ONSPEED V3 Prep and Flight Test Checklist Version 1.4

Software Preparation: Finder > Documents > Arduino > OnSpeedTeensy
Confirm default configuration file: default_config.h or via Arduino tab

OnSpeedTeensy Software Version: _____

Set-up: Connect via WiFi and Open ONSPEED.LOCAL in browser
WiFi Firmware Version: _____

SETTINGS > AOA CONFIGURATION

AOA Smoothing _____
Pressure Smoothing _____
Data Source [ ] Sensors
[ ] Test Potentiometer
[ ] Range Sweep
[ ] Replay Log File

Flap Curve 1
Flap Position: _____ Sensor Position: _____
L/D_{MAX} AOA: _____
OnSpeed Fast AOA: _____
OnSpeed Slow AOA: _____
Stall Warning AOA: _____
AOA Curve Type [ ] Polynomial
[ ] Logarithmic
[ ] Exponential
Algorithm: _____

Flap Curve 2
Flap Position: _____ Sensor Position: _____
L/D_{MAX} AOA: _____
OnSpeed Fast AOA: _____
OnSpeed Slow AOA: _____
Stall Warning AOA: _____
AOA Curve Type [ ] Polynomial
[ ] Logarithmic
[ ] Exponential
Algorithm: _____

Flap Curve 3
Flap Position: _____ Sensor Position: _____
L/D_{MAX} AOA: _____
OnSpeed Fast AOA: _____
OnSpeed Slow AOA: _____
Stall Warning AOA: _____
AOA Curve Type [ ] Polynomial
[ ] Logarithmic
[ ] Exponential
Algorithm: _____

Use **ADD NEW FLAP POSITION** button, as required

Flap Curve 4
Flap Position: _____ Sensor Position: _____
L/D_{MAX} AOA: _____
OnSpeed Fast AOA: _____
OnSpeed Slow AOA: _____
Stall Warning AOA: _____
AOA Curve Type [ ] Polynomial
[ ] Logarithmic
[ ] Exponential
Algorithm: _____

Test Boom Data [ ] Enabled
[ ] Disabled
Boom Alpha Curve: .0264x – 105.837
Boom Beta Curve: .0242x – 95.7504
Boom Static Curve: .12207x – 199.951
Boom Dynamic Curve: .015259x – 124.994
CAS Curve: _____

Pressure Ports Orientation [ ] Up
[ ] Down
[ ] Left
[ ] Right
[ ] Forward
[ ] Aft

Box Top Orientation
[ ] Up
[ ] Down
[ ] Left
[ ] Right
[ ] Forward
[ ] Aft

Serial EFIS Data
[ ] Enabled
[ ] Disabled

EFIS Type
[ ] Dynon D10/D100
[ ] SkyView/Advanced
[ ] Garmin G5
[ ] Garmin G3X
[ ] Aerovonics
[ ] MGL iEFIS

Potentiometer Volume Control
[ ] Enabled
[ ] Disabled

Audio Test (Confirm proper stereo operation, required for 3D audio) "ONSPEED SPEAKER LEFT/RIGHT" in appropriate earpiece.
Garmin ICS BIT: Press/hold inner right knob and turn radio on to enter configuration mode. Turn large knot to HEADSET TEST. Use small knob to select LEFT or RIGHT test.

Low Vol Value (Turn volume knob all the way down, press READ button):
_____
High Vol Value (Turn volume knob all the way up, press READ button):
_____

Mute Audio Under IAS (kts): _____

3D Audio
[ ] Enabled
[ ] Disabled

Over-G Audio Warning
[ ] Enabled
[ ] Disabled

Aircraft Load Factor Limit
[ ] Standard Category (+3.8 G)
[ ] Normal Category (+4.4 G)
[ ] Aerobatic Category (+6.0 G)
[ ] G Limit Test (+2.5 G)

SD Card Logging [ ] Enabled [ ] Disabled

Serial Out Format
[ ] Garmin G3X
[ ] OnSpeed

Serial Out Port
[ ] None
[ ] Serial 3 (RS323 – Pin 12)
[ ] Serial 5 (TTL – Pin 9)

SAVE as required. Confirm "Configuration Saved." *Failure to save will result in settings defaulting to previous.* When you save a configuration, an onspeed.cfg file is created. TOOLS > LOG FILES to access. Copy into OnSpeedTeensy Arduino file using text editor—***do not erase top or bottom line in default_config.h file when copying.***

SETTINGS > SENSOR CONFIGURATION

-Be sure box orientation is correct in AOA CONFIGURATION settings.
-Boresight the zero pitch reference: level the airplane IAW designer/manufacturer's instructions (set fuselage reference line to 0). If equipped, set EFIS pitch to 0 with aircraft leveled.

Enter aircraft (FRL angle) in degrees: _____
(zero if aircraft leveled, else angle of the FRL with aircraft on its wheels)

Select **CONFIGURE SENSORS**

Record sensor biases:

Pressure	PfwdBias:	_____
	P45Bias:	_____
IMU	axBias:	_____
	ayBias:	_____
	azBias:	_____
	gxBias:	_____
	gyBias:	_____
	gzBias:	_____
Boresite	PitchBias	_____

Cameras
All: fully charged, blank SD card inserted and **formatted**. Use camera to format card.
Oblique: MED FOV if boom installed, else WIDE
Forward: MED FOV all flights. Audio harness connected. **ENSURE HARNESS IS PLUGGED INTO CAMERA.** If Gen 1 recording required, install additional

patch cable. Adjust ONSPEED volume to 11 O'clock MINIMUM to ensure sufficient thru-put to camera for post-flight edit.

Hero 4 max battery time 1+50 minutes to fail off. Spare batteries as required.

Boom

Secure: six #6 screws + 2 x thru bolts with locking hardware. **BATTERY FACES COCKPIT.**

Battery Installed, positive end forward (check battery log for time remaining. Maximum cumulative flight use: 6 hours).
Note: Boom wifi connection is powered via ONSPEED box (Radio Switch). Boom may be disabled in flight by pulling ONSPEED CB. Boom LED visible from cockpit when powered on. LED indicates transmit and receive.

Software

Doc's Box: Stand-alone software. Clear log as required. Must use cable and terminal software to download. Powered by MASTER switch.

ONSPEED Box: Can power up with cable and battery pack (enables wifi capability). LED on panel lit when powered up. Breathes to indicate normal operation. Download via wifi or terminal program. STOP! LIST! FORMAT!, as required. Always STOP! prior to log download (WiFi download automatically sends STOP command). To interface with Arduino software, must hook up computer directly with cable.

WiFi Firmware update to ONSPEED Box: Unzip file. Folder contains three files. The OnSpeedWifi.ino.pico32.bin file is a "bianary" file that contains firmware. Establish wifi connection, and open ONSPEED.LOCAL: TOOLS > UPGRADE WIFI MODULE. Select new .bin file and upload (Note .bin file icon shows as zip file on Mac). Process can be slow. Perform hard reboot and verify correct firmware version is displayed.

AFTER START
Radio Switch – ON
Comm Radio – ON
ICS – CHECK
Gen 1 box: ON + RESET (Right or Both, A/R), Turn off after test.
Gen 2 - ADJUST VOLUME / LED ON (Breathing)
Boom – LED BRIGHT FLASH
Cameras – ON LEDs CHECKED
    Verify audio hook-up for FWD camera

TAKEOFF
Monitor Gen 2 for proper operation at 25 KIAS

TEST AREA
Alitimeter – SET AS REQ FOR TEST (QNH or 29.92)
Confirm all LEDs
    Gen 2
    Camera
    Boom
Confirm VOLUME SET
Confirm Gen 1 ON (as desired)
    Heartbeat tone normal if powered up in flight prior to slowing to L/D_{MAX} first time

ABNORMALS
Gen 2 LED not breathing: RESET 1 AMP CB to hard boot
Remove boom power: Pull 1 AMP ONSPEED CB (also disables Gen 2 system)

ADJUST SET POINTS IN-FLIGHT (IPhone Only)
-Turn off DATA
-Open browser: ONSPEED.LOCAL
-SETTINGS > AOA CONFIGURATION
    [ ] Establish desired AOA/IAS condition
    [ ] STABLE
    [ ] Press USE LIVE AOA
        Process takes a few seconds
    [ ] Scroll to bottom of page and SAVE
    [ ] Confirm proper setpoint operation