[23] It is one aspect of the present invention to provide an apparatus and method for controlling and monitoring an auxiliary apparatus of drilling equipment in a drill ship, which can simplify control and monitoring procedures of the auxiliary apparatus and operation procedures of a main apparatus and can reduce costs and time required for repairing drilling equipment.

[23a] In accordance with one aspect of the present invention, there is provided a ship including an apparatus for controlling an auxiliary apparatus of drilling equipment, comprising: a DC/AC converter operating a main apparatus when an auxiliary apparatus related to the main apparatus is normally operated; a drilling equipment controller sending a main apparatus execution command to the DC/AC converter to operate the main apparatus; and a motor control center (MCC) operating the auxiliary apparatus, wherein the DC/AC converter sends an auxiliary apparatus execution command to the MCC to operate the auxiliary apparatus in response to the main apparatus execution command sent from the drilling equipment controller and the auxiliary apparatus is previously operated for operation of the main apparatus.

【Technical Solution】

[24] As disclosed, an apparatus for controlling an auxiliary apparatus of drilling equipment in a drill ship includes: a drilling equipment controller sending a main apparatus execution command to a DC/AC converter to operate a main apparatus; and a DC/AC converter sending an auxiliary apparatus execution command to a motor control center (MCC) to operate an auxiliary apparatus related to the main apparatus in response to the main apparatus execution command sent from the drilling equipment controller and operating the main apparatus when the auxiliary apparatus is normally operated, wherein the auxiliary apparatus is previously operated for operation of the main apparatus.

[25] The apparatus for controlling an auxiliary apparatus may further include an MCC operating the auxiliary apparatus in response to the auxiliary apparatus execution command.

[26] The DC/AC converter may determine whether the auxiliary apparatus is

normally operated in response to information regarding a condition of the auxiliary apparatus sent from an auxiliary apparatus-related instrument disposed around the auxiliary apparatus.

[27] The auxiliary apparatus-related instrument may be a pressure gauge provided to a pipe through which a refrigerant is supplied to the main apparatus.

[28] The main apparatus may be a top drive motor and the auxiliary apparatus-related instrument may be a flow meter provided to a pipe through which water flows into the top drive driven by the top drive motor.

[29] The main apparatus may be a draw-works motor.

[30] The auxiliary apparatus may be a blower motor for air cooling of the main apparatus

[31] The auxiliary apparatus may be a lube oil pump motor for oil cooling drilling equipment driven by the main apparatus and for providing lubrication to the drilling equipment.

[32] In accordance with another aspect of the present invention, a method of controlling an auxiliary apparatus of drilling equipment for ship includes: sending, by a drilling equipment controller, a main apparatus execution command to a DC/AC converter to operate a main apparatus; sending, by the DC/AC converter, an auxiliary apparatus execution command to a motor control center (MCC) to operate an auxiliary apparatus related to the main apparatus; operating the auxiliary apparatus by the MMC; and operating the main apparatus by the DC/AC converter when the auxiliary apparatus is normally operated, wherein the auxiliary apparatus is previously operated for operation of the main apparatus.

[33] The method of controlling an auxiliary apparatus may further include measuring a condition of the auxiliary apparatus and sending information regarding the condition of the auxiliary apparatus to the DC/AC converter by an auxiliary apparatus-related instrument disposed around the auxiliary apparatus.

[34] The DC/AC converter may determine whether the auxiliary apparatus is normally operated in response to the information regarding the condition of the auxiliary apparatus sent from the auxiliary apparatus-related instrument.

[35] The auxiliary apparatus-related instrument may be a pressure gauge provided to a pipe through which a refrigerant is supplied to the main apparatus.

[36] The main apparatus may be a top drive motor and the auxiliary apparatus-related instrument may be a flow meter provided to a pipe through which water flows into the top drive driven by the top drive motor.

[37] The main apparatus may be a draw-works motor.

[38] The auxiliary apparatus may be a blower motor for air cooling of the main apparatus.

[39] The auxiliary apparatus may be a lube oil pump motor for oil cooling drilling equipment driven by the main apparatus and for providing lubrication to the drilling equipment.

[40] As disclosed, an apparatus for

CLAIMS

【Claim 1】

A ship including an apparatus for controlling an auxiliary apparatus of drilling equipment, comprising:

a DC/AC converter operating a main apparatus when an auxiliary apparatus related to the main apparatus is normally operated;

a drilling equipment controller sending a main apparatus execution command to the DC/AC converter to operate the main apparatus; and

a motor control center (MCC) operating the auxiliary apparatus,

wherein the DC/AC converter sends an auxiliary apparatus execution command to the MCC to operate the auxiliary apparatus in response to the main apparatus execution command sent from the drilling equipment controller and the auxiliary apparatus is previously operated for operation of the main apparatus.

【Claim 2】

The ship including an apparatus for controlling an auxiliary apparatus of drilling equipment according to claim 1, further comprising:

an auxiliary apparatus-related instrument disposed around the auxiliary apparatus and measuring a condition of the auxiliary apparatus.

【Claim 3】

The ship including an apparatus for controlling an auxiliary apparatus of drilling equipment according to claim 2, wherein the DC/AC converter determines whether the auxiliary apparatus is normally operated in response to information regarding a condition of the auxiliary apparatus sent from the auxiliary apparatus-related instrument.

【Claim 4】

The ship including an apparatus for controlling an auxiliary apparatus of drilling equipment according to claim 2, wherein the auxiliary apparatus-related instrument is a pressure gauge provided to a pipe through which a refrigerant is supplied to the main apparatus and the MMC increases a speed of the auxiliary apparatus when the pressure received from the pressure gauge is less than or equal to a first threshold value, and decreases the speed of the auxiliary apparatus when the pressure received from the pressure gauge is higher than or equal to a second threshold value, the second threshold value being greater than the first threshold value.

【Claim 5】

The ship including an apparatus for controlling an auxiliary apparatus of drilling equipment according to claim 2, wherein the main apparatus is a top drive motor and the auxiliary apparatus-related instrument is a flow meter provided to a pipe through which water flows into the top drive driven by the top drive motor.

【Claim 6】

The ship including an apparatus for controlling an auxiliary apparatus of drilling equipment according to claim 2, wherein the MCC receiving information regarding the condition of the auxiliary apparatus sent from the auxiliary apparatus-related instrument and

controlling the auxiliary apparatus based on the information regarding the condition of the auxiliary apparatus.

【Claim 7】

The ship including an apparatus for controlling an auxiliary apparatus of drilling equipment according to claim 1, further comprising:

a main apparatus-related instrument disposed around a main apparatus and measuring a condition of the main apparatus.

【Claim 8】

The ship including an apparatus for controlling an auxiliary apparatus of drilling equipment according to claim 7, wherein the main apparatus-related instrument is a winding temperature sensor measuring a temperature of a winding of the main apparatus and sending information regarding the temperature of the winding to the DC/AC converter and the DC/AC converter generates an alarm when the temperature of the winding is higher than or equal to a first threshold value, and stops operation of the main apparatus when the temperature of the winding is higher than or equal to a second threshold value, the second threshold value being greater than the first threshold value.

【Claim 9】

The ship including an apparatus for controlling an auxiliary apparatus of drilling equipment according to claim 7, wherein the main apparatus-related instrument is a bearing temperature sensor measuring a temperature of a bearing of the main apparatus and sending information regarding the temperature of the bearing to the DC/AC converter and the DC/AC converter generates an alarm when the temperature of the bearing is higher than or equal to a first threshold value, and stops operation of the main apparatus when the temperature of the bearing is higher than or equal to a second threshold value, the second threshold value being greater than the first threshold value.

【Claim 10】

The ship including an apparatus for controlling an auxiliary apparatus of drilling equipment according to claim 7, wherein the main apparatus-related instrument is an encoder sensor sensing a rotation speed and a rotation angle of the main apparatus and sending information regarding the rotation speed and the rotation angle to the DC/AC converter.

【Claim 11】

The ship including an apparatus for controlling an auxiliary apparatus of drilling equipment according to claim 7, wherein the main apparatus-related instrument is a moisture sensor measuring humidity of the main apparatus and sending information regarding the humidity of the main apparatus to the DC/AC converter and the DC/AC converter operates a motor space heater to remove inner moisture from the main apparatus when the humidity of the main apparatus is higher than or equal to a threshold value.

【Claim 12】

A method of controlling an auxiliary apparatus of drilling equipment for ship, comprising:

sending, by a drilling equipment controller, a main apparatus execution command to a DC/AC converter to operate a main apparatus;

sending, by the DC/AC converter, an auxiliary apparatus execution command to a motor control center (MCC) to operate an auxiliary apparatus related to the main apparatus;

operating the auxiliary apparatus by the MMC; and

operating the main apparatus by the DC/AC converter when the auxiliary apparatus is normally operated,

wherein the auxiliary apparatus is previously operated for operation of the main apparatus.

【Claim 13】

The method of controlling an auxiliary apparatus of drilling equipment for ship according to claim 12, further comprising:

measuring a condition of the auxiliary apparatus and sending information regarding the condition of the auxiliary apparatus to the DC/AC converter by an auxiliary apparatus-related instrument.

【Claim 14】

The method of controlling an auxiliary apparatus of drilling equipment for ship according to claim 13, wherein the DC/AC converter determines whether the auxiliary apparatus is normally operated in response to the information regarding the condition of the auxiliary apparatus sent from the auxiliary apparatus-related instrument.

【Claim 15】

The method of controlling an auxiliary apparatus of drilling equipment for ship according to claim 14, further comprising:

measuring a condition of the main apparatus and sending information regarding the condition of the main apparatus to the DC/AC converter by a main apparatus-related instrument.