CERTIFICATES OF COMPETENCY FOR ENGINEERS (YACHT)

EXAMINATIONS ADMINISTERED BY THE
SCOTTISH QUALIFICATIONS AUTHORITY
ON BEHALF OF THE
MARITIME AND COASTGUARD AGENCY

STCW 95 CHIEF ENGINEER (REG. III/3) – "YACHT 4"

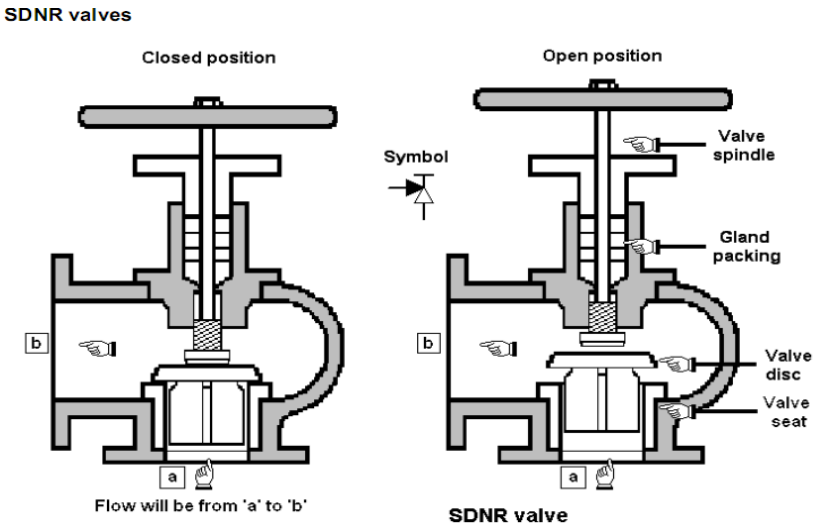
056-02 AUXILIARY EQUIPMENT

FRIDAY, 8th Feb 2013

1,a, Sketch a flexible diaphragm valve

b, Explain how to replace the diaphragm and the precautions

2
(a) Sketch a section through a bilge injection (emergency bilge) valve.



(3) With reference to compressed air systems, explain the purpose of EACH of the following:

(a) fusible plug on compressor discharge

(b) fusible plug on air receiver

(4) With reference to a reduction gearing and pneumatic clutch arrangement

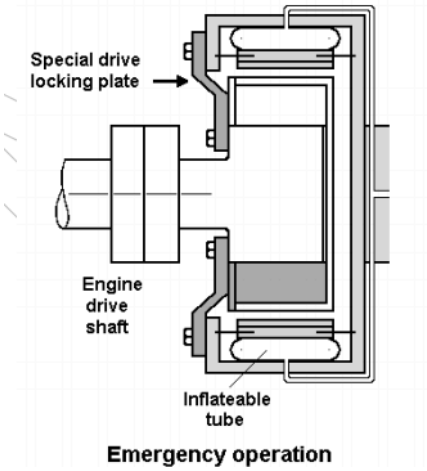
(a) state FIVE protection devices fitted;

(b) Explain the need for EACH device stated in Q4(a).

(5) (a) Sketch a pneumatically operated friction clutch, labelling all parts.

(b) State how the clutch sketched in Q5(a) may be operated in the event of air failure

Emergency operation



Emergency operation

Failure of the air supply or other fault could render a clutch inoperative. To make provision for this eventuality, an emergency drive locking plate or set of temporary coupling bolts is provided.

Prolonged use of the emergency solid coupling arrangement can result in serious damage to gear teeth.

(6) With reference to reduction gearing, explain EACH of the following

(a) the purpose of the magnetic filter in the lubricating oil system

(b) why the surface finish of the gear teeth is important

(b) why EP lubricating oil is preferred.

(7) Explain with an aid of a sketch, and Epicycle gearbox

(8) State 3 tests before connecting shore power to the ship

(a) state the problems connecting the wrong shore power to the ship

(9) With reference to AVRs:

(a) explain their purpose;

(b) explain the effects that would be observed should an AVR give a low output when the generator is

(1) running on its own

(2) running in parallel with a second generator whose AVR has no fault

(10) With reference to electrical generation and distribution systems, explain EACH of the following

(a) why an insulated neutral is preferred to an earthed neutral

(b) how essential circuits are protected should main bus-bar overload occur