START-UP & SERVICE DATA INSTRUCTION

COMMERCIAL PACKAGE UNITS

3.0 To 40.0 TONS

RTU # Makeup Air unit.

START-UP CHECKLIST

Date: 5-15-2023

Job Name: Walgreens

Customer Name: Walgreens 1769

Address: 2000 E Colfax

City: Denver State: Colorado Zip: 80296

Model Number: PU15 Serial Number: G220187107600100l

Qualified Start-up Technician: Jesse Signature: Jesse

HVAC Contractor: CMI Mechanical Phone: 303 364 3443

Address: 11001 51st Ave Denver CO 80239

Contractor's E-mail Address:

Electrical Contractor: Phone:

Distributor Name: Phone:

WARRANTY STATEMENT

Johnson Controls/UPG is confident that this equipment will operate to the owner's satisfaction if the proper procedures are followed and checks are made at initial start-up. This confidence is supported by the 30 day dealer protection coverage portion of our standard warranty policy which states that Johnson Controls/UPG will cover parts and labor on new equipment start-up failures that are caused by a defect in factory workmanship or material, for a period of 30 days from installation. Refer to current standard warranty policy and warranty manual found on UPGnet for details.

In the event that communication with Johnson Controls/UPG is required regarding technical and/or warranty concerns, all parties to the discussion should have a copy of the equipment start-up sheet for reference. A copy of the original start-up sheet should be filed with the Technical Services Department.

The packaged unit is available in constant or variable air volume versions with a large variety of custom options and accessories available. Therefore, some variation in the startup procedure will exist depending upon the products capacity, control system, options and accessories installed.

This start-up sheet covers all startup check points common to all package equipment. In addition it covers essential startup check points for a number of common installation options. Depending upon the particular unit being started not all sections of this startup sheet will apply. Complete those sections applicable and use the notes section to record any additional information pertinent to your particular installation.

Warranty claims are to be made through the distributor from whom the equipment was purchased.

EQUIPMENT STARTUP

Use the local LCD or Mobile Access Portal (MAP) Gateway to complete the start-up.

A copy of the completed start-up sheet should be kept on file by the distributor providing the equipment and a copy sent to:

Johnson Controls/UPG
Technical Services Department
5005 York Drive
Norman, OK 73069

SAFETY WARNINGS

The inspections and recording of data outlined in this procedure are required for start-up of Johnson Controls/UPG's packaged products. Industry recognized safety standards and practices must be observed at all times. General industry knowledge and experience are required to assure technician safety. It is the responsibility of the technician to assess all potential dangers and take all steps warranted to perform the work in a safe manner. By addressing those potential dangers, prior to beginning any work, the technician can perform the work in a safe manner with minimal risk of injury.

⚠WARNING

Lethal voltages are present during some start-up *checks. Extreme caution must be used at all times.*

⚠WARNING

Moving parts may be exposed during some startup *checks. Extreme caution must be used at all times.*

NOTE: Read and review this entire document before beginning any of the startup procedures.

DESIGN APPLICATION INFORMATION

This information will be available from the specifying engineer who selected the equipment. If the system is a VAV system the CFM will be the airflow when the remote VAV boxes are in the full open position and the frequency drive is operating at 60 HZ. **Do not proceed with the equipment start-up without the design CFM information.**

Design Supply Air CFM: _____ Design Return Air CFM: _____

Design Outdoor Air CFM At Minimum Position: _____

Total External Static Pressure: _____

Supply Static Pressure: _____

Return Static Pressure: _____

Design Building Static Pressure: _____

Outside Air Dilution: Economizer Position Percentage: 10% outdoor Air CFM: _____

Supply Gas Pressure After Regulator W/o Heat Active 3.5 Inches _____

ADDITIONAL APPLICATION NOTES FROM SPECIFYING ENGINEER:

REFERENCE

General Inspection	Completed	See Notes
Unit inspected for shipping, storage, or rigging damage	Yes	
Unit installed with proper clearances	Yes	
Unit installed within slope limitations	Yes	
Refrigeration system checked for gross leaks (presence of oil)	NA	
Terminal screws and wiring connections checked for tightness	Yes	
Filters installed correctly and clean	Yes	
Economizer hoods installed in operating position	NA	
Condensate drain trapped properly, refer to Installation Manual	NA	
Economizer damper linkage tight	NA	
Gas Heat vent hood installed	Yes	
All field wiring (power and control) complete	Yes	

Air Moving Inspection	Completed	See Notes
Alignment of drive components	Yes	
Belt tension adjusted properly	Yes	
Blower pulleys tight on shaft, bearing set screws tight, wheel tight to shaft	Yes	
Pressure switch or transducer tubing installed properly	Yes	

NA

Exhaust Inspection Powered ☐ Barometric Relief ☐	Completed	See Notes
Check hub for tightness		
Check fan blade for clearance		
Check for proper rotation		
Check for proper mounting (screen faces towards unit)		
Prove operation by increasing minimum setting on economizer		

NA

Economizer Inspection Standard ☐ BAS ☐	Completed	See Notes
CO_2 sensor installed Yes ☐ No ☐		
Check economizer setting (Reference SSE Control Board LCD menu location)		
Prove economizer open/close through SSE Board Setting		

NA

Reheat Mode Normal ☐ or Alternate ☐ Not Applicable ☐

Humidity Sensor (2SH0401) _____

Operating Measurements - Air Flow

Fan operates with proper rotation	ID Fans ☑ Yes Exh. Fans ☑ Yes	Cond. Fans ☐ N/A
Pressure drop across dry evaporator coil (At maximum design CFM) [1]		N/A IWC
External Static Pressure		IWC
Return Static Pressure		IWC
Supply Static Pressure		IWC
Supply Air CFM Using Dry Coil Chart		CFM
Final Adjusted Supply Air CFM[2]		CFM

1. Consult the proper airflow to pressure drop table to obtain the actual airflow at the measured pressure differential.
2. Was a motor pulley adjustment or change required to obtain the correct airflow?
   Was it necessary to increase of decrease the airflow to meet the design conditions?
   If the motor pulley size was changed, measure the outside diameters of the motor and blower pulleys and record those diameters here;

Blower Motor HP 3/4 FLA 2.8 RPM 1185

Pulley Pitch Diameter _____ Turns Out _____ Final Turns Out _____

Blower Pulley Pitch Diameter _____ Fixed Sheave _____

ELECTRICAL DATA

T1 - T2 205 Volts T2 - T3 205 Volts

Control Voltage 25 Volts T1 - T3 205 Volts

Device	Nameplate	Measured List All Three Amperages
Supply Fan Motor[1, 2]	2.8 AMPS	AMPS
Exhaust Motor (Dampers 100%)	AMPS	AMPS
Condenser Fan #1	AMPS	AMPS
Condenser Fan #2 (if equipped)	AMPS	AMPS
Condenser Fan #3 (if equipped)	AMPS	AMPS
Condenser Fan #4 (if equipped)	AMPS	N/A AMPS
Compressor #1	AMPS	AMPS
Compressor #2 (if equipped)	AMPS	AMPS
Compressor #3 (if equipped)	AMPS	AMPS
Compressor #4 (if equipped)	AMPS	AMPS

1. VAV units with heat section - simulate heat call to drive VAV boxes and VFD/IGV to maximum design airflow position.
2. VAV units without heat section - VAV boxes must be set to maximum design airflow position.

OPERATING MEASUREMENTS - COOLING N/A

Stage	Discharge Pressure	Discharge Temp.	Liquid Line Temp.[1]	Subcooling[2]	Suction Pressure	Suction Temp.	Superheat
First	#	°	°	°	#	°	°
Second (if equipped)	#	°	°	°	#	°	°
Third (if equipped)	#	°	°	°	#	°	°
Fourth (if equipped)	#	°	°	°	#	°	°
Reheat 1st Stage	#	°	°	°	#	°	°

1. Liquid temperature should be taken before filter/drier.
2. Subtract 10 psi from discharge pressure for estimated liquid line pressure

Outside air temperature	61°	°F db		°F wb		%RH
Return Air Temperature	73°	°F db		°F wb		%RH
Mixed Air Temperature		°F db		°F wb		%RH
Supply Air Temperature	148°	°F db		°F wb		%RH

REFRIGERANT SAFETIES N/A

Action	Completed	See Notes
Prove Compressor Rotation (3 phase only) by gauge pressure	☐	☐
Prove High Pressure Safety, All Systems	☐	☐
Prove Low Pressure Safety, All Systems	☐	☐

OPERATING MEASUREMENTS - GAS HEATING

Fuel Type: ☒ Natural Gas ☐ LP Gas

Action		Completed	See Notes
Check for gas leaks		Yes	☐
Prove Ventor Motor Operation		Yes	☐
Prove Primary Safety Operation		Yes	☐
Prove Auxiliary Safety Operation		Yes	☐
Prove Rollout Switch Operation		Yes	☐
Prove Smoke Detector Operation		YES	☐
Manifold Pressure	Stage 1	3.5 IWC	☐
	Stage 2 (If Equipped)	IWC	☐
	Stage 3 (If Equipped)	IWC	☐
Supply gas pressure at full fire		3.5 IWC	☐
Check temperature rise[1]	☐ measured at full fire	°F	☐

1. Input X Eff. (BTU output)
   1.08 X Temp. Rise

OPERATIONAL MEASUREMENTS - STAGING CONTROLS

Verify Proper Operation of Heating/Cooling Staging Controls	
Create a cooling demand at the Thermostat, BAS System or Simplicity SE Verify that cooling/economizer stages are energized.	☐ NA
Create a heating demand at the Thermostat, BAS System or Simplicity SE *Verify that heating stages are energized.*	☐ NA
Verify Proper Operation of the Variable Frequency Drive (If Required)	
Verify that motor speed modulates with duct pressure change.	☐ Yes

FINAL - INSPECTION

Verify that all operational control set points have been set to desired value Scroll through all setpoints and change as may be necessary to suit the occupant requirements.	☐ Yes
Verify that all option parameters are correct Scroll through all option parameters and ensure that all installed options are enabled in the software and all others are disabled in the software. (Factory software settings should match the installed options)	☐ Yes
Verify that all access panels have been closed and secured	☐ Yes

OBSERVED PRODUCT DIFFICIENCIES & CONCERNS:

TStat operates MUA

1034349-UCL-C-0315
Supersedes: 1034349-UCL-B-0814

Johnson Controls Unitary Products
5005 York Drive
Norman, OK 73069

START-UP & SERVICE DATA INSTRUCTION

COMMERCIAL PACKAGE UNITS

3.0 To 40.0 TONS

RTU # 1

START-UP CHECKLIST

Date: 5-15-2023

Job Name: Walgreens

Customer Name: Walgreens

Address: 2000 E colfax

City: Denver State: Colorado Zip: 80239

Model Number: ZJ037N08D2B5BCA2R3 Serial Number: N2H2775823

Qualified Start-up Technician: Jesse Signature: Jesse

HVAC Contractor: CMI Mechanical Phone: 303 364 3443

Address: 11001 51 Ave Denver Co 80239

Contractor's E-mail Address:

Electrical Contractor: Phone:

Distributor Name: Phone:

WARRANTY STATEMENT

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Moving parts may be exposed during some startup *checks. Extreme caution must be used at all times.*

NOTE: Read and review this entire document before beginning any of the startup procedures.

DESIGN APPLICATION INFORMATION

This information will be available from the specifying engineer who selected the equipment. If the system is a VAV system the CFM will be the airflow when the remote VAV boxes are in the full open position and the frequency drive is operating at 60 HZ. **Do not proceed with the equipment start-up without the design CFM information.**

Design Supply Air CFM: _____ Design Return Air CFM: _____

Design Outdoor Air CFM At Minimum Position: _____

Total External Static Pressure: _____

Supply Static Pressure: _____

Return Static Pressure: _____

Design Building Static Pressure: _____

Outside Air Dilution: Economizer Position Percentage: 10% outdoor Air CFM: _____

Supply Gas Pressure After Regulator W/o Heat Active _____ Inches 3.5

ADDITIONAL APPLICATION NOTES FROM SPECIFYING ENGINEER:

REFERENCE

General Inspection	Completed	See Notes
Unit inspected for shipping, storage, or rigging damage	Yes	
Unit installed with proper clearances	Yes	
Unit installed within slope limitations	Yes	
Refrigeration system checked for gross leaks (presence of oil)	Yes	
Terminal screws and wiring connections checked for tightness	Yes	
Filters installed correctly and clean	Yes	
Economizer hoods installed in operating position	Yes	
Condensate drain trapped properly, refer to Installation Manual	Yes	
Economizer damper linkage tight	Yes	
Gas Heat vent hood installed	Yes	
All field wiring (power and control) complete	Yes	

Air Moving Inspection	Completed	See Notes
Alignment of drive components	Yes	
Belt tension adjusted properly	Yes	
Blower pulleys tight on shaft, bearing set screws tight, wheel tight to shaft	Yes	
Pressure switch or transducer tubing installed properly	Yes	

Exhaust Inspection Powered ☐ Barometric Relief ☒	Completed	See Notes
Check hub for tightness	Yes	
Check fan blade for clearance	Yes	
Check for proper rotation	Yes	
Check for proper mounting (screen faces towards unit)	Yes	
Prove operation by increasing minimum setting on economizer	Yes	

Economizer Inspection Standard ☐ BAS ☐	Completed	See Notes
CO_2 sensor installed Yes ☒ No ☐		
Check economizer setting (Reference SSE Control Board LCD menu location)	Yes	
Prove economizer open/close through SSE Board Setting	Yes	

Reheat Mode Normal ☐ or Alternate ☐ Not Applicable ☒

Humidity Sensor (2SH0401) Yes

Operating Measurements - Air Flow

Fan operates with proper rotation	ID Fans ☑Yes Exh. Fans ☑Yes Cond. Fans ☑Yes	
Pressure drop across dry evaporator coil (At maximum design CFM) [1]	1.7	IWC
External Static Pressure		IWC
Return Static Pressure		IWC
Supply Static Pressure		IWC
Supply Air CFM Using Dry Coil Chart		CFM
Final Adjusted Supply Air CFM[2]		CFM

1. Consult the proper airflow to pressure drop table to obtain the actual airflow at the measured pressure differential.
2. Was a motor pulley adjustment or change required to obtain the correct airflow?
   Was it necessary to increase of decrease the airflow to meet the design conditions?
   If the motor pulley size was changed, measure the outside diameters of the motor and blower pulleys and record those diameters here;

Blower Motor HP 1.5 FLA 1.5 RPM 1725

Pulley Pitch Diameter _____ Turns Out _____ Final Turns Out _____

Blower Pulley Pitch Diameter _____ Fixed Sheave _____

ELECTRICAL DATA

T1 - T2 207.5 Volts T2 - T3 208.2 Volts

Control Voltage _____ Volts T1 - T3 208.2 Volts

Device	Nameplate	Measured List All Three Amperages
Supply Fan Motor[1,2]	5.2 AMPS	2.9 AMPS
Exhaust Motor (Dampers 100%)	5.5 AMPS	AMPS
Condenser Fan #1	1.6 AMPS	.90 AMPS
Condenser Fan #2 (if equipped)	AMPS	AMPS
Condenser Fan #3 (if equipped)	AMPS	AMPS
Condenser Fan #4 (if equipped)	AMPS	AMPS
Compressor #1	9.2 AMPS	7.2 AMPS
Compressor #2 (if equipped)	AMPS	AMPS
Compressor #3 (if equipped)	AMPS	AMPS
Compressor #4 (if equipped)	AMPS	AMPS

1. VAV units with heat section - simulate heat call to drive VAV boxes and VFD/IGV to maximum design airflow position.
2. VAV units without heat section - VAV boxes must be set to maximum design airflow position.

OPERATING MEASUREMENTS - COOLING

Stage	Discharge Pressure	Discharge Temp.	Liquid Line Temp.[1]	Subcooling[2]	Suction Pressure	Suction Temp.	Superheat
First	295 #	°	°	°	110 #	°	°
Second (if equipped)	#	°	°	°	#	°	°
Third (if equipped)	#	°	°	°	#	°	°
Fourth (if equipped)	#	°	°	°	#	°	°
Reheat 1st Stage	#	°	°	°	#	°	°

1. Liquid temperature should be taken before filter/drier.
2. Subtract 10 psi from discharge pressure for estimated liquid line pressure

Outside air temperature	75°	°F db		°F wb		%RH
Return Air Temperature	71°	°F db		°F wb		%RH
Mixed Air Temperature		°F db		°F wb		%RH
Supply Air Temperature	53°	°F db		°F wb		%RH

REFRIGERANT SAFETIES

Action	Completed	See Notes
Prove Compressor Rotation (3 phase only) by gauge pressure	Yes	
Prove High Pressure Safety, All Systems	Yes	
Prove Low Pressure Safety, All Systems	Yes	

OPERATING MEASUREMENTS - GAS HEATING

Fuel Type: ☒ Natural Gas ☐ LP Gas

Action		Completed	See Notes
Check for gas leaks		Yes	
Prove Ventor Motor Operation		Yes	
Prove Primary Safety Operation		Yes	
Prove Auxiliary Safety Operation		Yes	
Prove Rollout Switch Operation		Yes	
Prove Smoke Detector Operation		Yes	
Manifold Pressure	Stage 1	3.5 IWC	
	Stage 2 (If Equipped)	IWC	
	Stage 3 (If Equipped)	IWC	
Supply gas pressure at full fire		3.5 IWC	
Check temperature rise[1]	☐ measured at full fire	°F	

1. Input X Eff. (BTU output) / 1.08 X Temp. Rise

OPERATIONAL MEASUREMENTS - STAGING CONTROLS

Verify Proper Operation of Heating/Cooling Staging Controls	
Create a cooling demand at the Thermostat, BAS System or Simplicity SE Verify that cooling/economizer stages are energized.	☐ Yes
Create a heating demand at the Thermostat, BAS System or Simplicity SE *Verify that heating stages are energized.*	☐ Yes
Verify Proper Operation of the Variable Frequency Drive (If Required)	
Verify that motor speed modulates with duct pressure change.	☐ Yes

FINAL - INSPECTION

Verify that all operational control set points have been set to desired value Scroll through *all* setpoints and change as may be necessary to suit the occupant requirements.	☐ Yes
Verify that all option parameters are correct Scroll through all option parameters and ensure that all installed options are enabled in the software and all others are disabled in the software. (Factory software settings should match the installed options)	☐ Yes
Verify that all access panels have been closed and secured	☐ Yes

OBSERVED PRODUCT DIFFICIENCIES & CONCERNS:

1034349-UCL-C-0315
Supersedes: 1034349-UCL-B-0814

Johnson Controls Unitary Products
5005 York Drive
Norman, OK 73069

START-UP & SERVICE DATA INSTRUCTION

COMMERCIAL PACKAGE UNITS

3.0 To 40.0 TONS

RTU # 2

START-UP CHECKLIST

Date: 5-15-2023

Job Name: Walgreens

Customer Name: Walgreens

Address: 2000 E Colfax

City: Denver State: Colorado Zip: 80239

Model Number: _____ Serial Number: NZG2749

Qualified Start-up Technician: Jesse Signature: Jesse

HVAC Contractor: CMI mechanical Phone: 303 364 3443

Address: 11001 5th Ave Denver CO 80239

Contractor's E-mail Address: _____

Electrical Contractor: _____ Phone: _____

Distributor Name: _____ Phone: _____

WARRANTY STATEMENT

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EQUIPMENT STARTUP

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NOTE: Read and review this entire document before beginning any of the startup procedures.

DESIGN APPLICATION INFORMATION

This information will be available from the specifying engineer who selected the equipment. If the system is a VAV system the CFM will be the airflow when the remote VAV boxes are in the full open position and the frequency drive is operating at 60 HZ. **Do not proceed with the equipment start-up without the design CFM information.**

Design Supply Air CFM: _____ Design Return Air CFM: _____

Design Outdoor Air CFM At Minimum Position: _____

Total External Static Pressure: _____

Supply Static Pressure: _____

Return Static Pressure: _____

Design Building Static Pressure: _____

Outside Air Dilution: Economizer Position Percentage: 10% outdoor Air CFM: _____

Supply Gas Pressure After Regulator W/o Heat Active _____ Inches 3.5

ADDITIONAL APPLICATION NOTES FROM SPECIFYING ENGINEER:

REFERENCE

General Inspection	Completed	See Notes
Unit inspected for shipping, storage, or rigging damage	Yes	
Unit installed with proper clearances	Yes	
Unit installed within slope limitations	Yes	
Refrigeration system checked for gross leaks (presence of oil)	Yes	
Terminal screws and wiring connections checked for tightness	Yes	
Filters installed correctly and clean	Yes	
Economizer hoods installed in operating position	Yes	
Condensate drain trapped properly, refer to Installation Manual	Yes	
Economizer damper linkage tight	Yes	
Gas Heat vent hood installed	Yes	
All field wiring (power and control) complete	Yes	

Air Moving Inspection	Completed	See Notes
Alignment of drive components	Yes	
Belt tension adjusted properly	Yes	
Blower pulleys tight on shaft, bearing set screws tight, wheel tight to shaft	Yes	
Pressure switch or transducer tubing installed properly	Yes	

Exhaust Inspection Powered ☐ Barometric Relief ☒	Completed	See Notes
Check hub for tightness	Yes	
Check fan blade for clearance	Yes	
Check for proper rotation	Yes	
Check for proper mounting (screen faces towards unit)	Yes	
Prove operation by increasing minimum setting on economizer	Yes	

Economizer Inspection Standard ☐ BAS ☐	Completed	See Notes
CO_2 sensor installed Yes ☒ No ☐		
Check economizer setting (Reference SSE Control Board LCD menu location)	Yes	
Prove economizer open/close through SSE Board Setting	Yes	

Reheat Mode Normal ☐ or Alternate ☐ Not Applicable ☒

Humidity Sensor (2SH0401) Yes

Operating Measurements - Air Flow

Fan operates with proper rotation	ID Fans ☑	Exh. Fans ☑	Cond. Fans ☑	
Pressure drop across dry evaporator coil (At maximum design CFM) [1]			1.8	IWC
External Static Pressure				IWC
Return Static Pressure				IWC
Supply Static Pressure				IWC
Supply Air CFM Using Dry Coil Chart				CFM
Final Adjusted Supply Air CFM[2]				CFM

1. Consult the proper airflow to pressure drop table to obtain the actual airflow at the measured pressure differential.
2. Was a motor pulley adjustment or change required to obtain the correct airflow?
   Was it necessary to increase of decrease the airflow to meet the design conditions?
   If the motor pulley size was changed, measure the outside diameters of the motor and blower pulleys and record those diameters here;

Blower Motor HP 7.5 FLA _____ RPM _____

Pulley Pitch Diameter _____ Turns Out _____ Final Turns Out _____

Blower Pulley Pitch Diameter _____ Fixed Sheave _____

ELECTRICAL DATA

T1 - T2 206 Volts T2 - T3 206 Volts

Control Voltage 26 Volts T1 - T3 207 Volts

Device	Nameplate		Measured List All Three Amperages	
Supply Fan Motor[1, 2]	20.0	AMPS	3.6	AMPS
Exhaust Motor (Dampers 100%)	5.5	AMPS		AMPS
Condenser Fan #1	3.5	AMPS	1.8	AMPS
Condenser Fan #2 (if equipped)	3.5	AMPS	1.8	AMPS
Condenser Fan #3 (if equipped)	3.5	AMPS	1.9	AMPS
Condenser Fan #4 (if equipped)	3.5	AMPS	1.8	AMPS
Compressor #1	25.3	AMPS	9.1	AMPS
Compressor #2 (if equipped)	25.3	AMPS	9.3	AMPS
Compressor #3 (if equipped)		AMPS		AMPS
Compressor #4 (if equipped)		AMPS		AMPS

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2. VAV units without heat section - VAV boxes must be set to maximum design airflow position.

OPERATING MEASUREMENTS - COOLING

Stage	Discharge Pressure	Discharge Temp.	Liquid Line Temp.[1]	Subcooling[2]	Suction Pressure	Suction Temp.	Superheat
First	270 #	°	°	°	102 #	°	°
Second (if equipped)	265 #	°	°	°	98 #	°	°
Third (if equipped)	#	°	°	°	#	°	°
Fourth (if equipped)	#	°	°	°	#	°	°
Reheat 1st Stage	#	°	°	°	#	°	°

1. Liquid temperature should be taken before filter/drier.
2. Subtract 10 psi from discharge pressure for estimated liquid line pressure

Outside air temperature	60°	°F db		°F wb		%RH
Return Air Temperature	72°	°F db		°F wb		%RH
Mixed Air Temperature		°F db		°F wb		%RH
Supply Air Temperature	52°	°F db		°F wb		%RH

REFRIGERANT SAFETIES

Action	Completed	See Notes
Prove Compressor Rotation (3 phase only) by gauge pressure	Yes	
Prove High Pressure Safety, All Systems	Yes	
Prove Low Pressure Safety, All Systems	Yes	

OPERATING MEASUREMENTS - GAS HEATING

Fuel Type: ☒ Natural Gas ☐ LP Gas

Action		Completed	See Notes
Check for gas leaks		Yes	
Prove Ventor Motor Operation		Yes	
Prove Primary Safety Operation		Yes	
Prove Auxiliary Safety Operation		Yes	
Prove Rollout Switch Operation		Yes	
Prove Smoke Detector Operation		Yes	
Manifold Pressure	Stage 1	3.5 IWC	
	Stage 2 (If Equipped)	IWC	
	Stage 3 (If Equipped)	IWC	
Supply gas pressure at full fire		3.5 IWC	
Check temperature rise[1]	☐ measured at full fire	°F	

1. Input X Eff. (BTU output)
   1.08 X Temp. Rise

OPERATIONAL MEASUREMENTS - STAGING CONTROLS

Verify Proper Operation of Heating/Cooling Staging Controls	
Create a cooling demand at the Thermostat, BAS System or Simplicity SE Verify that cooling/economizer stages are energized.	Yes
Create a heating demand at the Thermostat, BAS System or Simplicity SE *Verify that heating stages are energized.*	Yes
Verify Proper Operation of the Variable Frequency Drive (If Required)	
Verify that motor speed modulates with duct pressure change.	Yes

FINAL - INSPECTION

Verify that all operational control set points have been set to desired value *Scroll through all setpoints and change as may be necessary to suit the occupant requirements.*	Yes
Verify that all option parameters are correct Scroll through all option parameters and ensure that all installed options are enabled in the software and all others are disabled in the software. (Factory software settings should match the installed options)	Yes
Verify that all access panels have been closed and secured	Yes

OBSERVED PRODUCT DIFFICIENCIES & CONCERNS:

Belt BX 78

16X20X2 @ 4 & 16X25X2 @ 4

1034349-UCL-C-0315
Supersedes: 1034349-UCL-B-0814

Johnson Controls Unitary Products
5005 York Drive
Norman, OK 73069

START-UP & SERVICE DATA INSTRUCTION

COMMERCIAL PACKAGE UNITS

3.0 To 40.0 TONS

RTU # 3

START-UP CHECKLIST

Date: 5-15-2023

Job Name: Walgreens

Customer Name: Walgreens # 1769

Address: 2000 E Colfax

City: Denver State: Colorado Zip: 80206

Model Number: ZT180N30R2B5GCE2C1 Serial Number: N2G274467

Qualified Start-up Technician: Jesse Signature: Jesse

HVAC Contractor: CMI mechanical Phone: 303 364 3443

Address: 11001 51st Ave Denver Co 80239

Contractor's E-mail Address:

Electrical Contractor: Phone:

Distributor Name: Phone:

WARRANTY STATEMENT

Johnson Controls/UPG is confident that this equipment will operate to the owner's satisfaction if the proper procedures are followed and checks are made at initial start-up. This confidence is supported by the 30 day dealer protection coverage portion of our standard warranty policy which states that Johnson Controls/UPG will cover parts and labor on new equipment start-up failures that are caused by a defect in factory workmanship or material, for a period of 30 days from installation. Refer to current standard warranty policy and warranty manual found on UPGnet for details.

In the event that communication with Johnson Controls/UPG is required regarding technical and/or warranty concerns, all parties to the discussion should have a copy of the equipment start-up sheet for reference. A copy of the original start-up sheet should be filed with the Technical Services Department.

The packaged unit is available in constant or variable air volume versions with a large variety of custom options and accessories available. Therefore, some variation in the startup procedure will exist depending upon the products capacity, control system, options and accessories installed.

This start-up sheet covers all startup check points common to all package equipment. In addition it covers essential startup check points for a number of common installation options. Depending upon the particular unit being started not all sections of this startup sheet will apply. Complete those sections applicable and use the notes section to record any additional information pertinent to your particular installation.

Warranty claims are to be made through the distributor from whom the equipment was purchased.

EQUIPMENT STARTUP

Use the local LCD or Mobile Access Portal (MAP) Gateway to complete the start-up.

A copy of the completed start-up sheet should be kept on file by the distributor providing the equipment and a copy sent to:

Johnson Controls/UPG
Technical Services Department
5005 York Drive
Norman, OK 73069

SAFETY WARNINGS

The inspections and recording of data outlined in this procedure are required for start-up of Johnson Controls/UPG's packaged products. Industry recognized safety standards and practices must be observed at all times. General industry knowledge and experience are required to assure technician safety. It is the responsibility of the technician to assess all potential dangers and take all steps warranted to perform the work in a safe manner. By addressing those potential dangers, prior to beginning any work, the technician can perform the work in a safe manner with minimal risk of injury.

⚠WARNING

Lethal voltages are present during some start-up *checks. Extreme caution must be used at all times.*

⚠WARNING

Moving parts may be exposed during some startup *checks. Extreme caution must be used at all times.*

NOTE: Read and review this entire document before beginning any of the startup procedures.

DESIGN APPLICATION INFORMATION

This information will be available from the specifying engineer who selected the equipment. If the system is a VAV system the CFM will be the airflow when the remote VAV boxes are in the full open position and the frequency drive is operating at 60 HZ. **Do not proceed with the equipment start-up without the design CFM information.**

Design Supply Air CFM: _____ Design Return Air CFM: _____

Design Outdoor Air CFM At Minimum Position: _____

Total External Static Pressure: _____

Supply Static Pressure: _____

Return Static Pressure: _____

Design Building Static Pressure: _____

Outside Air Dilution: Economizer Position Percentage: 10% outdoor Air CFM: _____

Supply Gas Pressure After Regulator W/o Heat Active _____ Inches 3.5

ADDITIONAL APPLICATION NOTES FROM SPECIFYING ENGINEER:

REFERENCE

General Inspection	Completed	See Notes
Unit inspected for shipping, storage, or rigging damage	Yes	
Unit installed with proper clearances	Yes	
Unit installed within slope limitations	Yes	
Refrigeration system checked for gross leaks (presence of oil)	Yes	
Terminal screws and wiring connections checked for tightness	Yes	
Filters installed correctly and clean	Yes	
Economizer hoods installed in operating position	Yes	
Condensate drain trapped properly, refer to Installation Manual	Yes	
Economizer damper linkage tight	Yes	
Gas Heat vent hood installed	Yes	
All field wiring (power and control) complete	Yes	

Air Moving Inspection	Completed	See Notes
Alignment of drive components	Yes	
Belt tension adjusted properly	Yes	
Blower pulleys tight on shaft, bearing set screws tight, wheel tight to shaft	Yes	
Pressure switch or transducer tubing installed properly	Yes	

Exhaust Inspection Powered ☐ Barometric Relief ☒	Completed	See Notes
Check hub for tightness	Yes	
Check fan blade for clearance	Yes	
Check for proper rotation	Yes	
Check for proper mounting (screen faces towards unit)	Yes	
Prove operation by increasing minimum setting on economizer	Yes	

Economizer Inspection Standard ☐ BAS ☒	Completed	See Notes
CO_2 sensor installed Yes ☒ No ☐	Yes	
Check economizer setting (Reference SSE Control Board LCD menu location)	Yes	
Prove economizer open/close through SSE Board Setting	Yes	

Reheat Mode Normal ☐ or Alternate ☐ Not Applicable ☒

Humidity Sensor (2SH0401) Yes

Operating Measurements - Air Flow

Fan operates with proper rotation	ID Fans ☑ yes Exh. Fans ☐ yes Cond. Fans ☐ yes	
Pressure drop across dry evaporator coil (At maximum design CFM) [1]	.16	IWC
External Static Pressure		IWC
Return Static Pressure		IWC
Supply Static Pressure		IWC
Supply Air CFM Using Dry Coil Chart		CFM
Final Adjusted Supply Air CFM[2]		CFM

1. Consult the proper airflow to pressure drop table to obtain the actual airflow at the measured pressure differential.
2. Was a motor pulley adjustment or change required to obtain the correct airflow?
   Was it necessary to increase of decrease the airflow to meet the design conditions?
   If the motor pulley size was changed, measure the outside diameters of the motor and blower pulleys and record those diameters here;

Blower Motor HP 7.5 FLA 20.0 RPM _____

Pulley Pitch Diameter _____ Turns Out _____ Final Turns Out _____

Blower Pulley Pitch Diameter _____ Fixed Sheave _____

ELECTRICAL DATA

T1 - T2 207. Volts T2 - T3 206. Volts

Control Voltage 26. Volts T1 - T3 206. Volts

Device	Nameplate	Measured List All Three Amperages
Supply Fan Motor[1, 2]	20 AMPS	3.1 AMPS
Exhaust Motor (Dampers 100%)	5.5 AMPS	AMPS
Condenser Fan #1	3.5 AMPS	2.0 AMPS
Condenser Fan #2 (if equipped)	3.5 AMPS	2.0 AMPS
Condenser Fan #3 (if equipped)	3.5 AMPS	2.0 AMPS
Condenser Fan #4 (if equipped)	3.5 AMPS	2.0 AMPS
Compressor #1	25.3 AMPS	10.1 AMPS
Compressor #2 (if equipped)	25.3 AMPS	10.0 AMPS
Compressor #3 (if equipped)	AMPS	AMPS
Compressor #4 (if equipped)	AMPS	AMPS

1. VAV units with heat section - simulate heat call to drive VAV boxes and VFD/IGV to maximum design airflow position.
2. VAV units without heat section - VAV boxes must be set to maximum design airflow position.

OPERATING MEASUREMENTS - COOLING

Stage	Discharge Pressure	Discharge Temp.	Liquid Line Temp.[1]	Subcooling[2]	Suction Pressure	Suction Temp.	Superheat
First	251 #	°	°	°	95 #	°	°
Second (if equipped)	248 #	°	°	°	92 #	°	°
Third (if equipped)	#	°	°	°	#	°	°
Fourth (if equipped)	#	°	°	°	#	°	°
Reheat 1st Stage	#	°	°	°	#	°	°

1. Liquid temperature should be taken before filter/drier.
2. Subtract 10 psi from discharge pressure for estimated liquid line pressure

Outside air temperature	56°	°F db		°F wb		%RH
Return Air Temperature	70°	°F db		°F wb		%RH
Mixed Air Temperature		°F db		°F wb		%RH
Supply Air Temperature	57	°F db		°F wb		%RH

REFRIGERANT SAFETIES

Action	Completed	See Notes
Prove Compressor Rotation (3 phase only) by gauge pressure	Yes	
Prove High Pressure Safety, All Systems	Yes	
Prove Low Pressure Safety, All Systems	Yes	

OPERATING MEASUREMENTS - GAS HEATING

Fuel Type: ☒ Natural Gas ☐ LP Gas

Action		Completed	See Notes
Check for gas leaks		Yes	
Prove Ventor Motor Operation		Yes	
Prove Primary Safety Operation		Yes	
Prove Auxiliary Safety Operation		Yes	
Prove Rollout Switch Operation		Yes	
Prove Smoke Detector Operation		Yes	
Manifold Pressure	Stage 1	IWC	
	Stage 2 (If Equipped)	1.75 IWC	
	Stage 3 (If Equipped)	3.5 IWC	
Supply gas pressure at full fire		3.5 IWC	
Check temperature rise[1]	☐ measured at full fire	°F	

1. Input X Eff. (BTU output)
   1.08 X Temp. Rise

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OBSERVED PRODUCT DIFFICIENCIES & CONCERNS:

Did Not Change out orfic Kit Per YORK

BX 78 Belt

16x20x2 x4 & 16x25x2 x4

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