

DAFTAR PUSTAKA

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LAMPIRAN

Lampiran 1. Tabel Kebutuhan Daya Listrik Kapal ADRI LCU I

TABEL KEBUTUHAN DAYA LISTRIK
KAPAL ADRI LCU (LANDING CRAFT UTILITY) I

No.	Peralatan	Jumlah	Daya	Belayar				Masuk Keluar Pelabuhan				Bongkar Muat				Berlabuh				Darurat			
			KW	Jumlah Kerja	LF	Daya (KW)		Jumlah Kerja	LF	Daya (KW)		Jumlah Kerja	LF	Daya (KW)		Jumlah Kerja	LF	Daya (KW)		Jumlah Kerja	LF	Daya (KW)	
						C.L	LL			C.L	LL			C.L	LL			C.L	LL				
Peralatan Permesinan																							
1	Pompa Pemadam dan Dinas Umum	1	6.00	1	0.30	-	1.80	1	0.30	-	1.80	-	-	-	-	-	-	-	-	1	0.60	3.60	-
2	Pompa Bilga	1	5.50	1	0.30	-	1.65	1	0.30	-	1.65	1	0.50	-	1.10	-	-	-	-	-	-	-	-
3	Pompa Ballast	1	5.50	1	0.30	-	1.65	1	0.30	-	1.65	1	0.80	-	4.40	-	-	-	-	-	-	-	-
4	Pompa Transfer Bahan Bakar	2	1.00	1	0.80	0.85	-	1	0.80	0.85	-	1	0.80	0.80	-	1	0.80	0.80	-	-	-	-	-
5	Pompa Air Kotor	2	1.00	-	-	-	-	-	-	-	-	1	0.80	-	0.80	-	-	-	-	-	-	-	-
6	Pompa Pemadam Kebaran Deluge	2	22.0	1	0.30	-	6.60	1	0.30	-	6.60	-	-	-	-	-	-	-	-	1	0.60	13.20	-
7	Pompa Pemadam Kebaran Darurat	1	5.50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	0.80	0.40	-
8	Pompa Minyak Kotor	1	1.50	-	-	-	-	-	-	-	-	1	0.80	-	1.20	-	-	-	-	-	-	-	-
9	Pompa Bilga Darurat	1	2.50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	0.60	1.50	-
10	Hidrofor Sprinkler & Pompa	1	6.00	1	0.30	-	1.80	1	0.30	-	1.80	-	-	-	-	-	-	-	-	1	0.60	3.60	-
11	Pompa Air Laut Cadangan Pemadam Sprinkle	1	6.00	1	0.30	-	-	1	0.30	-	-	-	-	-	-	-	-	-	-	1	0.60	3.60	-
12	Kompressor Udara	1	1.50	1	0.30	-	0.45	1	0.30	-	0.45	1	0.50	-	0.75	-	-	-	-	-	-	-	-
13	Pemisah Air dan Minyak	1	1.50	1	0.50	-	0.75	1	0.30	-	0.45	1	0.50	-	0.75	-	-	-	-	-	-	-	-
14	Pompa & Hidrofor Air Laut	1	2.50	1	0.50	-	1.25	1	0.50	-	1.25	1	0.50	-	1.25	1	0.50	-	1.25	-	-	-	-
15	Pompa & Hidrofor Air Tawar	2	2.50	1	0.50	-	1.25	1	0.50	-	1.25	1	0.50	-	1.25	1	0.50	-	1.25	-	-	-	-
16	Powerpack Geladak Haluan	2	15.00	-	-	-	-	1	0.50	-	7.50	-	-	-	-	-	-	-	-	-	-	-	-
17	Powerpack Geladak Buritan	2	7.50	-	-	-	-	1	0.50	-	3.75	-	-	-	-	-	-	-	-	-	-	-	-
18	Powerpack Mesin Kemudi	2	6.50	1	0.80	-	5.20	1	0.80	-	5.20	-	-	-	-	-	-	-	-	1	0.60	3.90	-
19	Winch Sekoci Lifeboat	2	2.00	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	0.60	1.20	-
20	Crane	2	21	-	-	-	-	-	-	-	-	2	0.50	21	-	-	-	-	-	-	-	-	-

Peralatan Akomodasi																						
Kipas Ventilasi Udara																						
21	Exhaust Fan KM/WC ABK & Perwira PS/SB	4	0.01	4	0.60	0.02	-	4	0.55	0.02	-	4	0.50	0.02	-	4	0.50	0.02	-	-	-	-
22	Exhaust Fan R.Mess ABK	1	0.05	1	0.60	0.03	-	1	0.55	0.03	-	1	0.50	0.03	-	1	0.50	0.03	-	-	-	-
23	Exhaust Fan Dapur ABK	1	0.15	1	0.60	0.09	-	1	0.55	0.08	-	1	0.50	0.08	-	1	0.50	0.08	-	-	-	-
24	Exhaust Fan Akomodasi ABK Gldk.Antara	2	0.05	2	0.60	0.06	-	2	0.55	0.06	-	2	0.50	0.05	-	2	0.50	0.05	-	-	-	-
25	Exhaust Fan KM/WC Geladak Kendaraan	2	0.01	2	0.60	0.01	-	2	0.55	0.01	-	2	0.50	0.01	-	2	0.50	0.01	-	-	-	-
26	Exhaust Fan R.Generator Darurat/Pelabuhan	1	0.10	1	0.60	0.06	-	1	0.55	0.06	-	1	0.50	0.05	-	1	0.50	0.05	-	1	0.50	0.05
27	Supply Fan R.Generator Darurat/Pelabuhan	1	0.15	1	0.60	0.09	-	1	0.55	0.08	-	1	0.50	0.08	-	1	0.50	0.08	-	1	0.50	0.08
28	Exhaust Fan R.Co2	1	0.05	1	0.60	0.03	-	1	0.55	0.03	-	1	0.50	0.03	-	1	0.50	0.03	-	-	-	-
29	Exhaust Fan R.Pompa Darurat & Sprinkler	1	0.07	1	0.60	0.04	-	1	0.55	0.04	-	1	0.50	0.04	-	1	0.50	0.04	-	-	-	-
30	Exhaust Fan KM/WC Penumpang & Difabel	2	0.10	2	0.60	0.12	-	2	0.55	0.11	-	2	0.50	0.10	-	-	-	-	-	-	-	-
31	Exhaust KM/WC Ruang Medis	1	0.01	1	0.60	0.01	-	1	0.55	0.01	-	1	0.50	0.01	-	-	-	-	-	-	-	-
32	Exhaust Fan Dapur & Kafetaria	1	0.15	1	0.60	0.09	-	1	0.55	0.08	-	1	0.50	0.08	-	-	-	-	-	-	-	-
33	Supply Fan R.Penumpang Buritan	1	0.15	1	0.60	0.09	-	1	0.55	0.08	-	1	0.50	0.08	-	-	-	-	-	-	-	-
34	Exhaust Fan R.Penumpang Buritan	1	0.10	1	0.60	0.06	-	1	0.55	0.06	-	1	0.50	0.05	-	-	-	-	-	-	-	-
35	Supply Fan R.Penumpang Haluan	1	0.15	1	0.60	0.09	-	1	0.55	0.08	-	1	0.50	0.08	-	-	-	-	-	-	-	-
36	Exhaust Fan R.Penumpang Haluan	1	0.10	1	0.60	0.06	-	1	0.55	0.06	-	1	0.50	0.05	-	-	-	-	-	-	-	-
37	Exhaust Fan Ruang Paket Paket Daya Haluan	1	0.05	1	0.60	0.03	-	1	0.55	0.03	-	1	0.50	0.03	-	-	-	-	-	-	-	-
38	Exhaust Fan Gudang Haluan	2	0.05	1	0.60	0.03	-	1	0.55	0.03	-	1	0.50	0.03	-	-	-	-	-	-	-	-
39	Exhaust Fan Gudang Tengah Geladak Kendaraan	1	0.01	2	0.60	0.01	-	2	0.55	0.01	-	2	0.50	0.01	-	-	-	-	-	-	-	-
40	Supply Fan Gudang Palka	1	1.50	1	0.60	0.90	-	1	0.55	0.83	-	1	0.50	0.75	-	-	-	-	-	-	-	-
41	Exhaust Fan Gudang Palka	1	1.00	1	0.60	0.60	-	1	0.55	0.55	-	1	0.50	0.50	-	-	-	-	-	-	-	-
42	Exhaust Fan R.Paket Daya	1	0.05	1	0.60	0.03	-	1	0.55	0.03	-	1	0.50	0.03	-	-	-	-	-	-	-	-

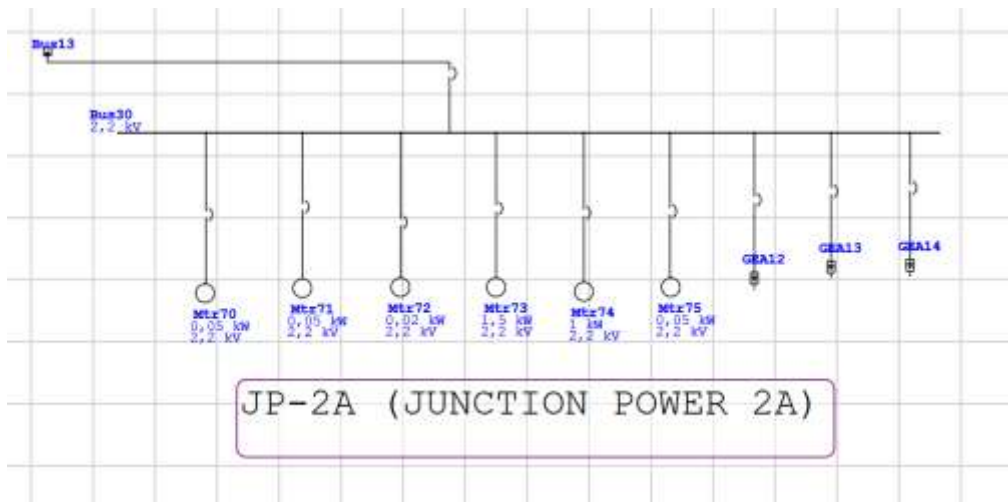
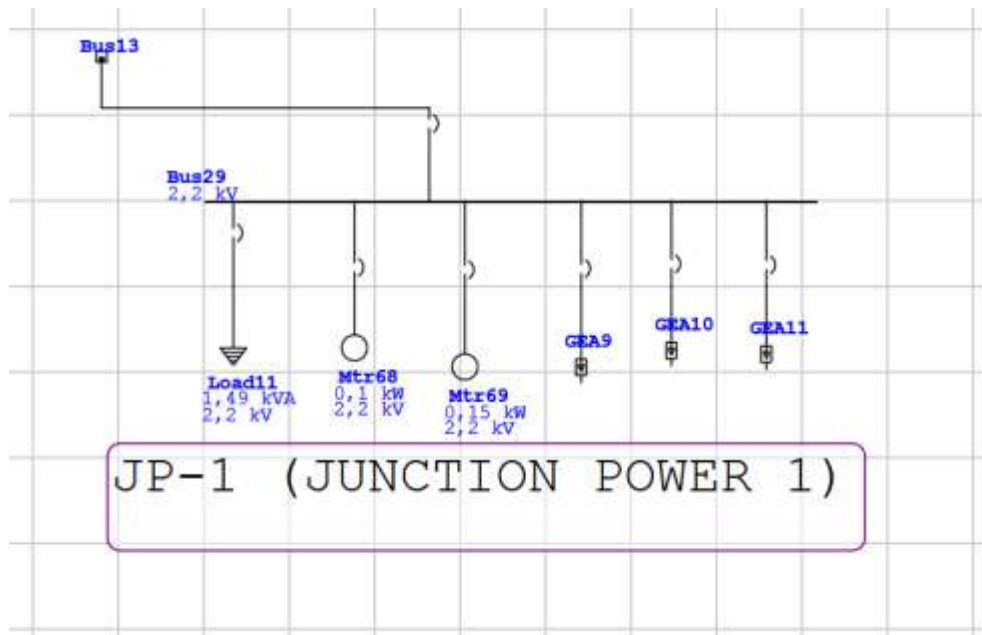
	Buritan																						
43	Supply Blower Kamar Mesin	1	7.00	1	0.60	4.20	-	1	0.55	3.85	-	1	0.50	3.50	-	-	-	-	-	-	-	-	-
44	Exhaust Blower Kamar Mesin	1	3.50	1	0.60	2.10	-	1	0.55	1.93	-	1	0.50	1.75	-	-	-	-	-	-	-	-	-
45	Supply Blower Kamar Mesin Kemudi	1	0.15	1	0.60	0.09	-	1	0.55	0.08	-	1	0.50	0.08	-	-	-	-	-	-	-	-	-
46	Exhaust Blower Kamar Mesin Kemudi	1	0.10	1	0.60	0.06	-	1	0.55	0.06	-	1	0.50	0.05	-	-	-	-	-	-	-	-	-
Air Conditioner																							
47	Ruang Kontrol Mesin	1	1.49	1	0.50	0.75	-	1	0.40	0.60	-	1	0.40	0.60	-	-	-	-	-	-	-	-	-
48	Ruang Akomodasi ABK 4P	2	0.75	2	0.50	0.75	-	1	0.30	0.23	-	2	0.40	0.60	-	2	0.40	-	-	-	-	-	-
49	Dapur Kafetaria	1	0.75	1	0.50	0.38	-	1	0.40	0.30	-	1	0.40	0.30	-	-	-	-	-	-	-	-	-
50	Mushola	1	0.75	1	0.50	0.38	-	1	0.40	0.30	-	1	0.40	0.30	-	-	-	-	-	-	-	-	-
51	Ruang Penumpang Dek Kursi Sofa	8	1.49	8	0.50	5.97	-	8	0.40	4.77	-	8	0.40	4.77	-	-	-	-	-	-	-	-	-
52	Ruang Penumpang Dek Kursi Baring	10	1.49	10	0.50	7.46	-	10	0.40	5.97	-	10	0.40	5.97	-	-	-	-	-	-	-	-	-
53	Lobi Kafetaria	1	1.49	1	0.50	0.75	-	1	0.40	0.60	-	1	0.40	0.60	-	-	-	-	-	-	-	-	-
54	Battery Room	1	0.37	1	0.50	0.19	-	1	0.30	0.11	-	1	0.40	0.15	-	-	-	-	-	-	-	-	-
55	Ruang Medis	1	0.37	1	0.50	0.19	-	1	0.30	0.11	-	1	0.40	0.15	-	-	-	-	-	-	-	-	-
56	Ruang Mess	1	1.49	1	0.50	0.75	-	1	0.30	0.45	-	1	0.40	0.60	-	1	0.60	-	-	-	-	-	-
57	Ruang Kemudi	2	1.49	2	0.50	1.49	-	2	0.40	1.19	-	2	0.40	1.19	-	2	1.19	-	-	-	-	-	-
58	Dapur ABK	1	0.75	1	0.50	0.38	-	1	0.40	0.30	-	1	0.40	0.30	-	1	0.30	-	-	-	-	-	-
59	Ruang Akomodasi ABK 1P & 2 P	5	0.37	5	0.50	0.93	-	5	0.30	0.56	-	5	0.40	0.74	-	5	0.74	-	-	-	-	-	-
60	Ruang Akomodasi Perwira 1	2	0.37	2	0.50	0.37	-	2	0.30	0.22	-	2	0.40	0.30	-	2	0.40	-	-	-	-	-	-
Peralatan Listrik																							
Lampu Penerangan, Navigasi, dan Stop Kontak																							
61	Geladak Navigasi	1	9.21	1	0.50	4.61	-	1	0.50	4.61	-	1	0.50	4.61	-	1	0.50	4.61	-	-	-	-	-
62	Geladak Penumpang	1	10.12	1	0.50	5.06	-	1	0.50	5.06	-	1	0.50	5.06	-	1	0.50	5.06	-	-	-	-	-
63	Geladak Kendaraan & Antara	1	5.44	1	0.50	2.72	-	1	0.50	2.72	-	1	0.50	2.72	-	1	0.50	2.72	-	-	-	-	-
64	Kompartemen	1	5.24	1	0.50	2.62	-	1	0.50	2.62	-	1	0.50	2.62	-	1	0.50	2.62	-	-	-	-	-
65	Lampu Navigasi	1	2.84	1	0.50	1.42	-	1	0.50	1.42	-	1	0.50	1.42	-	1	0.50	1.42	-	1	0.40	1.14	-
66	Lampu Emergency	1	1.41	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	0.50	0.71	-
67	Battery Charger	1	0.75	1	0.50	-	0.38	-	-	-	-	-	-	-	-	-	-	-	-	1	0.50	0.38	-

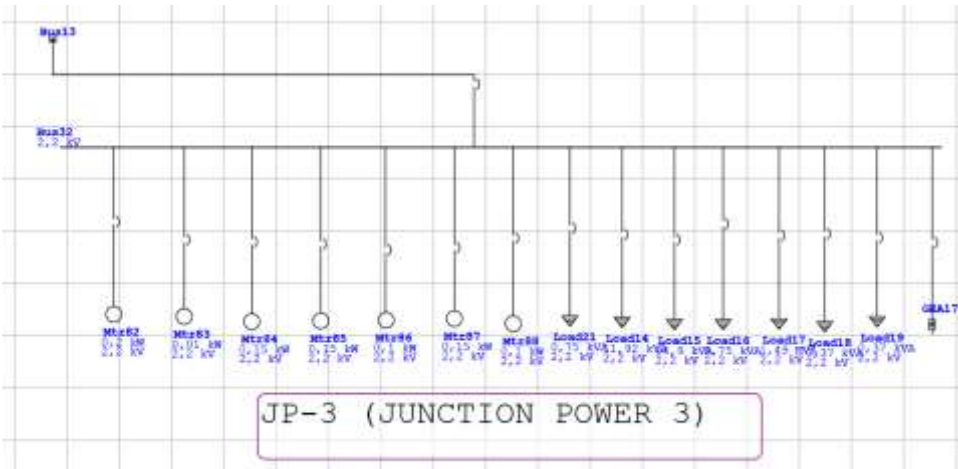
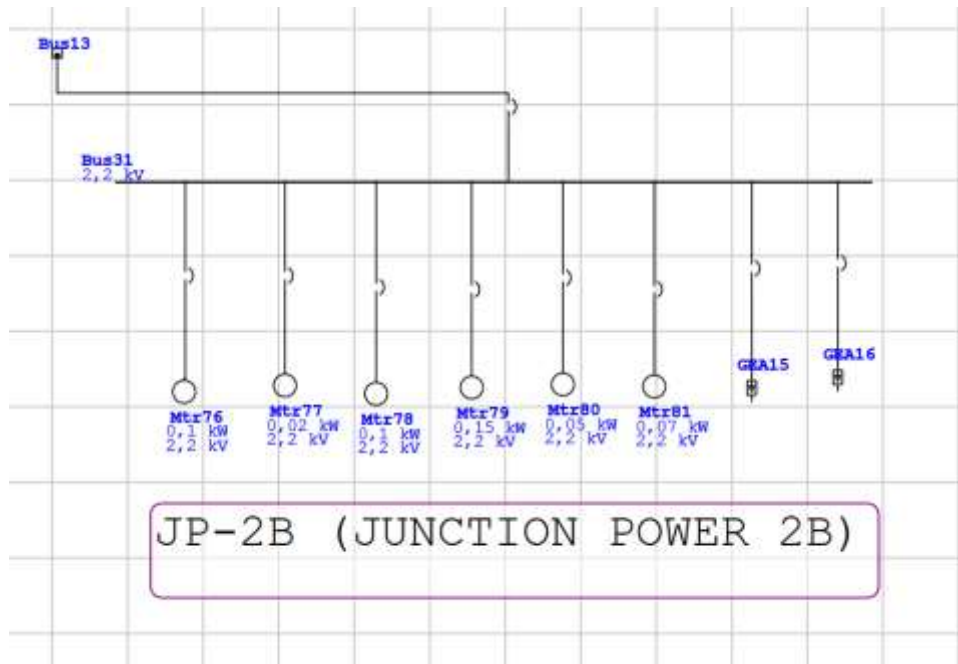
Peralatan Navigasi dan Komunikasi																							
68	Radar	1	1.00	1	0.80	0.80	-	1	0.80	0.80	-	1	0.80	0.80	-	-	-	-	-	1	0.80	0.80	-
69	Heading & Steering Control	1	0.20	1	0.80	0.16	-	1	0.80	0.16	-	1	-	-	-	-	-	-	-	1	0.80	0.16	-
70	BNWAS	1	0.20	1	0.80	0.16	-	1	0.80	0.16	-	1	-	-	-	-	-	-	-	1	0.80	0.16	-
71	Echo Sounder	1	0.20	1	0.80	0.16	-	1	0.80	0.16	-	1	0.80	0.16	-	-	-	-	-	-	-	-	-
72	AIS	1	0.20	1	0.80	0.16	-	1	0.80	0.16	-	1	0.80	0.16	-	-	-	-	-	1	0.80	0.16	-
73	Clear View Screen	1	0.20	1	0.50	-	0.10	1	0.50	-	0.10	1	0.50	-	0.10	1	0.80	-	0.16	-	-	-	-
74	Wiper Jendela Navigasi	1	0.20	1	0.50	-	0.10	1	0.50	-	0.10	1	0.50	-	0.10	1	0.80	-	0.16	-	-	-	-
75	GPS	1	0.20	1	0.80	0.16	-	1	0.80	0.16	-	-	-	-	-	-	-	-	-	1	0.80	0.16	-
76	GMDSS A-2+1	1	0.20	1	0.50	-	0.25	1	0.50	-	0.25	-	-	-	-	1	0.80	-	0.40	1	0.80	0.40	-
77	ECDIS	1	0.20	1	0.80	0.16	-	1	0.80	0.16	-	-	-	-	-	-	-	-	-	1	0.80	0.16	-
78	Interphone System	1	0.50	1	0.80	0.40	-	1	0.80	0.40	-	1	0.80	-	0.40	1	0.80	0.40	-	1	0.80	0.40	-
79	CCTV	1	0.50	1	0.80	0.40	-	1	0.80	0.40	-	1	0.80	0.40	-	1	0.80	0.40	-	1	0.80	0.40	-
80	Engine Telegraph	1	0.50	1	0.80	0.40	-	1	0.80	0.40	-	-	-	-	-	-	-	-	-	1	0.80	0.40	-
81	Weather Facsimile	1	0.20	1	0.80	0.16	-	1	0.80	0.16	-	-	-	-	-	1	0.80	0.16	-	-	-	-	-
82	Speed Log	1	0.20	1	0.80	0.16	-	1	0.80	0.16	-	-	-	-	-	-	-	-	-	-	-	-	-
83	Anemometer	1	0.20	1	0.80	0.16	-	1	0.80	0.16	-	-	-	-	-	-	-	-	-	-	-	-	-
84	Public Adressor	1	0.20	1	0.50	-	0.10	1	0.50	0.10	-	1	1	-	0.10	-	-	-	-	1	0.80	0.16	-
TOTAL						49.93	23.23			44.19	33.80			66.3	12.10			17.06	3.22			40.54	0.00

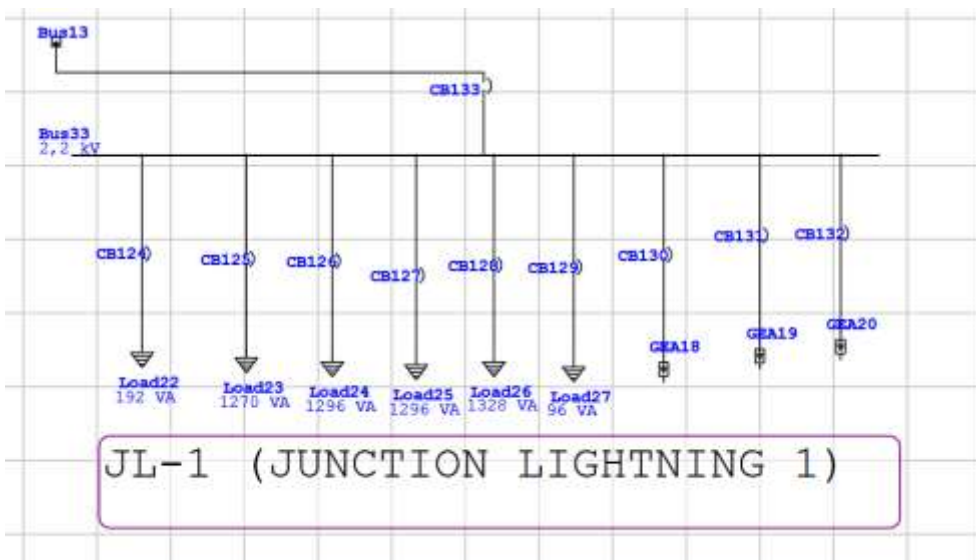
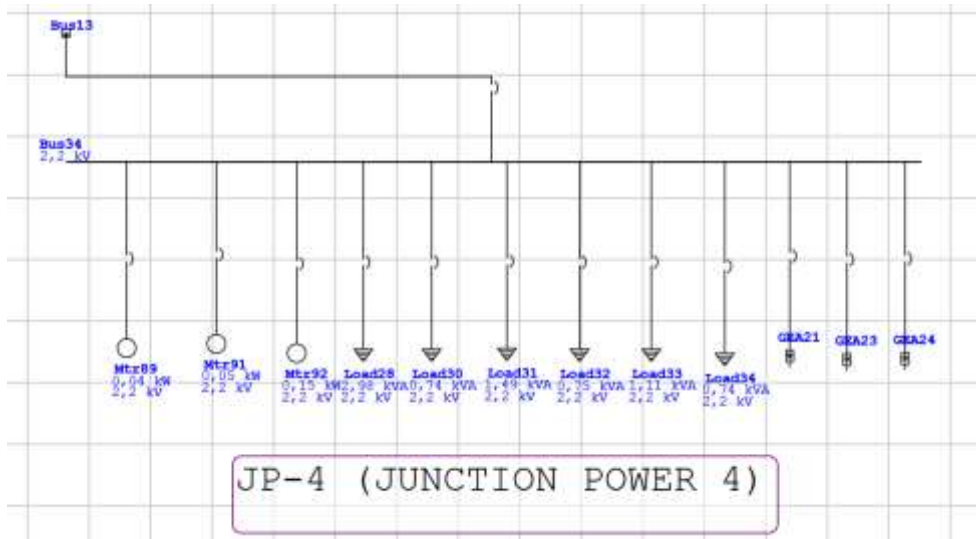
No.	Keterangan	Berlayar	Masuk Keluar Pelabuhan	Bongkar Muat	Berlabuh	Darurat
1	Daya Total					
	Beban Kontinyu (KW)	49.93	44.19	66.3	17.06	40.54
	Beban Intermitten (KW)	23.23	33.80	12.10	3.22	0.00
2	Faktor Diversitas (0.7)	16.26	23.66	8.47	2.25	0.00
3	Jumlah	66.19	67.85	54.88	19.31	40.54

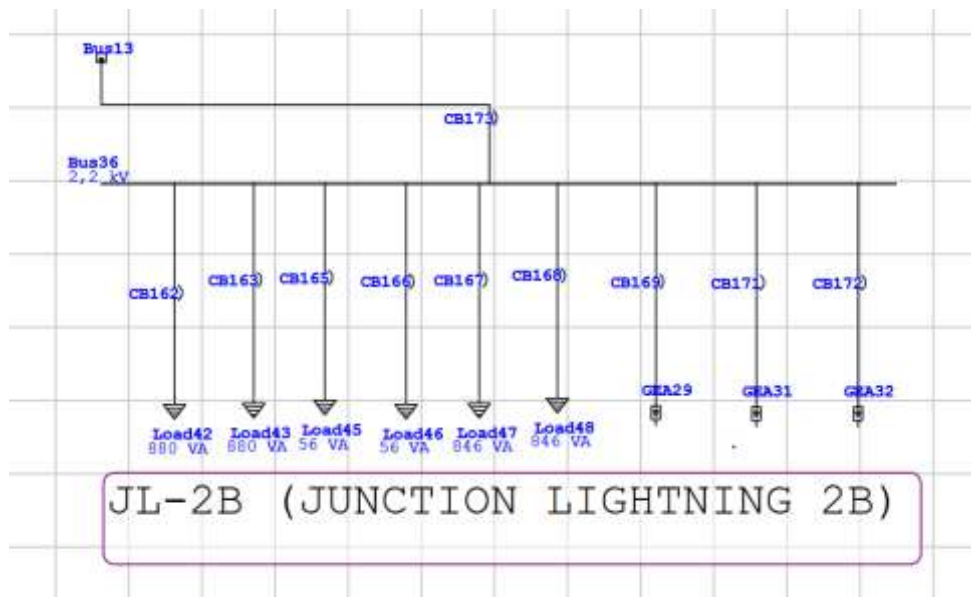
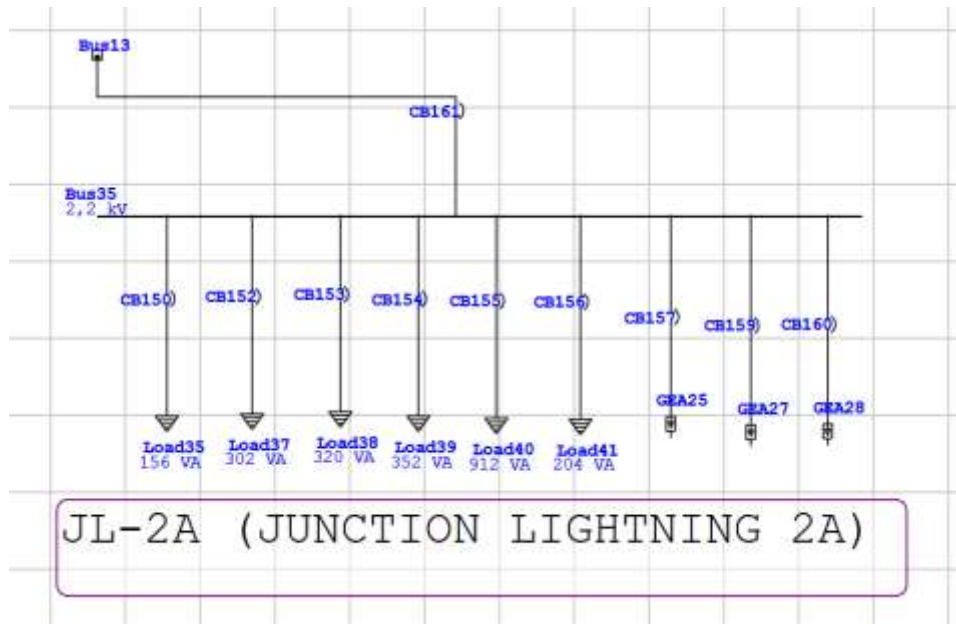
	Beban (KW)					
4	Jumlah Daya Generator (KW)	1.00×80.00	1.00×80.00	1×80.00	1×48.00	1×48.00
5	Kapasitas Daya Tersedia (KW)	80.00	80.00	80.00	48.00	48.00
6	Faktor Beban Generator	82.74%	84.81%	68.60%	40.23%	84.46%

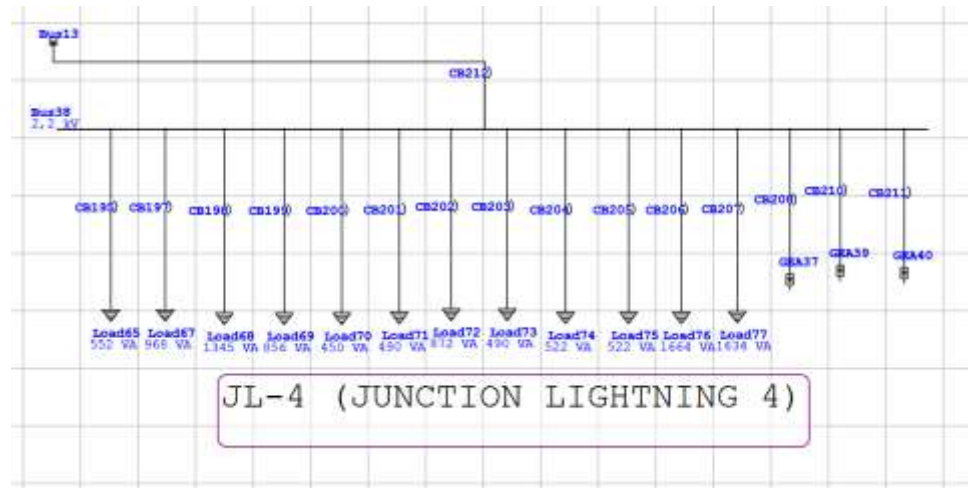
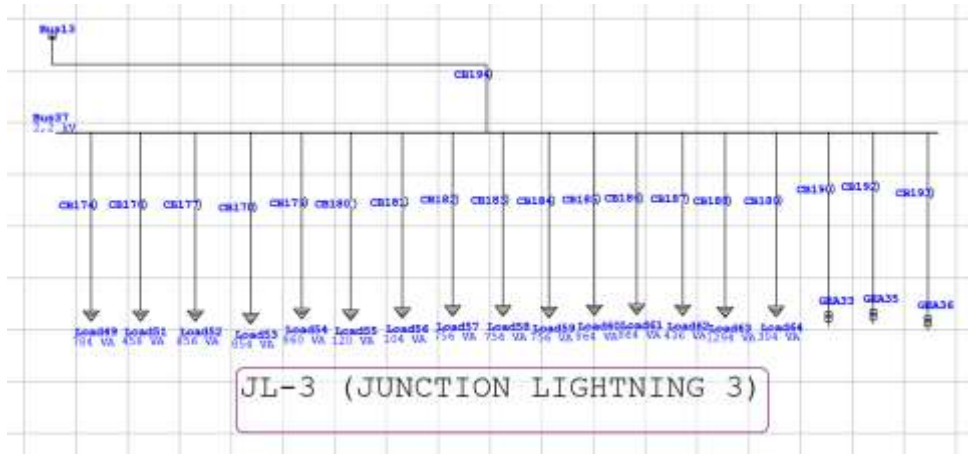
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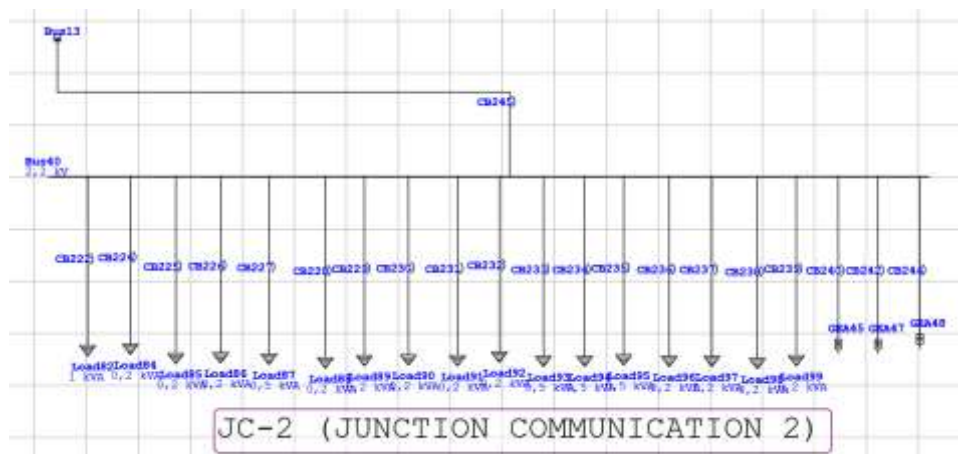
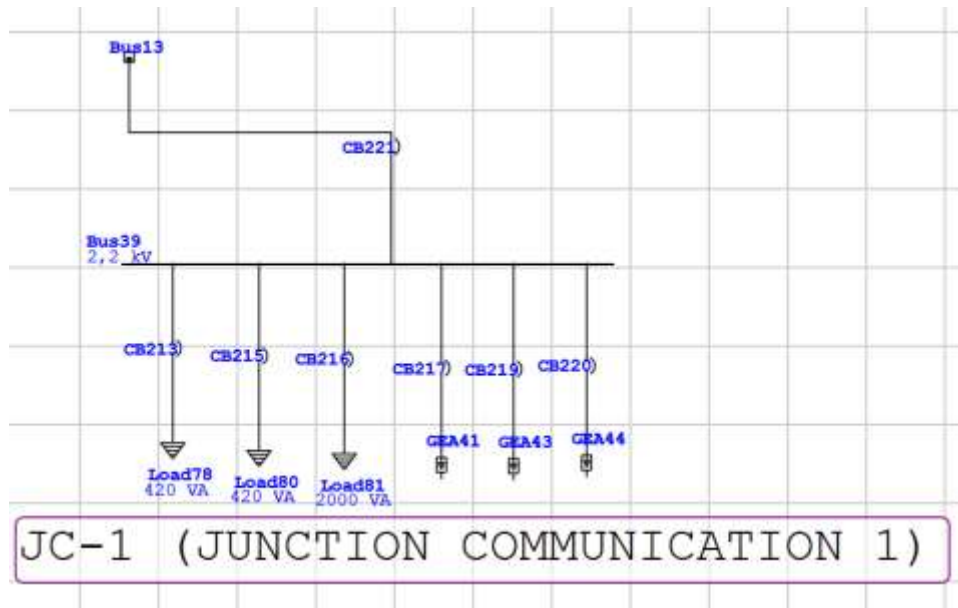


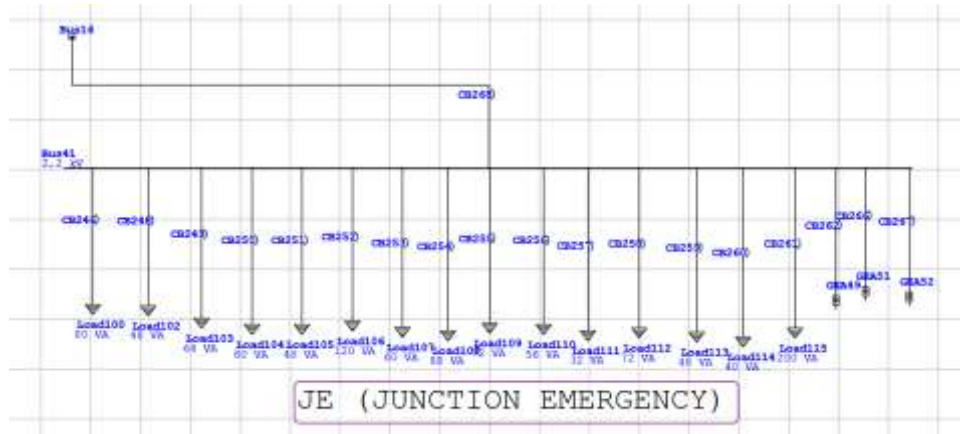












Lampiran 3. Spesifikasi *Auxiliary Engine*

MARINE AUXILIARY DIESEL ENGINE	<h2 style="margin: 0;">Generator Capacity</h2> <h3 style="margin: 0;">20~48kWe</h3>	MARINE AUXILIARY DIESEL ENGINE	<h2 style="margin: 0;">Generator Capacity</h2> <h3 style="margin: 0;">40~96kWe</h3>
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Specifications

Engine Model	4CHL-N		4CHL-TN		4CHL-TNA	
Type	Vertical, Water-cooled, 4-stroke Diesel					
No. of Cylinders	In-line 4					
Cylinder Bore × Stroke mm	105 × 125					
Continuous Rated Output <small>(kW/PS)</small>	27.9 (38)	36.8 (50)	36.8 (50)	45.6 (62)	45.6 (62)	54.4 (74)
Generator Capacity <small>(kVA/kVA)</small>	20 (25)	24 (30)	24 (30)	32 (40)	40 (50)	48 (60)
Engine Speed <small>min⁻¹</small>	1500	1800	1500	1800	1500	1800
Combustion system	Direct injection					
Starting system	Electric Starting or Air-motor starting					
Dry Weight <small>kg</small>	500		520			
Total Weight (Gen.Set) <small>kg</small>	940	990	1040		1090	

The engine dry weight may differ depending upon the specifications and attached accessories.
Above generator capacity will vary according to actual generator efficiency.

- In case of 4CHL-TNA, continuous load operation shall be 80% or below of rated power, and 100% load operation shall be within 2 hours per 12 hours.

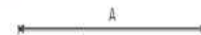


Specifications

Engine Model	6CHL-N		6CHL-TN		6CHL-TNA		6CHL-HTN		6CHL-HTNA	
Type	Vertical, Water-cooled, 4-stroke Diesel									
No. of Cylinders	In-line 6									
Cylinder Bore × Stroke mm	105 × 125									
Continuous Rated Output <small>(kW/PS)</small>	45.6 (62)	54.4 (74)	54.4 (74)	73.6 (100)	67.7 (92)	89.7 (122)	73.6 (100)	88.3 (120)	91.9 (125)	107 (145)
Generator Capacity <small>(kVA/kVA)</small>	40 (50)	48 (60)	48 (60)	64 (80)	60 (75)	80 (100)	64 (80)	80 (100)	80 (100)	96 (120)
Engine Speed <small>min⁻¹</small>	1500	1800	1500	1800	1500	1800	1500	1800	1500	1800
Combustion system	Direct injection									
Starting system	Electric Starting or Air-motor starting									
Dry Weight <small>kg</small>	625		645		645		675		675	
Total Weight (Gen.Set) <small>kg</small>	1220		1350		1350		1380		1540	

The engine dry weight may differ depending upon the specifications and attached accessories.
Above generator capacity will vary according to actual generator efficiency.

- In case of 6CHL-TNA / 6CHL-HTNA, continuous load operation shall be 80% or below of rated power, and 100% load operation shall be within 2 hours per 12 hours.



Activati
Go to Set

Lampiran 4. Dokumentasi Pengambilan Data



Penampakan *Auxiliary Engine*



Panel *SwitchBoard*



Panel F.O *Transfer Pump*