

Report By:

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

NATIONAL

TAB

Comfort. Under control.

Report: FINAL TAB REPORT
Function: Test, Adjust, & Balance
Date1: 09/22/2022

PROJECT

08-29 ARBY'S #5451 - OKMULGEE, OK

129 S WOOD DR

OKMULGEE, OK 74447

Client

Flynn Restaurant Group
6200 Oak Tree Boulevard
Suite 250
Independence, OH 44131

National TAB

Project: 08-29 ARBY'S #5451 - OKMULGEE, OK

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AIR BALANCE SCHEDULE

UNIT	AREA SERVED	HVAC SUPPLY		HVAC RETURN		HVAC OUTDOOR		OA %		HOOD MAKE-UP		HOOD EXHAUST		GENERAL EXH.	
		DESIGN	ACTUAL	DESIGN	ACTUAL	DESIGN	ACTUAL	DESIGN	ACTUAL	DESIGN	ACTUAL	DESIGN	ACTUAL	DESIGN	ACTUAL
RTU-1	DINING	4000	3731	3250	2957	750	774	18.8%	20.7%						
RTU-2	KITCHEN	2670	2892	2170	2373	500	519	18.7%	17.9%						
MUA-1	HOOD 1									1280	1229				
EF-1	HOOD 1											1600	1812		
EF-2	HOOD 2											500	471		
EF-3	RESTROOMS													300	302
TOTALS		6670	6623	5420	5330	1250	1293			1280	1229	2100	2283	300	302

NET BUILDING AIRFLOW CALCULATION

TOTALS	DESIGN	ACTUAL
TOTAL OA	2530	2522
TOTAL EXHAUST	2400	2585
NET AIRFLOW	130	-63

DOOR TESTED	BUILDING PRESSURE MEASUREMENTS (IN. H2O)
FRONT	-0.001
SIDE	0.
REAR	-0.001
AVERAGE	-0.0007

FINAL CHECKS

ACTUAL NET AIRFLOW COINCIDES WITH DESIGN: ❌

MEASURED PRESSURES COINCIDES WITH ACTUAL NET AIRFLOW: ✅

PRESSURE FALLS WITHIN IMC TOLERANCE OF +/-0.02" W.C. ✅

NOTES:

[1] Building pressure was not impacted during hood testing as MAU supply air was tested at varying volumes. Suspect building leakage.



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CheckList Information

Name : TECH - 1 SITE EVALUATION **Status :** NotSubmitted
Assigned Organization : National TAB **Asset :**
Requesting Organization : National TAB

CheckList Item Details

SITE EVALUATION

Take pictures of diffusers in the dining and kitchen. Are there "Plaque" style diffusers installed (ie., 4-way diffusers with the flat face). No



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All hood filters installed and accounted for?	Yes
Any drafting occurring?	No
Any Comfort issues noticed or manager statements?	Yes
Any significant or abnormal ventilation noise in dining or kitchen?	No
Do return grilles in kitchen or dining have significant amount of dirt buildup that might impact airflow?	Yes



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Do ceiling tiles near the hoods have any evidence of staining that might indicate an issue with hood performance?

Yes



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Notes/Comments :

[1] MANAGER STATED KITCHEN GETS HOT AND HUMID. FRYER HOOD DOES NOT CAPTURE WELL WHEN ALL FRYERS ARE DROPPED AT ONCE (LUNCH RUSH).



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CheckList Information

Name : TECH - 2 UNIT EVALUATION **Status :** NotSubmitted
Assigned Organization : National TAB **Asset :**
Requesting Organization : National TAB

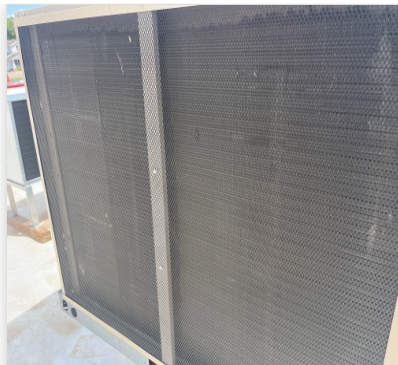
CheckList Item Details

RTU's/AHU's

Economizers are assembled and functional?	Yes
Free cooling enthalpy set point set for lowest setting (Typically "D")	Yes
Are belts tight and in good condition?	Yes
If direct drive unit is the speed controller working?	No
Is gas piping installed and valves turned on?	Yes
Are the condenser coils free of damage and clean? (Take picture)	Yes



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FuseIT7cddffa2d9db4de...

Are the evaporator coils free of damage and clean? (Take picture)	Yes
---	-----

Unit free of noticeable noise and vibration	Yes
Condensate Drain installed?	Yes
OA filters and final filters are clean?	No
Any other damage or cleanliness issues to note?	FILTERS ARE SLIGHTLY DIRTY (NORMAL OPERATING CONDITION).

Notes/Comments :



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08-29 ARBY'S #5451 - OKMULGEE, OK

CheckList Information

Name : TECH - 3 FINAL EQUIPMENT CHECKS **Status :** NotSubmitted

Assigned Organization : National TAB **Asset :**

Requesting Organization : National TAB

CheckList Item Details

RTU HUMIDITY CONTROL

Do the RTU's have humidity control? Yes

Take pictures of the electrical compartment including the low voltage wiring Yes

Are the humidity sensors wired properly? No



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If maximum damper position can be set, set to the same as the minimum damper position (if Lennox, see section at end of this checklist) Yes

Final damper position is clearly marked with permanent marker or white out? Yes



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If damper had to be manually set and is loose, secure it with a sheet metal screw so that it cannot shut	No
--	----

TEST RTU COOLING

Verify that the RTUs compressors are turning on when unit in full cooling	Yes
---	-----

Measure entering air temp and humidity on RTU-1 during full cooling:	77.2 / 51.2% RH
--	-----------------

Measure leaving air temp and humidity on RTU-1 during full cooling:	59.3 / 75.4% RH
---	-----------------

Measure entering air temp and humidity on RTU-2 during full cooling:	83.4 / 77.6% RH
--	-----------------

Measure leaving air temp and humidity on RTU-2 during full cooling:	62.7 / 80.2% RH
---	-----------------

Measure entering air temp and humidity on RTU-3 during full cooling:	NA
--	----

Measure leaving air temp and humidity on RTU-3 during full cooling:	NA
---	----

Measure outside air temp and humidity in the shade	92.1 / 58.5% RH
--	-----------------

THERMOSTATS

Program thermostats for 7:00AM - 11:45PM occupied time	Yes
--	-----

Occupied temperatures - 71 cooling, 69 heating	Yes
--	-----

Occupied Fan Status - ON	Yes
--------------------------	-----

Program thermostats for 11:45PM - 7:00AM unoccupied time	Yes
--	-----

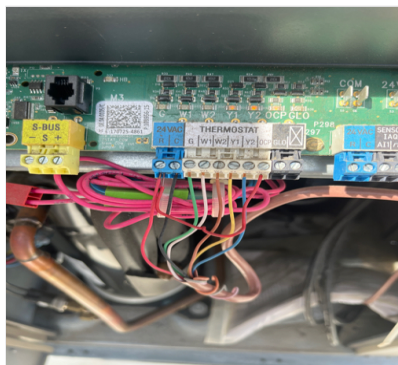
Unoccupied temperatures - 76 cooling, 65 heating	Yes
Unoccupied Fan Status - AUTO	Yes

FINAL SPACE TEMPERATURE

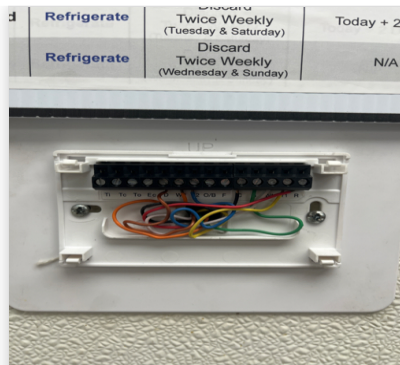
Measure final temperature and humidity in the kitchen	72.5 / 67.1% RH
Measure final temperature and humidity in the dining	69.4 /66.1% RH
Confirm that the temperatures/humidities match what is shown on the corresponding thermostats. Make a note if more than 1 degree temperature difference is noted.	Yes

LENNOX UNITS ONLY

For Honeywell Pro 8000 (TH8321R) thermostats, make sure it is set up for "Commercial", "2 Stage", and "A" terminal is wired and assigned to "Economizer"	Yes
For Lennox Comfort Sense CS7500-CS8500 thermostats, make sure the "EC" terminal is wired, set up for 2 stage operation, stage delay timer is off, and stage 2 differential is 1.5F	EC terminal not wired on RTU-2 THERMOSTAT.



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On Prodigy controller, ensure Dehumidifier set to "No Condition", Local Sensor, Setpoint is 55%, Deadband is 3%.	Yes
On Prodigy controller, ensure economizer damper set point is set to 50°F	Yes
Set parameter 131 on Prodigy to 50% (Max damper position)	Yes



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Notes/Comments :



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CheckList Information

Name : TECH - 4 FINAL TESTS **Status :** NotSubmitted
Assigned Organization : National TAB **Asset :**
Requesting Organization : National TAB

CheckList Item Details

FINAL TESTS

HOOD CAPTURE TEST

List equipment turned on for testing	FRYER
List smoke candle type used	45 SEC SMOKE EMITTER
Smoke test capture - Perimeter of hood	95%
Smoke test capture - Top of cooking surface	85%

WITNESS

Date test was completed	08/31/2022
TAB tech name / Firm	Michael McDonnell / National Tab
Owner representative name / Firm (if Applicable)	NA
Building pressure at front & back doors (All Systems On)	-0.001"

Notes/Comments :

Hood has self-compensating style supply which is causing turbulence inside the hood canopy no matter the MAU volume. Smoke wants to drift out left side of hood and far-left front of hood. Recommend left end panel is installed.



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CheckList Information

Name : TECH - SITE PICTURES **Status :** NotSubmitted

Assigned Organization : National TAB **Asset :**

Requesting Organization : National TAB

CheckList Item Details

STORE FRONT

RTU-1

RTU-2

EF-1

EF-2

EF-3

HOOD 1



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HOOD 2



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THERMOSTATS



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Notes/Comments :

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Project: 08-29 ARBY'S #5451 - OKMULGEE, OK

System/Unit: AHU/RTU



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Asset: RTU1

AREA:KITCHEN

Unit Data		
	Design	Actual
MFG	NA	LENNOX
Serial Num	-	5617J06711
Model Num	NA	LGH120H4BH3Y
Type	-	RTU
Configuration	-	VERTICAL DISCHARGE
Num OA Filters 1	-	2
OA Filter Size 1	-	14.25x23
Num Final Filter 1	-	4
Final Filter Size 1	-	20X25X2

Motor Data		
	Design	Actual
Motor MFG	-	INTERLINK
Frame	-	56HZ
Horsepower	-	3.0
Motor Rpm	-	1750
Phase	-	3
Rated Voltage	-	200-208
Rated Amperage	-	8.0

Drive Data		
	Design	Actual
Motor Sheave Size	-	1VP50
Motor Bore Size	-	3/4"
Motor Sheave SetPt	-	3 TURNS OPEN
Fan Sheave Size	-	6.5"
Fan Sheave Bore	-	1"
Belt CL Distance	-	24"
Num of Belts	-	1
Belt Size	-	BX61

Test Data		
	Design	Actual
SF CFM	4000	3731
SF RPM	-	1064
RA CFM	-	2957
OA CFM	750	774
RL Voltage	-	207/208/208
RL Amperage	-	7.9/8.0/7.8
SF Rotation	-	CW, CORRECT
OA Damper Position	-	36%
OA Damper Type	-	ECONOMIZER

Performance Data		
	Design	Actual
MA Plenum SP	-	-0.70"
Fan Suction SP	-	-1.05"
Fan Discharge SP	-	0.80"
Total ESP	-	1.50"
Fan Total SP	-	1.85"

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Project: 08-29 ARBY'S #5451 - OKMULGEE, OK

System/Unit: AHU/RTU



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Asset: RTU2

AREA:DINING

Unit Data		
	Design	Actual
MFG	NA	LENNOX
Serial Num	-	5621K02070
Model Num	NA	KGB092S4BS2Y
Type	-	RTU
Configuration	-	VERTICAL DISCHARGE
Num OA Filters 1	-	2
OA Filter Size 1	-	14.25X23
Num Final Filter 1	-	4
Final Filter Size 1	-	25X20X2

Motor Data		
	Design	Actual
Motor MFG	-	U.S. MOTORS
Frame	-	NL
Horsepower	-	2.0
Motor Rpm	-	1755
Phase	-	3
Rated Voltage	-	200-230
Rated Amperage	-	6.0

Drive Data		
	Design	Actual
Motor Sheave Size	-	1VP44
Motor Bore Size	-	7/8"
Motor Sheave SetPt	-	1 TURN OPEN
Fan Sheave Size	-	6"
Fan Sheave Bore	-	1"
Belt CL Distance	-	21"
Num of Belts	-	1
Belt Size	-	AX54

Test Data		
	Design	Actual
SF CFM	2670	2892
SF RPM	-	831
RA CFM	-	2373
OA CFM	500	519
RL Voltage	-	206/206/207
RL Amperage	-	4.5/4.6/4.5
SF Rotation	-	CW, CORRECT
OA Damper Position	-	POSITION MARKED (SEE PHOTO)
OA Damper Type	-	ECONOMIZER

Performance Data		
	Design	Actual
MA Plenum SP	-	-0.30"
Fan Suction SP	-	-0.53"
Fan Discharge SP	-	0.70"
Total ESP	-	1.00"
Fan Total SP	-	1.23"

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Project: 08-29 ARBY'S #5451 - OKMULGEE, OK

System/Unit: FAN - Exhaust



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Asset: EF1

AREA:HOOD 1 - FRYER

Unit Data		
	Design	Actual
MFG	NA	CAPTIVE AIRE
Model Num	NA	DU85HFA
Serial Num	-	5390431
Type	-	UPBLAST
Configuration	-	VERTICAL

Motor Data		
	Design	Actual
Motor MFG	-	TELCO GREEN
Frame	-	NL
Horsepower	-	0.75
Motor Rpm	-	1800
Phase	-	1
Voltage (rated)	-	115
Amperage (rated)	-	8.9
Service Factor	-	NL

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

Test Data		
	Design	Actual
CFM	1600	1812
Fan RPM	-	1340
Fan Rotation	-	CCW, CORREC5T
Motor RPM	-	1340
RL Voltage	-	120
RL Amperage	-	3.8
Suction ESP	-	-0.43"
Discharge ESP	-	ATM
Total ESP	-	0.43"

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Notes:

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Project: 08-29 ARBY'S #5451 - OKMULGEE, OK

System/Unit: FAN - Exhaust



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Asset: EF2

AREA:HOOD 2 - OVEN

Unit Data		
	Design	Actual
MFG	NA	CAPTIVE AIRE
Model Num	NA	DU33HFA
Serial Num	-	5329275
Type	-	UPBLAST
Configuration	-	VERTICAL

Motor Data		
	Design	Actual
Motor MFG	-	TELCO GREEN
Frame	-	NL
Horsepower	-	1/3
Motor Rpm	-	1800
Phase	-	1
Voltage (rated)	-	115
Amperage (rated)	-	4.3
Service Factor	-	NL

Drive Data		
	Design	Actual
Motor Sheave Size	-	DD
Motor Bore Size	-	DD
Motor Sheave SetPt	-	35%
Fan Sheave Size	-	DD
Fan Sheave Bore	-	DD
Belt CL Distance	-	DD
Num of Belts	-	DD
Belt Size	-	DD

Test Data		
	Design	Actual
CFM	500	471
Fan RPM	-	580
Fan Rotation	-	CCW, CORRECT
Motor RPM	-	580
RL Voltage	-	120
RL Amperage	-	2.3
Suction ESP	-	-0.23"
Discharge ESP	-	ATM
Total ESP	-	0.23"

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Notes:

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Project: 08-29 ARBY'S #5451 - OKMULGEE, OK

System/Unit: FAN - Exhaust



Comfort. Under control.

Asset: EF3

AREA:RESTROOMS

Unit Data		
	Design	Actual
MFG	NA	CAPTIVE AIRE
Model Num	NA	DR12HFA
Serial Num	-	5400990
Type	-	DOWNBLAST
Configuration	-	VERTICAL

Test Data		
	Design	Actual
CFM	300	302
Fan RPM	-	1555
Fan Rotation	-	CCW, CORRECT
Motor RPM	-	1555
RL Voltage	-	120
RL Amperage	-	1.7
Suction ESP	-	-0.63"
Discharge ESP	-	ATM
Total ESP	-	0.63"

Motor Data		
	Design	Actual
Motor MFG	-	TELCO GREEN
Frame	-	NL
Horsepower	-	0.25
Motor Rpm	-	1800
Phase	-	1
Voltage (rated)	-	115
Amperage (rated)	-	2.9
Service Factor	-	NL

Drive Data		
	Design	Actual
Motor Sheave Size	-	DD
Motor Bore Size	-	DD
Motor Sheave SetPt	-	80%
Fan Sheave Size	-	DD
Fan Sheave Bore	-	DD
Belt CL Distance	-	DD
Num of Belts	-	DD
Belt Size	-	DD

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Notes:

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Project: 08-29 ARBY'S #5451 - OKMULGEE, OK

System/Unit: FAN - Supply



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Asset: MUA1

AREA:FRYER HOOD

Unit Data		
	Design	Actual
MFG	NA	CAPTIVE AIRE
Model Num	NA	A1-15D
Serial Num	-	5390431
Type	-	MAU
Configuration	-	VERTICAL

Motor Data		
	Design	Actual
Motor MFG	-	TELCO GREEN
Frame	-	NL
Horsepower	-	1.0
Motor Rpm	-	1800
Phase	-	1
Voltage (rated)	-	115
Amperage (rated)	-	11.6
Service Factor	-	NL

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

Gas Heat		
	Design	Actual
Heater Operates (y/n)	-	NA
Flame Status (pass/fail)	-	NA
Inlet Air Temp SetPt	-	NA
Discharge Air Temp SetPt	-	NA
Air Flow Switch SP Actual	-	NA

Test Data		
	Design	Actual
CFM	1280	1229
SF RPM	-	1009
Motor RPM	-	1009
RL Voltage	-	120
RL Amperage	-	3.2
Total ESP	-	NR
Fan Discharge SP	-	NR

General		
	Design	Actual
Fan Rotation Correct	-	YES

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Notes:

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Project: 08-29 ARBY'S #5451 - OKMULGEE, OK

System/Unit: Kitchen Hood Type I



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Asset: HOOD 1

AREA:FRYERS

Unit Data		
	Design	Actual
MFG	NA	AEROLATER
Model Num	NA	ACW
Job / Serial Num	-	61L4
Type	-	TYPE I CANOPY
Hood length	-	84"
Hood Width	-	42"
Supply Plenum Type	-	SELF-COMPENSATING
Supply Plenum Length	-	84"

Test Data Supply		
	Design	Actual

Performance Data		
	Design	Actual
Exh-Supply Net CFM	-	583
End Panels Installed (Y/N)	-	NO

Test Data Exhaust		
	Design	Actual
Filter Type	BAFFLE	BAFFLE
Filter Size 1	20X20	20X20
Filter Qty 1	4	4
Filter AK factor size 1	2.68	2.68
Filter Total AK Area	10.72	10.72
Filter1 FPM	-	157
Filter2 FPM	-	168
Filter3 FPM	-	190
Filter4 FPM	-	159
Filter Ave FPM(corr)	-	169
CFM	1600	1812

Cooking Equipment		
	Design	Actual
Item 1	-	FRYER

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Notes: [1] HOOD CAPTURE IS 85-90%. SMOKE WANTS TO DRIFT OUT THE LEFT SIDE AND FAR-LEFT FRONT OF HOOD. SELF-COMPENSATING SUPPLY IS CUASING TURBULANT AIR WITHIN THE CANOPY NO MATTER AIR VOLUME. RECOMMEND END PANEL IS INSTALLED ON LEFT SIDE. ARE TO COVER IS 19" X 42"

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Project: 08-29 ARBY'S #5451 - OKMULGEE, OK

System/Unit: Kitchen Hood Type II



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Asset: HOOD 2

AREA: OVENS

Unit Data		
	Design	Actual
MFG	NA	CAPTIVE AIRE
Model Num	NA	4824 VHB
Serial Num	-	612020
Type	-	TYPE II CANOPY
Hood length	-	48
Hood Width	-	48

Test Data		
	Design	Actual
Exhaust VEL(corr)	-	560
Exhaust CFM	500	471

Cooking Equipment		
	Design	Actual
Item 1	-	OVEN

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Notes:

