

1.0 Purpose

The purpose of this document is to provide the tests and the order in which those tests will be performed, in order to validate the usability of the Growth Innovations Adjustable Pitch Propeller (**GIAPP**).

2.0 Scope

This document applies to the usability and functionality of the Growth Innovations APP.

3.0 Relevant Documentation

- 3.1 Growth Innovations Adjustable Pitch Propeller Final Design Report Fall 2005. (Current Standing Revision)
- 3.2 GIAPP Instructions for Use (**IFU**)
- 3.3 Assembly Fitment and Function Test Procedure
- 3.4 Simulated and Field Use Test Procedure

4.0 Background

This iteration of the APP was developed in the design phase in the fall semester of 2005 by the Growth Innovations APP senior design group. This test protocol will prove the validity of the final design for use in the field based on the needs assessed in sections 2.1 and 2.2 of the APP final report as listed in section 3.0 of this document.

5.0 Testing

5.1 Testing for Assembly and Fitment

The propeller shall be assembled as described in the Assembly Fitment and Function Test Procedure.

Documentation

Documentation of the fitments of the parts in the assembly shall be documented on a part by part basis in the attached data sheets for the associated test procedure.

Acceptance Criteria

All components and subsystems of the device must be able to be aligned and assembled allowing for functionality of the device.

5.2 Testing Basic Functionality

The GIAPP will be tested for basic functionality of the device based on the Assembly and Fitment Test Procedure.

Documentation

Documentation of the basic functionality shall be recorded in the data sheets of the associated test method.

Acceptance Criteria

The assembly must receive a passing mark for each required movement.

5.3 Testing for Functionality at Speed in Water

The assembly shall be tested at the Growth Innovations testing facility for the efficacy of the device in water under simulated low risk situational use. Testing shall be executed as per the directions in the Simulated and Field Use Test Procedure.

Documentation

Documentation of the basic functionality shall be recorded in a notebook and later added to the protocol report.

Acceptance Criteria

- Device must stay assembled at high speed over the test period
- Device must generate a noticeable flow in the forward and reverse thrusting directions
- Upon disassembly and further inspection the internal components of the device must show little to no wear
- The device must have no problem during reassembly

5.4 Testing for Functionality in the Field

The assembly shall be tested at the Growth Innovations Field Testing Facility for efficacy of the device in the field. Testing shall be executed as per the directions in the Simulated and Field Use Test Procedure.

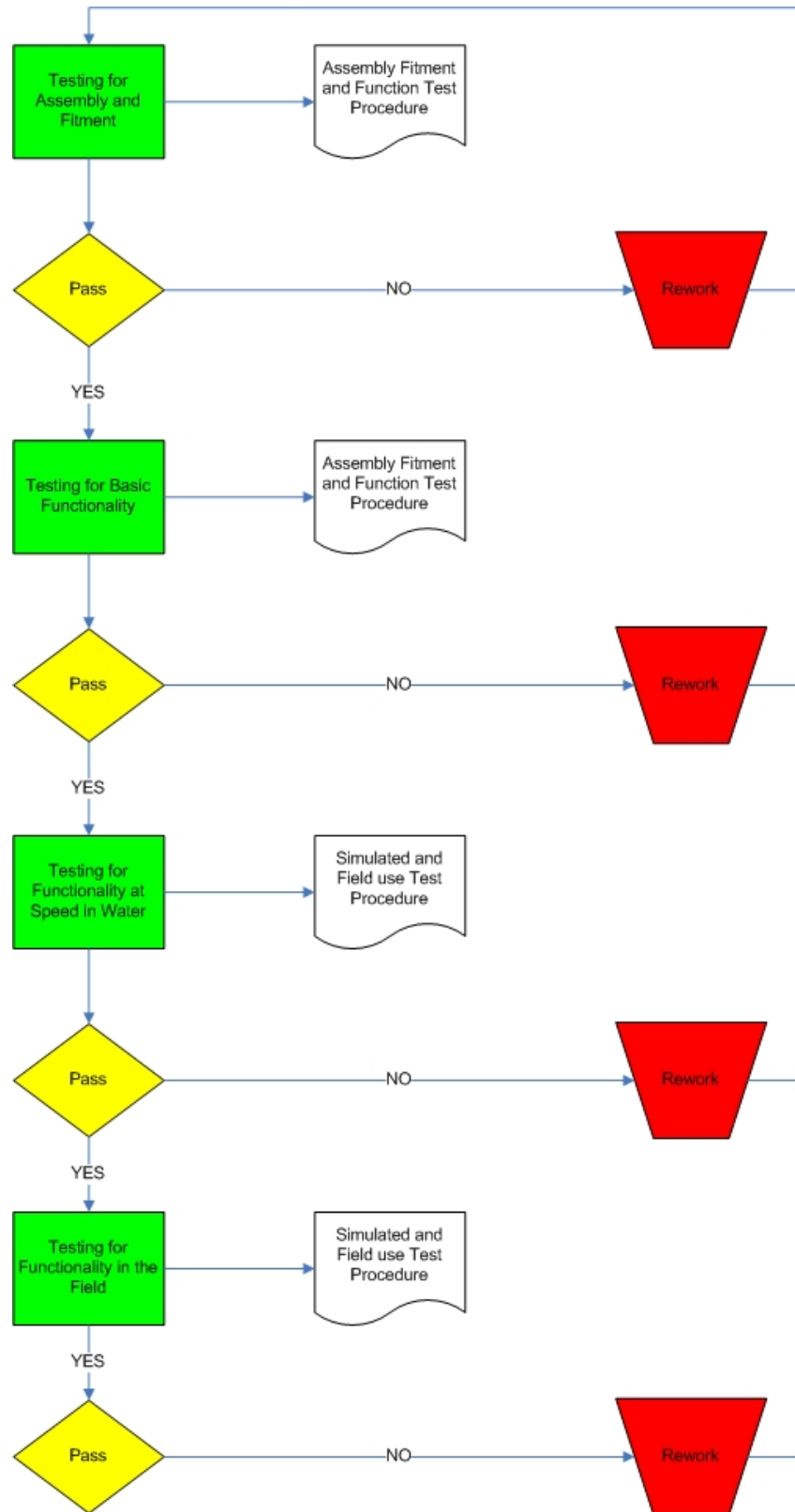
Documentation

Documentation of the basic functionality shall be recorded in a notebook and later added to the protocol report.

Acceptance Criteria

- Device must stay assembled at high speed over the test period
- Device must provide a forward and reverse thrust to the boat
- Upon disassembly and further inspection the internal components of the device must show little to no wear
- The device must have no problem during reassembly

6.0 Test Flow Diagram



Appendix I: Test Methods and Data Sheets