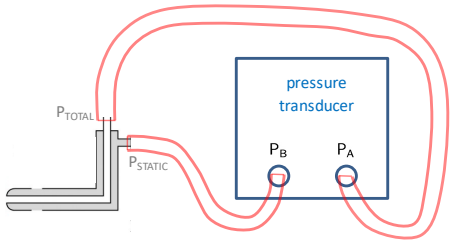
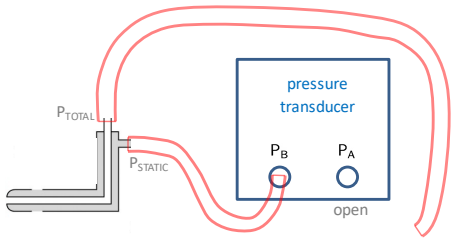
TFES Lab (ME EN 4650)

Circular Cylinder Lab: Raw Data Sheet*

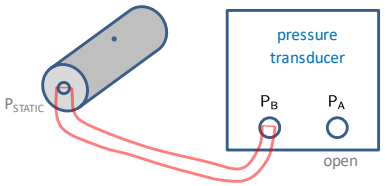
Freestream & Wake VELOCITY



Freestream & Wake STATIC PRESSURE



Cylinder STATIC PRESSURE



HANDOUT: Steps 1-3

Experimental Conditions

Wind Tunnel Fan: _____ (Hz)

Atmospheric Pressure, P_{atm} : _____ (mm Hg)

Air temperature, T_{atm} : _____ (°C)

HANDOUT: Step 4

Freestream Profiles (Upstream of Cylinder)

X: 1.0 inch (on ELD display)

		Freestream Velocity	Freestream Static Pressure
		P_A : Pitot-static probe (TOTAL)	P_A : Open to atmosphere
		P_B : Pitot-static probe (STATIC)	P_B : Pitot-static probe (STATIC)
		output = $\frac{1}{2}\rho U_\infty^2$	output = $P_{atm} - P_\infty$
y/D	Y (in)		
0	5.875		
1	6.625		
2	7.375		
3	8.125		
4	8.875		

HANDOUT: Step 5

Wake Profiles (Downstream of Cylinder)

X: 10.375 inch (on ELD display)

		Wake Velocity	Wake Static Pressure
		P_A : Pitot-static probe (TOTAL)	P_A : Open to atmosphere
		P_B : Pitot-static probe (STATIC)	P_B : Pitot-static probe (STATIC)
		output = $\frac{1}{2}\rho U_\infty^2$	output = $P_{atm} - P_{wake}$
y/D	Y (in)		
0	5.875		
0.1	5.95		
0.2	6.025		
0.3	6.1		
0.4	6.175		
0.5	6.25		
0.6	6.325		
0.8	6.475		
1	6.625		
1.2	6.776		
1.4	6.925		
1.6	7.075		
1.8	7.225		
2	7.375		
2.2	7.525		
2.4	7.675		
2.6	7.825		
3	8.125		
3.5	8.5		
4	8.875		

HANDOUT: Step 6

Cylinder Pressure Distribution

Cylinder Static Pressure
P_A : Open to atmosphere
P_B : Cylinder surface tap
output = $P_{atm} - P_{cyl}$

θ (deg)	
0	
5	
10	
15	
20	
25	
30	
35	
40	
45	
50	
55	
60	
65	
70	
75	
80	
85	
90	
100	
120	
140	
160	
180	

*Record filenames in the boxes above. ALL pressure measurements are in mmHg