GCYK-01
REMOTE MANIPULATION CONTROL UNIT(WITH MAIN TELEGRAPH) PRODUCT INSTRUCTION

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GCYK-01 REMOTE MANIPULATION CONTROL UNIT (WITH MAIN TELEGRAPH) PRODUCT INSTRUCTION

A. GENERAL

When GCYK-01 remote manipulation control unit (with main telegraph) remotes control in W/H, main propulsion set is controlled by operating staff in W/H. It has main engine telegraph function at non-remote control state, to realize signal transmission between W/H and E/R (ECC), and artificial operation of main propulsion set is proceeded in E/R.

GCYK-01 remote manipulation control unit (with main telegraph) adopts microprocessor MPU control technique for design, product panel is PVC overlay, flush-type mounting frame, conforms with relative standard request of CCS; having advantages as small and artful, convenient for installation and use, reliable performance etc. It may be broadly used in all classes of ship.

B. Main Function and Characteristic

1.Main functions:

GCYK-01 remote manipulation control unit (with main telegraph) may manoeuvre and control diesel engine at the control position from which can't directly view running state of main diesel engine.

Orders to request M/E do some kind of running can be sent out from control position, as stop, ahead, astern and emergency run etc. In the process of navigation, logic control as start, stop, reversing, speed-up, speed-down of M/E can be realized through remote-control command, in order to suit temporal running condition.

Energy transmission of remote control device can adopt modes of electricity, air, fluid or electricity- air, electricity- fluid etc. Maximum speed limit is set; to realize automatic failure slow down and failure shut down. Analog panel is set, may detect any failure of device.

There is dimmer rotary knob on operating display panel, may change

light of LED indicating lamp according to need, it had automatic memory function for power off.

Lose power alarm: when main power supply loses power, automatically switch to Auxiliary Power Supply(U1 change to U2) and accompanied with audible & visual alarm and dry contact output, alarm will be cancelled after main power supply returns to normal.

Error engine alarm: indicating lamp will constantly flash when both sides of running are synchronizing, and flicker accompanied with audible &visual error engine alarm when asynchronous, alarm will be automatically cancelled if it is operated correctly.

Emergency communication function: when telegraph or circuit appears failure, both sides could transmit orders by dint of emergency communication function on panel and auxiliary engine telegraph, by doing so they need according to predefined singing signal. Generally matched with auxiliary engine telegraph, which is be used for 4 kinds of signal's contact as "LOCAL", "WHC" and "SBE", "FWE" between W/H and ECC.

When working air source(or fluid source)of remote-control system loses voltage or power supply loses power, turning of shafting won't changed, rotational speed and turning of M/E should held the line in a certain time; may allow M/E stop, but disallow M/E appear start and reversing which is not accordant with remote-control command.

Remote control device has independent emergency stop device, press emergency stop button when M/E overspeed, lube oil lose pressure as well as W/H or ECC, which can make M/E shut down; when remote control device is connected to failure signals as lube oil low pressure, cylinder exhaust temperature abnormal or cooling water temperature over high , having function of making M/E slow down.

Having measures to limit excess torque and heat load of main diesel engine.

Command for rotational speed change sent by the remote control unit is stepless, which may make themain engine's actual speed change continuously.

When M/E which is running receive command of astern(ahead), it can

finish automatically according to adaptive sequence and time: cut off fuel oil, astern(ahead) reversing, astern(ahead) start, speed-up to rotational speed required by command.

2. Characteristic

Flush-type installation frame, generally can be installed on platform of WH/C or ECC.

Modular design, no matter whether single M/E or double M/E, Either W/H single position remote control or W/H and ECC double positions remote control is able to apply.

W/H remote control is mono-lever control, logic sequence control makes speed change, decoupling, reversing and coupling of M/E automatically smooth running.

Main components used on device are all import.

Having protective measures towards salt mist, condensation, oil mist and mildew.

3. Scope of application

(1) Main propulsion remote control device of high speed machine ;

(2) Main propulsion remote control device of medium speed engine ;

(3) Main propulsion remote control device of low-speed machine .

GCYK-01 remote manipulation control unit (with main telegraph) apply to main diesel engines of various type, high power reversible main diesel engine or any type of non-reversible main diesel with gearbox reversing clutch.

C. Technical Specification

1. Power Supply: DC24V

Adaptive scope of power supply is ±10% of rated value, frequency is ±5% of rated value; transient voltage is ±20% of rated value and frequency is ±10% of rated value, restoring time is 3s. Voltage variation of battery power is +30% ~-25% of rated voltage.

There is standby power which can keeping on supplying power when main power supply of remote control device is cut off.

2. Start air pressure or hydraumatic

Pressure change is ±20% of rated pressure.

3. Ambient air temperature

E/R and ECC : 0~55℃, W/H : -1~+55℃;

But all can sustain maximum temperature 70℃ for 2 hours without invalidation.

4. Adaption scope of humidity

When temperature is 40℃ , relative humidity is 95%~100%;

When temperature is higher than 40℃, relative humidity is 70%

5. Adaptive scope of vibration condition

Displacement is ±1.0mm when the frequency is in the range of 2.0~ 13.2Hz, and acceleration amplitude is ±0.7g when the frequency is in the range of 13.2~ 80Hz .

6. Incline and wobbling

Any direction inclines 22.5°;

Wobbling of ±22.5° , cycle is 10s.

7. Protection grade: transmitter IP22

receiver IP22

8. Steps of transmit orders: dead ahead~ full ahead, stop, stand by engine, finished with engine, dead astern ~ full astern.

D. Equipment composition

Teleoperator which has main engine telegraph function is composed by transmitter and receiver, interior of transmitter is divided into remote control unit and engine telegraph unit; except sharing on mechanism , these two units are completely independent on electric, the circuit adopts microprocessor to control, signal transmission adopts serial buses transmission, anti-jamming ability is strong, may communicate multi-places. To realize remote control function when remote control in W/H; and realize engine telegraph function when non- remote control, when orders are sent for changing working condition of M/E by transmitter, desynchronizing alarm circuit of transmitter runs, meanwhile sends out lamplight and audible signal, the desynchronizing alarm will be cancelled after E/R replies; error engine alarm will be sent out when actual turning of M/E doesn't comply with the request of engine telegraph command. When main engine telegraph occurs failure, may make

use of emergency communication button to communicate with e/r; When AC supply breakdown, DC power supply will plunge into, at the same time lose power alarm.

E. Installation & Test And Matters Need Attention

1. Installation & Test

The equipment need to be installed hard and reliably, with caution whether electric system of power supply coincides with equipment request, please check whether the cable connection is right before power on.

Powered action test: switch in DC24V power supply, check whether its function is normal.

Engine telegraph possess communication self checking function. Asynchronous alarm will be sent out if signal wire is open circuit, otherwise operating handle and mute button are not incapable of muting, here should check whether cable is open circuit.

2. Matters Need Attention:

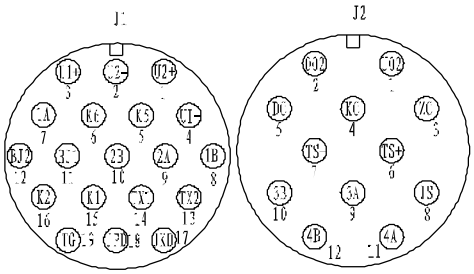
M/E which is applied to remote control device still has ability for engine local control, remote control device could conveniently convert to local manual manipulation when it occurs failure. Changeover of control position between ECC and W/H proceeds in ECC; Changeover between local and other positions proceeds at local.

At any time, only one control position can effectively manoeuvre main diesel generator; Both in W/H and ECC, there are display to indicate which control position is being manoeuvred. There should be display of command for W/H remote control both at ECC and local.

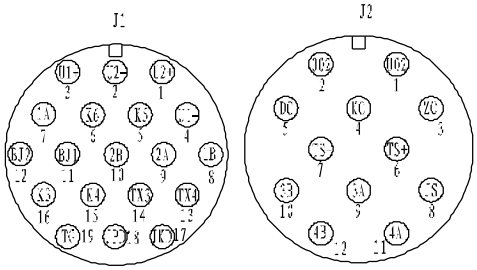
Equipment should be checked and lubricated semiannually. Check whether the fasteners of equipment are slack, lubricate the friction parts, as shaft, orientation wheel etc. Power should be cut off before inspection when the equipment need be unfold.

External cable may adopt CEF80 type, its sectional area is more than 1mm².

Otherwise accompanied with external wiring diagram, panel diagram, installation dimension.



GCYK-01 remote manipulation control unit(with main telegraph)(W/H)



GCYK-01 remote manipulation control unit(with main telegraph)(ECC)