IOWA STATE UNIVERSITY

PRESSURE COEFFICIENT DISTRIBUTION ON THE SURFACE OF A CIRCULAR CYLINDER PRE-LABORATORY

AER E 344 - PRE-LAB 04 - PRESSURE COEFFICIENT DISTRIBUTION ON THE SURFACE OF A CIRCULAR CYLINDER

SECTION 3 GROUP 3

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Answers

1.1 Lab Plan

1. Connect the Scanivalve DSA 3217 to the pressure taps around the cylinder test tube.
2. Connect the Scanivalve DSA 3217 to the data collection computer.
3. Measure the following data for each motor frequency tested using an Excel spreadsheet.
    - Temperature in the wind tunnel
    - Reference pressure of the lab or wind tunnel
    - Pressure at the entrance of the contraction section
    - Pressure at the inlet of the test section
    - Diameter of the cylinder
    - Surface pressure data from the probes around the cylinder
    - *These data points are used to calculate air density, the velocity of the wind tunnel, and the Reynold's number.*
4. While the wind tunnel is not running, press the calibrate button in the data collection software.
5. Set the wind tunnel to 5 Hz. Once the motor has stabilized, press the "Start Data File" button and save the file. Press the "Start" button to begin data collection. Once data collection is complete, press the "Stop Data File" button.
6. Repeat Step 5 for each of the frequencies specified in the lab manual, up to 35 Hz.