Base Load Power Hub (BLPH)

FAT Procedure

Navigation aid system

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03	20/09/2024	Accepted for Construction (ACF)	M.G.	A.B.	R.M
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Rev.	Date	Description	Prepared	Reviewed	Approved

sice S.R.L.

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Revision / Change Log

Rev.	Description
00	Issue for Review (IFR)
01	Accepted for Construction (ACF)
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HOLDS LIST

No.	Description
1	
2	
3	
4	

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SECT. 1 - COVER
(COPERTINA)

Customer / *Cliente*: **ROSETTI MARINO S.P.A. RAVENNA**

Purchase order / *Numero di ordine*: **1724000775**

Dated / *Del*: **12/04/2024**

Plant / *Impianto*: **NAVIGATION AIDS SYSTEM**

Site / *Località*: **BLPH**

Job code / *Commessa*: **JB-2416/C**

Q.C. MANAGER: **R. MORBIDELLI**

CUSTOMER APPROVAL:

ATEX NOTIFIED

Rev.	Motivo /Description	Data/Date
00	ISSUED FOR APPROVAL	17/05/2024
01	ISSUED FOR APPROVAL	02/07/2024
02	FINAL ISSUE	05/08/2024
03	FINAL ISSUE	20/09/2024

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SECT. 2 - INDEX *(INDICE)*

SECT.	DESCRIPTION	PAGE
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3	EXPLANATION *(DESCRIZIONE)*	5
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NOTE *(REMARKS)*

SECT. 3 - EXPLANATION (*DESCRIZIONE)*

Questo documento viene emesso quando la commessa richiede l'approvazione da parte del Cliente delle:	This document is issued when the job needs the Customer approval for:
-procedure di collaudo per i principali apparati	-equipment inspection test procedures

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SECT. 4 – INTERNAL TEST PROCEDURE

1 SUBJECT AND AIM

The following procedure defines the responsibilities and the operative ways to check the ordered materials, the correct management of production and final inspection tests and checks.

In this way the conformity of received materials is assured with ordered ones, faulty or not suitable materials are not issued in production in order to guarantee the Customer requests satisfaction, it is avoided the passage from a production phase to another one without carrying out the necessary tests and finally the final product which has overcome the foreseen inspection test will be delivered to the Customer.

2 APPLICABILITY

This procedure is applied to all materials received by SICE and its working processes.

3 INPUT CHECKS

The input check activities are subdivided in two categories according to goods to accept:

1- components and sub-systems input

2- cabinets, junction box, mechanical frames input etc.

3.1 Responsibilities

The input checks are made by the staff who carried out the order, expensive components are ordered by the Project Manager and electronic or mechanical components are ordered by Purchase Office and /or Production Office. The name of person who made the order is reported in the order document (**FORM 06.01**) as reference person.

3.2 Components and sub-systems input

This type of cheap material is usually ordered by Purchase Responsible in order to re-supply the warehouse of goods (so it is not necessarily connected to a specific Job). In this case the checks to carry out are just administrative. The Input Control Responsible accepts the goods from the forwarder checking the good state of packing and the correspondence between the transport document and material description in the packing or the number of received package. In this moment the material is packed in the Check Input Materials Area awaiting further checks. Then, the Input Control Responsible checks the correspondence of the order with the transport document and the real presence of material inside the packages and warehouses the goods in the special material compartments or in case of Job in the area marked by “Job code”. These made checks are then recorded in the Input Control Register concerning components and sub-systems (**FORM 10.01**) in which the Input Control Responsible writes the order number, the transport document number, the date and his signature. It is clear that also for small parts orders such as screws /nuts /bolts /washers etc., it is used recording Form above mentioned even if the approval measures are not recorded in the input material control module. (In each case, if it was not correspondence with the order, it would proceed with non-conformity management).

It is checked the presence of support documentation if request in the order (ex. Sub-systems inspection test certificates). This documentation is immediately put in the relative job documentation.

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3.3 Cabinets, junction box and mechanical frames input

This type of expensive material is ordered by the Production Responsible and it is just referred to a Job.
The recording controls are made in the Control Register which have to be filled in when cabinets, junction box and mechanical frames are received. In this case the checks to carry out are the following:

1. ADMINISTRATIVE CHECK

The Input Control Responsible accepts the material and checks the good state of packages, the correspondence between the transport document and the received material and the correspondence between the order and the transport document. It is recorded the order number, the transport document and the name of supplier in the suitable register.

2. DIMENSIONAL CHECK

Where applicable, the Input Control Responsible makes a dimensional check with a linear metre. This check has to verify the correspondence between the dimensions of material with the requested specifications which are included in the order as reference to drawings elaborated by SICE S.R.L. or supplier catalogue items. These references are recorded with the corresponded measures.

3. PAINTING CHECK

Where applicable, the Input Control Responsible makes a painting check. This check is carried out in two phases:

- Colour visual check: the colour of material is compared with the relative sample (taken from the Set of RAL samples);
- Painting thickness check (where applicable): the Input Control Responsible makes some casual measurements of the painting thickness by thickness gauge (the number of measurements is decided by the Responsible according to the dimensions of item). It is then recorded the conformity of colour, thickness and average of the result of measures in the suitable register.

4. CHECKS OF CERTIFICATES AND DOCUMENTS

The Input Control Responsible checks the presence of all requested documentation recording all references in the register. He then records in the special Register eventual references to particular specifications, the date of execution checks and his signature. The approval of material, after the execution of applicable tests is pointed out with the affixing of an identification label in which is indicated the JOB number, while the non-conformity of these ones is pointed out with the affixing of a “Non-conforming” label and a copy of Non-conformity report.

4 TESTS AND INSPECTION CHECKS IN PRODUCTION

The tests made ***in production*** include the final inspection test of the individual electronic card or sub-system. The inspection test is given to the Technician Office who carries out working tests included in the Sub-system Manual (DI/DE) and checks the correspondence between the result of tests and approval parameters foreseen by DI/DE. The results of made tests are recorded in the special codified documents with the following standards:

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- **FORM 10.03** records tests type “passed – not passed”;
- **FORM 10.04** records tests which need measurements.

The recording documents models concerning inspection tests are preserved in the inspection test room in suitable file-holder subdivided in file. The cover of each file-holder includes the index of file and the pages of each recording model. When the card is tested in positive way it is marked with the stamp “TESTED” and passed in production for using or assembling with the other components. In case of non-conformity to the requested parameters, is recorded a “N.C.” in the special report and the card is repaired (if convenient) or rejected in the “Non-conforming cards” area (according to the inspector).

5 FINAL INSPECTION TESTS (FAT TESTS)

Before the Customer delivery, the finished product is completely tested making the different applicable reference tests foreseen in the Quality Control Plan and Final Acceptance Test Procedure approved by Customer and/or in the Customer Technical Specifications included in the order. These tests are also executed in compliance with the Constructive Drawings approved by Customer, and/or Technical International Standards & ATEX Directive (when applicable). The execution of different phases of the final inspection test is given to the Technical Office and if foreseen by the contract, can be carried out with the Customer. The Tests & Conformity Declarations are included in the **Inspection Tests (IT)** document progressively numbered; the numbers start from 001 to the beginning of the New Year. At the end of all foreseen tests the SICE inspector writes the test declaration in a new **IT document** that the Customer (or his delegate) will sign for approval. The inspection tests for the items certified ATEX are carried out by the “authorized person” with release of signed declaration of conformity.

(Below summarizing schedule of final inspection tests)

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SUMMARIZING SCHEDULE OF FINAL INSPECTION TESTS

EXECUTOR	CARRIED OUT ACTIVITIES	REFERENCE DOCUMENTS/RULES	ISSUED DOC.
Project Manager	Check correspondence with the order rules and technical specifications	Order, applicable rules and Customer specification	IT N°xxxx Test declaration
Project Manager	Signal lights range measurements (type tests)	IALA recommendations and Customer technical specifications	IT N°xxxx Conformity declaration
Project Manager	Measure of dimensions and mass (dimensional check)	Approved constructive drawings	IT N°xxxx Test declaration
Project Manager	Painting check (if applicable)	Approved SICE painting procedure	IT N°xxxx Test declaration & painters conformity declarat.
Project Manager	CE marking check	2014/35/UE and succ. mod.. 2014/30/UE and succ. mod. 2014/34/EU and succ. mod..	"CE" Conformity declaration
Project Manager	Identification label check (nameplate check)	Customer specification and/or EN 61439-1	IT N°xxxx Test declaration
Project Manager	Terminals identification check	Approved Constructive drawings and/or EN 61439-1	IT N°xxxx Test declaration
Project Manager	Inspection tests and working checks	Customer specification, approved procedure and/or EN 61439-1	IT N°xxxx Test declaration
Project Manager	Dielectric tests	EN 61439-1 and/or Dir. 2014/34/EU (ATEX)	IT N°xxxx Test declaration
Project Manager	Electrical continuity tests	EN 61439-1 and/or Dir. 2014/34/EU (ATEX)	IT N°xxxx Test declaration
Project Manager	Isolation tests	EN 61439-1 and/or Dir. 2014/34/EU (ATEX)	IT N°xxxx Test declaration
Project Manager	Documentation check	Customer specification and/or EN 60201 – 1 Par 19 and/or EN 61439	IT N°xxxx Test declaration
Project Manager	Certificates check	Order and/or Customer specification	IT N°xxxx Test declaration
Project manager	Spare parts check	Order and/or Customer specification	IT N°xxxx Test declaration
Project Manager	Packing check	Order and/or Customer specification	Packing list
Authorized Person	Equipment inspection tests certified ATEX	2014/34/EU (ATEX) Rules	Product declaration of conformity
Authorized Person	Check of protection degree for equipment with ATEX certification	2014/34/EU (ATEX) Rules	ATEX Certificates

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SECT. 5 – FAT PROCEDURE

ITEM LIST:

ITEM	ITEM DESCRIPTION MAIN REF. P.O. 1724000775 REV.0 DATED 12/04/2024	QUANTITY	REF. NO. (TAG NAME)
10	NAVAID CENTRAL CONTROL PANEL & BATTERY CHARGER	1	NC-200F2/BC-200F2A/B
20	BATTERY ISOLATOR BREAKER	1	CB-200F2
30	BATTERY BANK AND TEMPERATURE PROBE	1	BA-200F2 – ETM-200-01
40	MAIN MARINE YELLOW LIGHTS	2	EML-200-01/02
50	PHOTOCELL SYSTEM	1	EPH-200-01
60	VISIBILITY DETECTOR	1	EVM-200-01
70	OBSTRUCTION LIGHTS	4	EOL-200-01/02/03/04
80	BOAT LANDING STATUS LIGHTS	1	ESL-200-01
90	SPARE PARTS	1 SET	
100	2 YEARS SPARE PARTS	1 SET	

SEE DOCUMENT 172400775-EL-DG-00008 TO VERIFY ALL SYSTEM COMPONENTS.

1. INSULATION RESISTANCE TEST

Note: This test is performed with Rigidity instrument type:
HT 4050 N° 98120959 set for Riso 500V
During dielectric tests, some equipment that are made by sub-suppliers (battery charger modules, inverter modules, etc.) are disconnected because they are already tested, in compliance with reference rules, as for manufacturer conformity declarations.

Procedure: Disconnect the equipment from the supply, connect the instrument between earth and any input terminal. An insulation resistance of 50MΩ minimum (or greater) must be found.
This test is applicable to the following equipment:

- NAVAIDS CENTRAL CONTROL PANEL (NCCP) tag NC-200F2/BC-200F2A/B
- NAVAIDS BATTERY BREAKER tag CB-200F2
- PHOTOCELL SYSTEM tag EPH-200-01

2. EARTH ELECTRICAL CONTINUITY TEST

Note: This test is performed with Rigidity instrument type:
HT 4050 N° 98120959 set for Continuity <12V >10A

During dielectric tests, some equipment that are made by sub-suppliers (battery charger modules, inverter modules, etc.) are disconnected because they are already tested, in compliance with reference rules, as for manufacturer conformity declarations.

Procedure: Disconnect the equipment from the supply, connect the instrument between earth bar and the several points connected to the earth circuit. The measured resistance value must be lower than 0.1Ω. This test is applicable to the following equipment:

- NAVAIDS CENTRAL CONTROL PANEL (NCCP) tag NC-200F2/BC-200F2A/B
- NAVAIDS BATTERY BREAKER tag CB-200F2
- PHOTOCELL SYSTEM tag EPH-200-01

3. APPLIED VOLTAGE TEST

Note: This test is performed with Rigidity instrument type:
HT 4050 N° 98120959 set for Withstanding 4kV (maximum)

During dielectric tests, some equipment that are made by sub-suppliers (battery charger modules, inverter modules, etc.) are disconnected because they are already tested, in compliance with reference rules, as for manufacturer conformity declarations.

NAVAIDS CENTRAL CONTROL PANEL (Dir. 2014/34/EU ATEX CEI EN61439-1)

Procedure: Disconnect the Unit from the power supply. Disconnect the battery charger modules (already tested by Manufacturer) and connect the rigidity meter between earth and each input terminal.

Apply a test* voltage for 1 minute. The meter must not show earth failure. Repeat for all input terminals.

*230V = 2,0kV 50Hz
*24V = 1,0kV 50Hz

PHOTOCELL SYSTEM (Dir. 2014/34/EU ATEX - EN61439-1)

Procedure: Disconnect the Unit from the supply. Disconnect the photocell sensor and connect the instrument between earth and one input terminal.

Apply 1,0kV voltage for 1 minute. The meter must not show earth failure. Repeat for the other input terminals.

NAVAIDS BATTERY BREAKER (Dir. 2014/34/EU ATEX - EN61439-1)

Procedure: Disconnect the Unit from the supply and connect the instrument between earth and one input terminal.

Apply 1,0kV voltage for 1 minute. The meter must not show earth failure. Repeat for the other input terminals.

***Note**: For the lights, fog detector and the battery box the dielectric test will be done by our sub-suppliers.*

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4. FUNCTIONAL TEST PROCEDURE

The real working of the system is simulated: all system components are connected and powered-on apart from the battery bank: for the functional test one small battery banks is used to simulate the batteries.

The 230VAC power supply source is connected to the corresponding input of the **NAVAIDS CENTRAL CONTROL PANEL (NCCP)**.

Tests with 230VAC power supply available:
The 230VAC power supply is provided to the **NAVAIDS CENTRAL CONTROL PANEL**. The several operating sequences, in compliance with the technical specification, are tested as follows:

DESCRIPTION	TESTED BY	WITNESSED BY	DATE
Check the battery charger system working tag BC-200F2A/B			
Check the battery charger system alarms tag BC-200F2A/B			
Check the marine signal lights activation/deactivation (through the local selector switch) tag EML-200-01/02			
Check the marine signal lights activation/deactivation (through the photocell sensor) tag EML-200-01/02			
Check the marine signal lights working (U-code) tag EML-200-01/02			
Check the marine signal lights synchronization tag EML-200-01/02			
Check the marine signal lights alarms tag EML-200-01/02			
Check the obstruction lights (MIOL) working (steady burning) tag EOL-200-01/02/03/04			
Check the obstruction lights (MIOL) alarms tag EOL-200-01/02/03/04			
Check the boat landing status light working (flashing) tag ESL-200-01			
Check the boat landing status light alarms tag ESL-200-01			
Check the visibility meter working tag EVM-200-01			

Check the visibility meter alarms tag EVM-200-01			
Check the photocell system working tag EPH-200-01			
Check the photocell system alarms tag EPH-200-01			
Check the temperature probe working tag ETM-200-01			
Check the temperature probe alarms tag ETM-200-01			
Check the earth insulation alarm			
Check the control system working			
Check the general system alarm (remote control)			
Check the boat landing status light activation command (remote command)			
Check the visibility meter activation command			

Tests with 230VAC power supply not available (system powered only by battery bank):
The 230VAC power supply is no longer provided therefore the **NAVAIDS CENTRAL CONTROL PANEL** is now powered only by the **NAVAIDS BATTERY BANK** and the aeronautical obstruction lights (MIOL) will be driven through the corresponding inverter modules. The several operating sequences, in compliance with the technical specification, are tested as follows:

DESCRIPTION	TESTED BY	WITNESSED BY	DATE
Check the marine signal lights activation/deactivation (through the local selector switch) tag EML-200-01/02			
Check the marine signal lights activation/deactivation (through the photocell sensor) tag EML-200-01/02			
Check the marine signal lights working (U-code) tag EML-200-01/02			
Check the marine signal lights synchronization tag EML-200-01/02			
Check the marine signal lights alarms tag EML-200-01/02			
Check the obstruction lights (MIOL) working (steady burning) tag EOL-200-01/02/03/04			
Check the obstruction lights (MIOL) alarms			

tag EOL-200-01/02/03/04			
Check the boat landing status light working (flashing) tag ESL-200-01			
Check the boat landing status light alarms tag ESL-200-01			
Check the visibility meter working tag EVM-200-01			
Check the visibility meter alarms tag EVM-200-01			
Check the photocell system working tag EPH-200-01			
Check the photocell system alarms tag EPH-200-01			
Check the temperature probe working tag ETM-200-01			
Check the temperature probe alarms tag ETM-200-01			
Check the earth insulation alarm			
Check the control system working			
Check the general system alarm (remote control)			
Check the boat landing status light activation command (remote command)			
Check the visibility meter activation command			

***Note 1**: The functional check of activation/deactivation, the check of all statuses, alarms and analog measures are carried out also by the local display panel installed on the front door of the Navaids Central Control Panel (NCCP).*

***Note 2**: In order to verify correctly and completely the working of the remote and local control system, SICE will simulate all possible changing of the statuses and failures of all the equipment that are part of the system.*

***Note 3**: During FAT all the points of ITP (document number 1724000775-QC-ITP-00002) shall be checked*

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