



# Supplier Quality Audit Report

## General Supplier Information

**Company Name:** Teledyne Webb Research      **Address:** 82 Technology Park Drive  
**Phone:** 508 548-2077      **City:** East Falmouth  
**Fax:** 508 540-1686      **State:** MA      **Zip Code:** 02536  
**Item(s) Supplied:** P/N 3304-00004-00001 Open Ocean Glider

## Contact Information

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<b>Production:</b> William Wieler	<b>Phone:</b> 508 548-2077	<b>Fax:</b> 508 540-1686	<b>Email:</b> bwiel@teledyne.com
<b>Other:</b> Shawn Green - Quality Eng.	<b>Phone:</b> 508 548-2077	<b>Fax:</b> 508 540-1686	<b>Email:</b> sgreen2@teledyne.com

## Facilities Information

<b>No. of Employees Total:</b> 54	<b>Manufacturing:</b> 18	<b>Quality:</b> 2	<b>Management/Administration:</b> 34*
<b>No. of Mfg. Shifts:</b> 1	<b>Mfg. Area (sq. ft.):</b> 17,000 (3,000 for Gliders)		* Includes Engineering

## Quality System Information

What Standard(s) is Supplier's Quality System based upon?

ISO 9001:2008   
  ISO/TS16949   
  AS 9100   
  ISO 13485   
  Other:

Is Supplier's Quality System certified by a recognized ISO registrar?

Yes    **Registra:** Det Norske Veritas (DNV)      **Certificate No.:** CERT-09263-2004-AQ-HOU-ANAB Rev. 1

## Audit Type & Scope

QMS Conformance Audit       Process Audit

**Procedure(s)/Process(s) Audited:** This audit is the CLIN 0001 CDRL A012 Quality Audit for the Open Ocean Glider, conducted in conjunction with the Coastal Glider CLIN 0002 CDRL B011 audit of the Slocum Electric Glider Manufacturing Process (Assembly & Test). The Slocum Electric Glider Generic Manufacturing Process Flow Diagram (Document No. 4400, Rev. B) is the primary reference document for is audit and applies to both the Open Ocean and Coastal Gliders. The purpose of this audit was to verify that all procedures identified in the current revision (Rev. B) of document 4400 are released documents. Only documentation identified as being in revision and not released in the Coastal Glider audit conducted on 5/9/11 was reviewed in this audit.

**Reference Document(s):** 4400, Rev. B, Slocum Electric Glider Generic Manufacturing Process Flow Diagram  
Slocum Electric Glider.

**Audittees:** Bill Wieler – Glider Production Manager      Shawn Green – Senior Quality Engineer

**Audit conducted By:** George Dussault

**Signature:** *George Dussault*

**Date:** 9/7/2011

## Audit Summary

### Findings and Corrective Action Required:

There were no findings. All required procedures have been released and implemented.

### Observations:

Test procedures identify the applicable test record in the "reference documents" section of the procedure. Specifying the test record in a section identified as "records" is suggested should a procedure need to be revised for some other reason in the future.

### General Comments:

Bill Wieler and Shawn Green were very cooperative and helpful answering all questions in a straight forward manner. TWR's Slocum Electric Glider Generic Manufacturing Process Flow Diagram has been revised to clarify or more accurately map some sections of the assembly and test process. This document is very helpful in understanding TWR's manufacturing process and the quality controls used to ensure their product consistently meets specifications and performance requires.



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## Procedure/Process Audit Artifacts

The following audit artifacts were selected for review in this audit because they were identified in the process audit conducted on 5/9/2011 as documentation that was still being worked on at that time.

### 1. Forward Section Assembly A (200M)

Forward Section Assembly Pressure Test: N/A Note: Tested in ASSY 4335-200 Bench Tests

Pitch Motor Assembly:  3095-AP Rev B released by ECO 454 on 8/2/11

Pitch Motor Assembly Test:  3095-TP Rev A released by ECO 415 on 6/3/11  3095-TD

Note: Typo in Test Procedure, TD 3092 vs. TD 3095 called out in 3095-TP text. – S. Green made note to correct this error.

### 2. Aft Tray, Electric Assembly

Air Pump Assembly Test:  2931-TP Rev A released by ECO 440 on 7/11/11  2931-LS (Log Test Record)

Glider Main Control Board Test:  2792-TP Rev A released by ECO 415 on 6/3/11  2792-TD (Test Record)

Communication Board Assembly Test: N/A Note: Tested in ASSY 4335-200 Bench Tests

### 3. Aft End Cap Assembly

Aft End Cap Assembly:  3154-AP Rev B released by ECO 475 on 8/29/11

DIGFIN Antenna Ruder Assembly: AP is currently document in \*865. New assembly procedure document 3265-AP has not been released.  
\* Deviation to authorize continued use of Rev B mark-up copy 865 signed off on 9/2/11

DIGFIN Antenna Ruder Assembly Cycle Test:  TP is in document 865  3265-HS (Test Record)

DIGFIN Antenna Ruder Assembly Antenna Test:  3263-AT Rev A released by ECO 361 on 3/25/11  3265-HS (Test Record)

DIGFIN Antenna Ruder Assembly, Pressure Tests:  3265-PT(10PSI) Rev A ECO 361 on 3/25/11  3265-PT(1800 PSI) Rev A ECO 415 on 6/3/11  3265-HS (Test Record)

### 4. Bench Tests

4095-GASU Glider Final Assembly and Set-Up (Checklist) Rev. A released by ECO 352 on 4/13/11

### 5. Flight Tests

4095-COTS Final Glider Flight Testing Record Rev. A released by ECO 352 on 4/13/11

## Audit Notes

Date: 9/7/2011 Audit started at 9:00am and completed at 11:40am  
Bill and Shawn were very cooperative and answered all my questions in a straight forward manner.