

**DESCRIPTION :**                    **Protection, control and  
power supply box  
for GMDSS system**

**Vessels equipped with an AC or DC onboard network  
(external regulated filtered charger \*)**

**TYPE :**                                **ICA - GMDSS 30 - RAE  
(Deported platen A + V)**

**REFERENCE :**                        **SEEL006715F**

**SERIAL NUMBER :**

**MANUFACTURER CODE :**        **F 3645**

**CUSTOMER :**

## IDENTIFICATION

<b>MATERIAL</b>	<b>ICA - GMDSS 30 - RAE</b>
-----------------	-----------------------------

### Material identification procedure

		I	CA	GMDSS	30	RAE	
INTERNATIONAL RULES	<b>I</b>						
FRENCH RULES	<b>F</b>						
ALTERNATING CURRENT	<b>CA</b>						
DIRECT CURRENT	<b>CC</b>						
GLOBAL MARITIME DISTRESS and SAFETY SYSTEM	<b>GMDSS</b>						
SYSTEME MARITIME de DETRESSE et de SECURITE en MER	<b>SMDSM</b>						
OUTPUT NOMINAL DC CURRENT	<b>Idn</b>						
AUTOMATIC DETECTION SYSTEM	<b>RAE</b>						
SPECIFIC SPECIFICATIONS							

## CONTENTS

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## **1 - GENERALITIES**

ENAG has been specializing in the production of power supplies for the marine environment for more than 30 years.

ENAG manufactures a complete range of automatic battery chargers.

We can also propose some regulated and filtered power supplies and converters, some monitoring systems which enable to compose the global supply of the GMDSS system.

This manual is intended for equipment users and installation and maintenance engineers. The manual must be read thoroughly before any operations are undertaken on the product and all the users must be informed.

### **Choice of Appliance**

The choice of appliance will depend on applicable standards, battery type (technology used, number of cells, capacity), amount of current consumed by the load centres and installation and environment constraints.

## 2 - PRESENTATION

Compact box in conformity with 219 (project from 8/07/98).

It includes :

- 1 main source protected input (On-board main) 219 - 13 - 1
- 1 battery charger
- 1 separator diode navigation post engine room 219 - 13 - 5
- 1 stand-by source protected input (radio battery) 219 - 13 - 1
- 1 emergency source protected input (service battery with associated generator if in operation ) 219 - 13 - 1
- 1 automatic reverser without cut-off 219 - 13 - 3
- 1 supervision PCB with active protection, indicator lights, buzzer, voltmeter and ammeter
  - Main source over voltage default. Lights + Buzzer 219 - 13 - 4 et 219 - 13 - 6
  - Emergency and stand-by battery under voltage defaults. Lights + Buzzer. Automatic battery test 219 - 13 - 4
  - 1 Voltmeter and 1 ammeter 219 - 13 - 3 et 219 - 25 - 4
- Protected outputs :
  - 1 HF transmitter
  - 1 Standard C
  - 1 Telex or 2nd standard C
  - 1 VHF with ASN
  - 1 VHF with ASN
  - 1 Navtex
  - 1 Emergency light or GPS

### 3 - OPERATING DESCRIPTION

The functioning principle of the GMDSS box is based on Automatic detection System (RAE system).

Taking into account the “GMDSS” supply logic, the aim is to supply the appropriate power with an optimal autonomy thanks to radio-communications systems.

#### Functioning modes :

##### 1 – Main source present

The main generator, directly connected (DC) or through a battery charger (AC), supplies the loads and maintains the radio battery in good charge state. The whole system functions in “UPS” mode.

A stand-by battery test (radio battery) is carried out periodically (every 6 hours). It enables to :

- Check that the battery is present
- Check that the battery is in good charge state
- Lengthen its life duration by carrying out charge and discharge cycles.

The SW1 switch located on the control PCB enables to immediately launch a stand-by battery test (inspection control).

##### 2 – Main source defective

The main generator does not supply the loads anymore. Two options are possible :

OPTION A : priority to the stand-by source. Use of the control PCB in U4 in the PAL ref GMDSS24A.

The loads are first supplied without cut-off by the stand-by source (within the limit of specified voltage), then by the emergency source. That way the emergency source is protected for an optimum autonomy.

OPTION B : priority to the emergency source. Use of the control PCB in U4 in the PAL ref GMDSS24B.

The loads are first supplied without cut-off by the emergency source (within the limit of specified voltage), then by the stand-by source. That way the stand-by source is protected for an optimum autonomy.

In case an over voltage of the main generator is detected, the generator is immediately disconnected and the loads are supplied by the stand-by or emergency source depending on the option chosen.

##### 3 - Ship alongside the quay, motor stopped

The operator puts the switch on the « OFF » position. The radio is only supplied by the service battery as long as the battery main switch is not activated.

When the motor is started, the buzzer sound tells the user to put the switch on the “ON” position. The box is in operation.

## **4 - TECHNICAL CHARACTERISTICS**

### **4.1 ELECTRICAL CHARACTERISTICS**

- Main supply input: : 230 VAC 50Hz
- Battery charger : 24VDC 30A
- Radio battery input : 24 VDC 30 A
- Service battery input : 24 VDC 30 A
- Protected loads outputs : 1 x 24VDC 30A  
6 x 24VDC 7.5A

### **4.2 MECHANICAL CHARACTERISTICS**

- Housing in a metallic box with cable-glands.
- On the front panel, one voltmeter and one battery ammeter, alarm PCB and display PCB (Leds, buzzer). On/off switch and state light.
- IP 20 protection with natural ventilation

#### **4.2.1 CLIMATIC SPECIFICATIONS**

- Temperature : - 10°C at + 45°C
- Humidity : 95 % without condensation

#### **4.2.2 APPLICABLE STANDARDS AND RULES**

- Merchant Marine Rules Part 219
- SOLAS Rules
- Bureau Veritas approval
- CE Marking
- European directive.

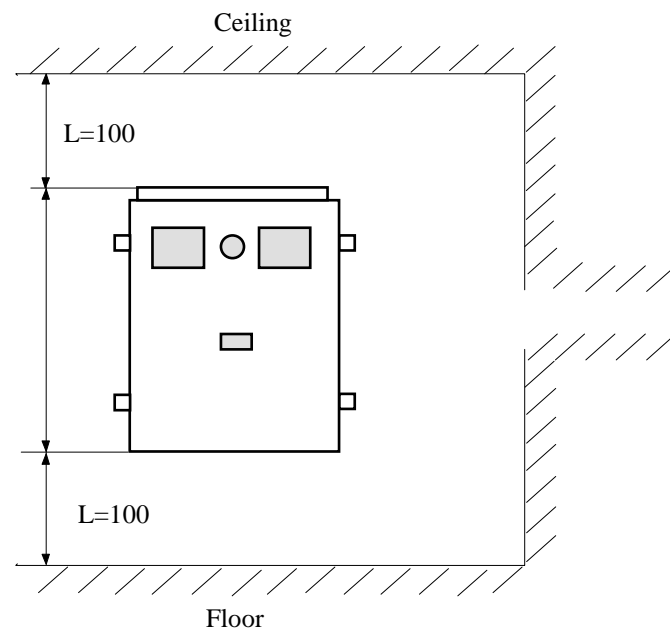
## 5 - INSTALLATION - CONNECTION - SETTINGS TROUBLESHOOTING

### 5.1 INSTALLATION

As the appliance is cooled by natural convection, a minimum allowance must be left for installation as shown.

Mounting centre distance and space requirement: see enclosed drawing.

The situation of the charger must be adapted to its protection rating.



### 5.2 CONNECTION

- The cable fixation is done on the connecting bar.
- A shielded cable connection attenuates electromagnetic disturbance and reduces the susceptibility of the appliance. This type of cable is recommended in all installations.
- The ground terminal or lug of the appliance must be connected by a short, wide strap to the installation ground. See cables fixation plan.
- The ground strap of the shielded cables must be linked to the appliance ground inside the case.
- Separate the supply, load and control cables.

### 5.3 SETTINGS

See enclosed drawing.



## 5.4 TROUBLESHOOTING

### 5.4.1 Switch on 0

- The led functioning on emergency battery remains switched off.
  - ➔ **Check** the presence of voltage at the input terminals, the state of the F5 and F6 fuses.
  
- The voltmeter does not show the stand-by battery voltage.
  - ➔ **Check** the presence of voltage at the input terminals, the state of the F3 and F4 fuses.

### 5.4.1 Switch on 1

- The led main source presence remains switched off.
  - ➔ **Check** the presence of voltage at the input terminals, the state of the F1 and F2 fuses.
  
- The led main source presence is lit and the led functioning on main source remains switched off.

IF OPTION A : priority to the stand-by source. Use of the control PCB in U4 on the PAL REF GMDSS24A

- The led functioning on stand-by source is lit.

- ➔ **Check** the voltage of the main source.
- ➔ **Check** the stand-by battery test is not running.

- The led functioning on emergency source is lit.

- ➔ **Check** the voltage of the main source and the stand-by source.

IF OPTION B : priority to the emergency source. Use of the control PCB in U4 on the PAL REF GMDSS24B

- The led functioning on emergency source is lit.

- ➔ **Check** the voltage of the main source.

- The led functioning on stand-by source is lit.

- ➔ **Check** the stand-by battery test is not running.
- ➔ **Check** the voltage of the main source and the emergency source.

- The led stand-by battery default is lit.
  - If the red led on the control PCB is lit, this means that a stand-by battery test has been carried out and that the result is negative. This led will remain lit until the next test.
  - If the red led on the control PCB is not lit, this means that an over voltage on the stand-by battery has been detected.

In both cases, check the stand-by battery.

Contact the ENAG Technical Department who will indicate any further tests to be carried out according to the measuring and testing means available to the operator.

☞ In case of failure persistence, please contact the ENAG factory. The material must be dismantled and sent to the factory where the internal electronic circuits are checked on an appropriate test bench.

## 6 - MAINTENANCE

- Switch off the power.
- If the appliances are situated in a dusty atmosphere, clean them periodically with a vacuum cleaner as a build-up of dust prevents heat dissipation.
- An annual check on the main nuts and screws may prove necessary in highly disturbed environments (strong vibrations, wide temperature variations, etc.).
- A full technical inspection by a qualified inspector is recommended every year.

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## APPENDIX

<b>Dimensions (alimentation box)</b>	<b>N° 06715 05</b>
<b>Dimensions (deported platen)</b>	<b>N° 06715 15</b>
<b>Terminal</b>	<b>N° 04933 04</b>
<b>Implantation</b>	<b>N° 04933 09</b>
<b>Implantation cover</b>	<b>N° 06715 10</b>
<b>Electrical drawing</b>	<b>N° 06715 06</b>
<b>Spare parts list</b>	<b>N° 06715 RF</b>
<b>Cables fixation</b>	<b>N° 04933 11</b>
<b>Setting plan (control PCB)</b>	<b>N° 04834 05</b>
<b>Connection</b>	<b>N° 06715 16</b>
<b>Synoptic</b>	<b>N° 04809 09</b>
<b>Synoptic</b>	<b>N° 04809 10</b>

## Guidelines on equipment installation

By virtue of European directive 89/336/EC, the equipment must conform to electromagnetic compatibility criteria ⇒ Date of application: January 1st, 1996.

The two main demands in terms of electromagnetic compatibility are:

- **Emission**: Protection of the environment against disturbance by conduction and radiation.
- **Immunity**: Absence of susceptibility in a disturbing atmosphere.

## Installation

### General Rules

The equipment must be installed according to the recommendations of the user manual. The main rules are as follows:

- Use shielded cables with a correct section in order to power the appliance and the load centres within acceptable tolerance limits.  
(Definition criteria: nature and length of the cables, ambient temperature, voltage drop, type of tracking, etc.).
- Make sure the equipment is correctly ventilated for good heat dissipation (installation space, ambient temperature, etc.).
- Choose the location in accordance with the protection rating of the appliance.

## Emc-related installation guidelines

### Cables:

- Use shielded cable for all connections (\*). The shielding must be grounded on the transmitter side and the receiver side.
- Keep the cables and shielding connections as short as possible.
- Feed the cables as close as possible to the ground (“loose” cables or loops are to be avoided - fasten the cables down to the ground).
- Separate the supply and load cables.
- Separate the power and control cables (minimum 200 mm).
- The cables should only supply power to the appliance. A branch connection or bridge to supply another appliance are to be prohibited.

(\*). This is a recommendation but is not compulsory. The installation electrician will consider the EMC environment and decide whether or not to use shielded cable.

## Metal casing

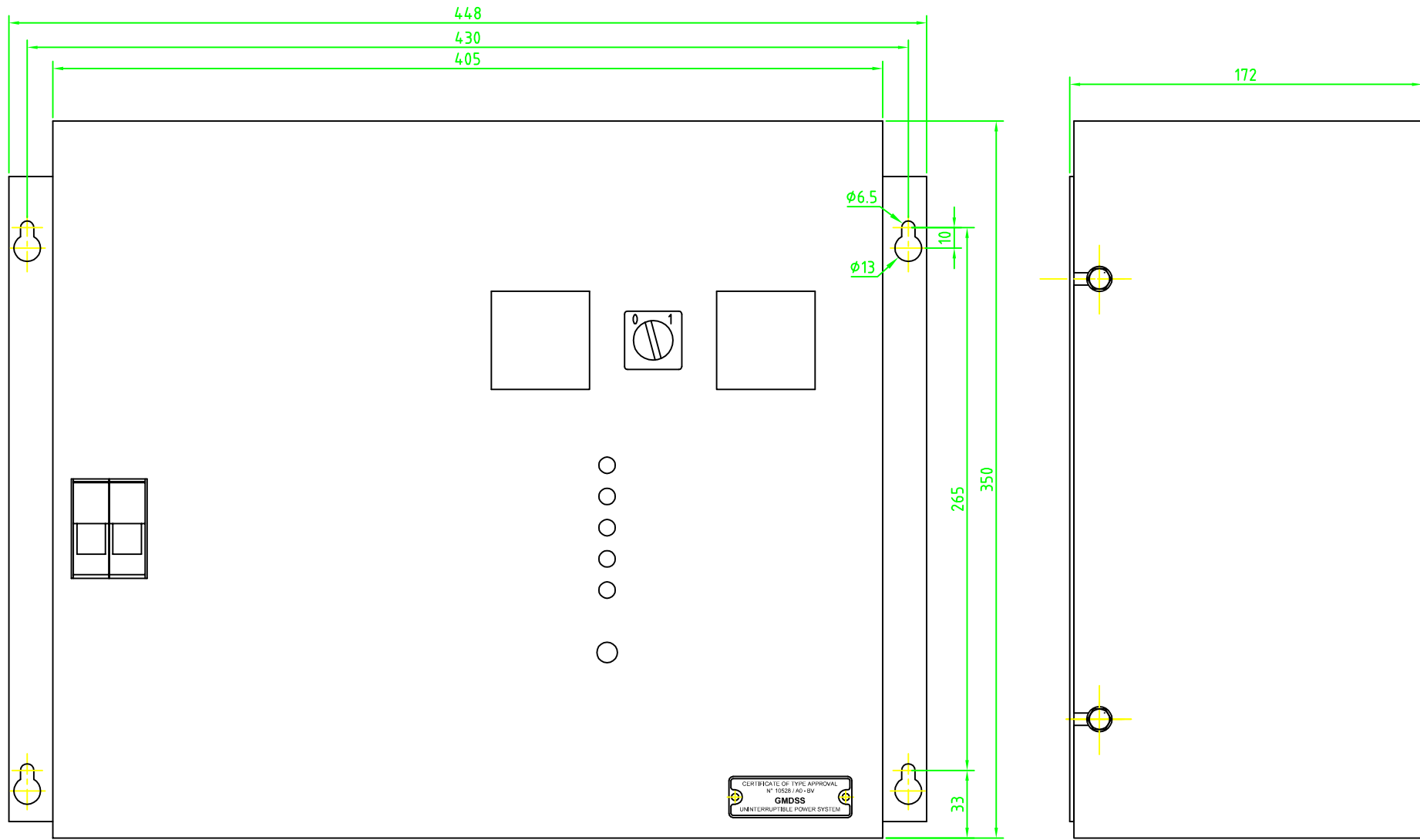
- The cases or cabinets for the appliances or containing the equipment must be metallic or have a conductive coating.
- The ground bolt or lug of the casing should be connected to the main ground by the shortest strap possible. The bolt connected to the main ground must have a good electrical contact (scratch off the paint and weld the bolt).
- The ground being the reference point of the potential, the various current-bearing parts of the equipment environment must be made equipotential by linking them together (where possible, metal shielding and troughs are grounded with the shortest straps).

## Additional attenuator systems

- The coils of contactors, relays, solenoid valves and electromagnets must be equipped with overvoltage arresters (RC circuits, varistor or diode on direct current, RC circuits or varistor on alternating current).
- Additional filters may be mounted according to applicable standards. Disturbance attenuation enables the specified levels to be attained. The filters must be mounted as near as possible to the appliance.

Remember that filters increase the leakage current.

As a general rule, we recommend consulting the manufacturer before installing a filter, particularly on the load and control cable side.

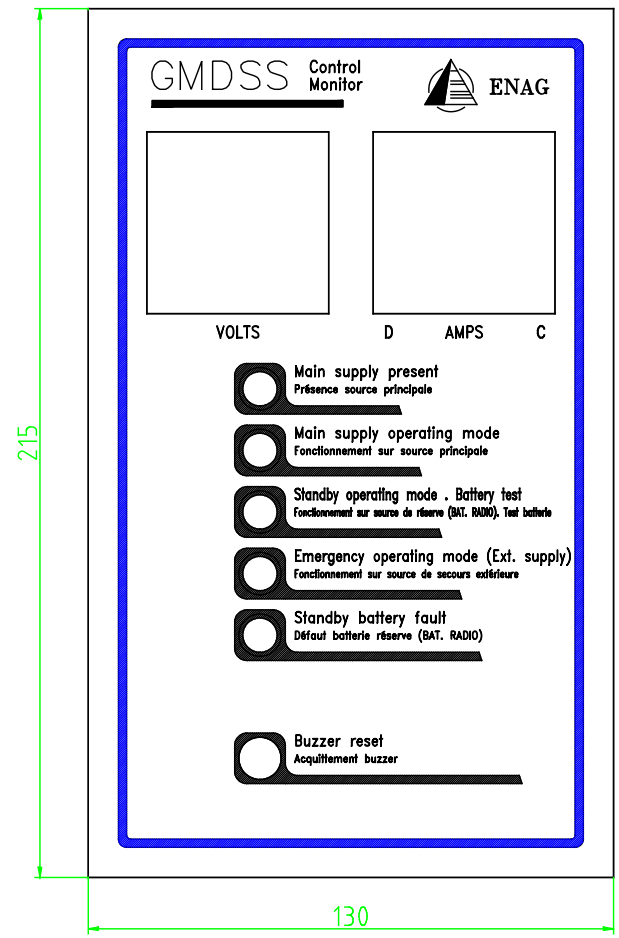


MASSE : 10KG

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				Tol. générale :	Usiné :		
47, Av. P. Mendès France 29000 QUIMPER Tél. 02 98 55 51 99 Fax 02 98 55 51 67				Dessiné : GLM		Le : 05 02 99	
				Vérifié : F.Pe.		F° : /	
				N° 06715 05A			

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Platine déportée  
Deported platen

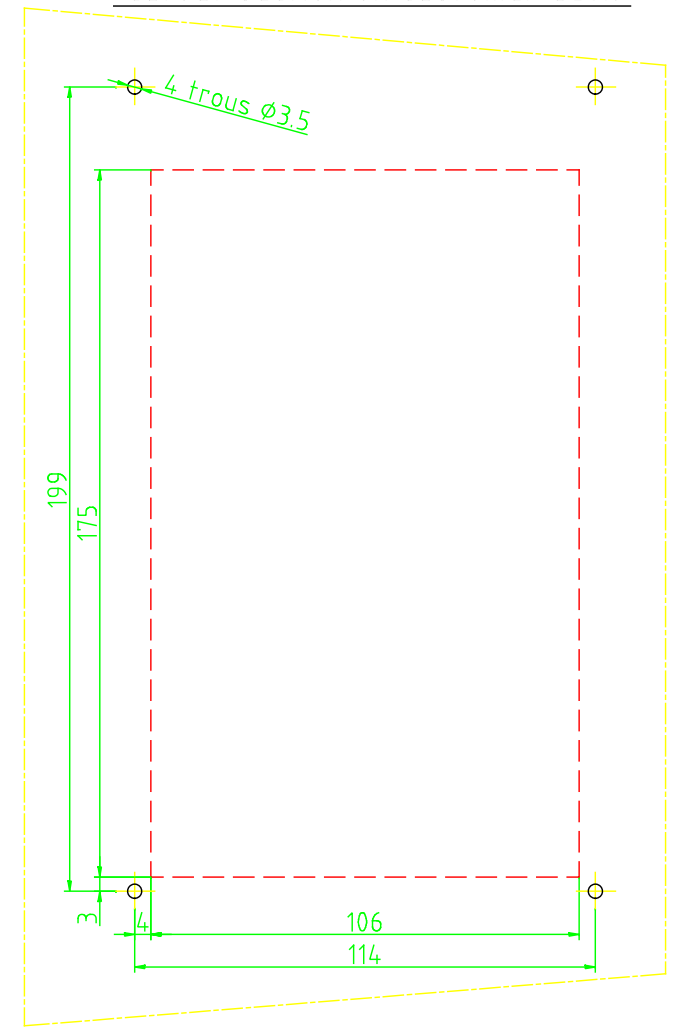


Pupitre client  
Customer desk

Platine déportée  
Deported platen



Découpe sur pupitre client  
Cutout section on customer desk

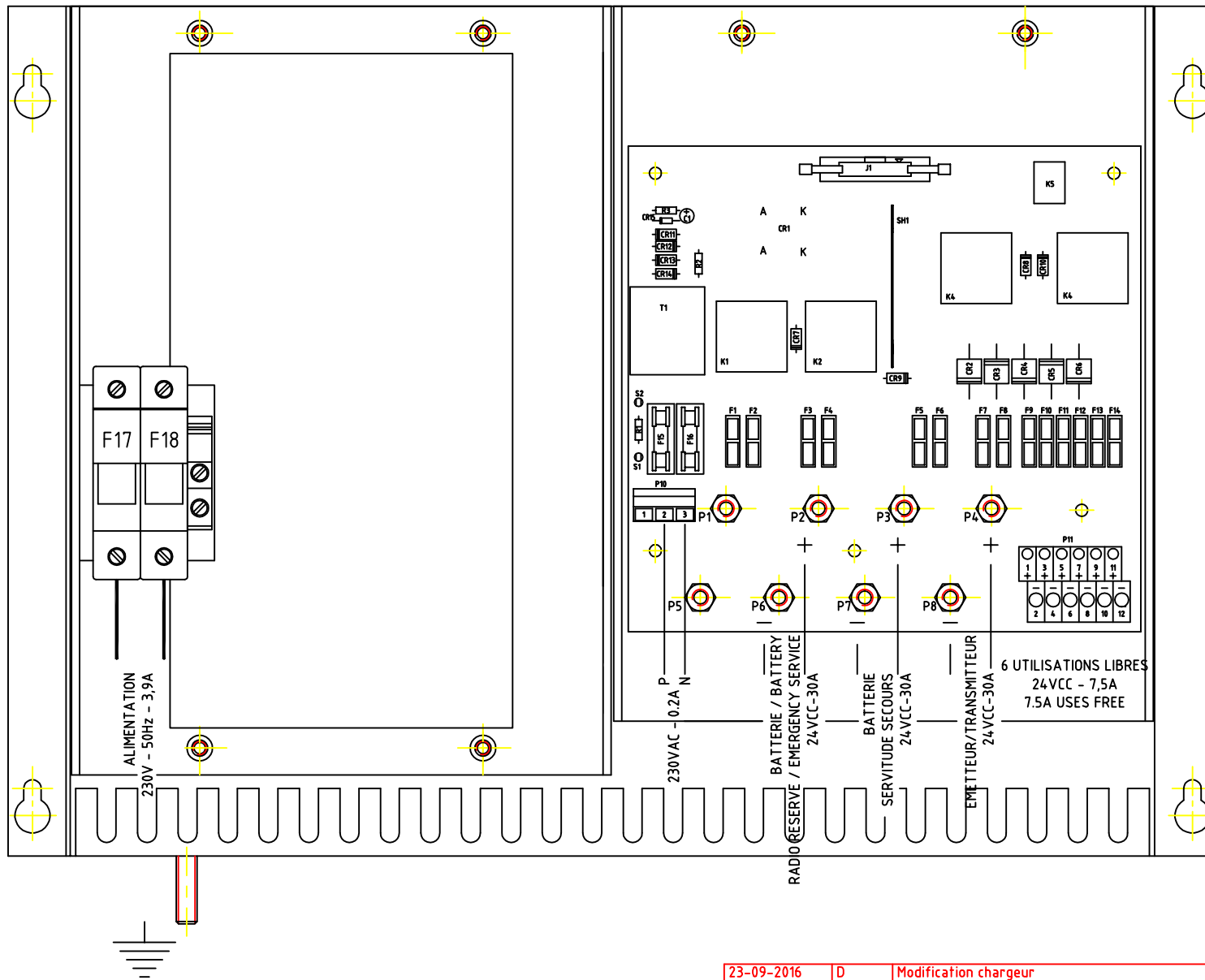


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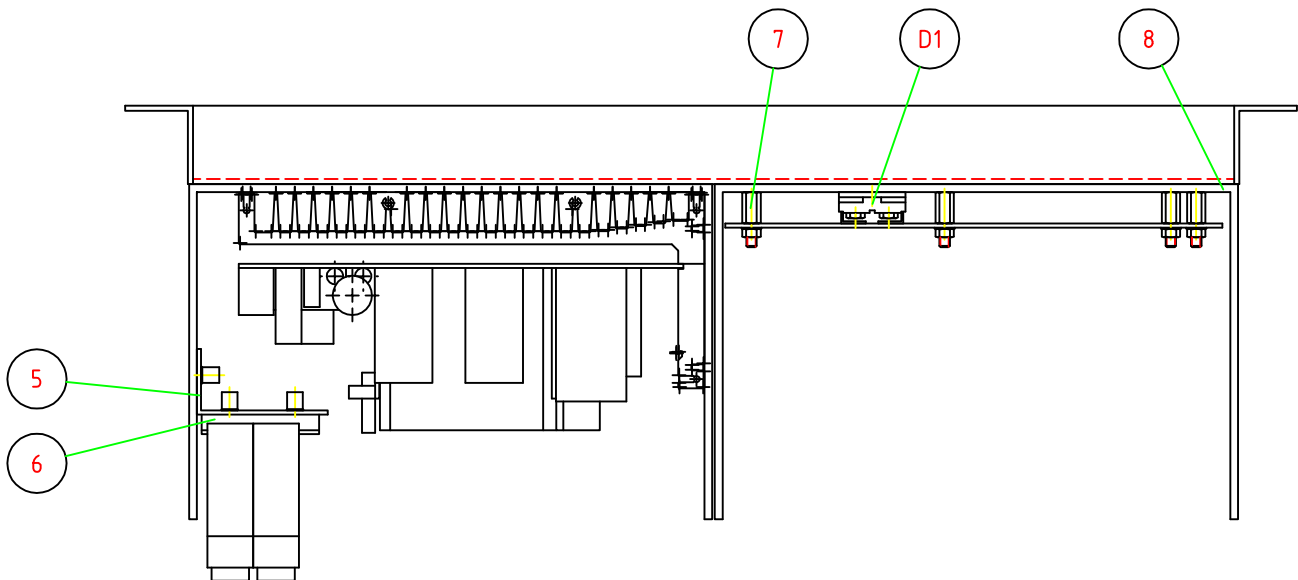
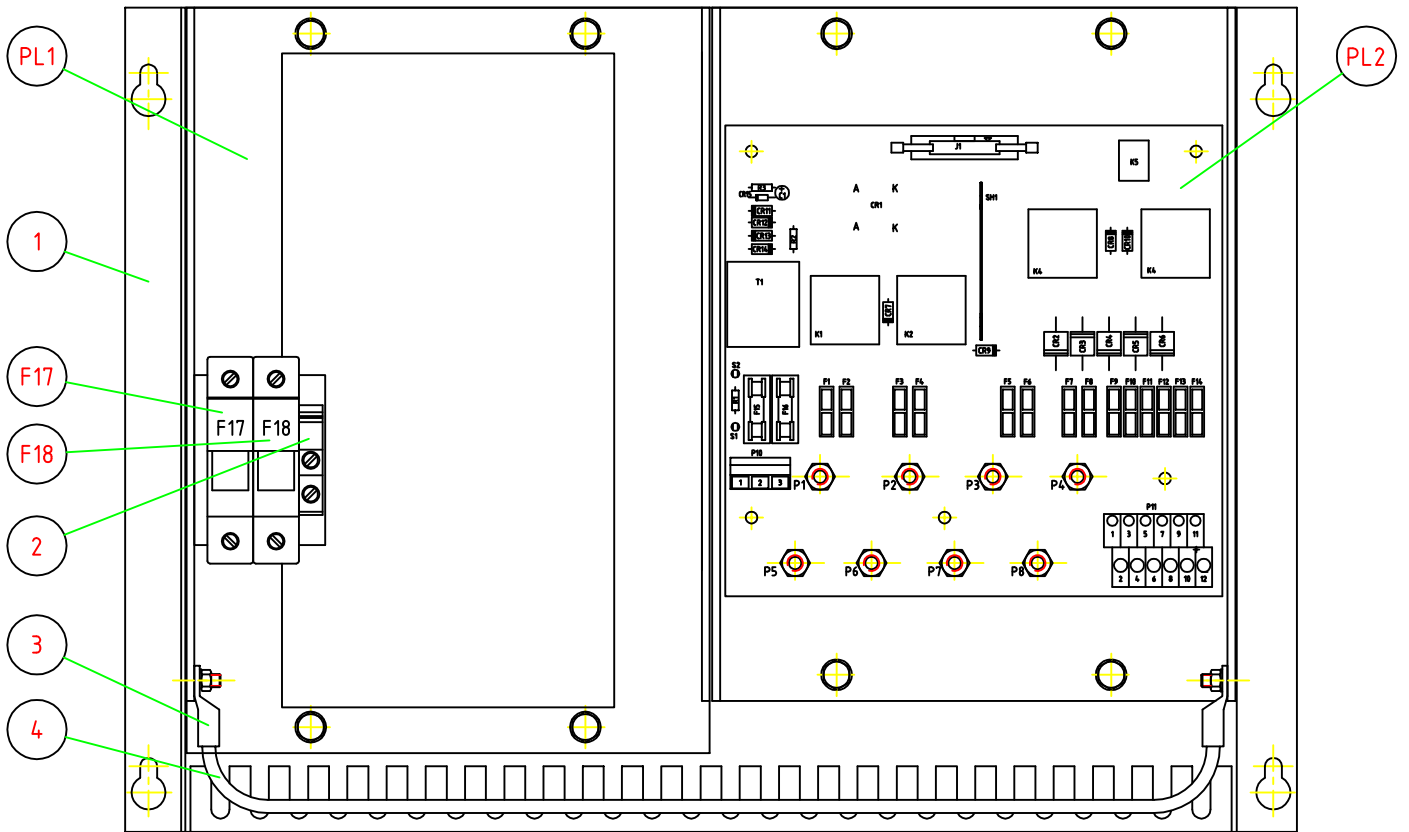
23-09-2016	D	Modification chargeur	C.Pr.	Quantité :
01-07-2009	C	Modification pour CDS3	C.Pr.	
29-02-2008	B	Modification pour CDS2	C.Pr.	Matière :
Date	Indice	Modification	Visa	

ICA GMDSS 30 RAE  
RACCORDEMENT / CONNECTING

31, rue Marcel Paul  
29000 QUIMPER  
Tél. 02 98 55 51 99  
Fax 02 98 55 51 67



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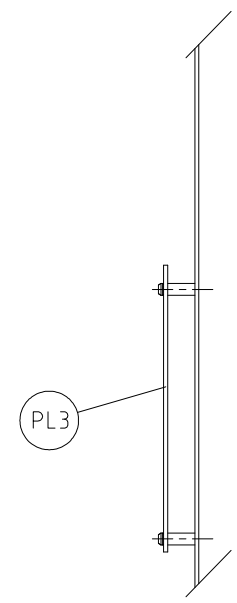
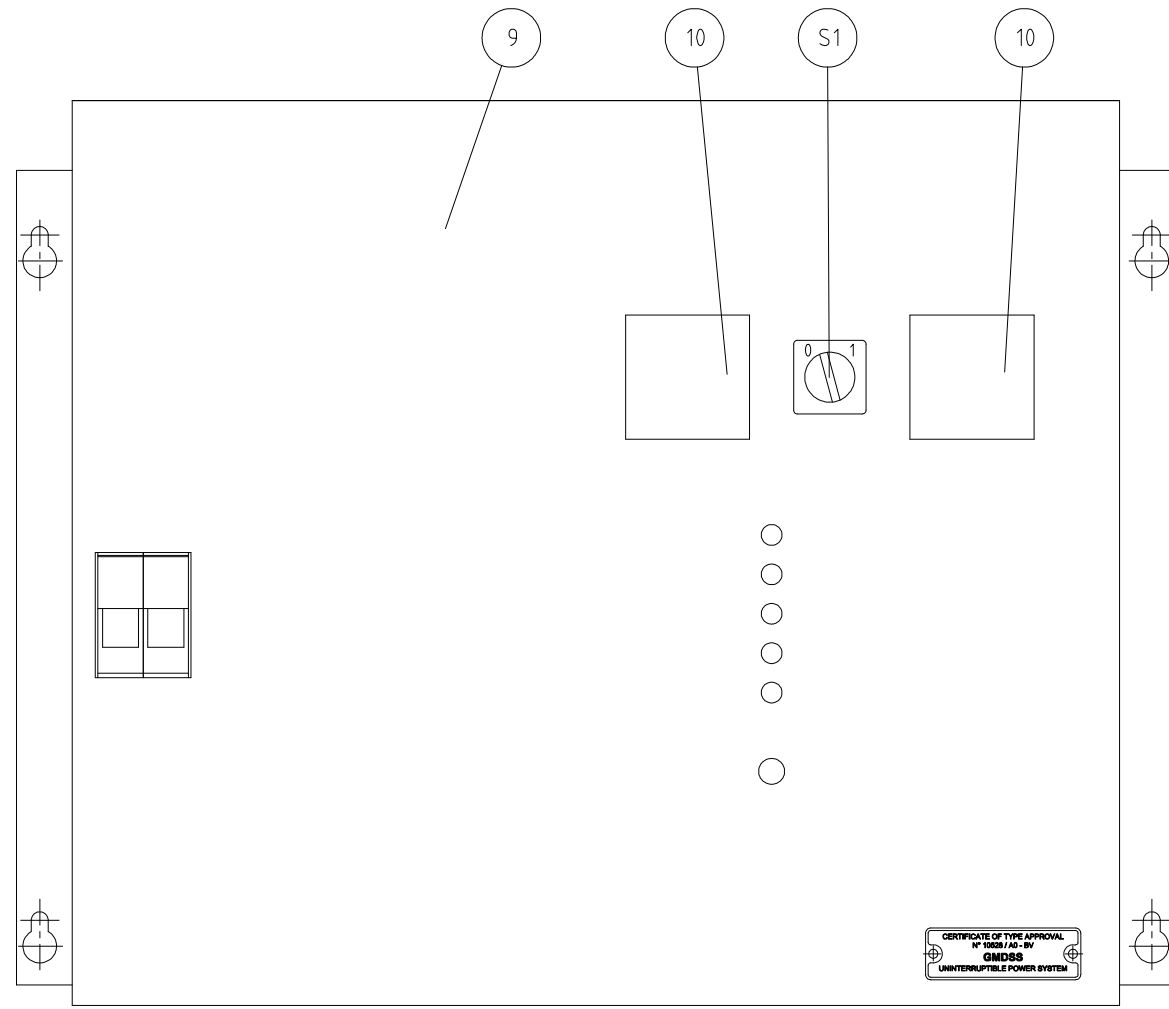


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01-07-2009	C	Modification pour CDS3	C.Pr.	
29-02-2008	B	Modification pour CDS2	C.Pr.	Matière :
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ICA GMDSS 30 RAE IMPLANTATION			Ech : 0.5	Finition :
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47, Av. P. Mendès France 29000 QUIMPER Tél. 02 98 55 51 99 Fax 02 98 55 51 67			Dessiné : GLM	Le : 05 02 99
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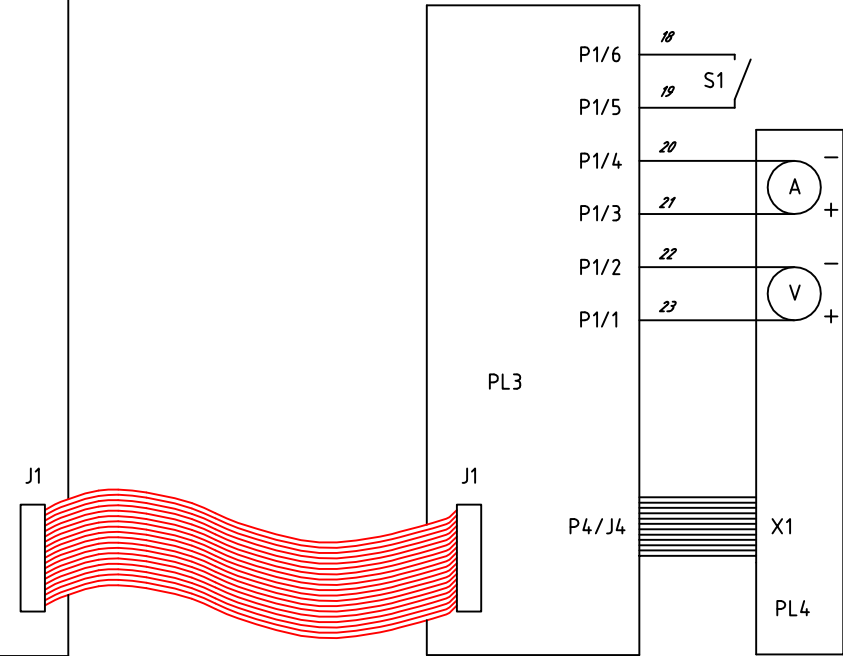
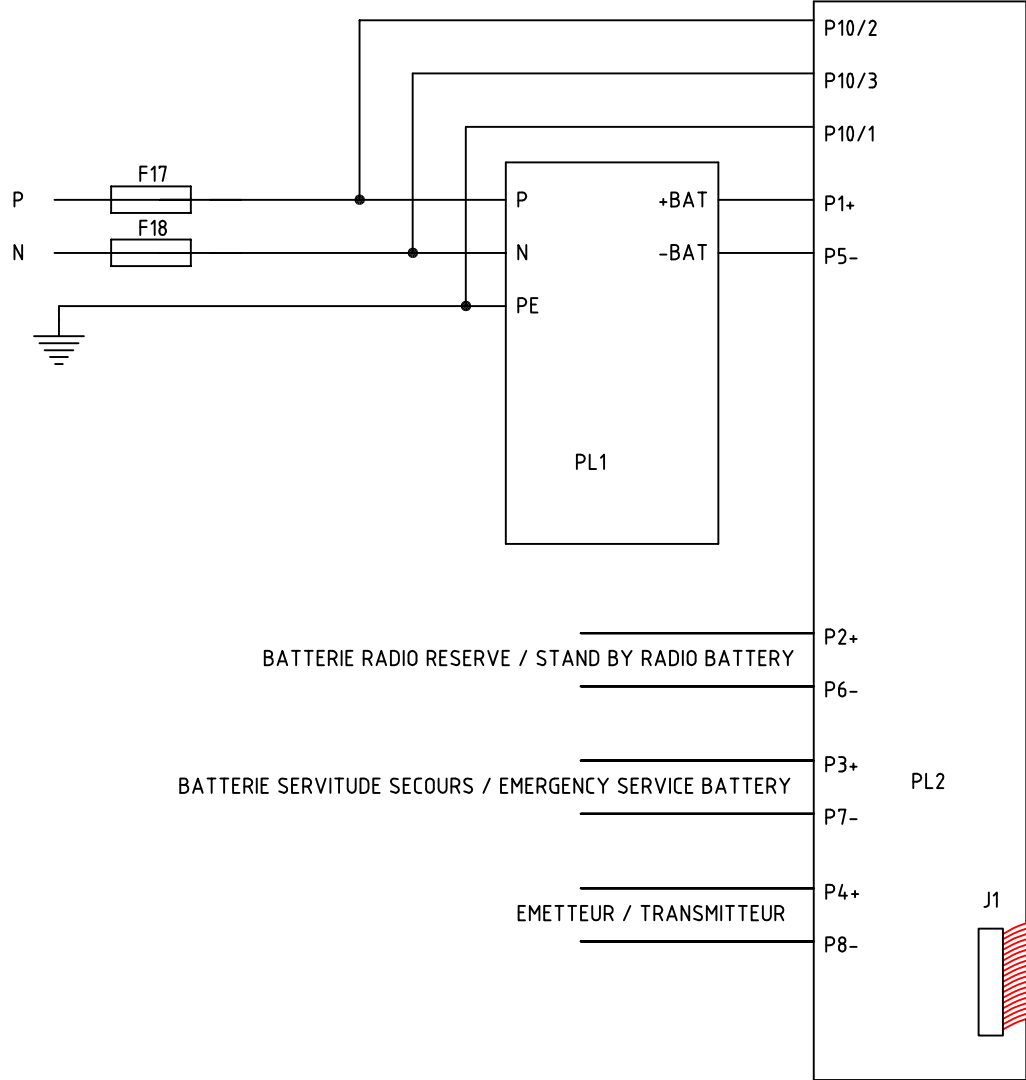


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Date	Indice	Modification	Visa		
ICA GMDSS 30 RAE (DEPORTE A + V) IMPLANTATION COUVERCLE			Ech : 0.5		Finition :
			Tol. générale :	Usiné :	
47, Av. P. Mendès France 29000 QUIMPER Tél. 02 98 55 51 99 Fax 02 98 55 51 67			Dessiné : GLM		Le : 19 03 02
			Vérifié :		F° : /
			N° 0671510 A		

S S R Q P O N M L K J I H G F E D C B A

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230VAC-115VAC  
230VCA-115VCA



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Date	Indice	Modification	Visa		
ICA GMDSS 30 RAE				Ech :	Finition :
SCHEMA DE PRINCIPE / ELECTRICAL DRAWING				Tol. générale :	Usiné :
47, Av. P. Mendès France 29000 QUIMPER Tél. 02 98 55 51 99 Fax 02 98 55 51 67			Dessiné : GLM		Le : 19 03 02
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Ind :	Designation :			DATE :	NATO CODE :
D	ICA - GMDSS 30 - RAE (Deported platen A + V)			23/09/2016	F3645
Nb	Rep	Designation	Partnumber	Manufacturer	Item code
2	F17-F18	Fuse 10Agg 10x38	13310	LEGRAND	30001307

## PL2

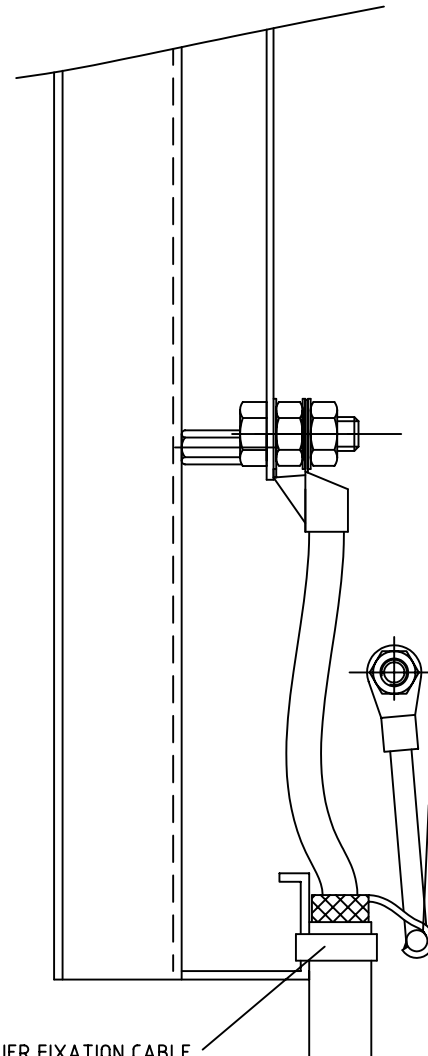
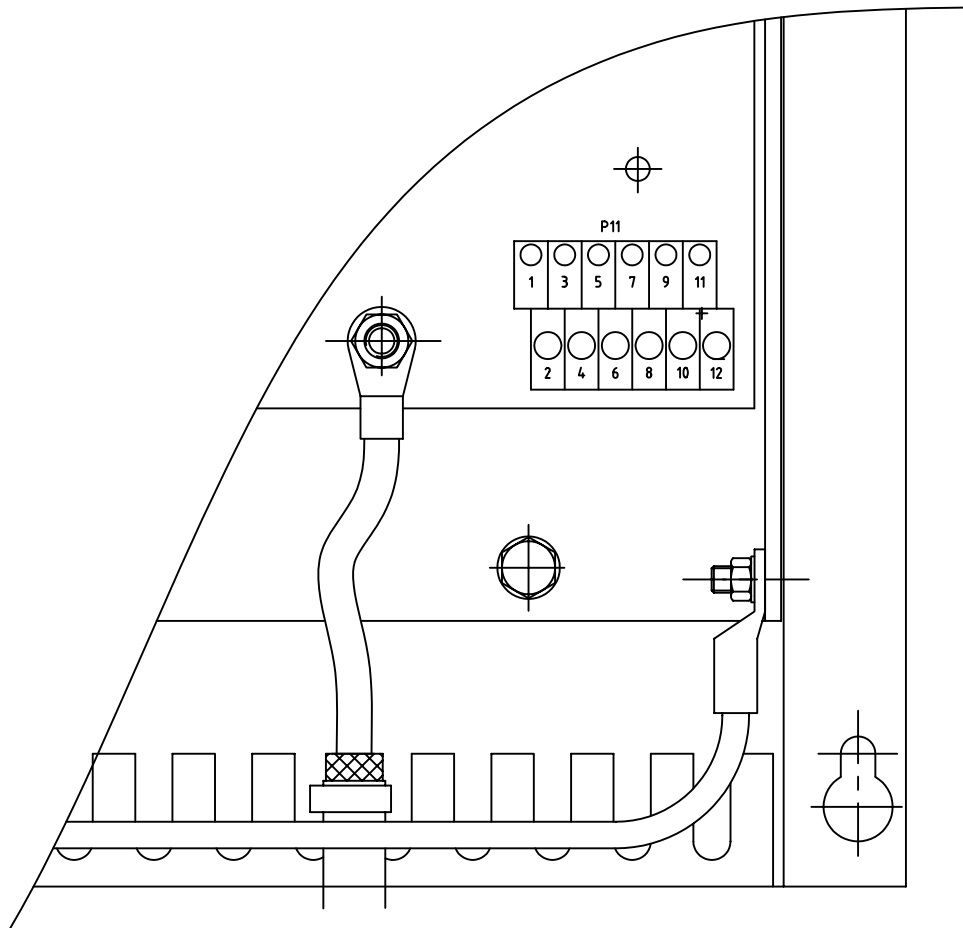
## POWER CARD

8	F1 à F8	Fuse ATO 15A-32V	257015	LITTELFUSE	30011476
6	F9 - F14	Fuse ATO 7,5A-32V	25707,5	LITTELFUSE	30013145
2	F15-F16	Fuse 5x20	D1-0,31A	CEHESS	30005209

## PL1

## CHARGER CARD

2	F1	Fuse 6,3x32 15A 250V ( POWER SUPPLY 230VAC )	326015	LITTELFUSE	30013200
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RACCORDER LA TRESSE DE MASSE  
A LA BARRE DE REPRISE DES MASSES  
CONNECT THE EARTH BRAIDED CONDUCTOR  
TO THE EARTH BAR

COLLIER FIXATION CABLE  
CABLE FIXING RING

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GMDSS - RAE			Ech :	Finition :	
FIXATION CABLES / FIXING CABLE			Tol. générale :	Usiné :	
47, Av. P. Mendès France			Dessiné :	Le : 05 02 99	
29000 QUIMPER			Vérifié :	F° : /	
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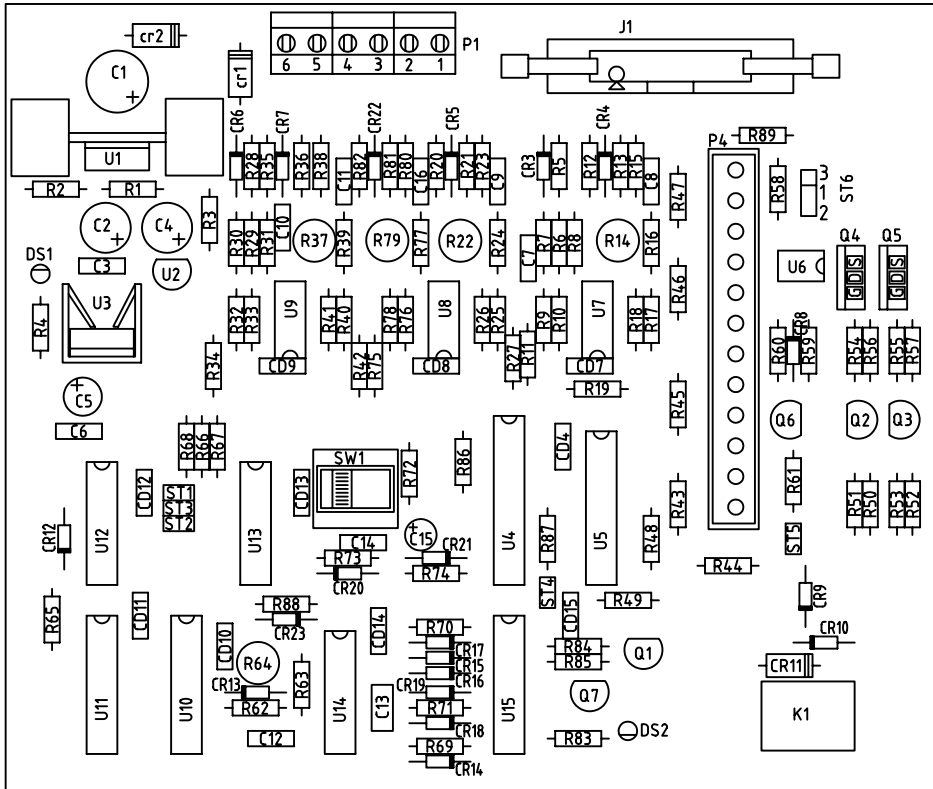
ENAG

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INTERRUPTEUR / SWITCH  
 AMPEREMETRE / AMMETER  
 VOLTMETRE / VOLTMETER

Blanc / White  
 Blanc / White  
 Gris / Grey  
 Jaune / Yellow  
 Bleu / Blue  
 Rouge / Red

□  
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 □



R14 : Niveau détection surtension générateur principal  
 14

*R14 : Overvoltage detection level main generator*

R22 : Niveau de coupure tension basse batterie réserve  
 13

*R22 : Low voltage cut-off level stand-by battery*

R79 : Niveau de détection de défaut batterie en cours de test  
 12

*R79 : Battery failure detection level during test*

R37 : Niveau de coupure tension basse batterie de secours  
 11

*R37 : Low voltage cut-off level emergency battery*

R64 : Durée du test  
 10

*R64 : Test duration*

ST1 et ST3 : Durée / Duration 5,5mn  
 9

ST3 : Durée / Duration 11mn

ST2 : Durée / Duration 16mn

ST4 : En position : test batterie possible même en l'absence de batterie servitude  
 8

*ST4 : In position : Battery test available even without any service battery*

ST5 : En position : impossibilité d'inhiber le buzzer sur absence source principale  
 7

*ST5 : In position : It is impossible to inhibit the buzzer in the absence of main source*

3 } Source principale : source AC  
 1 } *Main source : AC source*  
 2 }


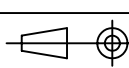
3 } Source principale : source DC  
 1 } *Main source : DC source*  
 2 }

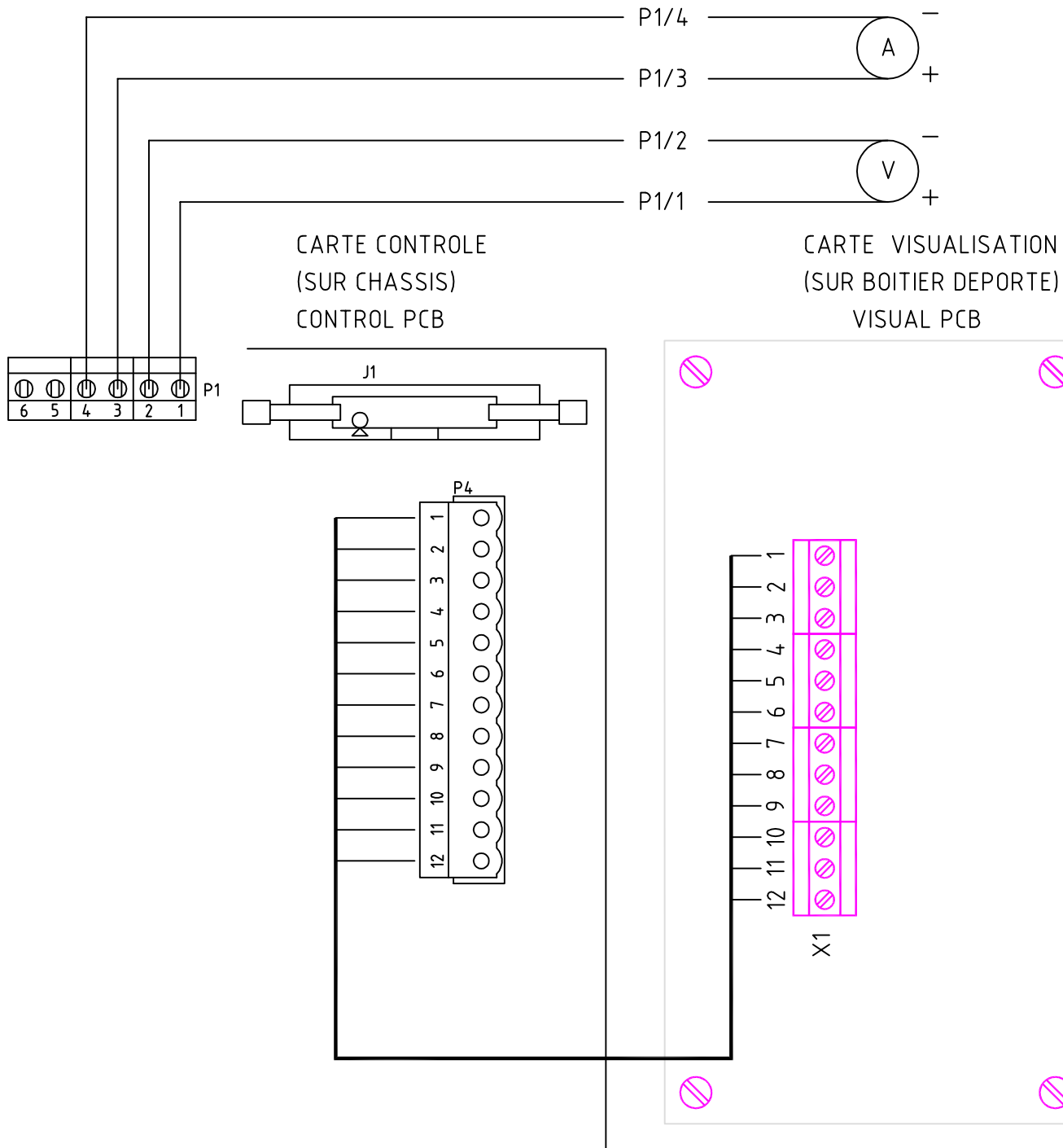
DS1 : Présence tension.  
 6  
*DS1 : Voltage presence*

DS2 : Le test s'est terminé en défaut.  
 5  
*DS2 : The test is finished in default*

SW1 Fonctionnement normal : Test toutes les 6 heures.  
 1er test au bout de 3 heures après mise sous tension  
*Normal functioning : Test every 6 hours*  
*First test 3 hours after power-up*

Lancement immédiat du test batterie de réserve  
 4  
*Immediate starting up of the stand-by battery test*

				Quantité :		3	
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Date	Indice	Modification	Visa				
CARTE CONTROLE / CONTROL PCB				Ech :	Finition :		
RACCORDEMENT - REGLAGES / CONNECTION SETTINGS				Tol. générale :		Usiné :	
47, Av. P. Mendès France 29000 QUIMPER Tél. 02 98 55 51 99 Fax 02 98 55 51 67				Dessiné : GLM		Le : 06 01 99	
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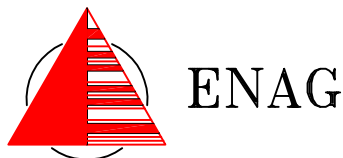
RELIER LES CONNECTEURS NUMERO A NUMERO

LINK CONNECTORS:

BORNE 1 A BORNE 1 ; .....; BORNE 12 A BORNE 12.

TERMINAL 1 TO TERMINAL 1;.....; TERMINAL 12 TO TERMINAL 12

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COFFRET DEPORTE / DEPORTED BOX RACCORDEMENT / CONNECTING				Tol. générale :		Usiné :			
				Dessiné : GLM		Le : 19 03 02			
47, Av. P. Mendès France 29000 QUIMPER Tél. 02 98 55 51 99 Fax 02 98 55 51 67				Vérifié :		F° : /			
				N° 0671516A					
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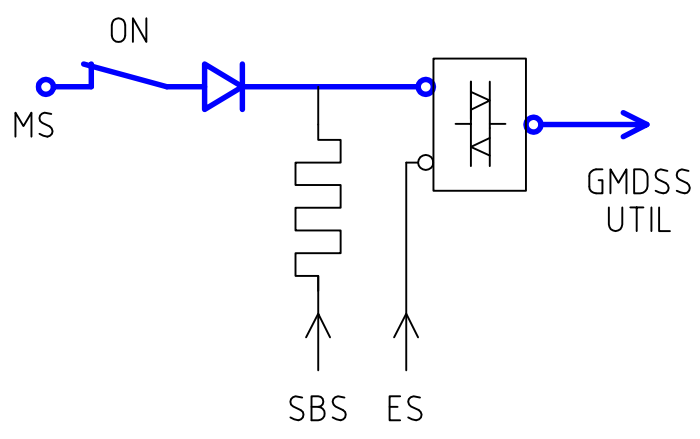


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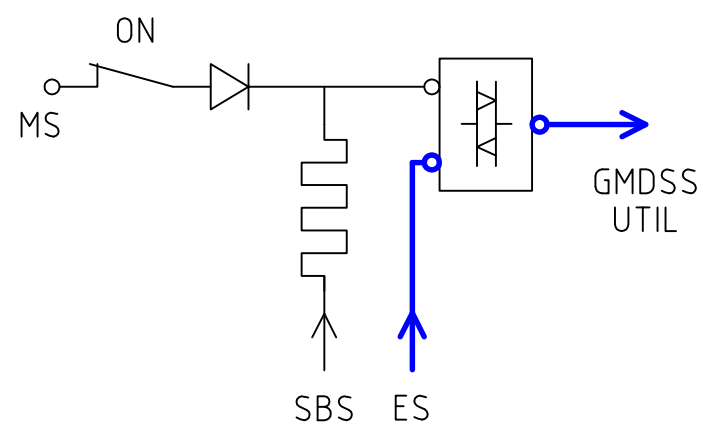
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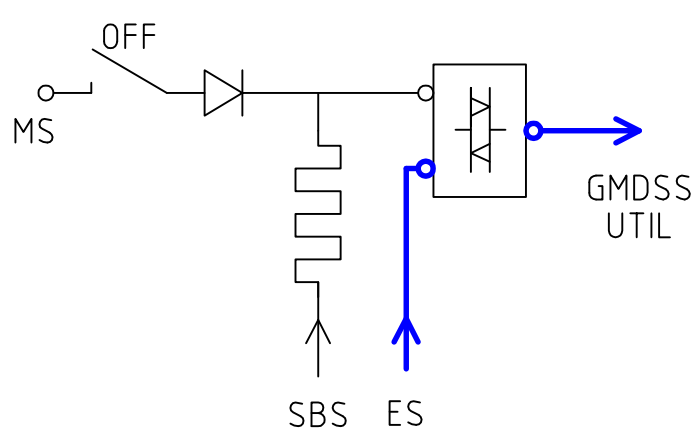
① Main supply on



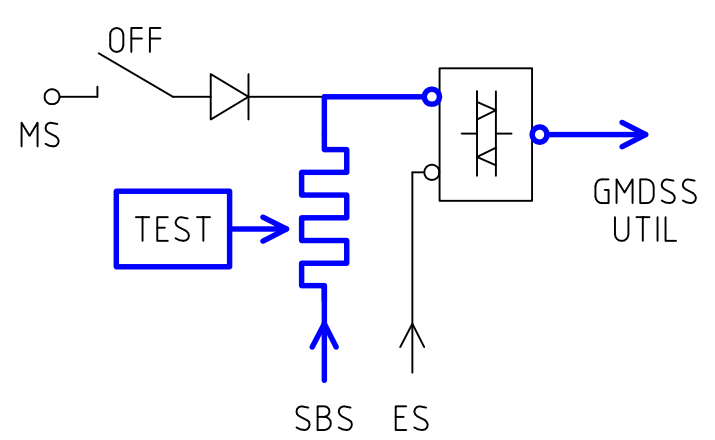
④ Main supply off and stand-by source out of order



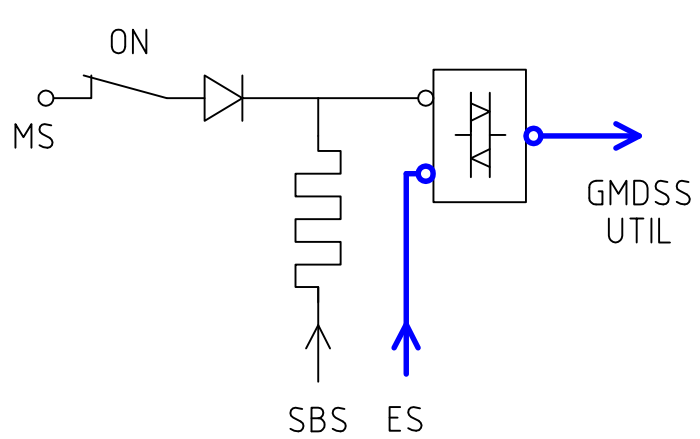
② Overvoltage main supply



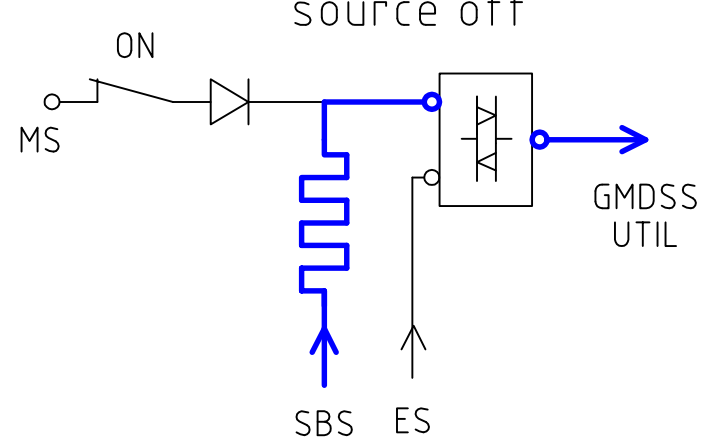
⑤ Battery test



③ Main supply off



⑥ Main supply and emergency source off



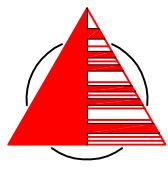
MS : Main Supply  
 SBS : Stand-By Source - external radio battery  
 ES : Emergency Source - External DC current source

GMDSS - RAE

Power automatic detection system with integrated battery test  
 Programmable selection of stand-by and emergency source

Type approval certificate : 10528/A1

47, Av. P. Mendès France  
 29000 QUIMPER  
 Tél. 02 98 55 51 99  
 Fax 02 98 55 51 67



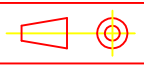
**ENAG**

Dessiné : GLM

Le : 5/06/02

Vérifié :

F° : /



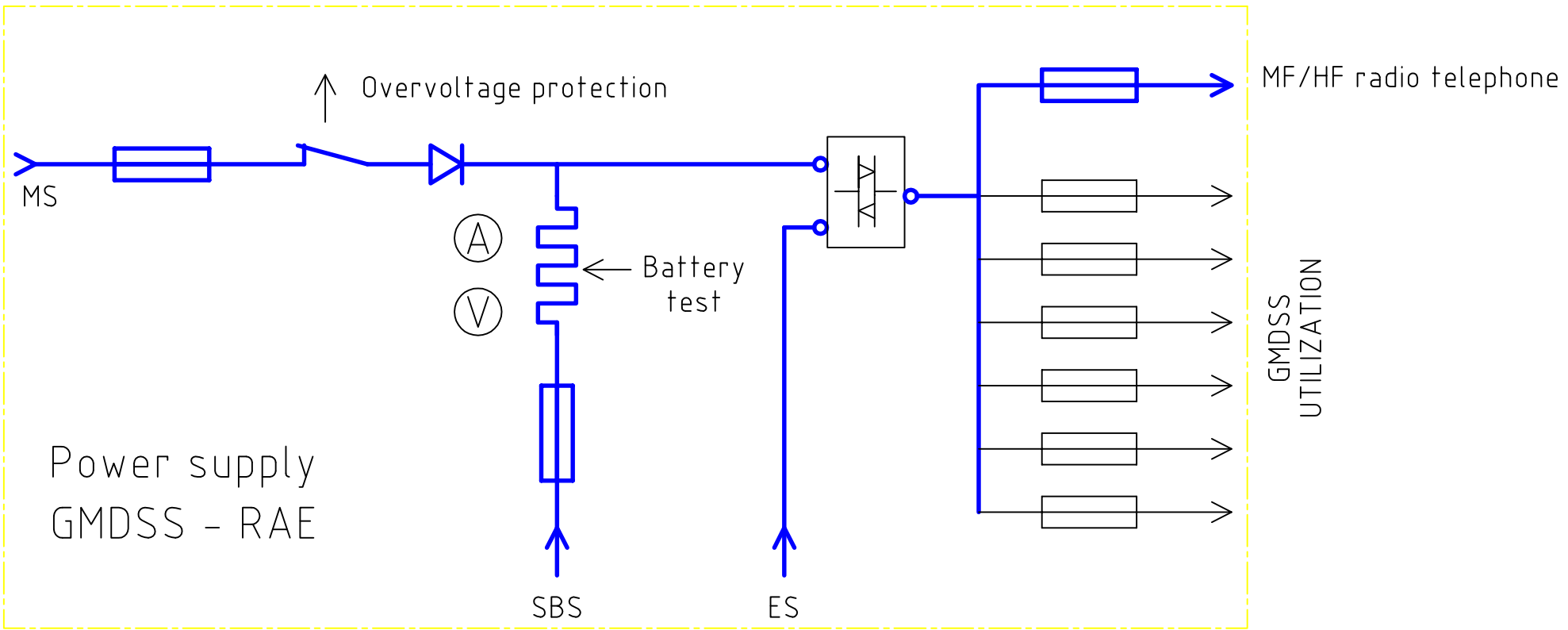
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J I H G F E D C B A

Main Supply : - DC generator  
- Battery charger



Power supply  
GMDSS - RAE

Stand-By Source  
External radio battery

Emergency Source : - External DC current source  
- DC power supply  
- Battery charger  
- DC generator  
- Emergency battery

- Automatic and uninterruptible switching of three sources
- Input overvoltage protection
- A constant fault monitoring of all power sources
- Automatic battery test
- Programmable selection of stand-by and emergency sources
- Integrated voltmeter and ammeter

GMDSS - RAE Power automatic detection system with integrated battery test Programmable selection of stand-by and emergency source		Type approval certificate : 10528/A1	
47, Av. P. Mendès France 29000 QUIMPER Tél. 02 98 55 51 99 Fax 02 98 55 51 67		Dessiné : GLM      Le : 5/06/02	
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