

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

Project Number: 13566
 Test Date: October 24, 2013

Fan:
 Make- *Chore-Time*
 Model- *54659-41*
 Blade dia.- *56.8"*
 Orifice dia.- *57.3"*

Motor:
 Make- *Marathon*
 Model- *5K48WN4495A*
 Hp- *1.5*
 RPM- *1725 // 1425*
 Volts- *200-230/380-460//200*
 Amps- *5.9-5.5/2.9//5.9-5.8/9.5/2.9*
 Hz- *60 // 50*
 Phase- *3*
 S. F.- *-*

Shutter: *Butterfly damper*
 Material- *Poly*
 # Doors- *2*
 # Columns- *-*
 Door length - *-*
 Location- *exhaust*

Blade:
 Number- *3*
 Shape- *propeller*
 Material- *galvanized steel*
 Pitch- *-*
 Clearance- *0.2"*

Housing:
 Material- *Poly / powder coat steel*

Guards:
 Description- *wire*
 Spacing- *2" x 4" / 5.5" concentric*
 Location- *intake / exhaust*

Discharge Cone:
 Intake area- *55.8" x 55.8"*
 Discharge- *57.3" dia.*
 Depth- *31.5"*
 Depth- *34.8"*
 Minor dia.- *56.6"*
 Major dia.- *69.8"*

Drive Sheaves:
 Drive dia.- *3.0" o.d.*
 Axle dia.- *9.9" o.d.*

Notes: 0

Test Conditions:

T(wb): 56.5 Barometric pressure, recorded 29.49
 T(db): 78 Barometric Pressure, corrected 29.36

							SI Units			
Static Pressure (in.H2O)	Airflow (cfm)	rpm	Volts	Amps	Watts	cfm/Watt	Static Pressure (Pa)	Airflow (m ³ /hr.)	(m ³ /hr)/W	W/1000m ³ /hr
0.00	32800	535	230.8	4.26	1311	25.0	0	55700	42.5	24
0.05	31100	533	230.1	4.47	1397	22.3	12	52900	37.8	26
0.10	29200	532	230.1	4.66	1485	19.6	25	49600	33.4	30
0.15	26800	530	230.0	4.86	1572	17.1	37	45600	29	35
0.20	24200	529	230.4	5.04	1650	14.6	50	41000	24.9	40
0.25	21100	528	230.3	5.17	1705	12.4	62	35800	21	48
0.30	14800	527	230.4	5.22	1726	8.5	75	25100	14.5	69