

s/v DELLA JEAN 1-09-2021 ELECTRICAL SYSTEM UPGRADE Rev J											
Cable				Terminal 1		Terminal 2		Amps		Voltage Drop	
ID#	AWG	Color	Length in FT	Use	Type	Type	Use	Max	Typ	Max	Typ
1	1	red	9.00	alternator output	1/4" ring	5/16" ring	250A MRBF battery 1 +	105	75	0.1171	0.0836
2	1	red	1.17	250A MRBF battery 1 +	5/16" ring	3/8" ring	1-2-B Position 1	105	75	0.0152	0.0108
3	1	red	1.17	1-2-B Position 1	3/8" ring	1/4" ring	"always on" house busbar +	105	75	0.0152	0.0108
4	1	red	12.25	1-2-B Position 2	3/8" ring	5/16" ring	250A MRBF reserve bank +	105	75	0.1594	0.1138
5	1	red	7.75	1-2-B Position C	3/8" ring	5/16" ring	engine starter +	105	75	0.1008	0.0720
7	1	red	1.00	battery 1 +	5/16" ring	5/16" ring	battery 2 +	105	75	0.0130	0.0093
1 AWG Total Red			32.33								
8	1	black	0.58	battery 2 -	5/16" ring	5/16" ring	battery 4 +	105	75	0.0076	0.0054
9	1	black	0.58	battery 1 -	5/16" ring	5/16" ring	battery3 +	105	75	0.0076	0.0054
10	1	black	1.00	battery 3-	5/16" ring	5/16" ring	battery 4 -	105	75	0.0130	0.0093
11	1	black	2.67	battery 4 -	5/16" ring	3/8" ring	shunt battery side	105	75	0.0347	0.0248
12	1	black	1.00	shunt load side	3/8" ring	1/4" ring	house bank busbar -	105	75	0.0130	0.0093
14	1	black	12.50	house bank busbar -	1/4" ring	5/16" ring	engine starter ground	105	75	0.1626	0.1162
15	1	black	6.25	reserve battery -	5/16" ring	1/4" ring	house bank busbar -	105	75	0.0813	0.0581
1 AWG Total BLK			24.59								
1 AWG Total Feet			56.92								

6	4	red	10.00	60A MRBF 1-2-B Position C	5/16" ring	#10 ring	Main AC/DC panel DC +	50	30	0.1243	0.0746
4 AWG Total Red			10.00								
16	4	black - existing	1.50	power post ground	3/8" ring	5/16" ring	engine starter ground	105	75	0.0391	0.0280
17	4	black - existing	1.50	alternator ground	3/8" ring	5/16" ring	power post ground	105	75	0.0391	0.0280
25	4	black	13.50	Main AC/DC panel DC busbar -	1/4" ring	1/4" ring	house bank busbar -	50	30	0.1677	0.1006
4 AWG Total BLK			16.50								
4 AWG Total Feet			26.50								

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21	6	red	12.50	AC/DC charger +	1/4" ring	5/16" ring	50A MRBF "always on" house busbar +	50	40	0.2469	0.1976
6 AWG Total Red			12.50								
22	6	black	5.00	AC/DC charger -	1/4" ring	1/4" ring	Main AC/DC panel DC busbar -	50	40	0.0988	0.0790
6 AWG Total BLK			5.00								
6 AWG Total Feet			17.50								

19	8	red	0.50	Spare AC/DC charger +	1/4" ring	1/4" ring	Connected AC/DC charger +	50	40	0.0157	0.0126
20	8	red	0.50	Spare AC/DC charger +	1/4" ring	1/4" ring	Connected AC/DC charger +	50	40	0.0157	0.0126
39	8	red	11.00	50A MRBF "always on" house busbar +	5/16" ring	#10 ring	Main AC/DC panel bilge 2 toggle switch	25	15.5	0.1728	0.1071
40	8	red	13.50	Main AC/DC panel bilge 2 toggle switch	#10 ring	step butt	bilge 2 pump	50	30	0.4240	0.2544
41	8	red	13.50	Main AC/DC panel bilge 2 toggle switch	#10 ring	step butt	bilge 2 level float switch	50	40	0.4240	0.3392
8 AWG Total Red			39.00								
18	8	black - existing	1.50	engine harness busbar -	3/8" ring	5/16" ring	power post ground	105	75	0.0989	0.0707
42	8	black	7.00	bilge 2 pump -	step butt	#10 ring	house bank busbar -	25	15.5	0.1099	0.0682
8 AWG Total BLK			8.50								
23	8	green	5.00	AC/DC Charger chassis ground	1/4" ring	#10 ring	Main AC/DC panel DC busbar -	50	40	0.1571	0.1256
8 AWG Total GRN			5.00								
8 AWG Total Feet			51.50								

26	10	red	7.00	Xantrex Echo +	butt	#8 ring	BS Terminal Fuse Block 20A battery 1 +	20	15	0.1398	0.1049
27	10	red	6.50	Xantrex Echo +	butt	butt	inline 20A for reserve battery	20	15	0.1299	0.0974
28	10	red	1.00	inline 20A	butt	5/16" ring	reserve battery +	20	15	0.0200	0.0150
36	10	red	13.50	Main AC/DC panel bilge 1 toggle switch	#8 ring	step butt	bilge 1 pump	10	4.8	0.1349	0.0647
37	10	red	13.50	Main AC/DC panel bilge 1 toggle switch	#8 ring	step butt	bilge 1 level float switch	10	4.8	0.1349	0.0647
10 AWG Total Red			41.50								
29	10	black	0.50	Xantrex Echo -	butt	#8 ring	house bank busbar -	20	15	0.0100	0.0075
38	10	black	6.00	bilge 1 pump -	butt	#8 ring	house bank busbar -	10	4.8	0.0599	0.0288
51	10	black	17.00	MC-614 #1 (part of harness)	1/4" push	5/16" ring	battery 4 -	1	1	0.0170	0.0170
10 AWG Total BLK			23.50								
10 AWG Total Feet			65.00								

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44	MC-TS-B	Light Gray	MC-TS-B	MC-614 #7 and 8	1/4" push	5/16" ring	battery 1 -	1	1		
45	14	White	Conn Kit	MC-614 #12	1/4" push	#10 ring	alternator stator (tach)	1	1		
46	14	Blue	Conn Kit	MC-614 #4 (part of harness)	1/4" push	#10 ring	alternator field	1	1		
47	MC-TS-A	Light Gray	MC-TS-A	MC-614 #5 and 6	1/4" push	1/4" ring	alternator case	1	1		
49	14	Red	Conn Kit	MC-614 #2 (part of harness)	1/4" push	1/4" ring	inline 10A at alternator output	1	1		
50	14	Brown	Conn Kit	MC-614 #3 (part of harness)	1/4" push	#8 ring	ignition switch on engine control panel	1	1		

ID#	AGW	Color	Length	Use	Type	Type	Use	Max	Typ	Max	Typ
30	14	red	12.00	SmartGauge +	terminal block	#8 ring	BS Terminal Fuse Block 3A battery 1 +	2	2	0.0606	0.0606
31	14	red	21.50	SmartGauge +	terminal block	butt	inline 3A	2	2	0.1086	0.1086
32	14	red	1.00	inline 3A	butt	5/16" ring	reserve battery +	2	2	0.0051	0.0051
34	14	red	0.00	VHF Positive Pigtail with in-line 7A fuse	butt	#10 ring	Main AC/DC panel DC +	10	4.8	Moved To AIS, VHF, Last Watch	
43	14	red	14.00	Positive Voltage Sense Wire MC-614 #9	butt	#8 ring	BS Terminal Fuse Block 1A battery 1 +	2	2	0.0707	0.0707
14 AWG Total Red			48.50								
24	14	black	2.00	Main AC/DC panel DC Backlight -	1/4" push	#8 ring	Main AC/DC panel DC busbar -	1	1	0.0051	0.0051
33	14	black	12.92	SmartGauge -	terminal block	5/16" ring	battery 4 -	2	2	0.0652	0.0652
35	14	black	0	VHF Negative Pigtail	butt	#8 ring	Main AC/DC panel DC busbar -	1	1	Moved To AIS, VHF, Last Watch	
14 AWG Total BLK			14.92								
48	14	gray	existing	tach at engine control panel	#8 ring	1/4" push	MC-614 #13	1	1		
14 AWG Total Feet			63.42								

52	UTP	gray	Conn Kit	BMV-700	RJ6	RJ6	shunt UTP	1	1		
53	18	red	Conn Kit	shunt +B1	PIN	#8 ring	BS Terminal Fuse Block 2A battery 1 +	1	1		
54	UTP	gray	Conn Kit	AC/DC Charger Battery Temp	RJ6	5/16" ring	battery 1 -	1	1		
16 AWG Total Feet			N/A								

Wire Connector Quantity Wire Size and Type								
Connector Type	18 AWG	14 AWG	10 AWG	8 AWG	6 AWG	4 AWG	1 AWG	TOTAL
PIN	1							1
RJ6	3							3
terminal block		3						
butt		5	6					11
step down butt			2	3				5
1/4" push on		8	1					9
#8 Ring	1	6	5					12
#10 Ring		3		5		1		9
1/4" Ring		2		5	3	2	5	17
5/16" Ring	1	3	2	2	1	3	15	27
3/8" Ring				1		2	6	9

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

AMPS TABLE	
MAX	TYP
1	1
2	2
3	3
10	4.8
20	15
25	15.5
50	30
50	40
105	75