

**University of Illinois Department of  
Agricultural Engineering  
BESS Lab**

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**Project Number:** 01211

**Test Date:** August 22, 2001

**Fan**

*Make:* American Coolair

*Model #:* MNBRC52L

*Manufacturer:* American Coolair

*Blade Size:* 53"

*Orifice Dia.:* 53.4"

**Blade**

*Number:* 4

*Shape:* propeller

*Material:* galvanized steel

*Pitch:* -

*Clearance:* 0.2"

**Shutter w/ bell mouth inlet**

*Material:* plastic

*# of Doors:* 16

*# of Columns:* 3

*Door Length:* 17.1"

*Location:* intake

**Other Attachments:**

Discharge cone, 32.5" deep, 53.4" i.d., 64" o.d.  
Belt tensioner

**Motor**

*Make:* Emerson

*Model #:* T63ZZBBA-800

*H.P.:* 1

*Amps:* 11.0/5.5

*Volts:* 115/208-230

*RPM:* 1725

*S.F.:* 1.3  
13.2/6.6 SFA

**Drive**

*Drive Pulley Dia.* 2.6"  
MA26

*Axle Pulley Dia.:* 9.5"

**Housing**

*Material:* galvanized steel

*Intake Area:* 56" x 57"

*Discharge Area:* 53.4" dia.

*Depth:* 30.3" top  
21.3" bottom

**Guards**

*Description:* wire

*Spacing:* 2" concentric

*Location:* exhaust

# TEST RESULTS

## AMERICAN COOLAIR MNBRC52L

|                                               | Static Pressure  | Speed      | Airflow    | Efficiency      |
|-----------------------------------------------|------------------|------------|------------|-----------------|
|                                               | <u>in. water</u> | <u>rpm</u> | <u>cfm</u> | <u>cfm/Watt</u> |
| Test: 01211                                   | 0.00             | 470        | 26,600     | 25.8            |
| Fan description:                              | 0.05             | 468        | 25,100     | 22.8            |
| 53" belt drive fan, 1 hp Emerson T63ZZBBA-800 | 0.10             | 465        | 23,200     | 19.9            |
| motor, galvanized steel slant housing,        | 0.15             | 463        | 20,900     | 17.0            |
| plastic bell mouth shutter, guard and         | 0.20             | 460        | 18,400     | 14.5            |
| discharge cone                                | 0.25             | 458        | 14,000     | 10.7            |
|                                               | 0.30             | 456        | 9,300      | 6.9             |

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