TECHNICAL SPECIFICATION

Ship Service and Emergency Generator Breaker replacement on board CCGS Des Groseilliers.

1. The replacement of all breaker s on the main and the auxiliary switch board by new ones supplied by the contractor shall be of draw out sliding type.

2. The Replacement of the main switchboard breakers by new one shall be of the same type. They shall come with main disconnect contact and easy sliding draw out mechanism (drawer type). Actually the breakers in place are Siemens make.

3. Each breaker shall have the same characteristic and interrupting capacity in term of short circuit i.e. long time and instantaneous delay for opening on a fault ,and the same voltage . Actually the ship supply is 460Vac, three phases.

4. The breakers coordination curves shall stay the same, in other words the faults curves must stay the same.

5. The opening and the closing of the breakers shall be remotely operated(motor operated) and they shall comprise a closing ,a trip and an under voltage coil where applicable . All the closing and opening indicating lights must be kept. The control voltage shall be 120Vac to keep the standard to all other control equipment c/w all auxiliary contacts that will permit any logic interlock and controls.

6. Each breaker shall come with an electronic trip unit which shall be programmed for each breaker coordination curve .Those curves will be given to the contractor.

7. The breakers will be supplied with an hand held monitor programmer so we could simulate overcurrent faults by secondary injection for inspections .Those tests are needed by Transport Canada .

8. All the modification of the main and emergency switchboard electrical drawing shall be done complete with all the breakers controls drawings .Three copies of the drawings are required before the beginning of the work.

9. Siemens drawings modifications for the breakers controls :

For all new electric and mechanical modifications three copies of the installations drawings will be required and shall be submitted to Transport Canada for acceptation.

10. All new breakers shall have a marine class certification from a known classification society.

11 .Over current simulation test by secondary injection must be perform on each breaker as require by Transport Canada .These test should be perform in the presence of the Transport Canada Inspector and the affected project manager .

12. A timetable is require for the installation and the modification of the main and the emergency switchboard in order to schedule the beginning of the work depending of the availability of the ship

13. As this type of work needs a complete power shutdown, a strategy shall be elaborate with onboard chief engineer to manage power lost during day work so we won't lost long hours of day work.

14. A course of two hours shall be given to the ship electricians (2) on the breaker programmation .

15. The Contractor shall include the costs for the replacement of the sliding mechanism for each breaker, also include the replacement of main disconnect contacts on the busbar, and include the modifications of the busbar to adapt the new breakers, if it differ from the original one .

16. The new breakers shall be drawout and slidind type .

17. All the breakers shall be remove with sliding mechanism and shall have three operating positions. First one, Fully disconnected, second one test position, and third one fully engaged. Each breaker shall come with a hand crank so we can position and withdraw the breaker.

18. All the works must be done according to Transport Canada TP 127 and IEEE regulations .

19. All documentation necessary for the installation of the new breakers will be supplied to the Contractor by Canadian Coast Guard upon request. Contractor will have access to all the technical documentation available on board.

20. All the breakers closing doors modifications will be at the contractor expenses if the configuration of those doors differs from the original.

21. The contractor shall supply and install all the control wiring for the breakers, remote controls.

22. The Contractor shall replace measuring devices such as CT and PT in order to match with new breakers controls.

23. All technical documentation shall be supplied in three copies.

24. The Contractor shall witness all primary and secondary current injection test and provide all breaker trip curves.

25. The Contractor shall carry out trials on board after completion of the entire work with the chief electrician the project officer and the chief engineer as witnesses.

The breakers to be replaced are:

Located In the control Room.

Each breaker shall be drawout type mechanism

52-G1,52-G2,52-G3 : Ship service Alternator 1500Amp

52-SS : Shore Supply

52-MT Main Tie

52-Pref Préférentiel Trip

52-BT Bow Thruster

52-EG Emergency Generator

52-T Tie-In

Here is the description of each breaker:

Ship Service #1 :

Manufacturer Siemens

Type : 3WE 5355-2TJ06-ZF60-M31

Frame: 1600Amps

Trip Unit : model : USR3-IR de Fédéral Pioneer

On board Identification: 1CB1

Plug Rating : 1280Amps

Location : Cell # 1

Ship Service #2 :

Manufacturer Siemens

Type : 3WE 5355-2TJ06-ZF60-M31

Frame: 1600Amps

Trip Unit : model : USR3-IR de Fédéral Pioneer

On board Identification: 2CB1

Plug Rating : 1280Amps

Location : Cell # 2

Ship Service #3 :

Manufacturer Siemens

Type : 3WE 5355-2TJ06-ZF60-M31

Frame: 1600Amps

Trip Unit : model : USR3-IR de Fédéral Pioneer

On board Identification: 3CB1

Plug Rating : 1280Amps

Location : Cell # 3

Shore Power Breaker :

Manufacturer Siemens

Type : 3WE 1355-2TE06-ZF60-M31

Frame : 1600Amps

Trip Unit: model 3WX2-340

On board Identification: 4CB1

Trip Unit size: 600 à 1000Amps

Breaker size: 630Amps

Location: Cell # 4

Bus Tie 52ET

Manufacturer Siemens

Type : 3WE 4355-2TH06-ZF60-M31

Breaker frame : 1250Amps

Trip Unit: model 3WX2-540

On board Identification : 5CB1

Trip Unit size: 620 à 1600Amps

Location : Cell # 5

Bow Thruster Breaker :

Manufacturer Siemens

Type : 3WE 6385-2TK48-ZF60-M31

Breaker Size : 1600 Amps

Trip Unit : model USR3-IR de Fédéral Pioneer

On board Identification : 6CB1

Plug Rating : 800 Amps

Location : Cellule # 6

460V Non-préférentiel Breaker :

Manufacturer Siemens

Type : 3WE 6385-2TH49-ZF60-M31

Breaker frame : 1900Amps

Tripping Unit: model 3WX2-840

On board Identification : 9CB1

Trip unit size : 800 à 4000Amps

Location : Cellule # 9

460V Emergency Bus Breaker :

Manufacturer Siemens

Type : 3WE 4355-2TJ06-ZF60-M31

Breaker frame : 1600 Amps

Trip Unit : model USR3-IR de Fédéral Pioneer

On board Identification : 21CB1

Plug Rating : 640 Amps

Location : Cellule # U1 Emergency Switchboard

Emergency Tie Breaker :

Manufacturer : Siemens

Type : 3WE 4559-2TM49-ZF60-M31

Breaker Frame : 1250Amps

Trip Unit : model 3WX2-540

On board Identification: 22CB1

Trip Unit Size : 620 à 1600Amps

Location: Cell # U2 Emergency Switchboard