

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

**Project Number:** 08250  
**Test Date:** August 26, 2008

|                       |                         |                 |                          |                        |                                |
|-----------------------|-------------------------|-----------------|--------------------------|------------------------|--------------------------------|
| <b>Fan:</b>           |                         | <b>Motor:</b>   |                          | <b>Shutter:</b>        |                                |
| Make-                 | <i>Hired Hand</i>       | Make-           | <i>WEG</i>               | Material-              | <i>galvanized steel</i>        |
| Model-                | <i>6603-7132</i>        | Model-          | <i>1UMEICPNXX 504E</i>   | # Doors-               | <i>2</i>                       |
| Blade dia.-           | <i>54.5"</i>            | Hp-             | <i>1.5</i>               | # Columns-             | <i>-</i>                       |
| Orifice dia.-         | <i>55.2"</i>            | RPM-            | <i>1725/1425</i>         | Door length -          | <i>-</i>                       |
|                       |                         | Volts-          | <i>115/208-230//220</i>  | Location-              | <i>exhaust</i>                 |
|                       |                         | Amps-           | <i>13.0/7.0-6.5//8.0</i> |                        |                                |
| <b>Blade:</b>         |                         | Hz-             | <i>60/50</i>             | <b>Guards:</b>         |                                |
| Number-               | <i>3</i>                | Phase-          | <i>1</i>                 | Description-           | <i>wire</i>                    |
| Shape-                | <i>propeller</i>        | S. F.-          | <i>1.5</i>               | Spacing-               | <i>2" x 4" / 2" concentric</i> |
| Material-             | <i>galvanized steel</i> |                 |                          | Location-              | <i>intake / exhaust</i>        |
| Pitch-                | <i>-</i>                |                 |                          |                        |                                |
| Clearance-            | <i>0.4"</i>             | <b>Housing:</b> |                          | <b>Discharge Cone:</b> |                                |
|                       |                         | Material-       | <i>galvanized steel</i>  | Depth-                 | <i>35.5"</i>                   |
| <b>Drive Sheaves:</b> |                         | Intake area-    | <i>59.8" x 60"</i>       | Minor dia.-            | <i>55.2"</i>                   |
| Drive dia.-           | <i>3.45" o.d.</i>       | Discharge-      | <i>55.2" dia.</i>        | Major dia.-            | <i>71.4"</i>                   |
| Axle dia.-            | <i>10.3"</i>            | Depth-          | <i>14"</i>               |                        |                                |

**Notes:** 0

**Test Conditions:**

|        |    |                                |       |
|--------|----|--------------------------------|-------|
| T(wb): | 66 | Barometric pressure, recorded  | 29.34 |
| T(db): | 80 | Barometric Pressure, corrected | 29.20 |

**Static**

| Pressure<br>(in.H2O) | Airflow<br>(cfm) | rpm | Volts | Amps | Watts | cfm/Watt |
|----------------------|------------------|-----|-------|------|-------|----------|
| 0.00                 | 28000            | 573 | 229.6 | 5.32 | 1034  | 27.1     |
| 0.05                 | 26700            | 572 | 229.6 | 5.60 | 1098  | 24.3     |
| 0.10                 | 25200            | 571 | 229.6 | 5.85 | 1154  | 21.8     |
| 0.15                 | 23400            | 570 | 229.8 | 6.06 | 1203  | 19.4     |
| 0.20                 | 21200            | 570 | 229.5 | 6.28 | 1253  | 17.0     |
| 0.25                 | 18600            | 569 | 229.6 | 6.48 | 1303  | 14.3     |
| 0.30                 | 15400            | 568 | 229.5 | 6.61 | 1332  | 11.6     |