

Testing of the control system of controllable pitch propellers intended for main propulsion

1 Purpose

The purpose of the tests required by this UR is to ascertain that the pitch control system of CP propellers for main propulsion is working correctly.

2 Application

The requirements in this UR apply to all new buildings and to all replacements, modifications, repairs, or re-adjustments that may affect the pitch control or response characteristics for main propulsion.

3 Scope of the tests

3.1 Pitch response test

A full range of tests is to be carried out to get the pitch response and verify that it coincides with the combinator curve of the propeller¹. The tests are to be carried out for at least three positions of the control lever in ahead and astern directions (e.g., dead slow ahead / astern, half ahead / astern, full ahead / astern).

The tests are to be carried out in normal and emergency operating conditions.

Tests that are not affected by the control position may be carried out from one control position only.

Note¹: The combinator curve is the relationship between the propeller pitch setting and the propeller speed.

3.2 Test of the fail-to-safe characteristics

A test of the fail-to-safe characteristics of the propeller pitch control system is to be carried out to demonstrate that failures in the pitch command and control or feedback signals are alarmed and do not cause any change of thrust. Such failures are to be clearly identified and included in the test procedure.

3.3 Test procedure

Test procedure is to be prepared and proposed by the pitch control system manufacturer or integrator and agreed with Classification Society.

4 Parameters to be recorded

The list of the parameters to be recorded during the pitch response test within this UR is to be established by the pitch control system manufacturer or integrator and agreed with the Classification Society. This should include at least the following parameters:

- Position of the control handle,
- Actual pitch indication (local indication, remote indications),

M83
(cont)

- Rotational speed of the propeller,
- Response time between the pitch change order (modification of the lever position) and the instant when the pitch and propeller speed have reached their final position,
- Propelling thrust variation during the transfer of the control from one location to another one.

5 Tests results

Tests are to demonstrate:

- that the propelling thrust is not significantly altered when transferring control from one location to another and in case of failures in the pitch command and control or feedback signals.
- that the pitch response times measured during the test do not exceed the maximum value to be defined by the pitch control system manufacturer or integrator.

Note:

1. This UR is to be uniformly implemented by IACS Societies on:
 - (a) ships contracted for construction on or after 1 January 2025.
 - (b) ships other than those specified in the preceding (a) on which astern testing is carried out in accordance with Z18 on or after 1 January 2025.
2. The “contracted for construction” date means the date on which the contract to build the vessel is signed between the prospective owner and the shipbuilder. For further details regarding the date of “contract for construction”, refer to IACS Procedural Requirement (PR) No. 29.

End of Document
