ANNEX 3 SAMPLE DTMB ISO 9000 PROCEDURE

Title:	Procedure Number:	Revision Number:	Effective Date:
Control of Inspection, Measuring and Test Equipment	00-5230-113-01	Rev 3	April 12, 1996
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Section 11.0 - Control of Inspection, Measuring and Test Equipment

Calibration of Torsionmeter/Thrustmeter Equipment

In addition to Division procedures for Inspection, Measuring and Test Equipment, the Full Scale Trials Branch calibrates torsionmeters and thrustmeters capable of determining propeller shaft torque and thrust. The calibration of the torsionmeters is traceable to ISO 9001 Certificate of Registration 12 100 4192 and the National Institute of Standards and Technology (NIST). The calibration of the thrust load cells are traceable to NIST.

Calibrations will meet or exceed manufacturer's specifications. Bias limits will be calculated at the conclusion of each calibration and will be held to established standards. If the difference between the pre-trial calibration and the post-trial calibration values are greater than the bias error at full-scale voltage, the trial data must be adjusted. The Pass/Fail Instrumentation Check and Calibration Work Instruction 00-5230-114-03 provides further guidelines as well as bias limit values for various data channels.

11.1 Purpose

To provide a procedure for torsionmeter and thrustmeter calibrations which are not covered under Division procedures.

11.2 Responsibilities

The Branch Equipment Manager (BEM) is responsible for ensuring the effective implementation of this process.

11.3 Torsionmeter Calibration Procedure

11.3.1 All Full-Scale Trials Branch Torsionmeter systems will be calibrated in accordance with the Torsionmeter Calibration Work Instruction 00-5230-114-01 prior to use.

11.3.2 Calibration will be done according to the specifications requested by Program Managers using either Calibration Request Form 11A or 11B.

11.3.3 Once a calibration is complete and approved by the requester, a copy of the calibration is put into the Torsionmeter Calibrations book by the person calibrating the torsionmeter. A copy of the calibration is filed in the Ship's Project file by the person requesting the calibration.

11.3.4 Upon return of torsionmeter equipment, a post-calibration is performed on all systems in accordance with the Torsionmeter Calibration Work Instruction 00-5230-114-01.

Controlled Document

Calibration Request

Ship #: _____ Ship Name: _____

Type of Trial: Builders ____ Acceptance ____ Special ____

Requestor's Name: _____ Requestor's Signature: _____

Date Required By: _____ Date of Request: _____

DESIGN REQUIREMENTS	VALUE	SOURCE
Design Torque	(lbft)	
Full-Scale Torque	(lbft)	
Transient Torque	(lbft)	
RPM		
Horsepower		
Modulus of Rigidity	(enter individual values below)	

PRIMARY SYSTEMS	PORT (3) or Single	STBD (1)	PORT (4)	STBD (2)
Ring #				
Ring Bore				
Shaft O.D.				
Shaft I.D.				
Modulus of Rigidity				
10 or 16 MHz				
Shaft Rotation (aft -> fwd)				

PANEL METER DISPLAY		PORT (3) or Single	STBD (1)	PORT (4)	STBD (2)
Torque	(4 digits)				
RPM	(3 digits)				
Horsepower	(3 digits)				

SPARE SYSTEM

# of Spares Required: _____ 10 or 16 MHz: _____

ET Box ____ Sensor & Demod ____ Filter ____ RPM/Period ____ HP Calc ____

Panel Meter ____ 160 kHz Supply ____

Please check all parts required.

NOTE:

- Standard procedure is to calibrate to 5.000V Q Filtered at design torque and to to 150% design torque.
- Make any additional notes or special requirements on the reverse of this sheet.

SEPTEMBER 1995

Form 11A (Rev1)

CONFIDENTIAL
(when filled in)

Calibration Request

Ship #: _____ Ship Name: _____

Type of Trial: Builders ___ Acceptance ___ Special ___

Requestor's Name: _____ Requestor's Signature: _____

Date Required By: _____ Date of Request: _____

DESIGN REQUIREMENTS	VALUE	SOURCE
Design Torque	(lbft)	
Full-Scale Torque	(lbft)	
Transient Torque	(lbft)	
RPM		
Horsepower		
Modulus of Rigidity	(enter individual values below)	

PRIMARY SYSTEMS	PORT (3) or Single	STBD (1)	PORT (4)	STBD (2)
Ring #				
Ring Bore				
Shaft O.D.				
Shaft I.D.				
Modulus of Rigidity				
10 or 16 MHz				
Shaft Rotation (aft -> fwd)				

PANEL METER DISPLAY		PORT (3) or Single	STBD (1)	PORT (4)	STBD (2)
Torque	(4 digits)				
RPM	(3 digits)				
Horsepower	(3 digits)				

SPARE SYSTEM

# of Spares Required: _____ 10 or 16 MHz: _____

ET Box ___ Sensor & Demod ___ Filter ___ RPM/Period ___ HP Calc ___

Panel Meter ___ 160 kHz Supply ___

Please check all parts required.

NOTE:

- Standard procedure is to calibrate to 5.000V Q Filtered at design torque and to to 150% design torque.
- Make any additional notes or special requirements on the reverse of this sheet.

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(when filled in)

Form 11B (Rev1) SEPTEMBER 1995