

**DEPARTMENT OF TRANSPORTATION****Coast Guard****[USCG 2001-8920]****Guidelines for Assessing Merchant Mariners' Proficiency Through Demonstrations of Skills for Ratings Forming Part of an Engineering Watch****AGENCY:** Coast Guard, DOT.**ACTION:** Notice of availability; request for comments.

**SUMMARY:** The Coast Guard announces the availability of, and seeks public comments on, the national performance measures proposed here for use as guidelines when mariners demonstrate their proficiency in skills for ratings forming part of an engineering watch. A working group of the Merchant Marine Personnel Advisory Committee (MERPAC) developed and recommended measures for this proficiency. The Coast Guard has adapted the measures recommended by MERPAC.

**DATES:** Comments and related material must reach the Docket Management Facility on or before May 1, 2001.

**ADDRESSES:** Please identify your comments and related material by the docket number of this rulemaking [USCG 2001-8920]. Then, to make sure they enter the docket just once, submit them by just one of the following means:

(1) By mail to the Docket Management Facility, U.S. Department of Transportation, room PL-401, 400 Seventh Street SW., Washington, DC 20590-0001.

(2) By delivery to room PL-401 on the Plaza level of the Nassif Building, 400 Seventh Street SW., Washington, DC, between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The telephone number is 202-366-9329.

(3) By fax to the Facility at 202-493-2251.

(4) Electronically through the Web Site for the Docket Management System at <http://dms.dot.gov>.

The Facility maintains the public docket for this Notice. Comments and related material received from the public, as well as documents mentioned in this Notice, will become part of this docket and will be available for inspection or copying at room PL-401 on the Plaza level of the Nassif Building, 400 Seventh Street SW., Washington, DC, between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.

The measures proposed here are available on the Internet at <http://dms.dot.gov>. They are also available

from Mr. Mark Gould, Maritime Personnel Qualifications Division, Office of Operating and Environmental Standards, Commandant (G-MSO-1), U.S. Coast Guard Headquarters, telephone 202-267-0229.

**FOR FURTHER INFORMATION CONTACT:** For questions on this Notice or on the national performance measures proposed here, write or call Mr. Gould where indicated under **ADDRESSES**. For questions on viewing or submitting material to the docket, call Ms. Dorothy Beard, Chief, Dockets, Department of Transportation, telephone 202-366-9329.

**SUPPLEMENTARY INFORMATION:****What Action Is the Coast Guard Taking?**

Table A-III/4 of the Code accompanying the treaty on Standards of Training, Certification and Watchkeeping for Seafarers (STCW), 1978, as amended in 1995, articulates qualifications for merchant mariners' attaining the minimum standard of competence for ratings forming part of an engineering watch. The Coast Guard tasked MERPAC with referring to the Table, modifying and specifying it as it deemed necessary, and recommending national performance measures. The Coast Guard has adapted the measures recommended by MERPAC and is proposing them now for use as guidelines when assessing mariners' proficiency in skills (manifesting knowledge, understanding, and proficiency) for ratings forming part of an engineering watch.

Here follow the eight skills that a mariner must demonstrate respecting ratings forming part of an engineering watch, with an example of a Performance Condition, a Performance Behavior, and three Performance Standards for one of the eight:

**Eight Skills:** Engine-room watchkeeping procedures; Safe working practices as related to engine-room operations; Basic environmental-protection procedures; Use of appropriate internal-communication systems; Engine-room alarms and ability to distinguish among the various alarms, with special reference to alarms for fire-extinguishing gas; Safe operations of boilers; Escape routes from machinery spaces; and Familiarity with the location and use of fire-fighting equipment in machinery spaces.

The Performance Condition for the skill entitled, "Engine-room watchkeeping procedures" is: "Aboard a ship, in port or underway, or in an approved simulator or laboratory, given proper equipment . . ." This calls for,

in the case of this skill, various Performance Behaviors.

One Performance Behavior for the same skill is: "The candidate will properly relieve the watch." This behavior calls for three Performance Standards.

The Performance Standards for the same behavior are: "(1) Reports for duty 15 minutes before the hour; (2) Determines from the off-going watch: plant operational status, unusual alarms or conditions during previous watch, standing orders, maintenance performed during previous watch, on-going repairs affecting plant operations, [and] outstanding safety conditions; [and] (3) Seeks clarification from the off-going watch or engineer if information was not clearly understood."

If the mariner properly meets all of the Performance Standards, he or she passes the practical demonstration. If he or she fails to properly carry out any of the Standards, he or she fails the demonstration.

**Why Is the Coast Guard Taking This Action?**

The Coast Guard is taking this action to comply with STCW, as amended in 1995 and 1997 and incorporated into domestic law at 46 CFR Parts 10, 12, and 15 in 1997 and since. Guidance from the International Maritime Organization on shipboard assessments of proficiency suggests that Parties develop standards and measures of performance for practical tests as part of their programs for training and assessing seafarers.

**How May I Participate in This Action?**

You may participate in this action by submitting comments and related material on the national performance measures proposed here. (Although the Coast Guard does not seek public comment on the measures recommended by MERPAC, as distinct from the measures proposed here, those measures are available on the Internet at the Homepage of MERPAC, <http://www.uscg.mil/hq/g-m/advisory/merpac/merpac.htm>.) The measures proposed here, again, are available on the Internet at <http://dms.dot.gov>. They are also available from Mr. Gould where indicated under **ADDRESSES**. If you submit written comments please include—

- Your name and address;
- The docket number for this Notice [USCG 2001-8920];
- The specific section of the performance measures to which each comment applies; and
- The reason for each comment.

You may mail, deliver, fax, or electronically submit your comments and related material to the Docket Management Facility, using an address or fax number listed in **ADDRESSES**. Please do not submit the same comment or material more than once. If you mail or deliver your comments and material, they must be on 8½-by-11-inch paper, and the quality of the copy should be clear enough for copying and scanning. If you mail your comments and material and would like to know whether the Facility received them, please enclose a stamped, self-addressed postcard or envelope. The Coast Guard will consider all comments and material received during the 60-day comment period.

Once we have considered all comments and related material, we will publish a final version of the national performance measures for use as guidelines by the general public. Individuals and institutions assessing the competence of mariners may refine the final version of these measures and develop innovative alternatives. If you vary from the final version of these measures, however, you must submit your alternative to the National Maritime Center for approval by the Coast Guard under 46 CFR 10.303(e) before you use it as part of an approved course or training program.

Dated: February 20, 2001.

**Joseph J. Angelo,**

*Director of Standards, Marine Safety and Environmental Protection.*

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## DEPARTMENT OF TRANSPORTATION

### Federal Aviation Administration

[Policy Statement Number ANM-99-01]

#### Improving Flightcrew Awareness During Autopilot Operation

**AGENCY:** Federal Aviation Administration, DOT.

**ACTION:** Final policy statement.

**SUMMARY:** This document announces an FAA general statement of policy applicable to the type certification of transport category airplanes. This document advises the public, in particular manufacturers of transport category airplanes and automatic flight control (autopilot) systems, that the FAA, when certifying automatic pilot installations, intends to evaluate various items that will improve the flightcrew's awareness during autopilot operation.

**FOR FURTHER INFORMATION CONTACT:** Gregg Bartley, Federal Aviation

Administration, Transport Airplane Directorate, Transport Standards Staff, Airplane and Flight Crew Interface Branch, ANM 111, 1601 Lind Avenue SW., Renton, WA 98055-4056; telephone (425) 227-2889; fax (425) 227-1100; e-mail: gregg.bartley@faa.gov.

#### SUPPLEMENTARY INFORMATION:

##### Background

Recent incidents and accidents that have occurred worldwide involving pilot-autopilot interactions have emphasized to the FAA the need to reexamine the current certification policy relative to autopilot issues.

In 1991, the National Transportation Safety Board (NTSB) began an investigation of an incident involving a transport category airplane that experienced an in-flight upset. When the airplane was in cruise at flight level 310, the flightcrew noted that the inertial navigation system "FAIL" lights had illuminated. When the flightcrew cross-checked the instrument panel, they determined that the airplane was in a steep right-wing-down banking angle. The flight lost nearly 10,000 feet of altitude and the airplane approached supersonic speeds before the pilots could complete a recovery. The airplane eventually made a successful landing, and there were no injuries.

Investigation of the incident revealed, among other things, that a failure in the autopilot system could cause an airplane to roll slowly into a banking attitude. The roll rate induced from such a failure of the autopilot system may be barely perceptible to the flightcrew; it also may be difficult to detect without external visual attitude references or continuous close monitoring of the flight attitude instruments.

The NTSB has advised the FAA of its concern that some autopilot failures can result in changes in attitude at rates that may be imperceptible to the flightcrew, and thus remain undetected until the airplane reaches significant attitude deviations.

#### FAA Evaluation of Flightcrew/Flight Deck Automation Interfaces

In 1994, the FAA launched a study to evaluate all flightcrew/flight deck automation interfaces of current generation transport category airplanes. The FAA chartered a Human Factors Team to conduct the study. Team members included experts from the FAA, the European Joint Airworthiness Authorities (JAA), and academia. The objective of the study was to look beyond the label of "flightcrew error," and examine the contributing factors from the perspective of design;

flightcrew training and qualifications; operations; and regulatory processes. The FAA also tasked the team to develop recommendations to address any problems identified.

With regard to autopilot issues, the Team identified several specific problematic issues, including:

- Pilot/autopilot interactions that create hazardous out-of-trim conditions;
- Autopilots that can produce hazardous speed conditions and may attempt maneuvers that would not normally be expected by a pilot; and
- Insufficient wording in the Airplane Flight Manual regarding the capabilities and limitations of the autopilot.

#### Regulatory Initiatives

The FAA has acknowledged the autopilot issues raised by both the NTSB and the Human Factors Team, and has taken steps to address them. For example, the FAA has tasked the Aviation Regulation Advisory Committee (ARAC) to review and propose harmonized revisions to the following documents:

- *14 CFR 25.1329* ("Automatic pilot system"), which contains FAA's standards for certifying automatic pilot systems on transport category airplanes;
- *14 CFR 25.1335* ("Flight director systems"), which contains FAA's standards for certifying flight director systems on transport category airplanes; and
- *Advisory Circular (AC) 25-1329-1A* ("Automatic Pilot Systems Approval," dated July 8, 1968), which describes an acceptable means by which compliance with the automatic pilot installation requirements of § 25.1329 may be shown.

The work of ARAC currently is in progress.

#### Current Certification Standards

In general, the FAA has traditionally certified automatic pilot systems on transport category airplanes in accordance with § 25.1329 on the basis that:

- The systems are conveniences to reduce flightcrew workload, and
- The systems do not relieve the flightcrew of any responsibility for assuring proper flight path management.

As a result, the autopilot evaluation criteria contained in AC 25.1329-1A, are chiefly concerned with the effects of autopilot failures on the airplane. The most recent revision to AC 25-7A, "Flight Test Guide for Certification of Transport Category Airplanes," also defines some evaluation criteria for determining whether the autopilot is performing its intended function of relieving the flightcrew of some of their control functions.