

s/v DELLA JEAN 1-09-2018 ELECTRIC WINDLASS											
Cable				Terminal 1		Terminal 2		Amps		Voltage Drop	
ID#	AWG	Color	Length in FT	Use	Type	Type	Use	Max	Typ	Max	Typ
A	1	red	5.75	100A MRBF Always On House Buss	1/4" ring	1/4" ring	70A Windlass Breaker/Isolator	70	50	0.0499	0.0356
B	1	red	20.13	70A Windlass Breaker/Isolator	1/4" ring	1/4" ring	Up / Down Solenoid Positive Terminal	70	50	0.1745	0.1247
1 AWG Total Red			25.88								
C	1	black	13.25	Up / Down Solenoid Negative Terminal	1/4" ring	1/4" ring	House Bank Negative Buss	70	50	0.1149	0.0821
1 AWG Total BLK			13.25								
1 AWG Total Feet			39.13								

Cable				Terminal 1		Terminal 2		Amps		Voltage Drop	
ID#	AWG	Color	Length in FT	Use	Type	Type	Use	Max	Typ	Max	Typ
Y	8	red	8.00	Motor Pigtail	butt	1/4" ring	Up / Down Solenoid F1 OUT	70	50	0.3518	0.2513
6 AWG Total Red			8.00								
Z	8	black	8.00	Motor Pigtail	butt	1/4" ring	Up / Down Solenoid F2 IN	70	50	0.3518	0.2513
6 AWG Total BLK			8.00								
6 AWG Total Feet			16.00								

Cable				Terminal 1		Terminal 2		Amps		Voltage Drop	
ID#	AWG	Color	Length in FT	Use	Type	Type	Use	Max	Typ	Max	Typ
U	12	red	1.00	Up / Down Solenoid Positive Terminal	1/4" Ring	fuse holder	5A Inline Fuse	4	2	0.0161	0.0080
12 AWG Total Red			1.00								
JJ	12	brown	1.00	Up / Down Solenoid F2 IN	1/4" Ring	fuse holder	5A Inline Fuse	4	2	0.0161	0.0080
12 AWG Total Brown			1.00								
LL	12	white	1.00	Up / Down Solenoid F1 OUT	1/4" Ring	fuse holder	5A Inline Fuse	4	2	0.0161	0.0080
12 AWG Total White			1.00								
12 AWG Total Feet			3.00								

Cable				Terminal 1		Terminal 2		Amps		Voltage Drop	
ID#	AWG	Color	Length in FT	Use	Type	Type	Use	Max	Typ	Max	Typ
V	14	red	1.00	5A Inline Fuse	fuse holder	#8 ring	Up / Down Solenoid Buss Power	4	2	0.0161	0.0080
14 AWG Total Red			1.00								
S	14	black	0.50	Up / Down Solenoid Negative Terminal	1/4" Ring	#8 ring	Up / Down Solenoid Buss Negative	4	2	0.0080	0.0040
X	14	black	0.75	Up / Down Solenoid Buss Negative	#8 ring	1/4" push on	Up / Down Solenoid Tab 2	4	2	0.0120	0.0060
14 AWG Total BLK			1.25								
T	14	white	0.75	Up / Down Solenoid Buss Anchor Down	#8 ring	1/4" push on	Up / Down Solenoid Tab 3	4	2	0.0120	0.0060
14 AWG Total White			0.75								
W	14	blue	0.75	Up / Down Solenoid Buss Anchor Up	#8 ring	1/4" push on	Up / Down Solenoid Tab 1	4	2	0.0120	0.0060
14 AWG Total Blue			0.75								
14 AWG Total Feet			3.75								

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ID#	AWG	Color	Length in FT	Use	Type	Type	Use	Max	Typ	Max	Typ
E	16	red	40.00	Helm Up / Down Switch	1/4" push on	#8 ring	Up / Down Solenoid Buss Helm Switch Power	4	2	0.6426	0.3213
H	16	red	35.00	AA150 Rode Counter	step down butt	#8 ring	Up / Down Solenoid Buss Rode Counter Power	4	2	0.5622	0.2811
R	16	red	9.50	Remote Receiver	step down butt	#8 ring	Up / Down Solenoid Buss Remote Receiver Power	4	2	0.1526	0.0763
16 AWG Total Red			84.50								
G	16	black	35.00	AA150 Rode Counter	step down butt	#8 ring	Up / Down Solenoid Buss Negative	4	2	0.5622	0.2811
O	16	black	9.50	Remote Receiver	step down butt	#8 ring	Up / Down Solenoid Buss Negative	4	2	0.1526	0.0763
16 AWG Total BLK			44.50								
D	16	white	40.00	Helm Up / Down Switch	1/4" push on	#8 ring	Up / Down Solenoid Buss Anchor Down	4	2	0.6426	0.3213
L	16	white	36.00	AA150 Rode Counter	step down butt	butt	5A Inline Fuse	4	2	0.5783	0.2892
P	16	white	9.50	Remote Receiver	step down butt	#8 ring	Up / Down Solenoid Buss Anchor Down	4	2	0.1526	0.0763
16 AWG Total White			85.50								
F	16	blue	40.00	Helm Up / Down Switch	1/4" push on	#8 ring	Up / Down Solenoid Buss Anchor Up	4	2	0.6426	0.3213
Q	16	blue	9.50	Remote Receiver	step down butt	#8 ring	Up / Down Solenoid Buss Anchor Up	4	2	0.1526	0.0763
16 AWG Total Blue			49.50								
J	16	brown	36.00	AA150 Rode Counter	step down butt	butt	5A Inline Fuse	4	2	0.5783	0.2892
16 AWG Total Brown			36.00								
K	16	orange	35.00	AA150 Rode Counter	step down butt	#8 ring	Up / Down Solenoid Buss Anchor Up	4	2	0.5622	0.2811
16 AWG Total Orange			35.00								
16 AWG Total Feet			335.00								

Cable				Terminal 1		Terminal 2		Amps		Voltage Drop	
ID#	AWG	Color	Length in FT	Use	Type	Type	Use	Max	Typ	Max	Typ
N	Sensor Cable	gray	6.50	Windlass Housing	Sensor Pick Up	Female Connector	Extension Sensor Cable	4	2	0.0032	0.0016
M		gray	49.00	Extension Sensor Cable	Male Connector	Male Connector	AA150 Sensor Cable Pigtail	4	2	0.0243	0.0121
		gray		AA 150 Sensor Cable Pigtail	Female Connector	AA150 Rode Counter	AA 150 Rode Counter	4	2	0.0000	0.0000
Sensor Cable			55.50								

Wire Connector Quantity Wire Size and Type										
Connector Type	18 AWG	16 AWG	14 AWG	12 AWG	10 AWG	8 AWG	6 AWG	4 AWG	1 AWG	TOTAL
butt		2				2				4
step down butt	9	9								18
1/4" push on		3	3							6
#8 Ring		10	5							15
#10 Ring										0
1/4" Ring			1	3		2			6	12
Sensor Pick Up	1									1
Female Connector	2									2
Male Connector	2									2

Wire Resistance at 20 deg C		
Gauge	Ohms / 1000 feet	Ohms / foot
0	0.0779	0.0000779
0	0.0983	0.0000983
1	0.1239	0.0001239
4	0.2485	0.0002485
6	0.3951	0.0003951
8	0.6282	0.0006282
10	0.9989	0.0009989
12	1.588	0.001588
14	2.525	0.002525
16	4.016	0.004016
18	6.385	0.006385

AMPS TABLE	
MAX	TYP
1	1
2	2
3	3
4	2
5	2
15	10
20	12
25	15.5
50	40
70	50

Total Circuit (positive plus negative conductors plus connections)	TOTAL Voltage Drop (Volts) Wire and Connections	Voltage Drop (%) Wire and Connections
Voltage Drop, house battery bank to Up / Down solenoid, round trip - 1 AWG	0.317	2.64%
Voltage Drop Up / Down Solenoid to windlass motor, round trip - 8 AWG	0.678	5.65%
Voltage Drop Helm switch UP to Up / Down solenoid, round trip - 16 AWG	0.449	3.74%
Voltage Drop Helm switch DOWN to Up / Down solenoid, round trip - 16 AWG	0.449	3.74%
Voltage Drop AA 150 Rode Counter to UP Up / Down Solenoid - 16 AWG	0.409	3.41%
Voltage Drop AA 150 Rode Counter to F2 IN Up / Down Solenoid - 16 AWG	0.419	3.49%

Total Circuit (positive plus negative conductors)	Resistance Per Connection	TYP Amperage	Total Circuit Connections	Voltage Drop (Connections Only)	Voltage Drop (%) (Connections Only)	Wire Resistance per foot	TYP Amperage	Total Circuit Length In Feet	Voltage Drop (Wire Only)	Voltage Drop (%) (Wire Only)
House battery bank to Up / Down Solenoid, round trip - 1 AWG	0.00025	50	6	0.075	0.63%	0.0001239	50	39.13	0.242	2.02%
Up / Down Solenoid to windlass motor, round trip - 8 AWG	0.00025	50	14	0.175	1.46%	0.0006282	50	16.00	0.503	4.19%
Helm switch UP to Up / Down solenoid - 16 AWG	0.00025	2	10	0.005	0.04%	0.004016	2	55.25	0.444	3.70%
Helm switch DOWN to Up / Down solenoid - 16 AWG	0.00025	2	10	0.005	0.04%	0.004016	2	55.25	0.444	3.70%
AA 150 Rode Counter to UP Up / Down Solenoid - 16 AWG	0.00025	2	11	0.006	0.05%	0.004016	2	50.25	0.404	3.36%
AA 150 Rode Counter to F2 IN Up / Down Solenoid - 16 AWG	0.00025	2	11	0.006	0.05%	0.004016	2	51.50	0.414	3.45%

Wire Resistance		
Gauge	Ohms / 1000 feet	Ohms / foot
00	0.0779	0.000779
0	0.0983	0.000983
1	0.1239	0.001239
4	0.2485	0.002485
6	0.3951	0.003951
8	0.6282	0.006282
10	0.9989	0.009989
12	1.588	0.01588
14	2.525	0.02525
16	4.016	0.04016
18	6.385	0.06385

Connection Point Resistance
Ohms / Connection
0.00025

All Wire is 16 AWG Unless Specified Otherwise

November 2017; Rev B

