

Report By:

National TAB
1329 E. KEMPER ROAD
SUITE 4210
CINCINNATI, OH 45246



Report: PRELIM

Function: Test, Adjust, & Balance

Date: 11/09/2023

PROJECT

11-06-23 CARMAX #7178 - WAUKESHA, WI

2441 KOSSOW RD

WAUKESHA, WI 53186

Client

Comfort Systems USA

9450 W Wingfoot Rd

Houston, TX 77041

National TAB

Project: 11-06-23 CARMAX #7178 - WAUKESHA, WI

System/Unit: AHU/RTU



Asset: RTU1

AREA:SHOWROOM

Unit Data		
	Design	Actual
MFG	LENNOX	LENNOX
Serial Num	-	5623H03940
Model Num	LGH180H4M	LGH180H4M
Type	RTU	RTU
Configuration	VERTICAL	VERTICAL
Num OA Filters 1	-	3
OA Filter Size 1	-	23X13
Num Final Filter 1	-	6
Final Filter Size 1	-	24X24X2

Motor Data		
	Design	Actual
Motor MFG	-	INTERLINK
Frame	-	56HZ
Horsepower	3.0	3.0
Motor Rpm	-	1750
Phase	3	3
Rated Voltage	480	480
Rated Amperage	-	4.0

Drive Data		
	Design	Actual
Motor Sheave Size	-	4"
Motor Bore Size	-	7/8"
Motor Sheave SetPt	-	4.5 TURNS OPEN
Fan Sheave Size	-	BK72
Fan Sheave Bore	-	1-3/16"
Belt CL Distance	-	20.5"
Num of Belts	-	1
Belt Size	-	BX55
Belt Alignment	-	VERIFIED

Test Data		
	Design	Actual
SF CFM	5750	5851
SF RPM	-	758
RA CFM	5100	5228
OA CFM	650	623
RL Voltage	-	486/487/486
RL Amperage	-	3.8/3.9/4.0
SF Rotation	-	CORRECT
RA Damper Position	-	HIGH: 78% LOW: 71%
Min OA Damper Position	-	HIGH: 22% LOW: 29%
Min OA Damper Type	-	ECONOMIZER

Performance Data		
	Design	Actual
MA Plenum SP	-	-0.39"
Fan Suction SP	-	-0.68"
Fan Discharge SP	-	0.52"
Total ESP	0.8"	0.91"
Fan Total SP	-	1.20"

General		
	Design	Actual
Fan Rotation Correct	-	YES
Unit Filters Clean	-	YES
Condensate Drain Installed	-	YES

Completed By: Michael McDonnell on 11/09/2023

National TAB

Project: 11-06-23 CARMAX #7178 - WAUKESHA, WI

System/Unit: AHU/RTU



Asset: RTU2

AREA:SHOWROOM

Unit Data		
	Design	Actual
MFG	LENNOX	LENNOX
Serial Num	-	5622F01133
Model Num	LGH180H4M	LGH180H4M
Type	RTU	RTU
Configuration	VERTICAL	VERTICAL
Num OA Filters 1	-	3
OA Filter Size 1	-	23X13
Num Final Filter 1	-	6
Final Filter Size 1	-	24X24X2

Motor Data		
	Design	Actual
Motor MFG	-	INTERLINK
Frame	-	56 HZ
Horsepower	3.0	3.0
Motor Rpm	-	1750
Phase	3	3
Rated Voltage	480	480
Rated Amperage	-	4.0

Drive Data		
	Design	Actual
Motor Sheave Size	-	3.75"
Motor Bore Size	-	7/8"
Motor Sheave SetPt	-	1.5 TURNS OPEN
Fan Sheave Size	-	BK95
Fan Sheave Bore	-	1-3/16"
Belt CL Distance	-	20.75"
Num of Belts	-	1
Belt Size	-	BX59
Belt Alignment	-	VERIFIED

Test Data		
	Design	Actual
SF CFM	5750	5682
SF RPM	-	702
RA CFM	5100	4997
OA CFM	650	685
RL Voltage	-	484/484/484
RL Amperage	-	3.1/3.2/3.2
SF Rotation	-	CORRECT
RA Damper Position	-	HIGH: 77% LOW: 73%
Min OA Damper Position	-	HIGH: 23% LOW: 27%
Min OA Damper Type	-	ECONOMIZER

Performance Data		
	Design	Actual
MA Plenum SP	-	-0.36"
Fan Suction SP	-	-0.54"
Fan Discharge SP	-	0.32"
Total ESP	0.8"	0.68"
Fan Total SP	-	0.86"

General		
	Design	Actual
Fan Rotation Correct	-	YES
Unit Filters Clean	-	YES
Condensate Drain Installed	-	YES

Completed By: Michael McDonnell on 11/09/2023

National TAB

Project: 11-06-23 CARMAX #7178 - WAUKESHA, WI

System/Unit: AHU/RTU



Asset: RTU3

AREA: CUSTOMER

Unit Data		
	Design	Actual
MFG	LENNOX	LENNOX
Serial Num	-	5622G11413
Model Num	LGH036H4E	LGH036H4E
Type	RTU	RTU
Configuration	VERTICAL	VERTICAL
Num OA Filters 1	-	1
OA Filter Size 1	-	29X14.5
Num Final Filter 1	-	4
Final Filter Size 1	-	16X20X2

Motor Data		
	Design	Actual
Motor MFG	-	GENTEQ
Horsepower	1/2	0.5
Motor Rpm	-	NL
Phase	1	1
Rated Voltage	115	115
Rated Amperage	-	2.2

Drive Data		
	Design	Actual
Motor Sheave Size	-	DD
Motor Bore Size	-	DD
Motor Sheave SetPt	-	HIGH: 68% LOW: 44%
Fan Sheave Size	-	DD
Fan Sheave Bore	-	DD
Belt CL Distance	-	DD
Num of Belts	-	DD
Belt Size	-	DD
Belt Alignment	-	DD

Test Data		
	Design	Actual
SF CFM	1100	1156
SF RPM	-	DD
RA CFM	960	1010
OA CFM	140	146
RL Voltage	-	119
RL Amperage	-	1.2
SF Rotation	-	CORRECT
RA Damper Position	-	HIGH: 82% LOW: 72%
Min OA Damper Position	-	HIGH: 18% LOW: 28%
Min OA Damper Type	-	ECONOMIZER

Performance Data		
	Design	Actual
MA Plenum SP	-	-0.11"
Fan Suction SP	-	-0.24"
Fan Discharge SP	-	0.48"
Total ESP	0.6"	0.59"
Fan Total SP	-	0.72"

General		
	Design	Actual
Fan Rotation Correct	-	YES
Unit Filters Clean	-	YES
Condensate Drain Installed	-	YES

Completed By: Michael McDonnell on 11/09/2023

National TAB

Project: 11-06-23 CARMAX #7178 - WAUKESHA, WI

System/Unit: AHU/RTU



Asset: RTU4

AREA:

Unit Data		
	Design	Actual
MFG	LENNOX	LENNOX
Serial Num	-	5622G11456
Model Num	LGH060H4E	LGH060H4E
Type	RTU	RTU
Configuration	VERTICAL	VERTICAL
OA Filter Size 1	-	29X14.25
Num Final Filter 1	-	4
Final Filter Size 1	-	20X20X2

Motor Data		
	Design	Actual
Motor MFG	-	GENTEQ
Frame	-	NL
Horsepower	1.0	1.0
Motor Rpm	-	NL
Phase	1	1
Rated Voltage	115	115
Rated Amperage	-	3.7

Drive Data		
	Design	Actual
Motor Sheave Size	-	DD
Motor Bore Size	-	DD
Motor Sheave SetPt	-	HIGH: 70% LOW: 42%
Fan Sheave Size	-	DD
Fan Sheave Bore	-	DD
Belt CL Distance	-	DD
Num of Belts	-	DD
Belt Size	-	DD
Belt Alignment	-	DD

Test Data		
	Design	Actual
SF CFM	1600	1558
SF RPM	-	DD
RA CFM	1300	1242
OA CFM	300	316
RL Voltage	-	120
RL Amperage	-	2.4
SF Rotation	-	CORRECT
RA Damper Position	-	HIGH: 79% LOW: 67%
Min OA Damper Position	-	HIGH: 21% LOW: 33%
Min OA Damper Type	-	ECONOMIZER

Performance Data		
	Design	Actual
MA Plenum SP	-	-0.19"
Fan Suction SP	-	-0.33"
Fan Discharge SP	-	0.50"
Total ESP	0.6"	0.69"
Fan Total SP	-	0.83"

General		
	Design	Actual
Fan Rotation Correct	-	YES
Unit Filters Clean	-	YES
Condensate Drain Installed	-	YES

Completed By: Michael McDonnell on 11/09/2023

National TAB

Project: 11-06-23 CARMAX #7178 - WAUKESHA, WI

System/Unit: AHU/RTU



Asset: RTU5

AREA:BUYERS

Unit Data		
	Design	Actual
MFG	LENNOX	LENNOX
Serial Num	-	5622G11416
Model Num	LGH036H4E	LGH036H4E
Type	RTU	RTU
Configuration	VERTICAL	VERTICAL
Num OA Filters 1	-	1
OA Filter Size 1	-	29X14.25
Num Final Filter 1	-	4
Final Filter Size 1	-	16X20X2

Motor Data		
	Design	Actual
Motor MFG	-	GENTEQ
Frame	-	NL
Horsepower	1/2	0.5
Motor Rpm	-	NL
Phase	3	1
Rated Voltage	480	115
Rated Amperage	-	2.2

Drive Data		
	Design	Actual
Motor Sheave Size	-	DD
Motor Bore Size	-	DD
Motor Sheave SetPt	-	HIGH: 69% LOW: 42%
Fan Sheave Size	-	DD
Fan Sheave Bore	-	DD
Belt CL Distance	-	DD
Num of Belts	-	DD
Belt Size	-	DD
Belt Alignment	-	DD

Test Data		
	Design	Actual
SF CFM	1100	1164
SF RPM	-	DD
RA CFM	920	992
OA CFM	180	172
RL Voltage	-	120
RL Amperage	-	1.1
SF Rotation	-	CORRECT
RA Damper Position	-	HIGH: 78% LOW: 67%
Min OA Damper Position	-	HIGH: 22% LOW: 33"
Min OA Damper Type	-	ECONOMIZER

Performance Data		
	Design	Actual
MA Plenum SP	-	-0.10"
Fan Suction SP	-	-0.25"
Fan Discharge SP	-	0.40"
Total ESP	0.6"	0.50"
Fan Total SP	-	0.65"

General		
	Design	Actual
Fan Rotation Correct	-	YES
Unit Filters Clean	-	YES
Condensate Drain Installed	-	YES

Completed By: Michael McDonnell on 11/09/2023

National TAB

Project: 11-06-23 CARMAX #7178 - WAUKESHA, WI

System/Unit: AHU/RTU



Asset: RTU6

AREA:PBX

Unit Data		
	Design	Actual
MFG	LENNOX	LENNOX
Serial Num	-	5622G08952
Model Num	LGH036H4E	LGH036H4E
Type	RTU	RTU
Configuration	VERTICAL	VERTICAL
Num OA Filters 1	-	1
OA Filter Size 1	-	29X14.25
Num Final Filter 1	-	4
Final Filter Size 1	-	16X20X2

Motor Data		
	Design	Actual
Motor MFG	-	GENTEQ
Horsepower	1/2	0.50
Motor Rpm	-	NL
Phase	3	1
Rated Voltage	480	115
Rated Amperage	-	2.2

Drive Data		
	Design	Actual
Motor Sheave Size	-	DD
Motor Bore Size	-	DD
Motor Sheave SetPt	-	HIGH: 62% LOW: 40%
Fan Sheave Size	-	DD
Fan Sheave Bore	-	DD
Belt CL Distance	-	DD
Num of Belts	-	DD
Belt Size	-	DD
Belt Alignment	-	DD

Test Data		
	Design	Actual
SF CFM	975	1012
SF RPM	-	DD
RA CFM	975	1012
OA CFM	0	0
RL Voltage	-	119
RL Amperage	-	1.2
SF Rotation	-	CORRECT
RA Damper Position	-	NA
Min OA Damper Position	-	NA
Min OA Damper Type	-	NONE
OA Enthalpy Setpt	-	NA

Performance Data		
	Design	Actual
MA Plenum SP	-	-0.11"
Fan Suction SP	-	-0.27"
Fan Discharge SP	-	0.30"
Total ESP	0.8"	0.41"
Fan Total SP	-	0.57"

General		
	Design	Actual
Fan Rotation Correct	-	YES
Unit Filters Clean	-	YES
Condensate Drain Installed	-	YES

Completed By: Michael McDonnell on 11/09/2023

National TAB

Project: 11-06-23 CARMAX #7178 - WAUKESHA, WI

System/Unit: AHU/RTU



Asset: RTU7

AREA:SERVICE WRITER

Unit Data		
	Design	Actual
MFG	LENNOX	LENNOX
Serial Num	-	5622G11414
Model Num	LGH036H4E	LGH036H4E
Type	RTU	RTU
Configuration	VERTICAL	VERTICAL
Num OA Filters 1	-	1
OA Filter Size 1	-	29X14.25
Num Final Filter 1	-	4
Final Filter Size 1	-	16X20X2

Motor Data		
	Design	Actual
Motor MFG	-	GENTEQ
Horsepower	1/2	0.5
Motor Rpm	-	NL
Phase	1	1
Rated Voltage	115	115
Rated Amperage	-	2.2

Drive Data		
	Design	Actual
Motor Sheave Size	-	DD
Motor Bore Size	-	DD
Motor Sheave SetPt	-	67%
Fan Sheave Size	-	DD
Fan Sheave Bore	-	DD
Belt CL Distance	-	DD
Num of Belts	-	DD
Belt Size	-	DD
Belt Alignment	-	DD

Test Data		
	Design	Actual
SF CFM	1100	1171
SF RPM	-	DD
RA CFM	940	1022
OA CFM	160	149
RL Voltage	-	120
RL Amperage	-	1.6
SF Rotation	-	CORRECT
RA Damper Position	-	81%
Min OA Damper Position	-	19%
Min OA Damper Type	-	ECONOMIZER

Performance Data		
	Design	Actual
MA Plenum SP	-	-0.26"
Fan Suction SP	-	-0.37"
Fan Discharge SP	-	0.32"
Total ESP	0.6"	0.58"
Fan Total SP	-	0.69"

General		
	Design	Actual
Fan Rotation Correct	-	YES
Unit Filters Clean	-	YES
Condensate Drain Installed	-	YES

Completed By: Michael McDonnell on 11/09/2023

National TAB

Project: 11-06-23 CARMAX #7178 - WAUKESHA, WI

System/Unit: AHU/RTU



Asset: RTU8

AREA: BREAK/TRAIN

Unit Data		
	Design	Actual
MFG	LENNOX	LENNOX
Serial Num	-	5622G11257
Model Num	LGH048H4E	LGH048H4E
Type	RTU	RTU
Configuration	VERTICAL	VERTICAL
Num OA Filters 1	-	1
OA Filter Size 1	-	29X14.25
Num Final Filter 1	-	4
Final Filter Size 1	-	16X20X2

Motor Data		
	Design	Actual
Motor MFG	-	GENTEQ
Horsepower	3/4	0.50
Motor Rpm	-	NL
Phase	3	1
Rated Voltage	480	115
Rated Amperage	-	3.1

Drive Data		
	Design	Actual
Motor Sheave Size	-	DD
Motor Bore Size	-	DD
Motor Sheave SetPt	-	HIGH: 62% LOW: 42%
Fan Sheave Size	-	DD
Fan Sheave Bore	-	DD
Belt CL Distance	-	DD
Num of Belts	-	DD
Belt Size	-	DD
Belt Alignment	-	DD

Test Data		
	Design	Actual
SF CFM	1400	1425
SF RPM	-	DD
RA CFM	1250	1264
OA CFM	150	161
RL Voltage	-	119
RL Amperage	-	2.1
SF Rotation	-	CORRECT
RA Damper Position	-	HIGH: 80% LOW: 73%
Min OA Damper Position	-	HIGH: 20% LOW: 27%
Min OA Damper Type	-	ECONOMIZER

Performance Data		
	Design	Actual
MA Plenum SP	-	-0.22"
Fan Suction SP	-	-0.42"
Fan Discharge SP	-	0.32"
Total ESP	0.6"	0.54"
Fan Total SP	-	0.74"

General		
	Design	Actual
Fan Rotation Correct	-	YES
Unit Filters Clean	-	YES
Condensate Drain Installed	-	YES

Completed By: Michael McDonnell on 11/09/2023

National TAB

Project: 11-06-23 CARMAX #7178 - WAUKESHA, WI

System/Unit: AHU/RTU



Asset: RTU9

AREA:SERVICE AREA

Unit Data		
	Design	Actual
MFG	LENNOX	LENNOX
Serial Num	-	5622F01088
Model Num	LGH240H4B	LGH240H4B
Type	RTU	RTU
Configuration	VERTICAL	VERTICAL
Num OA Filters 1	-	3
OA Filter Size 1	-	23X13
Num Final Filter 1	-	6
Final Filter Size 1	-	24X24X2

Motor Data		
	Design	Actual
Motor MFG	-	INTERLINK
Frame	-	56HZ
Horsepower	5.0	5.0
Motor Rpm	-	1750
Phase	3	3
Rated Voltage	480	460
Rated Amperage	-	7.6

Drive Data		
	Design	Actual
Motor Sheave Size	-	1VP65
Motor Bore Size	-	1-1/8"
Motor Sheave SetPt	-	6 TURNS OPEN
Fan Sheave Size	-	11"
Fan Sheave Bore	-	1-3/16"
Belt CL Distance	-	21"
Num of Belts	-	1
Belt Size	-	BX65
Belt Alignment	-	VERIFIED

Test Data		
	Design	Actual
SF CFM	5000	7127
SF RPM	-	840
RA CFM	0	0
OA CFM	5000	7127
RL Voltage	-	489/489/489
RL Amperage	-	5.9/6.0/6.1
SF Rotation	-	CORRECT
RA Damper Position	-	0%
Min OA Damper Position	-	100%
Min OA Damper Type	-	ECONOMIZER
OA Enthalpy Setpt	-	5.0

Performance Data		
	Design	Actual
MA Plenum SP	-	-0.43"
Fan Suction SP	-	-0.87"
Fan Discharge SP	-	
Total ESP	1.0"	
Fan Total SP	-	

General		
	Design	Actual
Fan Rotation Correct	-	YES
Unit Filters Clean	-	YES
Condensate Drain Installed	-	YES

National TAB

Project:11-06-23 CARMAX #7178 - WAUKESHA, WI

AHU/RTU



Diffuser Supply (GRD)

RTU9/SERVICE AREA

Asset									
Asset Name	Location	Type	Size	DESIGN CFM	AK	CFM(1)	CFM(2)	FINAL CFM	% to design
RTU9-SGRD1	TOILET		8/8 NK	70					-
RTU9-SGRD2	SERVICE		36/12 NK	755					-
RTU9-SGRD3	SERVICE		36/12 NK	755					-
RTU9-SGRD4	SERVICE		36/12 NK	755					-
RTU9-SGRD5	SERVICE		36/12 NK	755					-
RTU9-SGRD6	SERVICE		36/12 NK	755					-
RTU9-SGRD7	SERVICE		36/12 NK	755					-
RTU9-SGRD8	PARTS	10/10 NK	10/10 NK	200					-
RTU9-SGRD9	PARTS	10/10 NK	10/10 NK	200					-
Total				5000		0	0	0	0%

National TAB

Project: 11-06-23 CARMAX #7178 - WAUKESHA, WI

System/Unit: FAN - Exhaust



Asset: EF8

AREA:

Unit Data		
	Design	Actual
MFG	NA	NA
Model Num	NA	NA
Serial Num	-	
Type	-	
Configuration	VERTICAL	

Motor Data		
	Design	Actual
Motor MFG	-	
Frame	-	
Horsepower	-	
Motor Rpm	-	
Phase	-	
Voltage (rated)	-	
Amperage (rated)	-	
Service Factor	-	

Test Data		
	Design	Actual
CFM	800	
Fan RPM	-	
Fan Rotation	-	
Motor RPM	-	
System SetPt	-	
RL Voltage	-	
RL Amperage	-	
Total ESP	-	
Fan Inlet SP	-	
Fan Discharge SP	-	