SECTION 2 DESIGN REQUIREMENTS

1 General requirements

1.1 General

1.1.1 Requirements mentioned in this section apply to control systems used for the control and monitoring of services essential for the propulsion and safety of the yacht.

1.1.2 All control systems are to be independent or designed such that failure of one system does not degrade the performance of another system.

1.1.3 Unless accepted by the Society, control and alarm systems are to be based on the fail-to-safe principle.

1.1.4 Control and alarm systems are to have self-check facilities. In the event of failure, an alarm is to be activated.

1.1.5 In the case of failure, control systems are to remain in their last position they had before the failure or to fail in a safe condition.

1.1.6 Each system is to be able to be operated manually from a position located so as to enable visual control of operation. For detailed instrumentation for each system, refer to Part C, Chapter 1.

2 Control of propulsion machinery

2.1 General requirements

2.1.1 Under all sailing conditions, including manoeuvring, the speed, direction of thrust and, if applicable, the pitch propeller are to be fully controllable from navigation bridge.

2.1.2 The remote control is to include an automatic device such that the number of operations to be carried out is reduced and their nature is simplified and such that control is possible in both the ahead and astern directions. Where necessary, means for preventing overload and running in critical speed ranges of the propulsion machinery is to be provided.

2.1.3 The control are to be performed by a single control device for each independent propeller. Where multiple propellers are designed to operate simultaneously, they must be controlled by one control device.

2.1.4 Direct control of the propulsion machinery is to be provided locally. The local direct control is to be independent from the remote control circuits, and takes over any remote control when in use.

2.1.5 The design of the remote control system is to be such that in case of its failure an alarm will be given. Unless impracticable, the preset speed and direction of thrust of the propeller shall be maintained until local control is in operation.

2.1.6 Supply failure in propulsion plant remote control is to activate an alarm at the control position. This applies in particular in the case of loss of electric, pneumatic or hydraulic supply to the system.

2.1.7 In the event that there is no reaction to an order to stop, provision is to be made for an alternative emergency stop. This emergency stopping device may consist of a simple and clearly marked control device, for example a push-button. This fitting is to be capable of suppressing the propeller thrust, whatever the cause of failure may be.

2.1.8 All alarms and indications of the main propulsion machinery and machinery essential for the safe operation of the yacht are to be provided at the navigation bridge and at the local position where the yacht is controlled in the event of failure of the remote control system.

2.1.9 Indicators are to be fitted on the navigation bridge and at the manoeuvring platform, for:

a) propeller speed and direction of rotation in the case of fixed pitch propellers; and

b) propeller speed and pitch position in the case of controllable pitch propellers.

2.1.10 As a general rule, the navigation bridge panels are not to be overloaded by alarms and indications which are not required.

3 Communications

3.1 General requirements

3.1.1 For yachts whose length is equal or exceeds 24 metres, an appropriate and reliable means of vocal communication is to be provided between the navigation bridge and any other position from which the speed and direction of thrust of the propeller may be controlled.

4 Alarm system

4.1 General requirements

4.1.1 Alarms are to be visual and audible and are to be clearly distinguishable, in the ambient noise and lighting in the normal position of the personnel, from any other signals.

4.1.2 Sufficient information is to be provided for proper handling of alarms.

4.2 Alarm functions

4.2.1 Alarm activation

Alarms are to be activated when abnormal conditions appear in the machinery, which need the intervention of personnel.

An existing alarm is not to prevent the indication of any further fault.

4.2.2 Acknowledgement of alarm

The acknowledgment of an alarm consists in manually silencing the audible signal and additional visual signals while leaving the visual signal on the active control station. Acknowledged alarms are to be clearly distinguishable from unacknowledged alarms. Acknowledgement should not prevent the audible signal to operate for new alarm.

Alarms are to be maintained until they are accepted and visual indications of individual alarms have to remain until the fault has been corrected, when the alarm system has to automatically reset to the normal operating condition.

Acknowledgement of alarms is only to be possible at the active control station.

Alarms, including the detection of transient faults, are to be maintained until acknowledgement of the visual indication.

Acknowledgement of visual signals is to be separate for each signal or common to a limited group of signals. Acknowledgement is only to be possible when the user has visual information on the alarm condition for the signal or all signals in a group.

4.2.3 Locking of alarms

Manual locking of separate alarms may be accepted when this is clearly indicated.

Locking of alarm and safety functions in certain operating modes (e.g. during start-up or trimming) is to be automatically disabled in other modes.

4.2.4 Time delay of alarms

It is to be possible to delay alarm activation in order to avoid false alarms due to normal transient conditions (e.g. during start-up or trimming).