Report By:

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

Report: TAB REPORT

Function: Test, Adjust, & Balance

Date: 12/19/2023

PROJECT

12-25-23 CARMAX #7653 - KEARNEY MESA, CA

7766 Balboa Ave

San Diego, CA 99111

Client

Comfort Systems USA

9450 W Wingfoot Rd

Houston, TX 77041

National TAB

Project: 12-25-23 CARMAX #7653 - KEARNEY MESA, CA

Table Of Contents

Project Summary

The summary below provides a quick understanding of our scope of work and general testing procedures. Enclosed in the report is further detail about your building performance including recommendations, asset data, and pictures. Our focus is to work with the trades to remedy any issues or deficiencies during the actual field balancing and not after the balancing has occurred to achieve a positive environment and outcome. The level of success is determined by the availability of the trades, possible parts needed, or time constraints.

AHU's w/ Diffusers

Each of the AHU's were measured at their terminal devices or via traverse to establish a total flow for that unit. Each AHU was adjusted to within tolerance of the engineer's design flow. Each outlet was then adjusted to within tolerance of the design flow. If provided with outside air, the flow was measured via traverse. The outside air damper was adjusted until the airflow was within the design requirements. Any equipment that fell outside of that tolerance is noted throughout the report.

General Exhaust Fans w/ Grilles

The general exhaust fans were measured by reading each air device with a flow hood. The total airflow for each fan is equivalent to the sum of these readings. Fan speed was then adjusted so that the airflow was within tolerance of design. Each terminal device was balanced to within tolerance of the design volume using the installed volume dampers. Any equipment that fell outside of this tolerance is noted throughout the report.

Final Building Tests

After completing the test and balance the final building pressure was measured. It was confirmed that the building pressure fell within acceptable tolerances of -0.02" wc to +0.02" wc and that the pressure measurement coincides with the actual and design net airflow. Any deviations from these standards are noted throughout the report.

The hood capture was tested at the perimeter of the hood and the cook top level with the equipment heat on to ensure satisfactory hood capture and containment.

Issue List

- EF-15 airflow is below design

12-25-23 CARMAX #7653 - KEARNEY MESA, CA

Project Issue Information

Issue Name : EF-15 airflow is below design

Description : EF-15 is operating at 2908 CFM out of 3600 CFM design and at maximum adjustment on the motor sheave. Before changing pulleys, recommended consulting the engineer of record to determine if this current airflow is acceptable. The measured ESP is currently 2.59" and increasing airflow to design would result in an ESP of 4" which could cause an issue.

Created By :	National TAB	**Assigned To :**	National TAB - Will Turnbough
Status :	Open		
Priority :	Low	**Asset Tag :**	EF15
Originated Date :	11/03/2023 - Zack Eismin - National TAB		

Project Issue File Details

EF15_KEARNEY
12/19/2023

Project Issue Response Details

- **12/19/2023 National TAB - Will Turnbough**
  - If pulley change is required, recommend a 2VP62 x 1-1/8" pulley set to 1 turn open. Will achieve an airflow of 3663 CFM via a fan law calculation. Requires (2) A51 size belts.

CheckList List

- TECH - SITE PICTURES

12-25-23 CARMAX #7653 - KEARNEY MESA, CA

CheckList Information

Name :	TECH - SITE PICTURES	**Status :**	Not Completed
Assigned Organization :	National TAB	**Asset :**	
Requesting Organization :	National TAB		
Created Date :	11/01/2023 - Brian Turnbough - National TAB		

CheckList Item Details

STORE FRONT

Comment:

20231102_134459
11/02/2023

RTU-1

Comment:

20231102_132928
11/02/2023

RTU-2

Comment:

20231102_132904
11/02/2023

EF-1 Yes

Comment:

20231102_133354
11/02/2023

EF-2	Yes

Comment:

20231102_133343
11/02/2023

EF-3	Yes

Comment:

20231102_132948
11/02/2023

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Project: 12-25-23 CARMAX #7653 - KEARNEY MESA, CA

System/Unit: AHU/RTU

Asset: AHU1 AREA:

Unit Data		
	Design	**Actual**
MFG	LENNOX	LENNOX
Serial Num	-	5623B08432
Model Num	EL120AXSD	EL120AXSD-1G
Type	RTU	AHU
Configuration	VERTICAL	HORIZONTAL
Num OA Filters 1	-	1
OA Filter Size 1	-	38X56
Num Final Filter 1	-	4
Final Filter Size 1	-	16X25X2

Motor Data		
	Design	**Actual**
Motor MFG	-	NA
Frame	-	NA
Horsepower	3.0	3
Motor Rpm	-	NL
Phase	3	3
Rated Voltage	408	460
Rated Amperage	-	4.8

Drive Data		
	Design	**Actual**
Motor Sheave Size	-	5"
Motor Bore Size	-	NA
Motor Sheave SetPt	-	2 TURNS OPEN
Fan Sheave Size	-	8"
Fan Sheave Bore	-	1"
Belt CL Distance	-	17"
Num of Belts	-	1
Belt Size	-	NA
Belt Alignment	-	VERIFIED

Test Data		
	Design	**Actual**
SF CFM	4500	4642
SF RPM	-	898
RA CFM	0	0
OA CFM	4500	4642
RL Voltage	-	471/473/470
RL Amperage	-	4.3/4.5/4.6
SF Rotation	-	CCW
RA Damper Position	-	N/A
Min OA Damper Position	-	N/A
Min OA Damper Type	-	N/A
OA Enthalpy Setpt	-	N/A

Performance Data		
	Design	**Actual**
MA Plenum SP	-	-0.51"
Fan Suction SP	-	-0.97"
Fan Discharge SP	-	0.59"
Total ESP	.80"	1.10"
Fan Total SP	-	1.56"

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

Completed By: Zack Eismin on 11/02/2023

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Project:12-25-23 CARMAX #7653 - KEARNEY MESA, CA

AHU/RTU

Diffuser Supply (GRD)

AHU1/

Asset								
Asset Name	**Location**	**Size**	**DESIGN CFM**	**AK**	**CFM(1)**	**CFM(2)**	**FINAL CFM**	**% to design**
AHU1-SGRD1	SERVICE	30/14	845	2.92	355	871	871	103.1
AHU1-SGRD2	SERVICE	30/14	845	2.92	591	852	852	100.8
AHU1-SGRD3	SERVICE	30/14	845	2.92	937	890	890	105.3
AHU1-SGRD4	SERVICE	30/14	845	2.92	1221	901	901	106.6
AHU1-SGRD5	SERVICE	30/14	845	2.92	1209	852	852	100.8
AHU1-SGRD6	PARTS	8"	200	1	279	199	199	99.5
AHU1-SGRD7	RR	6"	75	1	109	77	77	102.7
Total			4500		4701	4642	4642	103.16%

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Project: 12-25-23 CARMAX #7653 - KEARNEY MESA, CA

System/Unit: AHU/RTU

Asset: AHU2 AREA:

Unit Data		
	Design	**Actual**
MFG	LENNOX	LENNOX
Serial Num	-	5607C01864
Model Num	EL120AXSD	CBH17135V3
Type	RTU	AHU
Configuration	VERTICAL	HORIZONTAL
Num OA Filters 1	-	1
OA Filter Size 1	-	38X56
Num Final Filter 1	-	4
Final Filter Size 1	-	16X25X1

Motor Data		
	Design	**Actual**
Motor MFG	-	EMERSON
Frame	-	NL
Horsepower	3.0	2
Motor Rpm	-	1725
Phase	3	3
Rated Voltage	480	230/460
Rated Amperage	-	7.8/3.9

Drive Data		
	Design	**Actual**
Motor Sheave Size	-	5"
Motor Bore Size	-	7/8"
Motor Sheave SetPt	-	3 TURNS OPEN
Fan Sheave Size	-	9"
Fan Sheave Bore	-	1"
Belt CL Distance	-	8"
Num of Belts	-	1
Belt Size	-	A34
Belt Alignment	-	VERIFIED

Test Data		
	Design	**Actual**
SF CFM	4500	4846
SF RPM	-	612
RA CFM	0	0
OA CFM	4500	4846
RL Voltage	-	485/484/487
RL Amperage	-	3.3/3.4/3.2
SF Rotation	-	CCW
RA Damper Position	-	N/A
Min OA Damper Position	-	N/A
Min OA Damper Type	-	N/A
OA Enthalpy Setpt	-	N/A

Performance Data		
	Design	**Actual**
MA Plenum SP	-	-0.23"
Fan Suction SP	-	-0.78"
Fan Discharge SP	-	0.12"
Total ESP	0.80"	0.35"
Fan Total SP	-	0.90"

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

Completed By: Zack Eismin on 11/02/2023

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Project:12-25-23 CARMAX #7653 - KEARNEY MESA, CA

AHU/RTU

Diffuser Supply (GRD)

AHU2/

Asset								
Asset Name	**Location**	**Size**	**DESIGN CFM**	**AK**	**CFM(1)**	**CFM(2)**	**FINAL CFM**	**% to design**
AHU2-SGRD1	SERVICE	30/14	750	2.92	429	820	820	109.3
AHU2-SGRD2	SERVICE	30/14	750	2.92	781	817	817	108.9
AHU2-SGRD3	SERVICE	30/14	750	2.92	930	802	802	106.9
AHU2-SGRD4	SERVICE	30/14	750	2.92	1021	791	791	105.5
AHU2-SGRD5	SERVICE	30/14	750	2.92	978	810	810	108.0
AHU2-SGRD6	SERVICE	30/14	750	2.92	791	806	806	107.5
Total			4500		4930	4846	4846	107.69%

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Project: 12-25-23 CARMAX #7653 - KEARNEY MESA, CA

System/Unit: FAN - Exhaust

Asset: EF13 AREA:

Unit Data		
	Design	**Actual**
MFG	NA	COOK
Model Num	NA	225ACW225W7B
Serial Num	-	1385929028
Type	UPBLAST	UPBLAST
Configuration	VERTICAL	HORIZONTAL

Motor Data		
	Design	**Actual**
Motor MFG	-	LEESON ELECTRIC
Frame	-	56H
Horsepower	-	1
Motor Rpm	-	1760
Phase	-	3
Voltage (rated)	-	230/460
Amperage (rated)	-	3.2/1.6
Service Factor	-	1.25

Test Data		
	Design	**Actual**
CFM	2650	2703
Fan RPM	-	670
Fan Rotation	-	CCW
Motor RPM	-	1790
System SetPt	-	1 TURN OPEN
RL Voltage	-	482/480/481
RL Amperage	-	1.45/1.53/1.47
Total ESP	-	0.17"
Fan Inlet SP	-	-0.17"
Fan Discharge SP	-	ATM

Completed By: Zack Eismin on 11/01/2023

Notes:
PULLEY CHANGED TO REDUCE AIRFLOW TO DESIGN.

Written By: Will Turnbough on 12/19/2023

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Project: 12-25-23 CARMAX #7653 - KEARNEY MESA, CA

System/Unit: FAN - Exhaust

Asset: EF14 AREA:

Unit Data		
	Design	**Actual**
MFG	NA	COOK
Model Num	NA	225ACW225W7B
Serial Num	-	138S929028
Type	-	UPBLAST
Configuration	VERTICAL	HORIZONTAL

Motor Data		
	Design	**Actual**
Motor MFG	-	MARATHON
Frame	-	56
Horsepower	-	1
Motor Rpm	-	1725
Phase	-	3
Voltage (rated)	-	230/460
Amperage (rated)	-	3.2/1.6
Service Factor	-	1.15

Test Data		
	Design	**Actual**
CFM	2650	2883
Fan RPM	-	657
Fan Rotation	-	CCW
Motor RPM	-	1713
System SetPt	-	5 TURNS OPEN
RL Voltage	-	480
RL Amperage	-	1.11
Total ESP	-	0.12"
Fan Inlet SP	-	-0.12"
Fan Discharge SP	-	ATM

Completed By: Zack Eismin on 11/01/2023

Notes:
PULLEY CHANGED TO REDUCE AIRFLOW TO DESIGN.

Written By: Will Turnbough on 12/19/2023

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Project: 12-25-23 CARMAX #7653 - KEARNEY MESA, CA

System/Unit: FAN - Exhaust

Asset: EF15 AREA:

Unit Data		
	Design	**Actual**
MFG	NA	NL
Model Num	NA	150QMX150MY
Serial Num	-	1385929B28
Type	-	INLINE
Configuration	VERTICAL	HORIZONTAL

Motor Data		
	Design	**Actual**
Motor MFG	-	TECO
Frame	-	184T
Horsepower	-	5
Motor Rpm	-	1745
Phase	-	3
Voltage (rated)	230/460	230/460
Amperage (rated)	-	12.2/6.10
Service Factor	-	1.15

Test Data		
	Design	**Actual**
CFM	3600	2908
Fan RPM	-	NA
Fan Rotation	-	NA
Motor RPM	-	1778
System SetPt	-	~1 TURN OPEN
RL Voltage	-	487/488/488
RL Amperage	-	3.6/3.6/3.5
Total ESP	-	2.59"
Fan Inlet SP	-	-2.43"
Fan Discharge SP	-	0.16"

Completed By: Zack Eismin on 11/01/2023