CLAIMS

[Claim 1]

Hybrid cargo handling method for oil tanker and ore/oil carrier common cargo oil pump system with three or four kinds of grade cargo oil segregation, wherein one set of cargo oil pump is driven by electric motor system with speed control by variable frequency control method and wherein the rest of cargo oil pumps are driven by steam turbine driven system, the method includes steps of:

(i) initiating the cargo oil pump driven by steam turbine system to exhaust the steam produced with the minimum load of the auxiliary boiler; and

(ii) operating the oil pump driven by electric motor system after the inert gas purified from the emission gas exceeding the minimum demand threshold for fulfilling the vacancy in cargo tanks which are in gas communication with cargo oil pumps driven by steam turbine driven system, wherein the oil pump driven by the electric motor system is to control the speed by variable frequency control method not to exceed the load equivalent to consume the surplus inert gas residual balance allocated to the vacancy in cargo tanks in gas communication with the steam turbine system.

[Claim 2]

Oil tanker and ore/oil carrier common cargo oil pump system with three or four kinds of grade cargo oil segregation, comprising one set of cargo oil pump driven by electric motor system with speed control by variable frequency control method and the rest of cargo oil pumps driven by steam turbine driven system, the oil tanker and ore/oil carrier common cargo oil pump system further comprising:

the rest of cargo oil pumps with equal capacity driven by steam turbine system; and

auxiliary boiler(s) to generate steam for the steam turbine and exhaust gas which is purified to inert gas for all the kinds of grade cargo oil segregation tanks;

wherein the electric motor system comprising a variable frequency control device to control pump capacity equivalent to residual inert gas balance to fulfill the cargo vacancy after allocation to the vacancy in cargo tanks which are in gas communication with the auxiliary boiler(s).

[Claim 3]

The system according to claim 2, further comprising:

auxiliary boiler(s) generating steam for the steam turbine;

scrubber to purify inert gas from emission gas exhausted by the auxiliary boiler(s) ;

gas passageway which places auxiliary boiler(s) in gas communication with funnel space;

gas passageway which places funnel space in gas communication with the scrubber; and

gas passageway which places the scrubber in gas communication with cargo tanks;

wherein the auxiliary boiler(s) is(are) less capacity than the capacity associated with all the pumps to be driven by the steam turbine system with equivalent pump performance in total.

[Claim 4]

The system according to any one of claims 2 and 3 for the use of the method of claim 1, wherein the auxiliary boiler(s) has(have) enough capacity to fulfill vacancy of tanks in gas communication with the pumps for electric motor system with speed control by variable frequency control method in full performance operation mode in addition to fulfill vacancy of tanks in gas communication with the pumps for steam turbine system.