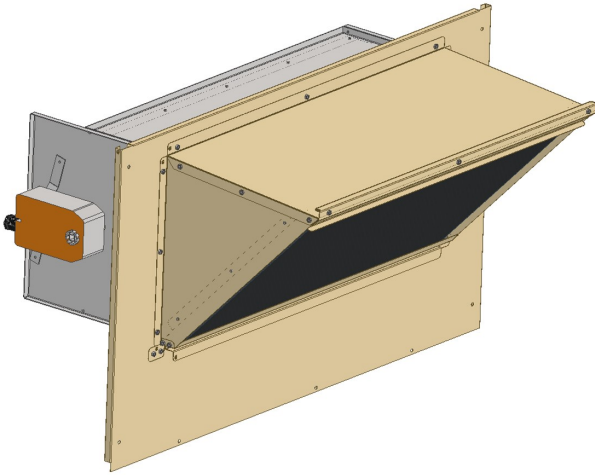


0-100% MOTORIZED FRESH AIR DAMPER
FITS DAIKIN DB*/DR*/DF* 036-072,
SANDSTON E BEIGE, TITLE 24 COMPLIANT
(ULTRA LOW LEAK - 0270L02703MC)



APPLICATION

Most building codes require a certain amount of fresh air to overcome the effects of CO2 during times when the space is occupied. Use of fresh air dampers on HVAC equipment is an inexpensive way to allow fresh air into the building. McDaniel Metals offers a motorized fresh air damper to fit Daikin light commercial packaged equipment. The motorized fresh air damper includes a small two position actuator that opens the damper when the indoor blower is running and closes the damper when the blower turns off.

MOTORIZED FRESH AIR DAMPER INSTALLATION

1. Remove the damper assembly from it's container and inspect for damage.
2. Remove the filter and upflow access panel from the rooftop unit, and retain screws.
3. Install the motorized damper door panel and hood sides per Figure 1.
4. Attach the hood heel per Figure 2.
5. Attach the hood bottom per Figure 3.
6. Locate the 5/16" head screws on the bottom of the damper slides and loosen them. Move the damper slides down (or remove), until they are positioned to provide the correct amount of fresh air and tighten the 5/16" head screws to keep it in place. See 'DETERMINING DAMPER SET POINT' below for proper setting.
7. Insert the hoghair filter and mist eliminator into hood, then attach the hood filter access per Figure 4.
8. Remove the jumper plug from the RTU and plug in the damper harness, as circled in Figure 5 (Tape the jumper plug inside the unit for future use in case the damper must be disconnected). Tie wrap damper harness so that it does not interfere with air filter replacement.
9. Re-insert the filter access panel.

DETERMINING DAMPER SET POINT

While it is possible to estimate the amount of fresh air by visually adjusting the fresh air dampers, a more accurate determination can be made using a digital thermometer and the equation below.

$$(To \times OA) + (Tr \times RA) = Tm$$

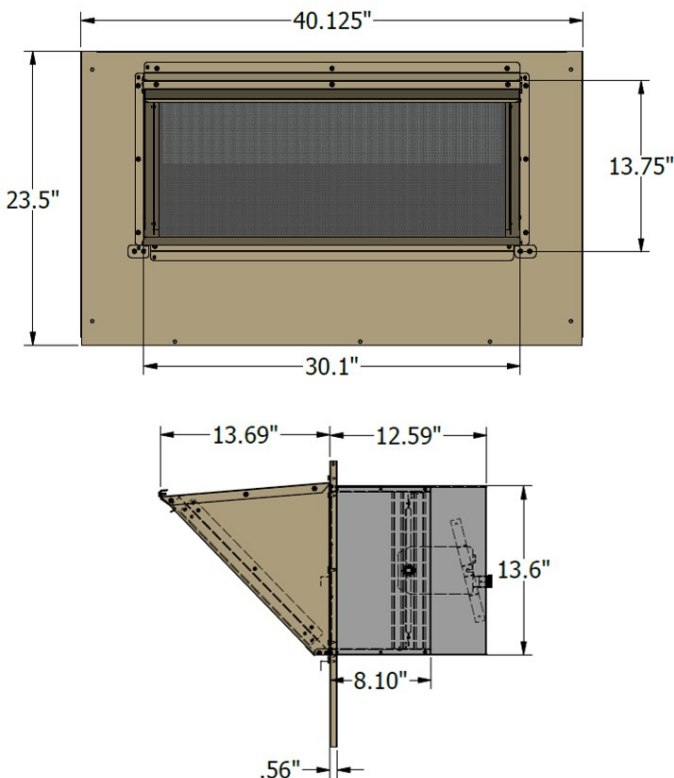
To = Outdoor air temperature
OA= Percent of outdoor air
Tr = Return air temperature
RA= Percent of return air
Tm= Resulting mixed air temperature

Example:

Fresh air required is 10% outdoor air.
Outdoor air temperature is 60 degrees F.
Return air temperature is 75 degrees F.

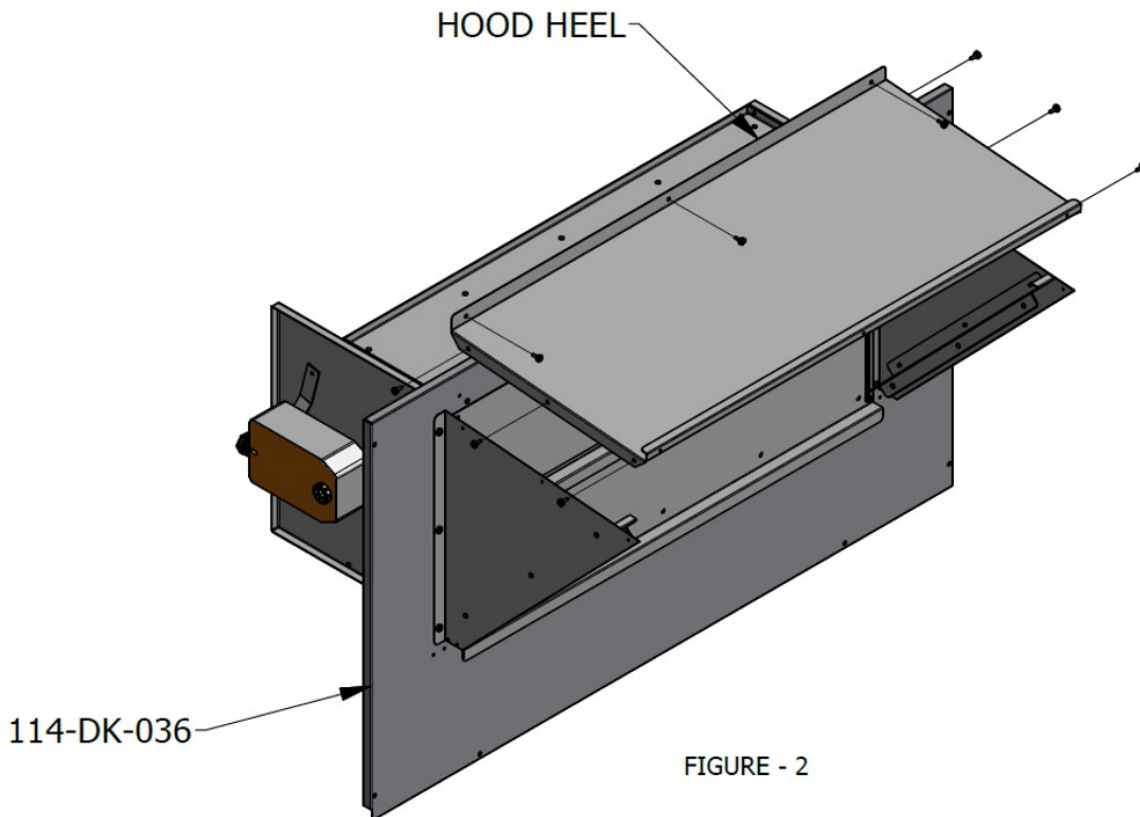
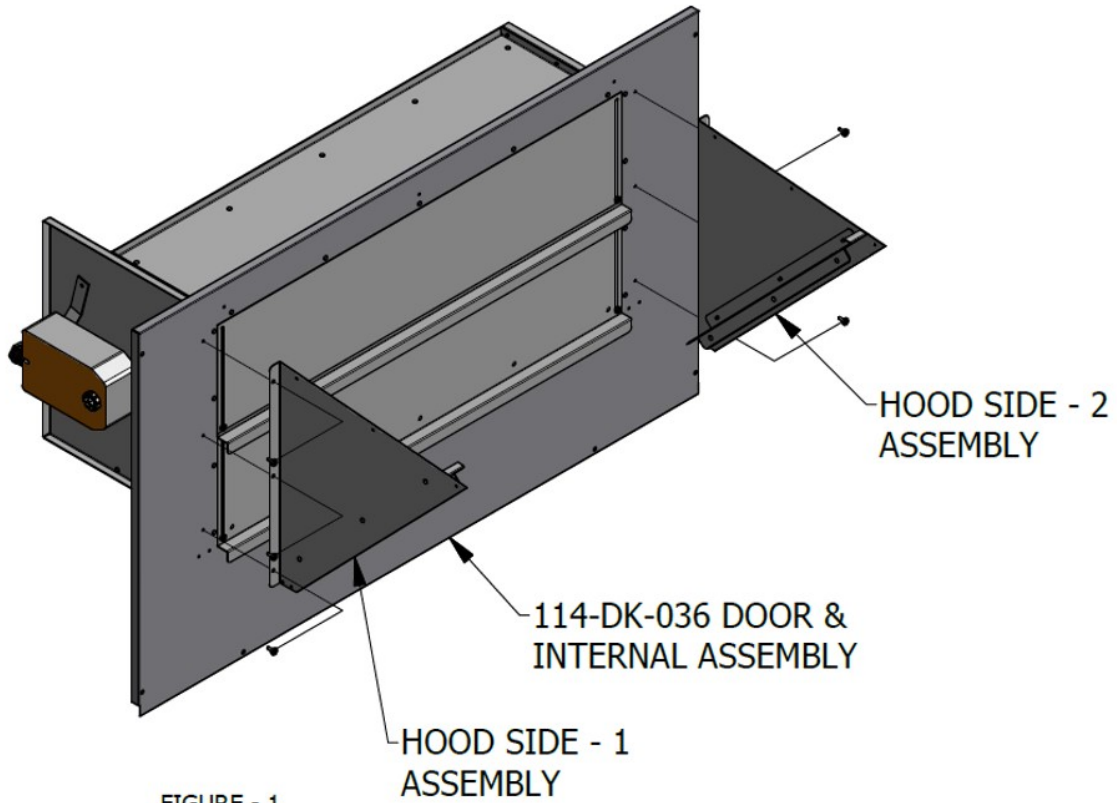
$$(0.1 \times 60) + (0.9 \times 75) = 6.0 + 67.5 = 73.5$$

Mixed air temperature will be 73.5 degrees F when the OA is 60 degrees F and the RA is 75 degrees F with 10% outdoor air.



STEP - 1: ATTACH DOOR TO UNIT USING SCREWS REMOVED FROM PANEL.

STEP - 2: ATTACH HOOD SIDES 1 & 2 TO DOOR
USING SIX(6) PROVIDED HEX SCREWS.



STEP - 3: ATTACH HOOD HEEL TO HOOD SIDES & DOOR
USING NINE(9) PROVIDED HEX SCREWS.

STEP - 4: ATTACH HOOD BOTTOM TO SIDES & DOOR USING EIGHT(8) PROVIDED HEX SCREWS.

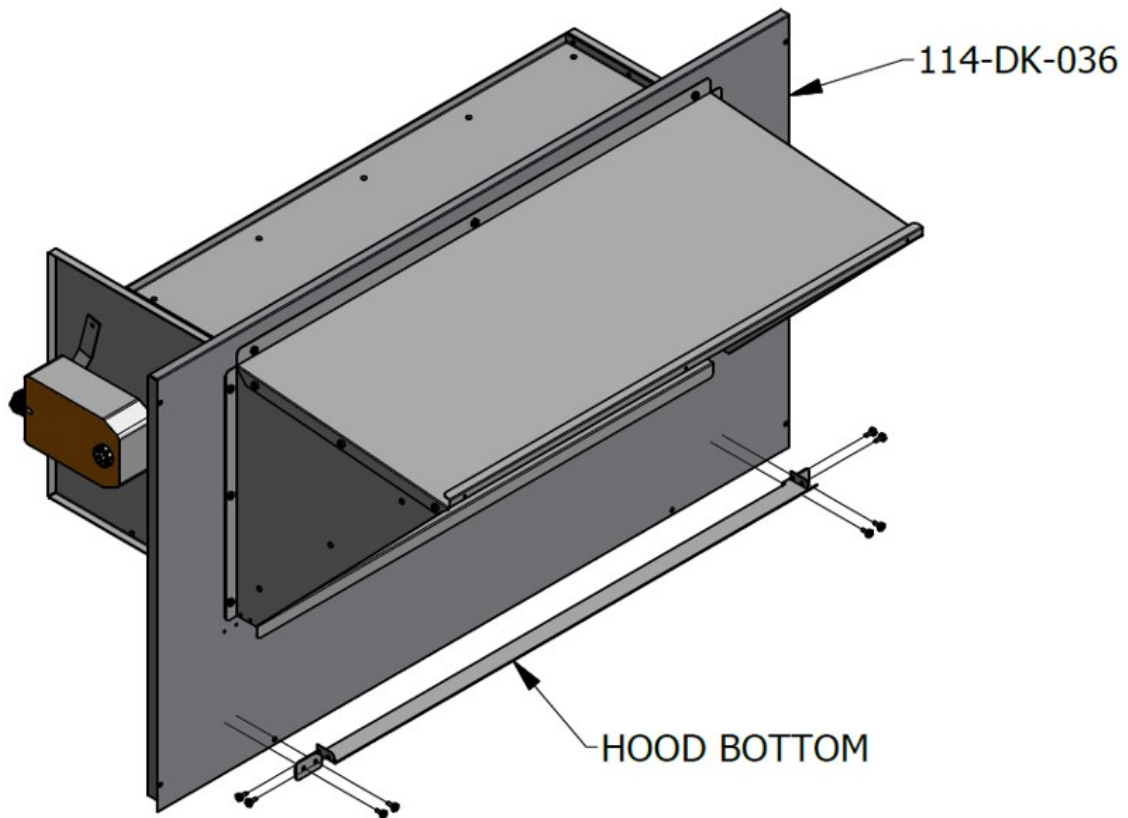


FIGURE - 3

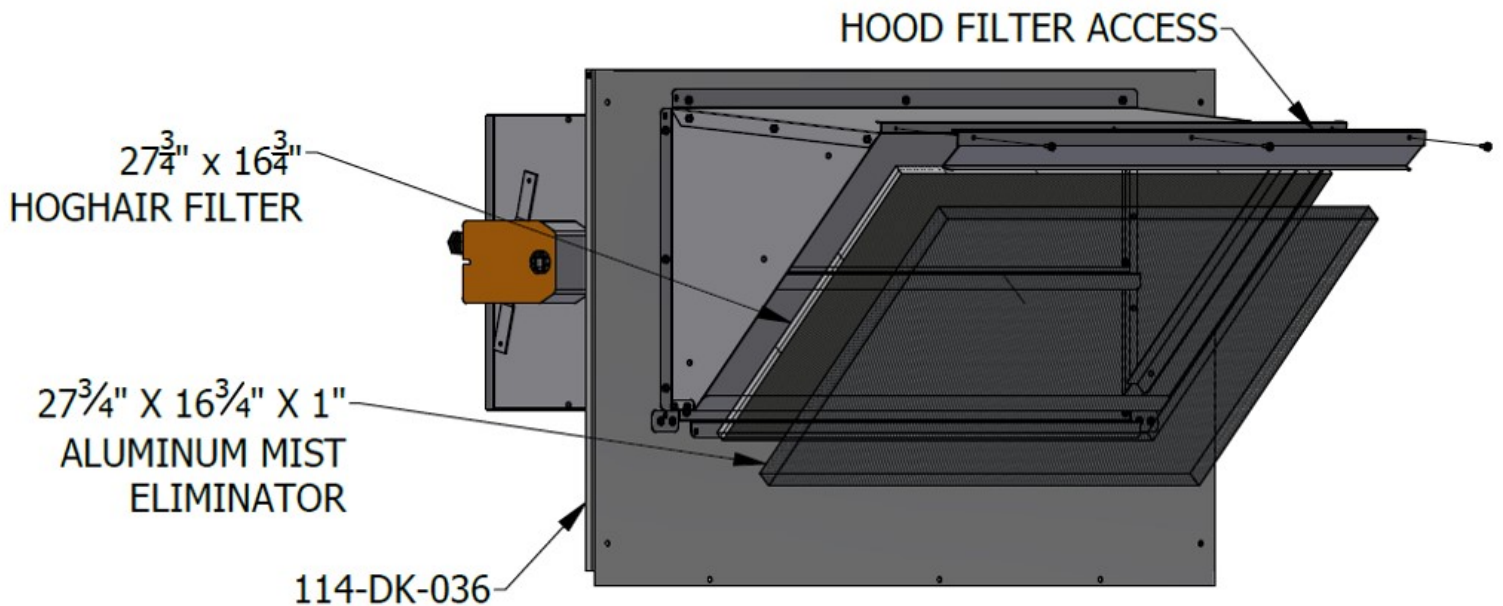


FIGURE - 4

STEP - 5: INSERT PROVIDED HOGHAIR FILTER INTO HOOD.
STEP - 6: INSERT PROVIDED MIST ELIMINATOR INTO HOOD.
STEP - 7: ATTACH HOOD FILTER ACCESS TO HOOD HEEL
USING THREE(3) PROVIDED HEX SCREWS.

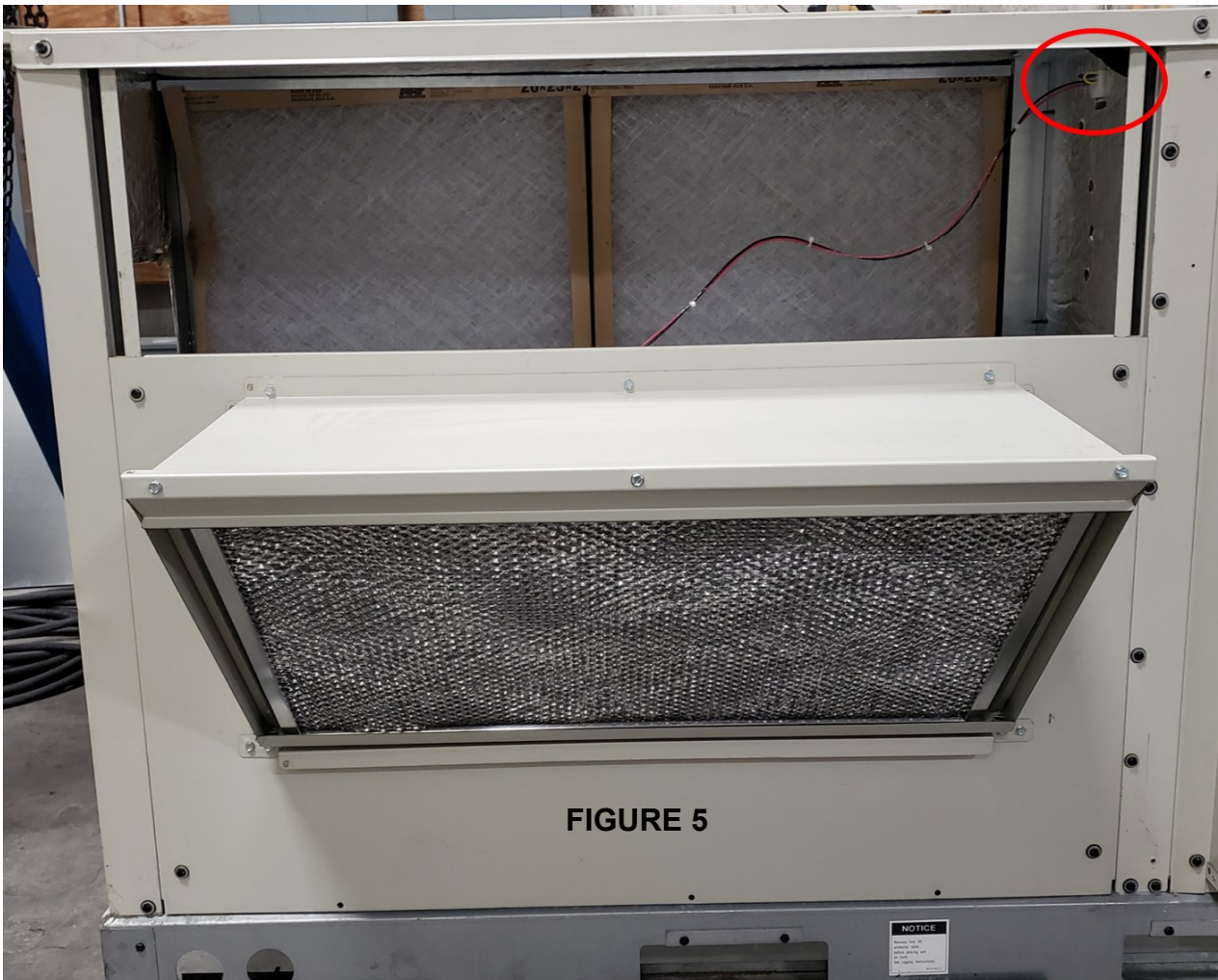


FIGURE 5

CONTENTS	
QTY	DESCRIPTION
1	MOTORIZED DAMPER PANEL
1	HOOD SIDE - 1 ASSEMBLY
1	HOOD SIDE - 2 ASSEMBLY
1	HOOD HEEL
1	FILTER ACCESS
1	HOOD BOTTOM
1	HOGHAIR FILTER
1	MIST ELIMINATOR
26	SHEET METAL SCREWS, #10 x 1/2" LG.
1	INSTALLATION GUIDE

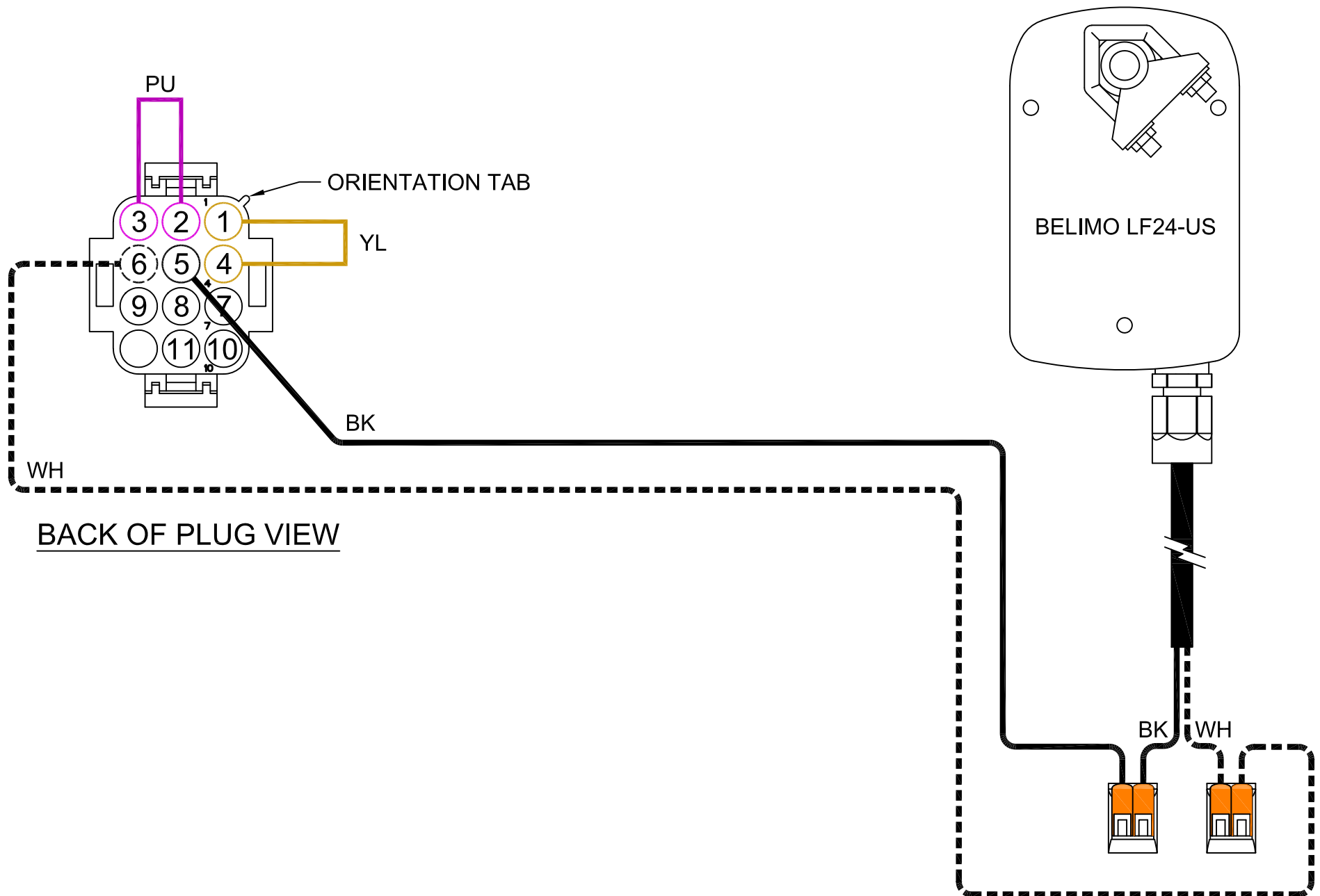


Important Note

- The fresh air mist eliminator should be flushed periodically with warm soapy water.

114-DK-036 WIRE DIAGRAM

REV 1, 07/25/2022



Pressure Drop

McDaniel Metals 114-DK-036, Client Free Area: 2.43, Core Area: 2.43, Blade Type: Airfoil , Single Blade hp

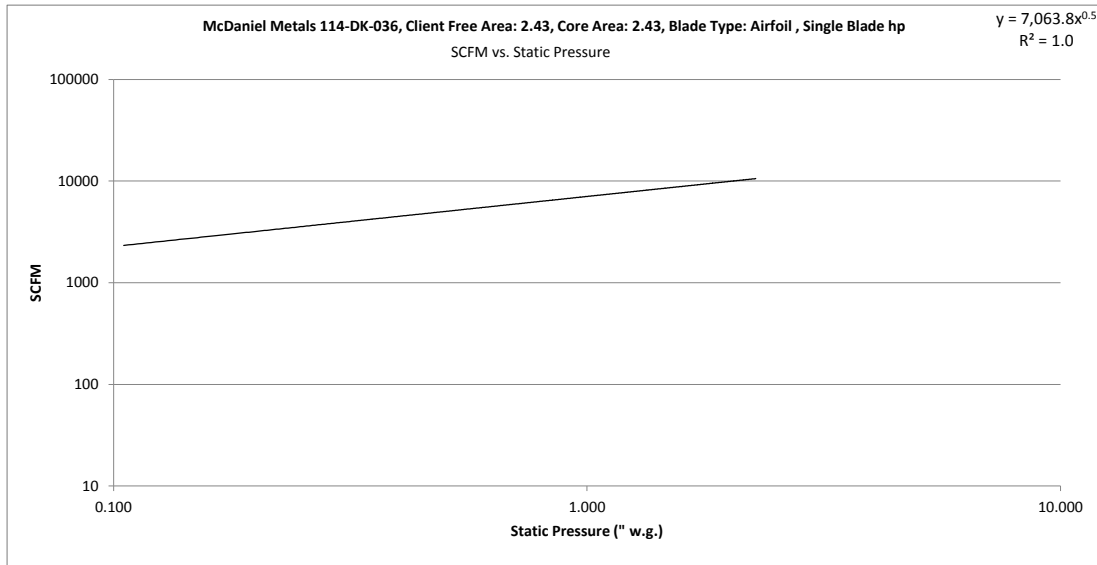
Test Details	Device Under Test	Psychometric Data									
Experiment Number: 1800 Test Number: 734 LTO Number: Date: 12/6/2018 Personnel: Chris Ulrickson Witness(es): Lab: Energistics Laboratory Location: 4633 Winfield Houston, TX 77039 Program Version:	Manufacturer: McDaniel Metals Model: 114-DK-036 Unit Size: Client Free Area: 2.43 Core Area: 2.43 Damper Type: Fresh Air Damper Blade Orientation: Horizontal Flow Direction: N/A Blade Type: Airfoil Blade Action: Single Blade	T _D : 59.5 T _W : 52.6 %RH: 77.77 P _{BAR} : 30.25 ρ ₀ : 0.0769 ρ ₀ /p: 1.0259									
		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th style="width: 50%;">Primary 1</th> <th style="width: 50%;">Primary 1</th> </tr> <tr> <td>A: 6050</td> <td>A:</td> </tr> <tr> <td>B: 0.5</td> <td>B:</td> </tr> <tr> <td>Source:</td> <td>Source:</td> </tr> </table>	Primary 1	Primary 1	A: 6050	A:	B: 0.5	B:	Source:	Source:	
Primary 1	Primary 1										
A: 6050	A:										
B: 0.5	B:										
Source:	Source:										
Comments:											

Pressure Drop

Enter CFM

CFM	Static Pressure
2500	0.12
2175	0.09
1850	0.07
1525	0.04
1200	0.03

Equation Coefficients	
A:	7063.8
B:	0.5
R ² :	1.0



Leakage Test

McDaniel Metals 114-DK-036, Client Free Area: 2.5, Core Area: 2.5, Blade Type: Airfoil , Single Blade hp

Test Details	Device Under Test	Psychometric Data	
Experiment Number: 1800 Test Number: 734 LTO Number: N/A Date: 12/5/2018 Personnel: TF Witness(es): Lab: Energistics Laboratory Location: 4633 Winfield Houston, TX 77039 Program Version:	Manufacturer: McDaniel Metals Model: 114-DK-036 Unit Size: Client Free Area: 2.5 Core Area: 2.5 Damper Type: Fresh Air Damper Blade Orientation: Horizontal Flow Direction: N/A Blade Type: Airfoil Blade Action: Single Blade	T _D : 63.4 T _w : 51.98 %RH: 39.91 P _{BAR} : 29.4 ρ ₀ : 0.0743 ρ ₀ /ρ: 0.9903	
		Primary 1 A: 7.04 B: 0.4691 Source: POP 5/8	
Comments: Pass: Max CFM allowed per sq/ft = 3 (Inlet = 2.50 sq/ft. ; Max CFM allowed = 7.50) Max CFM allowed does not exceed 7.50 CFM			

Leakage Test

Enter Static	
CFM	Static Pressure
7.47	1.0
7.02	0.9
6.55	0.8
6.05	0.7
5.52	0.6
4.96	0.5
4.34	0.4
3.66	0.3
2.88	0.2
1.91	0.1

Equation Coefficients	
A:	7.5
B:	0.6
R ² :	1.0

