

University of Illinois Department of Agricultural and Biological Engineering
Bioenvironmental and Structural Systems Lab
Final Report

Project Number: 09004
Test Date: January 5, 2009

Fan:		Motor:		Shutter:	
Make-	<i>Grower Select/Winds</i>	Make-	<i>Marathon</i>	Material-	<i>galvanized steel</i>
Model-	<i>WS-F52B</i>	Model-	<i>5KCR48WN0581CT</i>	# Doors-	<i>2</i>
Blade dia.-	<i>51.9"</i>	Hp-	<i>1.5</i>	# Columns-	<i>-</i>
Orifice dia.-	<i>52.6"</i>	RPM-	<i>1725</i>	Door length -	
		Volts-	<i>208-230</i>	Location-	<i>exhaust</i>
		Amps-	<i>6.7-6.2</i>		
Blade:		Hz-	<i>60</i>	Guards:	
Number-	<i>3</i>	Phase-	<i>1</i>	Description-	<i>wire</i>
Shape-	<i>propeller</i>	S. F.-	<i>1.2</i>	Spacing-	<i>2"x4" / 2" concentric</i>
Material-	<i>galvanized steel</i>			Location-	<i>intake/exhaust</i>
Pitch-	<i>27 deg.</i>				
Clearance-	<i>0.4"</i>	Housing:		Discharge Cone:	
		Material-	<i>galvanized steel</i>	Depth-	<i>35"</i>
Drive Sheaves:		Intake area-	<i>55.1" x 55.5"</i>	Minor dia.-	<i>52.6"</i>
Drive dia.-	<i>AK46</i>	Discharge-	<i>52.6" dia.</i>	Major dia.-	<i>64"</i>
Axle dia.-	<i>AK114, 11.3" o.d.</i>	Depth-	<i>12.5"</i>		

Notes: *standard belt tensioner*

Test Conditions:

T(wb):	55.5	Barometric pressure, recorded	29.44
T(db):	79.5	Barometric Pressure, corrected	29.30

Static Pressure (in.H2O)	Airflow (cfm)	rpm	Volts	Amps	Watts	cfm/Watt
0.00	30700	680	229.9	6.20	1395	22.0
0.05	29300	678	230.0	6.50	1468	20.0
0.10	27600	677	229.8	6.89	1560	17.7
0.15	25900	676	230.0	7.14	1625	15.9
0.20	23800	675	229.6	7.45	1698	14.0
0.25	21800	673	229.5	7.71	1759	12.4
0.30	19500	672	229.5	7.94	1808	10.8