-A to Diode, Pink, 18ga, 152"
 B10-A to Diode, Pink, 18ga, 152"
 R/H Junct. to Diode, Pink, 18ga, 8"
 SH-K to Splice, Pink, 18ga, 30"

Nozzle 11 Diode Splice

P9-A to Diode, Black/Orange, 18ga, 172"
 B9-A to Diode, Black/Orange, 18ga, 172"
 R/H Junct. to Diode, Black/Orange, 18ga, 8"
 SH-K to Splice, Black/Orange, 18ga, 30"

Nozzle 1 Diode Splice

P1-A to Diode, Black, 18ga, 176"
 B1-A to Diode, Black, 18ga, 176"
 R/H Junct. to Diode, Black, 18ga, 8"
 SH-B to Splice, Black, 18ga, 30"

Nozzle 2 Diode Splice

P2-A to Diode, Brown, 18ga, 156"
 B2-A to Diode, Brown, 18ga, 156"
 R/H Junct. to Diode, Brown, 18ga, 8"
 SH-C to Splice, Brown, 18ga, 30"

Nozzle 3 Diode Splice

P3-A to Diode, Blue, 18ga, 136"
 B3-A to Diode, Blue, 18ga, 136"
 R/H Junct. to Diode, Blue, 18ga, 8"
 SH-D to Splice, Blue, 18ga, 30"

Nozzle 4 Diode Splice

P4-A to Diode, Black/White, 18ga, 116"
 B4-A to Diode, Black/White, 18ga, 116"
 R/H Junct. to Diode, Blk/Wh, 18ga, 8"
 SH-E to Splice, Black/White, 18ga, 30"

Nozzle 5 Diode Splice

P5-A to Diode, Brown/White, 18ga, 80"
 B5-A to Diode, Brown/White, 18ga, 80"
 R/H Junct. to Diode, Br/Wh, 18ga, 8"
 SH-F to Splice, Brown/White, 18ga, 30"

Nozzle 6 Diode Splice

P6-A to Diode, Blue/White, 18ga, 56"
 B6-A to Diode, Blue/White, 18ga, 56"
 R/H Junct. to Diode, Bl/Wh, 18ga, 8"
 SH-G to Splice, Blue/White, 18ga, 30"

Nozzle 7 Diode Splice

P7-A to Diode, White/Black, 18ga, 76"
 B7-A to Diode, White/Black, 18ga, 76"
 R/H Junct. to Diode, White/Black, 18ga, 8"
 SH-H to Splice, White/Black, 18ga, 30"

Nozzle 8 Diode Splice

P8-A to Diode, White/Brown, 18ga, 112"
 B8-A to Diode, White/Brown, 18ga, 112"
 R/H Junct. to Diode, White/Brown, 18ga, 8"
 SH-J to Splice, White/Brown, 18ga, 30"

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MATERIAL		Checked			
FINISH		QA APP			
DO NOT SCALE DRAWING				SIZE B	DWG No: 118600-105
				SCALE: None	REV 1
				SHEET 2 of 7	