924 Jeffco Executive Dr
Imperial, MO 63052
www.awtreyhvac.com
636.464.4822

Invoice 23882523
Invoice Date 8/23/2022
Completed Date 8/23/2022
Customer PO
Payment Term Due Upon Receipt
Due Date 8/23/2022

Billing Address
H&S Rental Properties
3201 South Brentwood Boulevard
Webster Groves, MO 63119 USA

Job Address
H&S Rental - 3861 Shaw Blvd
3861 Shaw Boulevard #1st Floor
St. Louis, MO 63110 USA

Description of Work

$209/mo for 36 months @0% WAC

Task #	Description	Quantity	Standard Price	Your Price	Your Total
IAHACS	Furnish labor & material to install: American Standard Air Handler with PSC motor Model: TEM4A0B24S21SB Serial: 22134JE63V American Standard single speed Silver Air Conditioner Model: 4A7A3024H1000P Serial: 223212E81F Thermostat: Existing Filter: existing filter box to remain Includes new: • Auxiliary Heat kit 15 kW M: BAYHTR1510BRKC S: 2221B1AAYX • Fabricate sheet metal to reconnect to existing ductwork • Refrigerant lines - run new lineset to outdoor unit on ground • Locking refrigerant caps • PVC condensate drain to the floor • Outdoor fused disconnect and wiring - control wiring • Outdoor equipment pad Startup, test & balance system Clean work area, haul away and recycle old equipment. Warranty: 5 years on labor, 10 years on parts, lifetime on workmanship. Air Handler Literature Air Conditioning Literature	1.00	$7,537.00	$7,172.60	$7,172.60
PERMIT	Mechanical Permit	1.00	$125.00	$125.00	$125.00
IMISC	Relocate high voltage circuit to unit on ground	1.00	$200.00	$200.00	$200.00

Paid On	Type	Memo	Amount
8/25/2022	Check	1028	$7,497.60

Member Savings	$364.40
Sub-Total	$7,497.60
Tax	$0.00
Total Due	$7,497.60
Payment	$7,497.60
Balance Due	$0.00

Thank you for choosing Awtrey Heating & Air Conditioning

924 Jeffco Executive Dr
Imperial, MO 63052

www.awtreyhvac.com

Awtrey
HEATING & AIR CONDITIONING

Office: 636-464-4822
Fax: 314-262-4262

shane@awtreyhvac.com

Dear Rob,

We recently completed the installation of a high-quality HVAC system in your home. We appreciate your confidence in us and the opportunity to provide your future HVAC service.

Your new installation is covered under a full labor warranty by Awtrey Heating & Air Conditioning for the first 5 years! The manufacturer's parts warranty is for a minimum of 10 years, some other parts maybe longer.

Attached is your paid invoice along with the manufacturer's warranty registration certificate. In order to maintain the manufacturer's warranty, regular preventive maintenance is required, similar to a new car's warranty. Our routine maintenance inspection includes: regular filter changes, keeping coils clean, drains cleared, along with the inspection of all electrical and mechanical components.

Your first year was included with the installation. (or you may have already had an existing membership) One year from the date of installation your membership will renew. You may choose to continue that on an annual or monthly plan.

We welcome you as a Club Member and allow you to have the benefits of priority status, special (10%) discount on repairs, special (5%) discount on installations, convenient scheduling, peak efficiency, safe system operations and prolonged equipment life!

Once again thank you for using Awtrey Heating and Air Conditioning. We are happy to have you as customer and are proud to be able to serve you!

Sincerely,
Shane Awtrey

Job #24240544

A/C - Heat Pump Startup (1)

Indoor Unit

Thermostat

Customer understands how to use thermostat, connected to wifi, etc.

Blower Operation

Check blower configuration and setting, adjust as necessary.

Blower Motor Amps

Blower amps taken in cooling (or high cooling for 2 stage or variable)

1.07

Static Pressure of Return

Taken between filter and blower (or coil for some air handlers) In high cooling speed.

0.13

Static Pressure of Supply

Taken between furnace and coil (or 12 inches above air handler in supply duct) in high cool speed.

0.18

Total Static

Return and Supply static added

0.31

Blower Airflow Setting

High/Med/Low - or - CFM value for VS

Low

Drain Check

Drains and Traps checked for tightness and proper flow

Overflow Protection

Check overflow safety device if applicable

- [x] N/A

Outdoor Unit

Disconnect Box

Wire connections are tight and proper.

Fuses

Fuse (or breaker size)

Replaced 30A fuses with 20A

Control Panel Electrical Connections

All field wired and factory wired connections checked and secure.

Heat Pump or A/C

- [x] A/C

Reversing Valve Operational

If heat pump

- [x] N/A

Voltage

Incoming Voltage

244.1

Fan Motor Amps

0.69

Compressor Amps Common

Compressor amps common winding (Type VS for Variable Speed)

5.74

Compressor Amps Run

Compressor amps run winding (Type VS for Variable Speed)

4.32

Compressor Amps Start

Compressor amps run winding (Type VS for Variable Speed)

4.47

Refrigerant

Suction Pressure

133

Boiling Temperature

Converted from low side gauge

46.1

Suction Line Temperature

At low side service valve

60.8

Superheat

14.7

Head Pressure

323.8

Condensing Temperature

Converted from high side gauge

101.1

Liquid Line Temperature

At high side service valve

88.6

Subcooling

12.5

Subcooling Specification

Manufacturer's specification for subcooling value as stated on data plate.

10

Condenser Air Inlet Temperature

81

Condenser Air Outlet Temperature

92

Evaporator Inlet Dry Bulb Tempaerature

73.6

Evaporator Inlet Wet Bulb Temperature

64.1

Evaporator Outlet Temperature

54.6

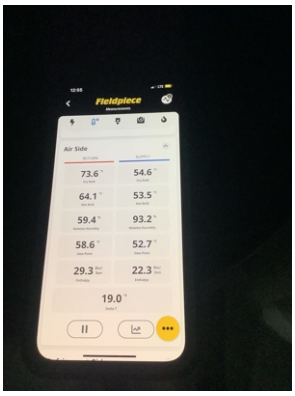
Temperature Drop

19

Refrigerant

Refrigerant added or deleted to achieve manufacturer's specified correct charge. Type and amount (In pounds and ounces).

Added 4.5 ounces



General

Filter

Customer is aware of location, size and filter change requirements.

Startup Review

Reviewed startup information with customer, explained future maintenance schedule and answered all questions

Notes

After adding refrigerant system is in good working condition. All refrigeration and electrical numbers and components are in range.

Photos

Photo of unit and data tag

Pictures for Facebook Post

Please take the time to get some good photos at good angles that we can share on our social media.

Amy Brewer <amy@awtreyhvac.com>

STLCity Permits: Inspection Passed

1 message

PermitAlerts@stlcitypermits.com <PermitAlerts@stlcitypermits.com> Thu, Sep 1, 2022 at 5:15 PM
To: amy@awtreyhvac.com

The following permit inspection has passed:

Contractor:	Awtrey Heating & Air Conditioning
Type:	Final
Address:	3861 Shaw
Description:	3861 Shaw
Permit Number:	MP-2966-22

Inspector

Name:	Lang, James
Phone:	(314) 589-6061
Email:	jimlang76@gmail.com
Notes:	final inspection

Job #24240544

Electric Furnace Only Startup (No Heat Pump) (1)

Thermostat

Customer understands how to use thermostat, connected to wifi, etc.

Heating Operation

Startup and check heating operation in all stages.

Blower Operation

Check blower configuration and setting, adjust airflow as necessary.

Static Pressure of Return

Taken between filter and blower/coil

0.11

Static Pressure of Supply

Taken At supply duct 12 inches or more from outlet

0.18

Total Static Pressure

0.29

Blower Airflow Set

High/Med/Low - or CFM on VS

Low, 970 CFM

Blower Motor Amps

Blower Motor Amps - taken in high stage heat

0.93

Electric Heat KW

KW of installed electric heat kit

8

Heater Amps - Circuit 1

18

Heater Amps - Circuit 2

If applicable

20

Electric check

Check furnace disconnect, high and low voltage wiring. All is secured and safe.

Drain Check

Check all condensate drains

Overflow Protection

If applicable

Return Air Temperature

Return air temperature

78.1

Supply Air Temperature - Stage 1

123.4

Supply Air Temperature - Stage 2

If applicable

-

Temperature Rise - Stage 1

45.3

Temperature Rise - Stage 2

If applicable

-

Filter - customer is aware of filter and location

Customer is aware of filter location, size and filter change requirements.

Customer Review

Reviewed startup with customer, explained future maintenance schedule and answered any questions.

Humidifier

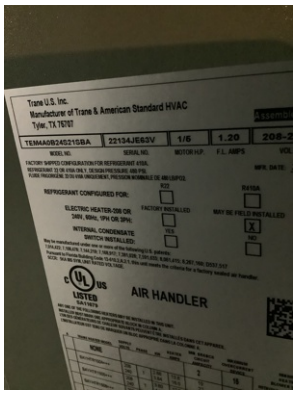
No humidifier installed on system

Notes

System is in good working condition.

Photos

Photos of unit and data tag



Pictures for Facebook

Please take the time to get some good photos at good angles that we can share on our social media.

Job #23656985

Air Conditioning C&C (1)

Indoor Unit Inspection

Thermostat

Thermostat

Call for cool

- [x] Yes

Thermostat Batteries

Blower Running

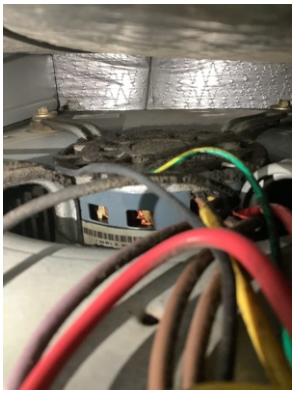
- [x] Yes

Blower Amps

2.5

Blower Motor Condition

Check motor for noise, bearing play and free spin.



Blower Wheel Condition

Blower Capacitor

Micro-farad under load

14.85

Filter Condition

- [x] Replaced with customer supplied filter

Drain condition

Clear and draining properly

Condensate Pump

Some systems have a condensate pump to discharge the condensate to the drain.

Not Applicable

Aux Drain Line

- [x] N/A

Aux. Drain Safety Pan and Overflow Protection

- [x] Present and functioning

Outdoor Unit

Electrical Connections

Insure electrical connections are tight and have no corrosion or burning present.

Disconnect Box and or Fuses

Check disconnect box for proper wiring and operation.

Contactor

Insure contactor has proper electrical connections, no pitting of contacts proper operation and no voltage drop across contacts.

Voltage

Check for correct voltage to unit.

242.2

Condenser Fan Motor

Check fan motor for obstructions, noise, bearing play, free spin, blade imbalance and wobble/vibration.

Condenser Coil

Check for obstructions, damaged fins, signs of oil on coil.

Condenser Clearance and Pad

Check for air flow obstructions such as bushes, and fences and pad level.

Line Insulation

Condenser Fan Amps

0.7

Condenser Fan Capacitor

Micro-farads

5.4

Compressor Amps Common Winding

5.5

Compressor Amps Run Winding

4.8

Compressor Amps Start Winding

5.4

Compressor Capacitor

Micro-farads

40.6

Starting Components

- [x] N/A

Refrigerant

Refrigerant Type

- [x] R410a

Suction Pressure

135.3

Boiling Temperature

Converted from pressure gauge

47

Head Pressure

290.5

Condensing Temperature

Converted from pressure gauge

93.6

Suction Line Temperature

52.1

Liquid Line Temperature

82

Superheat

5.1

Subcooling

11.6

Condenser Air Inlet Temperature

69

Condenser Air Discharge Temperature

72

Evaporator Inlet Dry Bulb Temperature

77

Evaporator Inlet Wet Bulb Temperature

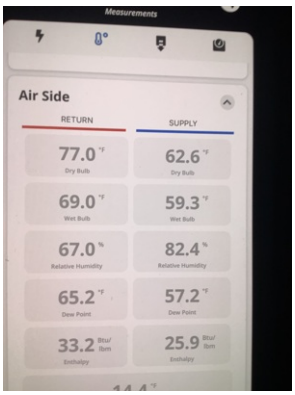
69

Evaporator Outlet Temperature

62.6

Temperature Drop

14.4



Pressure Switches and Safeties

☑ Present and Functioning

General Condition, Notes, Recommendations

General System Condition

Notes

System is in fair condition. AC was not running when we arrived due to blown low voltage fuse in air handler. Installed pop 3 for testing and test run system, jiggled wiring connections and checked contractor, no issues found in wiring. Also noticed low super heat and subcooling (1.5 degree superheat and 3 degree subcooling). System has TXV metering device and bulb was not properly attached to suction line. Corrected connection and tested operation. Superheat is still slightly low but we are no longer risking slugging liquid to compressor. Replaced the blown fuse in control and tested operation, system is functioning properly at this time

Collect equipment information

All model and serial #'s

Yes

Picture of data tag

Add as many photos as you need. Condenser, coil, filter, UV, etc.

Job #23656985

Electric Furnace/ Heat Pump C&C

Thermostat

Thermostat - Call for heat

Yes

Thermostat - Battery

Good

Heat Pump

No

Door on AHU secure

Check doors and integrity of AHU and pedestal box

Electrical Connections

Check circuits coming into AHU, signs of heat, and proper connections.

Heating Elements

Check condition of elements and connections.

Number of Elements

How many heating elements are in this heater.

2

Voltage

Measured Volts @ AHU

238.3

Amp Draw Element 1

18.75

Amp Draw Element 2

19.8

Amp Draw Element 3

Amp Draw Element 4

Amp Draw Element 5

Controls - Condition

Check operation, electrical connections and check for signs of electrical failure, moisture or other damage on circuit boards and ignition modules.

Blower Motor - Condition

Check that bearings spin freely and have no play in shaft indicating bearing wear. Check electrical connections and check for signs of electrical or moisture damage. Lubricate if applicable.

Blower Amps

2.5

Blower motor capacitor

Motor capacitors assist the motor starting. Failed capacitors can cause motor failure.

Blower Capacitor Mfd Actual

14.85

Blower Capacitor Mfd Rated +-5%

15

Blower Wheel - Condition

Check for excessive dirt on blades causing lack of air flow or imbalance, excessive rust or vibration.

Main Limit

Check operation, electrical connections, and signs of physical, electrical or moisture damage.

Return Air Temperature

Return air temperature

74

Supply Air Temperature - Stage 1

Single stage or 1st stage of 2 stage furnace

105

Supply Air Temperature - Stage 2

If applicable

-

Supply Air Temperature - Heat Pump Only

If applicable

-

Temperature Rise - Stage 1

Single stage or 1st stage of 2 stage furnace.

30

Temperature Rise - Stage 2

If applicable

-

Temperature Rise - Heat Pump Only

If applicable

-

Filter

Size and condition

16x20x1

Filter Changed

No - Current filter clean

Humidifier

No Humidifier Installed

Overflow Protection

If required

Good

Electrical Connections - Heat Pump

If applicable.
Check circuits coming into Heat Pump, signs of heat, and proper connections.

Heat Pump Condenser

Check for excessive dirt on fins causing lack of air flow.

Compressor Capacitor

If applicable.
Motor capacitors assist the motor starting. Failed capacitors can cause motor failure.

Compressor Capacitor Mfd Actual

If applicable

Compressor Capacitor Mfd Rated +-5%

If appliicable

Condenser fan motor capacitor

If applicable.
Motor capacitors assist the motor starting. Failed capacitors can cause motor failure.

Condenser Fan Capacitor Mfd Actual

If applicable

Condenser Fan Capacitor Mfd Rated +-5%

If appliicable

Heat Pump Defrost

If applicable.
Check Heat Pump defrost cycle.

Collect equipment information

All model and serial #'s

Yes

Picture of data tag

Add as many photos as you need. Furnace, coil, humidifier, filter, UV, etc.

Notes

Electric Furnace is good working order