A/C System Test 9/11/2024, 10:52:35 AM

Outdoor Measurements

Low Pressure (PSIG/°F):	129.4 / 44.3
High Pressure (PSIG/°F):	266.6 / 87.8
Suction Line Temp (°F):	58.0
Liquid Line Temp (°F):	76.2
Discharge Line Temp (°F):	--
Outdoor Air Temp (°F):	73.0
Superheat (°F):	13.7
Subcooling (°F):	11.7
Compression Ratio:	2.0
Condenser Voltage:	239.3
Condenser Amperage:	4.7
Condenser Power Factor:	1.00
Condenser Power (W):	1,126

Indoor Measurements

Return Temp (°F):	72.8
Return %RH:	55.3
Return Wet Bulb (°F):	62.1
Supply Temp (°F):	52.5
Supply %RH:	86.9
Supply Wet Bulb (°F):	50.4
Airflow, Estimated (SCFM):	350
Total External Static Pres (inH2O):	0.2
AHU Voltage:	239.6
AHU Amperage:	0.9
AHU Power Factor:	NaN
AHU Power (W):	791

System Profile & Weather Data

System Type:	Split
Nominal Tonnage:	1.0
Refrigerant:	R410A
Nom. Airflow (SCFM/Ton):	400
SEER:	13-16
Metering Device:	Piston
Atmospheric Pressure (PSIA):	14.112
Elevation (ft):	1,117
Temperature (°F):	68.7
Humidity (%):	68.0
Dew Point (°F):	55.7
System Stability:	Stable
System Benchmarked:	Yes

Performance Calculations

Capacity Calculations:

Nominal:	1.0 Tons / 12,000 Btu/h
Normalized:	0.9 Tons / 10,931 Btu/h
Actual:	0.9 Tons / 11,177 Btu/h (102.2% Normalized)
Sensible:	0.6 Tons / 7,466 Btu/h (96.4% Normalized)
Latent:	0.3 Tons / 3,711 Btu/h (116.3% Normalized)
Sensible Heat Ratio:	0.67

Air-side Performance:

Temp Split Target:	20.5°F
Temp Split:	20.3°F
Dehumidification:	3.4 lb/hr
	0.4 gal/hr

System Efficiency:

Fan Efficacy:	2.26
Total Power:	1,917
EER/EER2:	5.8/5.6
~SEER/SEER2:	6.5/6.2
Sensible Efficiency:	96.5%
Fltr. Face Velocity:	133 FPM

Notes:

Jimmy bites

Customer

Joe Schmoe
3425 Gilchrist Road
Mogadore, OH 44260
3332563585

Goodman VSX130181 1909035516

ID
Coords: 41.0567, -81.4021

Condenser
Make: Goodman
Model: VSX130181
Serial: 1909035516

Air Handler
Make: Goodman
Model: ARUF25B14
Serial: 2009176230

Evaporator
Make: Goodman
Model: ARUF25B14
Serial: 2009176230

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Diagnostic Report

Subsystem Review

Electrical System	Pass
Air Distribution System	Fail
Air Filtration System	Pass
Condensate Drain System	Pass *
Refrigerant Charge	Pass
Outdoor Equipment	Pass *
Indoor Equipment	Pass *
Cooling Capacity	Pass
Cooling Electrical Efficiency	Low

System Diagnostics

Condenser power too far from target	5

Corrective Actions

Equipment Photos

Equipment Models & Serials

Understanding your A/C Subsystems

Electrical System:
The system is tested to assure that the voltage is in the proper utilization range. The current and the voltage need to work in unity to ensure the unit draws enough electricity without overworking. This tests the capacitor (basically the Thyroid gland of the unit that regulates energy usage to the body) health and the conductors for excessive voltage drops. Issues with the electrical system can cause component failures, excessive electrical consumption, and issues like lights flickering when the A/C system starts.

Air Distribution System:
The air distribution system is tested for proper airflow, blower speed, duct leakage, pockets of heat accumulation, and pockets of high air pressures. Issues with the air distribution system can cause poor cooling, excessive run times, excessive amounts of noise, premature blower failure, humidity control issues, and dust recirculation problems.

Air Filtration System:
The filtration system is tested for proper filter face velocity (correct amount of filter area for the airflow). Filter face velocity should be between 250-500 FPM (Feet Per Minute). Excessive filter face velocity is due to undersized filters. This will result in poor air quality (IAQ), noise, high duct static pressures, poor airflow, high fan watt draw, poor cooling and excessive power consumption.

Condensate Drain System:
Condensate is the moisture removed during dehumidification. This system includes the primary drain, secondary drain, auxiliary drain pan, and or safety switches to shut down the system if proper drainage does not occur. This moisture must be carried away from the system so it does not cause property damage and so it is not reevaporated into the airstream.

Refrigerant Charge:
(Freon) This unit-specific gas/liquid mixture is tested to assure there is an appropriate amount in the unit and it also tells us if a unit is leaking or if contaminants have entered the system (contaminants can cause compression failure and erosion). Too much or too little refrigerant will cause issues with cooling capacity, humidity removal, energy consumption, and equipment life.

Outdoor Equipment:
The physical condition of the equipment is visually verified for fin damage, coil fouling from dirt, rust, missing panel screws, excessive vibration, motor condition, evidence of refrigerant leakage, and electrical component failure.

Indoor Equipment:
The physical condition of the equipment is visually verified for evaporator fin damage, coil fouling from dirt, rust, missing panel screws, vibration, blower/motor condition, evidence of refrigerant leakage, and electrical component failure. Changing your filter regularly has a direct effect on the condition of your indoor equipment.

Cooling Capacity:
Is your unit supplying cold enough air? Lower cooling capacity will cause excessive run times and electrical consumption.

Cooling Electrical Efficiency:
The cooling efficiency is verified to test your unit’s actual electrical consumption compared to the relative efficiency of properly installed modern cooling equipment.