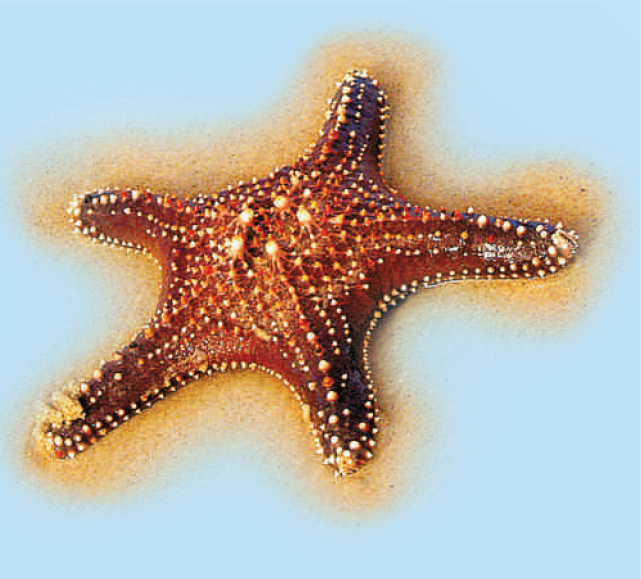
project
design
technologies
safety



ELECTRIC SYSTEM

NAVEL srl

Design, consultancy and technical support:

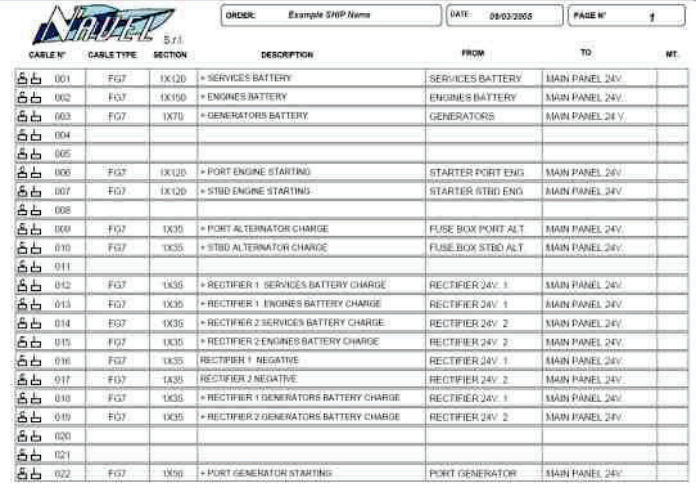
The 'Navel of electrical engineering department has a division for consultancy and technical support, with staff qualified to perform inspections and advice for:

- Energy distribution systems
- Electrical balance
- Verification of system design
- Checks for power losses
- Tests on plant dispersion in water
- Audits of compliance with the rules of classification societies of the materials used
- Verification of short circuit currents
- Checked on materials to be used
- Installation Service

Progettazione,consulenze e supporto tecnico:

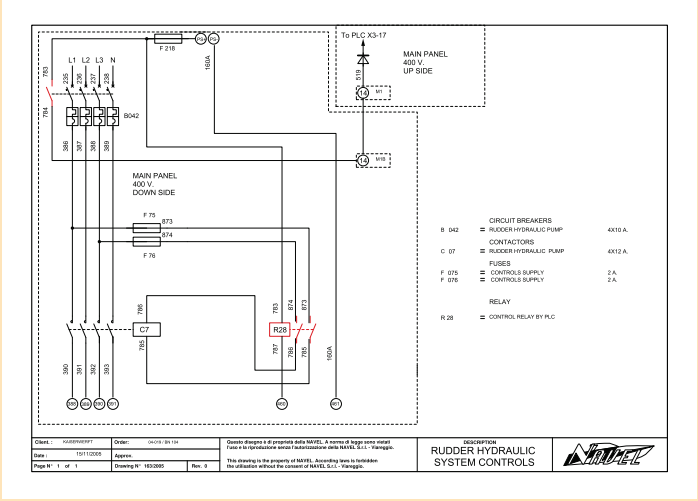
L' ufficio progettazione impianti elettrici di Navel ha una divisione per consulenze e supporto tecnico, con personale qualificato in grado di effettuare sopralluoghi e consulenza per:

- Sistemi distribuzione dell'energia
- Bilanci elettrici
- Verifiche di dimensionamento dell'impianto
- Verifiche dispersioni elettriche
- Verifiche su impianti di dispersione in acqua
- Verifiche di conformità alle norme degli enti di classifica dei materiali impiegati
- Verifiche di correnti di cortocircuito
- Consulenze sui materiali da utilizzare
- Assistenza all'installazione



ORDER: Example SHIP Name | DATE: 09/03/2005 | PAGE N° 1

CABLE N°	CABLE TYPE	SECTION	DESCRIPTION	FROM	TO	MT.
001	FG7	1X120	+ SERVICES BATTERY	SERVICES BATTERY	MAIN PANEL 24V	
002	FG7	1X150	+ ENGINES BATTERY	ENGINES BATTERY	MAIN PANEL 24V	
003	FG7	1X70	+ GENERATORS BATTERY	GENERATORS	MAIN PANEL 24 V.	
004						
005						
006	FG7	1X120	+ PORT ENGINE STARTING	STARTER PORT ENG	MAIN PANEL 24V	
007	FG7	1X120	+ STBD ENGINE STARTING	STARTER STBD ENG	MAIN PANEL 24V	
008						
009	FG7	1X35	+ PORT ALTERNATOR CHARGE	FUSE BOX PORT ALT	MAIN PANEL 24V	
010	FG7	1X35	+ STBD ALTERNATOR CHARGE	FUSE BOX STBD ALT	MAIN PANEL 24V	
011						
012	FG7	1X35	+ RECTIFIER 1 SERVICES BATTERY CHARGE	RECTIFIER 24V. 1	MAIN PANEL 24V	
013	FG7	1X35	+ RECTIFIER 1 ENGINES BATTERY CHARGE	RECTIFIER 24V. 1	MAIN PANEL 24V	
014	FG7	1X35	+ RECTIFIER 2 SERVICES BATTERY CHARGE	RECTIFIER 24V. 2	MAIN PANEL 24V	
015	FG7	1X35	+ RECTIFIER 2 ENGINES BATTERY CHARGE	RECTIFIER 24V. 2	MAIN PANEL 24V	
016	FG7	1X35	RECTIFIER 1 NEGATIVE	RECTIFIER 24V. 1	MAIN PANEL 24V	
017	FG7	1X35	RECTIFIER 2 NEGATIVE	RECTIFIER 24V. 2	MAIN PANEL 24V	
018	FG7	1X35	+ RECTIFIER 1 GENERATORS BATTERY CHARGE	RECTIFIER 24V. 1	MAIN PANEL 24V	
019	FG7	1X35	+ RECTIFIER 2 GENERATORS BATTERY CHARGE	RECTIFIER 24V. 2	MAIN PANEL 24V	
020						
021						
022	FG7	1X50	+ PORT GENERATOR STARTING	PORT GENERATOR	MAIN PANEL 24V	



To PLC X3-17

MAIN PANEL 400 V. UP SIDE

MAIN PANEL 400 V. DOWN SIDE

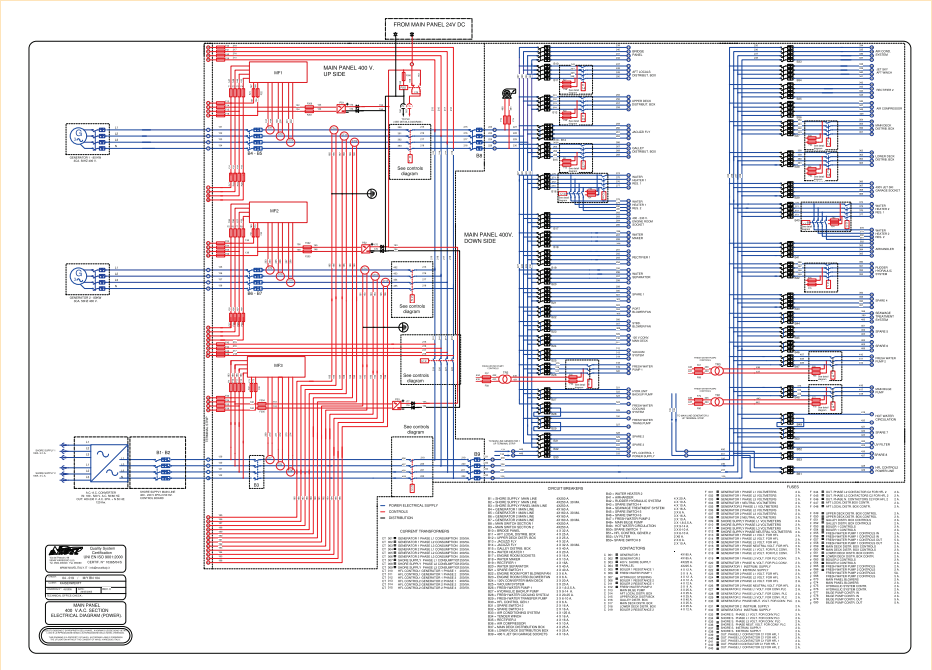
CIRCUIT BREAKERS
B 042 = RUDDER HYDRAULIC PUMP 4X10 A.

CONTACTORS
C 07 = RUDDER HYDRAULIC PUMP 4X12 A.

FUSES
F 075 = CONTROLS SUPPLY 2 A.
F 076 = CONTROLS SUPPLY 2 A.

RELAY
R 28 = CONTROL RELAY BY PLC

DESCRIPTION: RUDDER HYDRAULIC SYSTEM CONTROLS



FROM MAIN PANEL 24V DC

MAIN PANEL 400 V. UP SIDE

MAIN PANEL 400V. DOWN SIDE

MAIN PANEL 400 V.A.C. SECTION ELECTRICAL DIAGRAM (POWER)

Date 21/11/2005 Order OUR ORDER 04-019 - BN 104

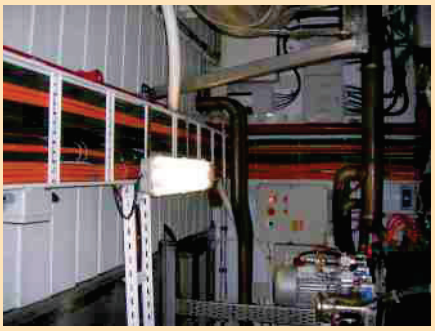
Apparatus Main panel 400V. AC (up side) Terminal Strip High horizontal terminal strip

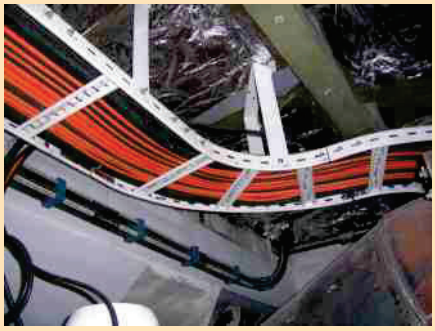
Terminal number	Terminal sect.mmq	Description	Line number	Wire colour/number	Terminal strip destination	Term strip dest. n
1	70	Generator 1 Power Line Phase 1	478	1		
2	70	Generator 1 Power Line Phase 2	478	2		
3	70	Generator 1 Power Line Phase 3	478	3		
4	70	Generator 1 Power Line Neutral	478	4		
5	70	Generator 2 Power Line Phase 1	479	1		
6	70	Generator 2 Power Line Phase 2	479	2		
7	70	Generator 2 Power Line Phase 3	479	3		
8	70	Generator 2 Power Line Neutral	479	4		
9	70	Shore Supply Power Line Ph. 1	488	1		
10	70	Shore Supply Power Line Ph. 2	488	2		
11	70	Shore Supply Power Line Ph. 3	488	3		
12	70	Shore Supply Power Line Neutral	488	4		
13	Fuse	Generator 1 Voltmeter Ph. 1 To Hfl Ctr.	HFL 14	4		
14	Fuse	Generator 1 Voltmeter Ph. 2 To Hfl Ctr.	HFL 14	5		
15	Fuse	Generator 1 Voltmeter Ph. 3 To Hfl Ctr.	HFL 14	6		
16	Fuse	Generator 1 Voltmeter Neut. To Hfl Ctr.	HFL 14	7		
17	Fuse	Generator 1 Voltm. Ph. 1 To Convert.	622	1		
18	Fuse	Generator 1 Voltm. Ph. 2 To Convert.				
19	Fuse	Generator 1 Voltm. Ph. 3 To Convert.				
20	Fuse	Generator 1 Voltm. Neutral To Convert.	622	2		
21	Fuse	Generator 2 Voltmeter Ph. 1 To Hfl Ctr.	HFL 16	4		
22	Fuse	Generator 2 Voltmeter Ph. 2 To Hfl Ctr.	HFL 16	5		
23	Fuse	Generator 2 Voltmeter Ph. 3 To Hfl Ctr.	HFL 16	6		
24	Fuse	Generator 2 Voltmeter Neut. To Hfl Ctr.	HFL 16	7		
25	Fuse	Generator 2 Voltm. Ph. 1 To Convert.	622	3		
26	Fuse	Generator 2 Voltm. Ph. 2 To Convert.				
27	Fuse	Generator 2 Voltm. Ph. 3 To Convert.				
28	Fuse	Generator 2 Voltm. Neut. To Convert.	622	4		
29	Fuse	Shore S. Voltm. Ph. 1 To Convert.				
30	Fuse	Shore S. Voltm. Ph. 2 To Convert.				
31	Fuse	Shore S. Voltm. Ph. 3 To Convert.				
32	Fuse	Shore S. Voltm. Neutral To Convert.				
33	4	Ammeter Signal L1 Generator 1 Hfl Control	HFL 13	1		
34	4	Ammeter Signal L1 Generator 1 Hfl Control	HFL 13	2		
35	4	Ammeter Signal L2 Generator 1 Hfl Control	HFL 13	3		
36	4	Ammeter Signal L2 Generator 1 Hfl Control	HFL 13	4		
37	4	Ammeter Signal L3 Generator 1 Hfl Control	HFL 13	5		
38	4	Ammeter Signal L3 Generator 1 Hfl Control	HFL 13	6		
39	4	Ammeter Signal L1 Generator 2 Hfl Control	HFL 15	1		
40	4	Ammeter Signal L1 Generator 2 Hfl Control	HFL 15	2		
41	4	Ammeter Signal L2 Generator 2 Hfl Control	HFL 15	3		
42	4	Ammeter Signal L2 Generator 2 Hfl Control	HFL 15	4		
43	4	Ammeter Signal L3 Generator 2 Hfl Control	HFL 15	5		
44	4	Ammeter Signal L3 Generator 2 Hfl Control	HFL 15	6		
45	Fuse	Generator 1 Section 1 L1 Volt. Signal Hfl Ctr.	HFL 17	1		
46	Fuse	Generator 1 Section 1 L2 Volt. Signal Hfl Ctr.	HFL 17	2		
47	Fuse	Generator 1 Section 1 L3 Volt. Signal Hfl Ctr	HFL 17	3		

Electric System Division

Electrical installation

-Production and installation
of electric systems
-Repairs and refitting
-Support for italian and foreign off-site wirings.
-Engineer advice





The electrical installations are designed and constructed taking into account all the requirements of security, reliability, simplicity. The design of each electrical installation is performed taking into account the needs of the customer in accordance with the regulations of entities Shipyard standings. The traceability of materials and the simplification of wiring diagrams make it easy for any subsequent maintenance.
The Navel achieves complete electrical intsallation with their staff in local projects and develop complete Customers in Italy and foreign. All procedures design pass through quality control with which the Navel is certified.

Realizzazione impianti

-Installazione di impianti elettrici
-Lavorazioni di riparazione e refitting
-Supporto tecnico per impianti
fuori sede Italia & Estero
-Consulenza tecnica

Gli impianti vengono progettati e realizzati tenendo conto di tutte le esigenze di sicurezza, affidabilità, semplicità. La progettazione di ogni impianto viene eseguita tenendo conto delle esigenze del Cliente in accordo con le normative vigenti degli enti navali di classifica. La rintracciabilità dei materiali e la semplificazione degli schemi elettrici rendono agevole gli eventuali interventi di manutenzione successivi.
La Navel realizza impianti completi con proprio personale nell'ambito locale e sviluppa progetti completi per Clienti sia in Italia che all'estero. Tutte le procedure di progettazione passano attraverso il controllo di qualità con cui la Navel è certificata.

Switchboards

- Aluminium and steel construction
- Completely checkable
- Epoxy environment marine paint
- International components used
- Intuitive screen-pinted
- Completely customizable
- Modular construction for specific request

Quadri elettrici

- Costruiti in alluminio o acciaio
- Completamente ispezionabili
- Verniciature epossidiche per ambiente marino
- Componenti di facile rintracciabilità internazionale
- Serigrafia intuitiva
- Completamente personalizzabili
- Possibilità di costruzione a moduli