IOWA STATE UNIVERSITY

DETERMINATION OF THE AERODYNAMIC PERFORMANCE OF A LOW-SPEED AIRFOIL BASED ON PRESSURE DISTRIBUTION MEASUREMENTS PRE-LABORATORY

AER E 344 - PRE-LAB 05 - DETERMINATION OF THE AERODYNAMIC PERFORMANCE OF A LOW-SPEED AIRFOIL BASED ON PRESSURE DISTRIBUTION MEASUREMENTS

SECTION 3 GROUP 3

MATTHEW MEHRTENS
JACK MENDOZA
KYLE OSTENDORF
GABRIEL PEDERSON
LUCAS TAVARES VASCONCELLOS
DREW TAYLOR

PROFESSOR

HUI HU, PHD

College of Engineering
Aerospace Engineering
Aerodynamics and Propulsion Laboratory

AMES, FEBRUARY 2024

1

Answers

1.1 Lab Plan

1. Determine the correct motor frequency to use for a wind tunnel velocity of 10 m/s to 15 m/s.
2. Verify the connections to the three Scanivalve pressure transducers.
3. Using the data acquisition software, calibrate the three Scanivalve pressure transducers.
4. Set the wind tunnel to 10 m/s to 15 m/s.
5. Set the angle of attack (AoA) to $-4°$.
6. Using the data acquisition software, start a file, press the "Start" button, press the "Close File" button, and then change the AoA according to the lab manual.
7. Repeat Step 6 for AoA $-4°$, $0°$, $4°$, $6°$, $8°$, $10°$, $12°$, $14°$ and $16°$.
8. Repeat Step 6 and Step 7 as many times as time allows.
9. Save the data to a flash drive for post-lab analysis.