

TOBIAS FUNERAL HOME

5471 Far Hills Ave.

Dayton, Ohio 45429

“New HVAC Interior Improvements & HVAC Equipment Replacement”

OWNERS & OPERATION GUIDE

FOR

Heating, Ventilation & Air Conditioning

Detmer Mechanical Services

9181 N. Dixie Drive

Dayton, Ohio 45414

Ph. (937) 709-3877

TOBIAS FUNERAL HOME

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5471 Far Hills Ave.
Dayton, Ohio 45429

Project Warranty: Division 23 "Heating, Ventilation & Air Conditioning"

Detmer Mechanical Services
9181 North Dixie Drive
Dayton, Ohio 45414
Ph.# (937) 709-3877

Detmer Mechanical Services / Division of Ace Hardware Home Services
(1) Year Labor

Trane Manufacturing: "F1 thru F9"
(1) Year Limited Parts
(20) Year Limited Heat Exchanger

Trane Manufacturing: "AC-1 thru AC-9"
(1) Year Limited Parts
(1) Year Limited Coil
(5) Year Limited Compressor

Mitsubishi Manufacturing: "MS-1 & MSHP-1"
(5) Year Limited Parts
(7) Year Limited Compressor

Broan Manufacturing: "EF-1" (typ. of 2)
(1) Year Limited Parts

Solar & Pau Manufacturing: "IEF-1" (typ. of 2)
(5) Year Limited Parts

Q-Mark Manufacturing "EWH-1" (typ. of 2)
(1) Year Limited Warranty

Ecobee Manufacturing: "T" (typ. of 9)
(5) Year Limited Warranty

TOBIAS FUNERAL HOME

5471 Far Hills Ave.
Dayton, Ohio 45429

Project HVAC Equipment Filter Requirements

F-1 & F-9..... (1) 20" x 25" x 2"

Date: May 28, 2025

To: Dryden Builders, Inc.
1741 Thomas Paine Parkway
Centerville, Ohio 45459 USA
Ph. (937) 439-2728

Project: Tobias Funeral Home
5471 Far Hills Ave.
Dayton, Ohio 45429

To whom it may concern:

In compliance with project specifications, we submit our guarantee on equipment, materials and workmanship furnished by Detmer Mechanical Services for a period of one year.

The Warranty Period is as follows:

From _____, 2025, to _____, 2026

Equipment and materials furnished by others, but installed by Detmer Mechanical Services are not, covered by this warranty, except for the installation work performed by Detmer Mechanical Services.

Ordinary wear is not covered by this warranty. The Owner's abuse, neglect or failure to perform recommended maintenance procedures will void this warranty.

Should any problems occur during the specified warranty period, due to faulty equipment, materials or workmanship, Detmer Mechanical Services will correct the problems, without charge, and to the satisfaction of the owner.

Sincerely,

Stewart L. Ross / CSE
Detmer Mechanical Services

Section #1 "F-1 thru F-9" Trane 96% afue Upflow Gas-Fired Furnaces

Gas Heating Systems – Owner's Information

Congratulations on the purchase of your new gas heating system. Your gas heating system is designed to perform all winter long, year after year.

For heating comfort adjustments, your system's comfort control (thermostat) is used. Refer to the comfort control user guide for operation details.

Important: For gas heating system operation, follow the information in this document for inspection, start-up, shut down, and maintenance.

***** FOR YOUR SAFETY *****

Read this entire document before proceeding and keep for future reference.

- Understand the signal words **WARNING** and **CAUTION**. These words are safety alert words.
- WARNING** indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.
 - CAUTION** indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury. It is also used to alert against unsafe practices and hazards involving only property damage.

Important Fact: The U.S. Consumer Product Safety Commission recommends that users of gas-burning appliances install carbon monoxide detectors as well as fire and smoke detectors, listed by a nationally recognized agency (e.g. Underwriters Laboratories or International Approval Services) to help alert dwelling occupants of the presence of fire, smoke, or unsafe levels of carbon monoxide.

▲ WARNING

EXPLOSION HAZARD
TO PREVENT INJURY, DEATH, OR PROPERTY DAMAGE, READ AND FOLLOW ALL INSTRUCTIONS AND WARNINGS, INCLUDING LABELS SHIPPED WITH OR ATTACHED TO THE UNIT BEFORE OPERATING YOUR NEW GAS HEATING SYSTEM.

▲ WARNING

EXPLOSION HAZARD
PROPANE GAS IS HEAVIER THAN AIR AND MAY COLLECT IN ANY LOW AREAS OR CONFINED SPACES. IN ADDITION, ODORANT FADE MAY MAKE THE GAS UNDETECTABLE EXCEPT WITH A WARNING DEVICE. IF THE GAS HEATING SYSTEM IS INSTALLED IN A BASEMENT, AN EXCAVATED AREA OR A CONFINED SPACE, IT IS STRONGLY RECOMMENDED TO CONTACT A GAS SUPPLIER TO INSTALL A GAS DETECTING WARNING DEVICE IN CASE OF A GAS LEAK. THE MANUFACTURER OF YOUR GAS HEATING SYSTEM DOES NOT TEST ANY DETECTORS AND MAKES NO REPRESENTATIONS REGARDING ANY BRAND OR TYPE OF DETECTOR.

▲ WARNING

EXPLOSION HAZARD
DO NOT USE THIS UNIT IF ANY PART HAS BEEN UNDER WATER. A FLOOD DAMAGED UNIT IS EXTREMELY DANGEROUS. ATTEMPTS TO USE THE GAS HEATING SYSTEM CAN RESULT IN FIRE OR EXPLOSION. A QUALIFIED SERVICE AGENCY SHOULD BE CONTACTED TO INSPECT THE GAS HEATING SYSTEM AND TO REPLACE ALL GAS CONTROLS, CONTROL SYSTEM PARTS, ELECTRICAL PARTS THAT HAVE BEEN WET OR THE GAS HEATING SYSTEM IF DEEMED NECESSARY. FAILURE TO FOLLOW THIS WARNING COULD RESULT IN PROPERTY DAMAGE, PERSONAL INJURY OR DEATH.

▲ WARNING

WARNING!
THIS PRODUCT CAN EXPOSE YOU TO CHEMICALS, INCLUDING LEAD, WHICH ARE KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER, BIRTH DEFECTS, OR OTHER REPRODUCTIVE HARM. FOR MORE INFORMATION GO TO WWW.P65WARNINGS.CA.GOV.

▲ CAUTION

Safety Hazard
Sharp Edge Hazard. Be careful of sharp edges on equipment or any cuts made on sheet metal while installing or servicing. Personal injury may result.

▲ WARNING

FIRE OR EXPLOSION HAZARD

If the information in this manual is not followed exactly, a fire or explosion may result causing property damage, personal injury or loss of life.

- Do NOT store or use gasoline or other flammable vapors and liquids or combustible materials in the vicinity of this or any other appliance.

— WHAT TO DO IF YOU SMELL GAS

- Do not try to light any appliance.
- Do not touch any electrical switch;
- do not use any phone in your building.
- Immediately call your gas supplier from a neighbor's phone. Follow the gas supplier's instructions.
- If you cannot reach your gas supplier, call the fire department.

— DO NOT RELY ON SMELL ALONE TO DETECT LEAKS. DUE TO VARIOUS FACTORS, YOU MAY NOT BE ABLE TO SMELL FUEL GASES.

- U.L. recognized fuel gas and CO detectors are recommended in all applications, and their installation should be in accordance with the manufacturer's recommendations and/or local laws, rules, regulations, or customs.
- Installation and service must be performed by a qualified installer, service agency or the gas supplier.

Safety Features

Your gas heating system is equipped with an automatic reset safety limit control to prevent overheating. When this control opens, it shuts down the heating electrical circuit until the unit cools down sufficiently. Inadequate airflow may cause the unit to cycle on and off as the limit control trips and automatically resets. If you suspect that the unit is cycling on its limit control, immediately contact a qualified service technician for instructions.

▲ WARNING

EXPLOSION HAZARD
SHOULD OVERHEATING OCCUR, OR THE GAS SUPPLY FAIL TO SHUT OFF, SHUT OFF THE MANUAL GAS VALVE TO THE GAS HEATING SYSTEM BEFORE SHUTTING OFF THE ELECTRICAL SUPPLY.
FAILURE TO FOLLOW THIS WARNING COULD RESULT IN PROPERTY DAMAGE, PERSONAL INJURY OR DEATH.

IMPORTANT: Have your installer or service show you the location of the manual gas valve.

If flames from the burner are not properly drawn into the heat exchanger, a Flame Rollout Protection Control will open causing the gas heating system to shut off. The cause must be investigated by a qualified service technician.

If the gas heating system is unable to exhaust combustion by-products properly, due to blocked flue hood or other blockage, a pressure switch safety device will prohibit the gas heating system from operating. The cause must be investigated by a qualified service technician.

Heating System Inspection

A periodic inspection of your gas heating system should be made by qualified service agency at the start of each heating season. The gas heating system installation should be examined for the following items:

1. All flue product carrying areas external to the gas heating system (i.e. chimney, vent connector) are clear and free of obstruction.
2. The vent connector is in place, slopes upward and is physically sound without holes or excessive corrosion.
3. The return air duct connection(s) is physically sound, is sealed to the gas heating system and terminates outside the space containing the gas heating system.
4. The physical support of the gas heating system should be sound without sagging, cracks, gaps, etc., around the base so as to provide a seal between the support and the base.
5. There are no obvious signs of deterioration of the gas heating system.
6. Burner flames are in good condition without erratic flames. They should be bright blue flames extending up to the heat exchanger section. See illustration.

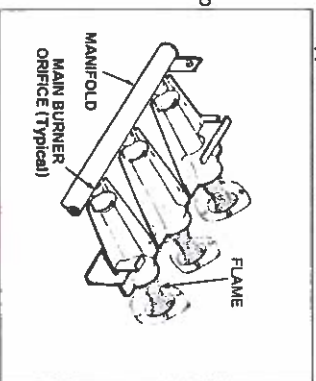
In order for this unit to operate properly and safely, the gas heating system needs air for both combustion and ventilation. Accordingly, observe the area in which the gas heating system is installed. Check to make sure that all the air openings are unobstructed. Likewise, insure that the spacing around the gas heating system itself is not blocked or obstructed.

▲ WARNING

CARBON MONOXIDE HAZARD
THE SYSTEM'S VENTING INSTALLATION AND OPERATION INSTRUCTIONS MUST BE FOLLOWED. FAILURE TO FOLLOW THIS WARNING COULD RESULT IN PROPERTY DAMAGE, PERSONAL INJURY, CARBON MONOXIDE POISONING, OR DEATH.

▲ CAUTION

Insulating materials may be combustible. The gas heating system must be kept free and clear from insulating material. Examine the area around the gas heating system for insulation after installation or when servicing is needed.



Heating System Start Up

Your unit does not use a continuously burning pilot flame. Therefore, manually lighting your gas heating system is not required. Your gas heating system has an automatic ignition system. This feature makes it easy to start the heating cycle at the beginning of the heating season.

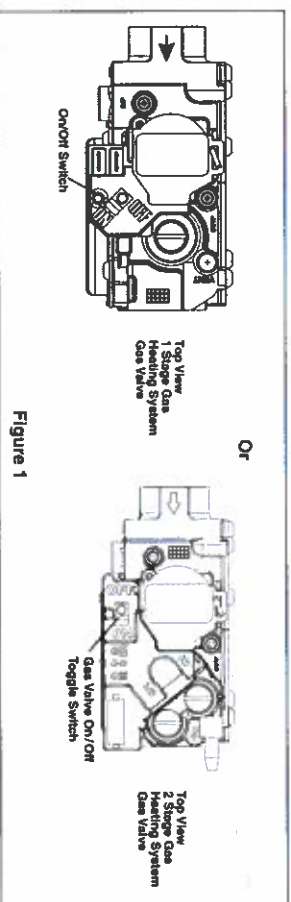
▲ WARNING

BURN HAZARD
DO NOT ATTEMPT TO MANUALLY LIGHT THE GAS HEATING SYSTEM. DO NOT TOUCH IGNITER. IT IS EXTREMELY HOT. FAILURE TO FOLLOW THIS WARNING COULD RESULT IN PROPERTY DAMAGE, PERSONAL INJURY OR DEATH.

1. STOP! Read all safety information within this document.
2. Set the thermostat to lowest setting.
3. Turn off all electric power to the gas heating system.
4. Remove the front panel to gain access to the main gas valve (See Figure 1).

▲ WARNING

HAZARDOUS GASES HAZARD
UNIT MAY BE EQUIPPED WITH A BLOWER DOOR SWITCH WHICH CUTS POWER TO BLOWER AND GAS VALVE CAUSING SHUTDOWN WHEN DOOR IS REMOVED. UNIT MUST NOT BE ALTERED TO ALLOW OPERATION WITH THE BLOWER DOOR REMOVED. OPERATION WITH DOORS REMOVED OR AAR CAN PERMIT THE ESCAPE OF DANGEROUS FUMES. ALL PANELS MUST BE SECURELY CLOSED AT ALL TIMES FOR SAFE OPERATION OF THE GAS HEATING SYSTEM. FAILURE TO FOLLOW THIS WARNING COULD RESULT IN PROPERTY DAMAGE, PERSONAL INJURY OR DEATH.



5. Turn gas valve off by moving the toggle switch to OFF.
6. Wait five (5) minutes to clear any gas. If you then smell gas, STOP!, for your safety follow the "What To Do if You Smell Gas" instructions on the front page. If you do not smell gas, go to next step.
7. Turn gas valve on by moving the toggle switch to ON.
8. Replace the panel that you removed in Step 4 and make sure all other unit panels are securely in place.
9. Turn on all electrical power to the gas heating system.
10. Set thermostat to desired temperature and the fan to AUTO. The gas heating system will now operate automatically.
11. If the gas heating system will not operate, perform the steps under Heating System Shutdown, "To Turn Off Gas To Unit" and call your service technician or gas supplier.

IMPORTANT: If the indoor air exceeds 60% relative humidity or simply feels uncomfortably humid, it is recommended that the indoor fan only be used in the AUTO mode.

Proper Maintenance*

Your gas heating system requires maintenance and repair by a properly trained service technician. "Do-it-yourself" repairs on an in-warranty unit may void your warranty.

Other than performing the simple maintenance recommended below, you should not attempt to make any adjustments or repairs to your gas heating system. Your dealer can assist you with questions or problems.

▲ WARNING

SAFETY HAZARD
IMPROPER INSTALLATION, ADJUSTMENT, ALTERATION, SERVICE OR MAINTENANCE CAN CAUSE INJURY OR PROPERTY DAMAGE. FOR ASSISTANCE OR ADDITIONAL INFORMATION CONSULT A QUALIFIED INSTALLER, SERVICE AGENCY OR THE GAS SUPPLIER. FAILURE TO FOLLOW THIS WARNING COULD RESULT IN PROPERTY DAMAGE, PERSONAL INJURY OR DEATH.

▲ WARNING

SAFETY HAZARD
BODILY INJURY CAN RESULT FROM HIGH VOLTAGE ELECTRICAL COMPONENTS. FAST MOVING FANS, AND COMBUSTIBLE GAS. DURING INSTALLATION AND SERVICING, THE ELECTRICAL SUPPLY MUST BE DISCONNECTED AND THE MAIN GAS VALVE MUST BE TURNED OFF. NEVER REMOVE ANY PANEL(S) FROM THE UNIT WHILE IT IS OPERATING. FAILURE TO FOLLOW THIS WARNING COULD RESULT IN PROPERTY DAMAGE, PERSONAL INJURY OR DEATH.

1) Replace the air filter(s)

A clean filter saves you money by helping ensure top system efficiency.

When replacing your filter(s), always use the same size and type that was originally supplied or consult with your dealer for recommendations. Be sure to replace it with the arrows pointing in the direction of the airflow.

Where disposable filters are used, they must be replaced every month with the same size as originally supplied. Clean or replace your filter twice a month during seasons when the unit runs more often.

▲ CAUTION

Never operate your gas heating system for either heating or cooling with filters removed.

Ask your dealer where the filter is located in your system and how to service it.

2) Clean the finish

To keep your gas heating system cabinet looking new for years, clean the enamel finish with soap and water. For stubborn grease spots, use a household detergent. Do not use lacquer thinner or other synthetic solvents as they may damage the finish.

▲ CAUTION

Never use combustible cleaning fluids on any part of the gas heating system.

3) Maintain Proper Storage Near the Gas Heating System

Never store gasoline, combustible materials, or other flammable liquids or vapors near your gas heating system.

▲ WARNING

FIRE OR EXPLOSION HAZARD
THE GAS HEATING SYSTEM AREA MUST BE KEPT CLEAR AND FREE OF COMBUSTIBLE MATERIALS, GASOLINE AND OTHER FLAMMABLE VAPORS AND LIQUIDS.
FAILURE TO FOLLOW THIS WARNING COULD RESULT IN PROPERTY DAMAGE, PERSONAL INJURY OR DEATH.

▲ CAUTION

The combustion air for your gas heating system must be fresh uncontaminated air. Paints, varnishes, laundry bleaches, detergents, many household cleaners, water softening salts, adhesives, and all such products release fumes containing compounds which could lead to early heat exchanger and vent system deterioration. Do NOT store these types of products near your gas heating system.

4) Call your dealer for additional routine maintenance

Ask your dealer about economical service or preventative maintenance agreements that cover seasonal inspections. **Optional extended warranties may be available.**

Heating System Shutdown

To shut down the heating system for brief periods of time, simply adjust the thermostat selector switch to the OFF position.

▲ CAUTION

If the gas heating system is shut down during the cold weather months, provisions must be taken to prevent freeze-up of all water pipes and water receptacles. This is very important during times of vacancy.

If you need to turn the gas off to the unit, follow the steps below:

To Turn Off Gas To Unit

1. Set the thermostat to lowest setting.
2. Turn off all electric power to the unit.
3. Remove the gas heating system front panel to gain access to the main gas valve (see Figure 1).
4. Turn gas control off by moving the toggle switch to OFF.
5. Replace the panel you removed in Step 3.

Before you call for service, check the following:

Problem	Possible Trouble	Possible Remedy
No Heating - Blower does not operate.	1. Thermostat set incorrectly. 2. Blown fuse or tripped circuit breaker 3. Defective component. 4. Burner does not ignite. 5. Main gas line turned off. 6. Blower door removed or ajar. 7. Lockout	1. Adjust thermostat. See operating instructions. 2. Replace or reset protective device or call for service. 3. Most controls are automatic and will recycle. If your unit still does not operate call for service. 4. Call service. 5. Have gas company check. 6. Close door securely to restore power to blower and gas valve. 7. Turn power on-off twice in 30 seconds.
Insufficient Heating - Blower operates continuously.	1. Dirty air filters. 2. Blocked supply or return registers.	1. Clean or replace filters. 2. Make sure registers are open and No obstacles blocking off the air.
No Heat - Vent motor is running.	1. Restricted or plugged gas heating system Condensate drain. 2. Restricted or plugged combustion gas venting system.	1. Call service. 2. Ensure vent terminals are not blocked.
Unusual Noise		Call your local service

▲ WARNING

CARBON MONOXIDE POISONING HAZARD
FAILURE TO FOLLOW INSTRUCTIONS COULD RESULT IN SEVERE PERSONAL INJURY OR DEATH DUE TO CARBON MONOXIDE POISONING. IF COMBUSTION PRODUCTS INFILTRATE INTO THE BUILDING. CHECK THAT ALL OPENINGS IN THE OUTSIDE WALL AROUND THE VENT (AND AIR INTAKE) PIPE(S) ARE SEALED TO PREVENT INFILTRATION OF COMBUSTION PRODUCTS INTO THE BUILDING. CHECK THAT FURNACE VENT (AND AIR INTAKE) TERMINAL(S) ARE NOT OBSTRUCTED IN ANY WAY DURING ALL SEASONS.

Product Registration

Registered Limited Warranty terms are available if the product is registered within 60 days of installation. If the product is not registered within 60 days of installation, the manufacturer's Base Limited Warranty terms will apply.

Registration can be completed either online at the manufacturer's website or by contacting your dealer. Please take a few moments to record the following information to ensure your product registration process is quick and easy:

Gas Heating System Serial Number _____

Gas Heating System Model Number _____

Thermostat Model Number _____

Installation/Startup Date _____

Dealer _____

Dealer Service Phone _____

***Visit the manufacturer's website or ask your dealer for more information on:**

- System operation
- Optimizing system performance/Energy savings
- Troubleshooting/Maintenance
- Warranties and Product Registration

Notes:

Florida Residents Only:

Beginning July 1, 2024, Failure to complete product registration does not diminish any warranty rights or decrease the limited warranty length. The sale of residential property that includes an HVAC system as a fixture to the property occurs on or after July 1, 2024, the manufacturer's limited warranty is still in effect on the HVAC system or a component of the system.

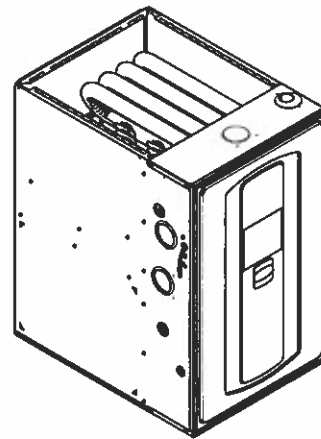
About Trane and American Standard Heating and Air Conditioning
Trane and American Standard create comfortable, energy efficient indoor environments for residential applications. For more information, please visit www.trane.com or www.americanstandardair.com

The manufacturer has a policy of continuous data improvement and it reserves the right to change design and specifications without notice. We are committed to using environmentally conscious print practices.

Submittal

Upflow / Horizontal Left/Right Single Stage Condensing Gas Fired Furnace 100,000 BTUH

Upflow, Convertible to
Horizontal Right or
Horizontal Left
S9X1C100U5PSBB
S9B1C100U5PSAB



Note: Graphics in this document are for representation only. Actual model may differ in appearance.

⚠ WARNING

FIRE HAZARD!

Failure to follow this Warning could result in property damage, severe personal injury, or death.

This Warning applies to installations with a flammable refrigeration system. The furnace must be powered except for service. The furnace shall be installed and connected according to installation instructions and wiring diagrams that are provided with the evaporator coil.

⚠ CAUTION

COIL REQUIREMENT!

Failure to follow this Caution could result in property damage or personal injury. "GXC" and "MXC" coils installed on upflow furnaces in vertical, horizontal left, or horizontal right orientations without a factory installed metal drain pan shield must use a MAYFERCOLKITAA kit. Coils installed on upflow furnaces must have drain pans that are suitable for 400° F (205°C) or have a metal drain pan shield. Downflow furnaces do not require a metal drain pan shield or the use of the MAYFERCOLKITAA kit. See Installer's Guide for more information.

Product Specifications

MODEL	S9X1C100U5PSBB (a) S9B1C100U5PSAB
TYPE	Upflow / Horizontal
RATINGS (b)	
Input BTUH	100,000
Capacity BTUH (ICS) (c) (d)	97,400
Temp. Rise (Min.-Max.)	40 - 70
AFUE (%) S9X1 / S9B1 (e)	95.0 / 92.1
Return Air Temp. (Min. - Max.)	45°F - 80°F
BLOWER DRIVE	DIRECT
Diameter — Width (In.)	11 X 10
No. Used	1
Speeds (No.) (e)	9
CFM vs. in. w.g.	See Fan Performance Table
Motor HP	1
RPM	1075
Volts/Ph/Hz	120 / 1 / 60
FLA	10.6
COMBUSTION FAN — Type	Centrifugal
Drive — No. Speeds	Direct - 1
Motor HP — RPM	3300
Volts/Ph/Hz	120 / 1 / 60
FLA	0.66
FILTER — Furnished?	No
Type recommended	High Velocity
Hi Vel. (No.-Size-Thk.)	1 - 20 X 25 - 1 In.
VENT PIPE DIAMETER — Min (in.) (f) (g)	2 Round
HEAT EXCHANGER	
Type — Fired	409 Stainless Steel

MODEL	S9X1C100U5PSBB (a) S9B1C100U5PSAB
— Unfired	29-4C Stainless Steel
Gauge (Fired)	20
ORIFICES — Main	
Nat. Gas Qty. — Drill Size	5 - 45
Propane Gas Qty. — Drill Size	5- 56
GAS VALVE	Redundant - One Stage
PILOT SAFETY DEVICE	
Type	120 V SINi Igniter
BURNERS — Type	Multiport Inshot
Number	5
POWER CONN. — V/Ph/Hz (h)	120 / 1 / 60
Ampacity (In Amps)	13.3
Max. Overcurrent Protection (Amps)	15
PIPE CONN. SIZE (in.)	1/2
DIMENSIONS	H x W x D
Uncrated (In.)	34 x 21 x 28-3/4
Crated (In.)	35-1/2 x 23 x 30-7/8
WEIGHT	
Shipping (Lbs.)/Net (Lbs.)	155/145

(a) Meets Energy Star

(b) For U.S. applications, above input ratings (BTUH) are up to 2,000 feet, derate 4% per 1,000 feet for elevations above 2,000 feet above sea level. For Canadian applications, above input ratings (BTUH) are up to 4,500 feet, derate 4% per 1,000 feet for elevations above 4,500 feet above sea level.

(c) Central Furnace heating designs are certified to ANSI Z21.47 / CSA 2.3.

(d) Based on U.S. government standard tests.

(e) 9 Speed constant torque ECM blower motor

(f) Refer to the Vent Length Table in the Installer's Guide.

(g) All furnace models have a vent outlet diameter that equals 2 in.

(h) The above wiring specifications are in accordance with National Electrical Code; however, installations must comply with local codes.

Airflow tables

Furnace Airflow (CFM) Vs. External Static Pressure (in. W.C.)							
Model	Tap		0.1	0.3	0.5	0.7	0.9
S9X1C100U5PSBB S9B1C100U5PSAB	1	SCFM	1013	847	680	514	348
		Watts	104	116	129	142	155
	2	SCFM	1261	1126	990	854	718
		Watts	168	185	202	219	236
	3	SCFM	1519	1407	1296	1184	1072
		Watts	267	290	313	336	358
	4	SCFM	1554	1446	1337	1229	1120
		Watts	283	307	330	353	377
	5	SCFM	1749	1651	1554	1457	1359
		Watts	385	411	436	462	488
	6	SCFM	1868	1778	1688	1599	1509
		Watts	464	491	519	546	574
	7	SCFM	2018	1936	1853	1770	1688
		Watts	573	602	631	660	689
	8	SCFM	2191	2112	2033	1954	1875
		Watts	718	750	782	815	847
	9	SCFM	2395	2303	2212	2120	2028
		Watts	966	981	996	1012	1027

CFM Versus Temperature Rise

Table 2. Heating Table – Upflow

CFM VS. TEMPERATURE RISE													
MODEL													
	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
S9X1C100U5PSBB S9B1C100U5PSAB				68	65	61	57	55	53	49	46		

General Features

NATURAL GAS MODELS

Central Heating furnace designs are certified by the Intertek/ETL for both natural and Propane gas. Limit setting and rating data were established and approved under standard rating conditions using American National Standards Institute standards.

SAFE OPERATION

The Integrated Furnace Control is a solid state device which continuously monitors for presence of flame when the system is in the heating mode of operation. Dual solenoid combination gas valve and regulator provide additional safety.

QUICK HEATING

Durable, cycle tested, heavy gauge tubular stainless steel primary heat exchanger quickly transfers heat to provide warm conditioned air to the structure. Low energy power vent blower, to increase efficiency and provide a positive discharge of gas fumes to the outside.

BURNERS

Multiport Inshot burners will give years of quiet and efficient service. All models can be converted to Propane with Propane conversion kit.

INTEGRATED FURNACE CONTROL

Exclusively designed operational program provides total control of furnace limit sensors, blowers, gas valve, flame control and includes self diagnostics for ease of service. S9X1 also contains dry contacts for EAC and HUM.

ENERGY EFFICIENT OPERATION

S9X1 Furnace is certified by the manufacturer to leak 1% (1.4% for S9B1) or less of nominal air conditioning CFM delivered when pressurized to .5" water column with all inlets, outlets, and drains sealed.

AIR DELIVERY

The 9 tap constant torque ECM blower motor has sufficient airflow for most heating and cooling requirements and will switch from heating to cooling speeds on demand from room thermostat.

SECONDARY HEAT EXCHANGER

The S-Series furnace has a special type 29- 4C™ stainless steel secondary heat exchanger to reclaim heat from flue gases which would normally be lost.

STYLING

Heavy gauge steel and "wrap-around" cabinet construction is used in the cabinet with baked-on enamel finish for strength and beauty. Every orientation has at least two venting options. There are no knockouts on cabinet.

FEATURES AND GENERAL OPERATION

The S-Series furnace utilizes a Silicon Nitride Hot Surface Ignition system, which eliminates the waste of a constant burning pilot. The integrated furnace control lights the main burners upon a demand for heat from the room thermostat. Complete front service access.

- a. Low energy power venter
- b. Vent proving pressure switches.

Features and Benefits

UP TO 96.0% AFUE ON S9X1 FURNACE MODELS

Meets utility rebates

Lowers utility bills

ELECTRICALLY EFFICIENT

Efficient airflow design reduces electrical energy use

34 INCH TALL

Lighter, easier to move and fit into tight spaces like short basements or tight closets

Works great with larger, high-efficiency coils

No knockouts

3-WAY MULTI-POISE / DEDICATED DOWNFLOW

6 SKU's — Upflow / Horizontal Left / Horizontal Right

5 SKU's — Downflow

Added application flexibility and reduction in specification errors

AIRFLOW

At least 400 CFM/ton at 0.5 in. H₂O external static pressure

REGULATORY

All models are air tight; 1% or less air leakage as per ASHRAE 193 (1.4% for S9B1)

Open vestibule design provides a full 34" high open vestibule

DIMENSIONS

Width is industry standard: 21"

Depth remains approximately 28"

Cabinet is compatible with industry standard coils as well as other accessories

INTEGRATED FURNACE CONTROL

Setup / Status / Diagnostics / Digital Display

No dip switches

Last six errors stored

Dry contact EAC and HUM connections on S9X1 models

All multi-pin polarized terminals connections; no spade terminals

Low voltage labeled above and below

TUBULAR STAINLESS STEEL PRIMARY HEAT EXCHANGER

29-4C STAINLESS STEEL SECONDARY HEAT EXCHANGER

Stainless steel is a more durable, corrosive-resistant material than aluminized steel

Integrated rail system for easy access if required

Reduces or eliminates need for baffles

VORTICA BLOWER, DESIGNED EXCLUSIVELY FOR THE S-SERIES FURNACE

Improved airflow efficiency

Durable, easy to clean, two piece housing

Single piece belly band/ motor arm assembly

Blower deck has full-length rails for easy removal and replacement, regardless of poise

THREE-WAY MULTI-POISE (UPFLOW, HORIZONTAL LEFT AND RIGHT) PLUS DEDICATED DOWNFLOW

Easier to specify

Shipped ready to install (no conversion kits required)

Every model has at least two venting options

Barbed fitting on trap at hose connection and on cabinet transition for hose has barbed fitting and clamps at both ends for leak resistance.

Vent table improvements including longer vent lengths.



About Trane and American Standard Heating and Air Conditioning

Trane and American Standard create comfortable, energy efficient indoor environments for residential applications. For more information, please visit www.trane.com or www.americanstandardair.com.



The manufacturer has a policy of continuous data improvement and it reserves the right to change design and specifications without notice. We are committed to using environmentally conscious print practices.

Section #2 "AC-1 thru AC-9" Trane 14 Seer 3ph Outdoor Air Conditioners

Air Handlers, Heat Pumps and Air Conditioners – Owner’s Guide

Congratulations on the purchase of your new outdoor unit. Your outdoor unit is designed to work with a matched indoor unit creating a system that delivers years of dependable service and performance.

Proper Maintenance*

Your system requires maintenance and repair by a properly trained service technician. “Do-it-yourself” repairs on an in-warranty unit may void your warranty.

Other than performing the simple maintenance recommended below, you should not attempt to make any adjustments or repairs to your system. Your dealer can assist you with questions or problems.

1) Replace the air filter(s)

A clean filter saves you money by helping ensure top system efficiency.

When replacing your filter(s), always use the same size and type that was originally supplied or consult with your dealer for recommendations. Be sure to replace it with the arrows pointing in the direction of the airflow.

Where disposable filters are used, they must be replaced every month with the same size as originally supplied. Clean or replace your filter twice a month during seasons when the unit runs more often.

Ask your dealer where the filter is located in your system and how to service it.

2) Maintain free outdoor coil airflow

Efficient operation of your system depends on the free flow of air over outdoor unit’s coil.

Do not plant flowers or shrubbery right next to the unit. Also, make sure that nothing is stacked against the sides of the unit or draped over it.

Buildup of snow and ice can restrict airflow. As soon as possible after accumulation, clean snow from the area around the outdoor unit.

3) Clean the finish

To ensure the longevity of the outdoor unit appearance, clean the exterior finish with soap and fresh water. For stubborn grease spots, use a household detergent. Do not use lacquer thinner or other synthetic solvents as they may damage the finish. *Note: For coastal region locations, a monthly fresh water rinse is recommended.*

4) Call your dealer for additional routine maintenance

Your system should be inspected at least once per year by a properly trained service technician.

Ask your dealer about economical service or preventative maintenance agreements that cover seasonal inspections. **Optional extended warranties are also available.**

⚠ WARNINGS

1. Disconnect all electrical power to the indoor air handler or furnace before removing access panels to perform any maintenance. Disconnect power to both the indoor and outdoor units. NOTE: There may be more than one electrical disconnect switch. Electric shock can cause personal injury or death.
2. Improper installation, adjustment, alteration, service, maintenance, or use can cause explosion, fire, electrical shock, or other conditions which may cause personal injury or property damage. Consult a qualified installer or service agency for information or assistance.

⚠ CAUTIONS

1. To prevent injury, death, or property damage, read and follow all instructions and warnings including labels shipped with or attached to unit before operating your new outdoor system.
2. Although special care has been taken to minimize sharp edges in the construction of your unit, be extremely careful when handling parts or reaching into the unit.
3. Condensate drains should be checked and cleaned periodically to assure condensate can drain freely from coil to drain. If condensate cannot drain freely, water damage could occur.
4. If heating system is not operational during the cold weather months, provisions must be taken to prevent freeze-up of all water pipes and water receptacles. This is very important during times of vacancy.

IMPORTANT: If the indoor air exceeds 60% relative humidity or simply feels uncomfortable humid, it is recommended that the indoor fan only be used in the AUTO mode.

*Visit our website or ask your dealer for more information on:

- System operation
- Troubleshooting
- Maintenance
- Warranties and Product Registration
- Optimizing system performance
- Energy savings

Before you call for service, check the following:

Problem	Possible cause	Remedy
Insufficient heating or cooling	a. dirty filters b. air not circulating freely c. blocked outdoor coil	a. clean or replace b. check supply registers and return grills for blockage c. clear away leaves or other debris
Failure to operate	a. power off b. open circuit breaker or burned-out fuses c. improperly adjusted thermostat	a. make sure main switch is in ON position b. reset circuit breaker, or replace burned-out fuses c. check setting, adjust thermostat
Auxiliary heat indicator on	When outdoor temperature falls, intermittent lighting is normal	Monitor light. If it stays on continuously when above 30°F, or if it comes on when 50°F outdoors, call for service.
No Heating or Cooling – Blower does not operate	Blower door removed or ajar	Close door securely to restore power to blower
Unusual Noise		Call your local servicer

Product Registration

Registered Limited Warranty terms are available if the product is registered within 60 days of installation. If the product is not registered within 60 days of installation, the Base Limited Warranty terms will apply.

Registration can be completed online. Please take a few moments to record the following information to ensure your product registration process is quick and easy:

Indoor Unit Model No: _____ Serial No: _____

Outdoor Unit Model No: _____ Serial No: _____

Thermostat Model Number _____

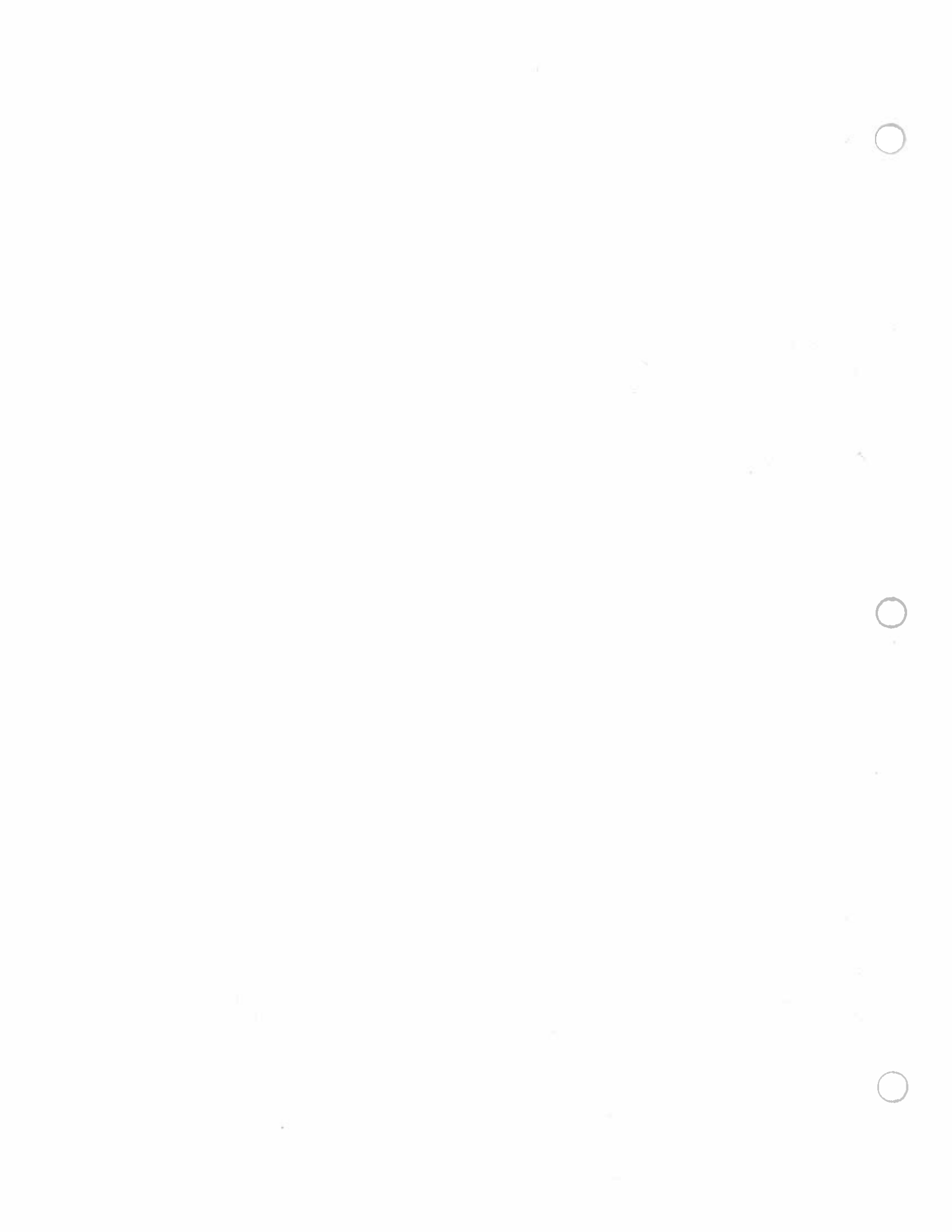
Installation/Startup Date _____

Dealer _____

Dealer Service Phone _____

Florida Residents Only:

Beginning July 1, 2024, Failure to complete product registration does not diminish any warranty rights or decrease the limited warranty length. The sale of residential property that includes an HVAC system as a fixture to the property occurs on or after July 1, 2024, the manufacturer’s limited warranty is still in effect on the HVAC system or a component of the system.



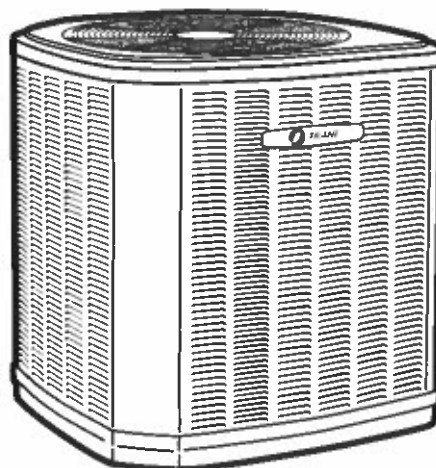


TRANE

Submittal

Split System Air Conditioner 3-Phase, 208/230V

5TTA4060A3000A



Note: "Graphics in this document are for representation only. Actual model may differ in appearance."



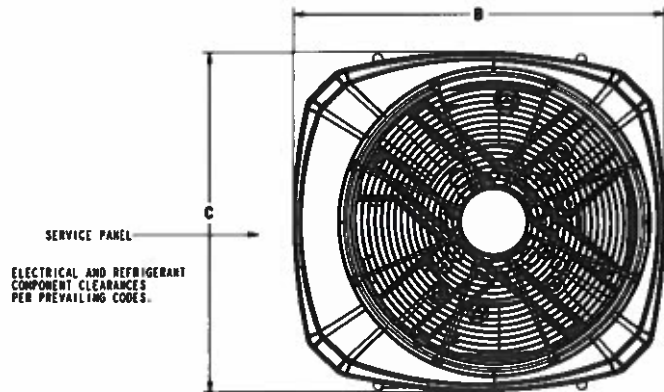
October 2024

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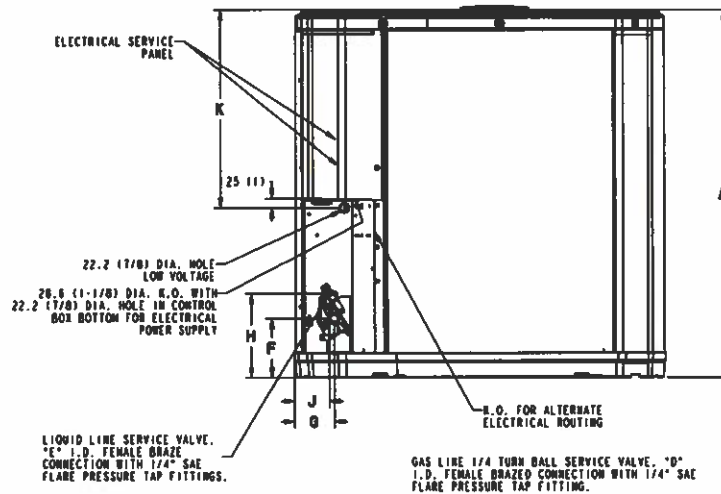
TRANE
TECHNOLOGIES



Outline Drawing



TOP DISCHARGE AREA SHOULD BE UNRESTRICTED FOR AT LEAST 1324 (43 FEET) ABOVE UNIT. UNIT SHOULD BE PLACED SO ROOF RUN-OFF WATER DOES NOT POUR DIRECTLY ON UNIT, AND SHOULD BE AT LEAST 305 (12") FROM WALL AND ALL SURROUNDING SHROUDERY ON TWO SIDES. OTHER TWO SIDES UNRESTRICTED.



Model	Base	A	B	C	D	E	F	G	H	J	K
5TTA4060A3	4	1147 (45-1/8)	946 (37-1/4)	870 (34-1/4)	7/8	5/16	152 (6)	98 (3-7/8)	219 (8-5/8)	86 (3-3/8)	813 (32)

SOUND POWER LEVEL									
Model	A-Weighted Sound Power Level [dB(A)]	Full Octave Sound Power [dB]							
		63 Hz*	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz
5TTA4060A3	72	81	75	71	70	68	63	58	53

Note: Rated in accordance with AHRI Standard 270-2008 *For reference only.



Product Specifications

OUTDOOR UNIT ^(a) ^(b)	5TTA4060A3000A
POWER CONNS. - V/PH/HZ ^(c)	208/230/3/60
MIN. BRCH. CIR. AMPACITY	20.9
BR. CIR. PROT. RTG. - MAX. (AMPS)	35
COMPRESSOR	CLIMATUFF® - SCROLL
NO. USED - NO. STAGES	1 - 1
VOLTS/PH/HZ	200/230/3/60
R.L. AMPS ^(d) — L.R. AMPS	16.0 - 156.4
FACTORY INSTALLED	
START COMPONENTS ^(e)	NO
INSULATION/SOUND BLANKET	NO
COMPRESSOR HEAT	YES
OUTDOOR FAN	PROPELLER
DIA. (IN.) - NO. USED	27.5 - 1
TYPE DRIVE - NO. SPEEDS	DIRECT - 1
CFM @ 0.0 IN. W.G. ^(f)	5255
NO. MOTORS - HP	1 - 1/5
MOTOR SPEED R.P.M.	850
VOLTS/PH/HZ	200/230/1/60
F.L. AMPS	0.93
OUTDOOR COIL - TYPE	SPINE FIN™
ROWS - F.P.I.	1 - 24
FACE AREA (SQ. FT.)	30.8
TUBE SIZE (IN.)	3/8
REFRIGERANT	
LBS. - R-454B (O.D. UNIT) ^(g)	5 LBS., 15 OZ
FACTORY SUPPLIED	YES
LINE SIZE - IN. O.D. GAS ^(h) ⁽ⁱ⁾	1-1/8
LINE SIZE - IN. O.D. LIQ.	5/16
CHARGING SPECIFICATIONS	
SUBCOOLING	10°F
DIMENSIONS	H X W X D
CRATED (IN.)	50.5 x 35 x 38
WEIGHT	
SHIPPING (LBS.)	302
NET (LBS.)	252

- ^(a) Certified in accordance with the Air-Source Unitary Air-conditioner Equipment certification program, which is based on AHRI standard 210/240.
- ^(b) Rated in accordance with AHRI standard 270.
- ^(c) Calculated in accordance with Natl. Elec. Codes. Use only HACR circuit breakers or fuses.
- ^(d) This value shown for compressor RLA on the unit nameplate and on this specification sheet is used to compute minimum branch circuit ampacity and max. fuse size. The value shown is the branch circuit selection current.
- ^(e) Use start components only when compressor is found to enter locked rotor condition and will not start or when lights dim at compressor start. No means no start components. Yes means quick start kit components. PTC means positive temperature coefficient starter. Optional kit shown.
- ^(f) Standard Air - Dry Coil - Outdoor
- ^(g) This value approximate. For more precise value see unit nameplate.
- ^(h) For standard, recommended linear length and lift applications, see the Subcool Charging Chart in IOM. For greater lengths and other applications, consult refrigerant piping software Pub. No. 32-3312-xx (xx denotes latest revision).
- ⁽ⁱ⁾ The outdoor condensing units are factory charged with the system charge required for the outdoor condensing unit, ten (10) feet of tested connecting line, and the smallest rated indoor evaporative coil match. Always verify proper system charge via subcooling (TXV/EEV) or superheat (fixed orifice) per the unit nameplate.



Mechanical Specification Options

General

The outdoor condensing units are factory charged with the system charge required for the outdoor condensing unit, ten (10) feet of tested connecting line, and the smallest rated indoor evaporative coil match. This unit is designed to operate at outdoor ambient temperatures as high as 115°F. Cooling capacities are matched with a wide selection of air handlers and furnace coils that are AHRI certified. The unit is certified to UL 60335-2-40. Exterior is designed for outdoor application.

Casing

Unit casing is constructed of heavy gauge, galvanized steel and painted with a weather-resistant powder paint finish. The corner panels are prepainted. All panels are subjected to our 1,000 hour salt spray test.

Refrigerant Controls

Refrigeration system controls include condenser fan, compressor contactor and low and high pressure switches. A factory supplied, field installed liquid line drier is standard.

Compressor

The compressor features internal over temperature and pressure protection. Other features include: Centrifugal oil pump and low vibration and noise.

Condenser Coil

The outdoor coil provides low airflow resistance and efficient heat transfer. The coil is protected on all four sides by louvered panels.

Low Ambient Cooling

As manufactured, this system has a cooling capacity to 55°F. The addition of an evaporator defrost control permits operation to 40°F. The addition of an evaporator defrost control with TXV permits low ambient cooling to 30°F.

The addition of the BAYLOAM107A low ambient kit permits ambient cooling to 20°F.

Thermostats – Cooling only and heat/cooling (manual and automatic change over). Sub-base to match thermostat and locking thermostat cover.



Trane - by Trane Technologies (NYSE: TT), a global innovator - creates comfortable, energy efficient indoor environments for commercial and residential applications. For more information, please visit trane.com or tranetechnologies.com.



The AHRI Certified mark indicates Trane U.S. Inc. participation in the AHRI Certification program. For verification of individual certified products, go to ahridirectory.org.

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Section #3 "MS-1 & MSHP-1" Mitsubishi Ductless Mini-Split Heat Pump

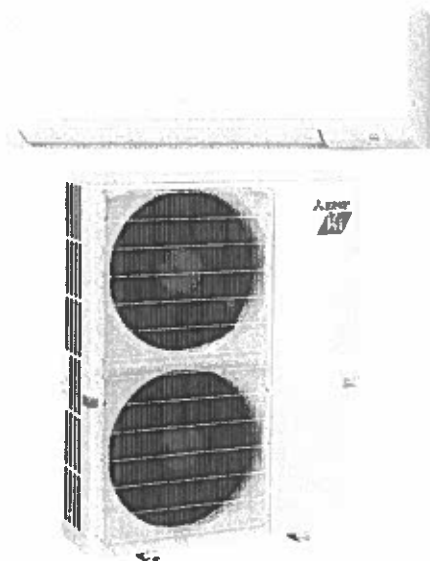
PKA-A36KA7 & PUZ-HA36NKA
36,000 BTU/H WALL-MOUNTED INDOOR UNIT
36,000 BTU/H HYPER-HEATING UNIVERSAL OUTDOOR



Job Name:

System Reference:

Date:



Indoor Unit.....PKA-A36KA7

Outdoor Unit.....PUZ-HA36NKA

INDOOR UNIT FEATURES

- Sleek, compact design
- Simple installation
- Vane setting for air flow direction control
- Auto fan speed mode
- Ideal for spaces such as server rooms, daycare centers, classrooms, churches, small offices, and more
- Multiple control options available:
 - kumo cloud® smart device app for remote access
 - Third-party interface options
 - Wired or wireless controllers

OUTDOOR UNIT FEATURES

- Variable speed INVERTER-driven compressor
- High heating capacity: flash injection circuit maintains 100% heating capacity at 5°F outdoor temperature
- Wide heating range: heating performance down to -13°F (average of 80% heating capacity)
- High speed heating at start up: Hyper-Heating INVERTER® reduces the time for heating at start up by about half compared to standard models
- Suction accumulator pre-charged with refrigerant volume for piping length up to 100 ft.
- Twinning of two indoor units possible with the 36 KBTU/H model
- High pressure/temperature protection
- Built-in base pan heater
- Flash injection circuit provides efficient high heating capacities at low ambient temperatures

SPECIFICATIONS: PKA-A36KA7 & PUZ-HA36NKA

Cooling at 95°F ¹	Maximum Capacity	BTU/H	36,000
	Rated Capacity	BTU/H	33,800
	Minimum Capacity	BTU/H	14,700
	Maximum Power Input	W	3,090
	Rated Power Input	W	2,700
	Moisture Removal	Pints/h	9.3
	Sensible Heat Factor		0.69
Heating at 47°F ²	Power Factor [208V / 230V]	%	95.0 / 95.0
	Maximum Capacity	BTU/H	40,000
	Rated Capacity	BTU/H	38,000
	Minimum Capacity	BTU/H	14,900
	Maximum Power Input	W	3,880
Heating at 17°F ³	Rated Power Input	W	3,340
	Power Factor [208V / 230V]	%	96.0 / 96.0
	Maximum Capacity	BTU/H	38,000
	Rated Capacity	BTU/H	25,400
	Maximum Power Input	W	5,335
Heating at 5°F ⁴	Rated Power Input	W	3,125
	Maximum Capacity	BTU/H	38,000
Heating at -13°F ⁵	Maximum Power Input	W	6,045
	Maximum Capacity	BTU/H	30,400
Efficiency	SEER		18.5
	EER ¹		11.8
	HSPF [IV]		10.0
	COP at 47°F ²		3.33
	COP at 17°F at Maximum Capacity ³		2.0
	COP at 5°F at Maximum Capacity ⁴		1.8
	ENERGY STAR® Certified		No
Electrical	Voltage, Phase, Frequency		208/230, 1, 60
	Guaranteed Voltage Range	V AC	198 - 253
	Voltage: Indoor - Outdoor, S1-S2	V AC	208/230
	Voltage: Indoor - Outdoor, S2-S3	V DC	24
	Short-circuit Current Rating [SCCR]	KA	5
	Recommended Fuse/Breaker Size (Outdoor)	A	35
	Recommended Wire Size (Indoor - Outdoor)	AWG	14
	Power Supply		Indoor unit is powered by the outdoor unit
Indoor Unit	MCA	A	1.0
	Fan Motor Full Load Amperage	A	0.57
	Fan Motor Type		DC Motor
	Airflow Rate at Cooling, Dry	CFM	705-810-920
	Airflow Rate at Cooling, Wet	CFM	635-730-830
	Airflow Rate at Heating, Dry	CFM	705-810-920
	Sound Pressure Level [Cooling]	dB[A]	43-46-49
	Sound Pressure Level [Heating]	dB[A]	43-46-49
	Drain Pipe Size	In. [mm]	5/8 [16]
	Coating on Heat Exchanger		—
	External Finish Color		White Munsell 1.0Y 9.2/0.2
	Unit Dimensions	W x D x H: In. [mm]	46-1/16 x 11-5/8 x 14-3/8 [1,170 x 295 x 365]
	Package Dimensions	W x D x H: In. [mm]	51 x 14-1/4 x 18-1/2 [1,295 x 362 x 470]
	Unit Weight	Lbs. [kg]	46 [21]
Package Weight	Lbs. [kg]	53 [24]	
Indoor Unit Operating Temperature Range	Cooling Intake Air Temp [Maximum / Minimum]*	*F	90 DB, 72 WB / 68 DB, 61 WB
	Heating Intake Air Temp [Maximum / Minimum]	*F	77 DB / 59 DB

NOTES:

AHRI Rated Conditions (Rated data is determined at a fixed compressor speed)	¹ Cooling (Indoor // Outdoor)	*F	80 DB, 67 WB // 95 DB, 75 WB
	² Heating at 47°F (Indoor // Outdoor)	*F	70 DB, 60 WB // 47 DB, 43 WB
	³ Heating at 17°F (Indoor // Outdoor)	*F	70 DB, 60 WB // 17 DB, 15 WB
Conditions	⁴ Heating at 5°F (Indoor // Outdoor)	*F	70 DB, 60 WB // 5 DB, 4 WB
	⁵ Heating at -13°F (Indoor // Outdoor)	*F	70 DB, 60 WB // -13 DB, -14 WB

* Indoor/Outdoor Unit Operating Temperature Range (Cooling Air Temp [Maximum / Minimum]):

- Wind baffles required to operate below 23°F DB in cooling mode.
- Refer to wind baffle documentation for further information.

**Outdoor Unit Operating Temperature Range (Cooling Thermal Lock-out / Re-start Temperatures; Heating Thermal Lock-out / Re-start Temperatures):

- System cuts out in heating mode to avoid thermistor error and automatically restarts at these temperatures.

SPECIFICATIONS: PKA-A36KA7 & PUZ-HA36NKA

Outdoor Unit	MCA	A	24.0
	MOCF	A	40
	Fan Motor Output	W	74
	Airflow Rate [Cooling / Heating]	CFM	3880 / 3880
	Refrigerant Control		LEV
	Defrost Method		Reverse Cycle
	Sound Pressure Level, Cooling ¹	dB(A)	52
	Sound Pressure Level, Heating ²	dB(A)	53
	Compressor Type		Scroll
	Compressor Model		ANB33FJMMT
	Compressor Rated Load Amps	A	18
	Compressor Locked Rotor Amps	A	27.5
	Compressor Oil [Type / Charge]	oz.	FV50S // 1.4,47
	External Finish Color		Ivory Munsell 3Y 7.8/1.1
	Base Pan Heater		Built-in
	Unit Dimensions	W x D x H: In. [mm]	41-5/16 x 14-3/16 x 52-11/16 [1050 x 360 x 1338]
	Package Dimensions	W x D x H: In. [mm]	43 x 18 x 57 [1110 x 480 x 1440]
Unit Weight	Lbs. [kg]	261 [118]	
Package Weight	Lbs. [kg]	285 [129]	
Outdoor Unit Operating Temperature Range	Cooling Air Temp [Maximum / Minimum] [*]	*F	115 DB / 0 DB
	Heating Air Temp [Maximum / Minimum]	*F	70 DB, 59 WB / -13 DB, -13 WB
	Heating Thermal Lock-out / Re-start Temperatures ^{**}	*F	-22 / -13
Refrigerant	Maximum Charge Quantity	Lbs. oz	11.0, 7.0
	Initial Charge Quantity	Fl. [m]	100.0 [30.0]
	Additional Refrigerant Charge Per Additional Piping Length	oz./Fl. [g/m]	.7 [56]
Piping	Gas Pipe Size O.D. [Flared]	In. [mm]	5/8 [15.88]
	Liquid Pipe Size O.D. [Flared]	In. [mm]	3/8 [9.52]
	Maximum Piping Length	Fl. [m]	245 [75]
	Maximum Height Difference	Fl. [m]	100 [30]
	Maximum Number of Bends		15

NOTES:

AHRJ Rated Conditions (Rated data is determined at a fixed compressor speed)	*Cooling (Indoor // Outdoor)	*F	80 DB, 67 WB // 95 DB, 75 WB
	*Heating at 47°F (Indoor // Outdoor)	*F	70 DB, 60 WB // 47 DB, 43 WB
	*Heating at 17°F (Indoor // Outdoor)	*F	70 DB, 60 WB // 17 DB, 15 WB
Conditions	*Heating at 5°F (Indoor // Outdoor)	*F	70 DB, 60 WB // 5 DB, 4 WB
	*Heating at -13°F (Indoor // Outdoor)	*F	70 DB, 60 WB // -13 DB, -14 WB

^{*} Indoor/Outdoor Unit Operating Temperature Range (Cooling Air Temp [Maximum / Minimum]):

- Wind baffles required to operate below 23°F DB in cooling mode.
- Refer to wind baffle documentation for further information.

^{**} Outdoor Unit Operating Temperature Range (Cooling Thermal Lock-out / Re-start Temperatures; Heating Thermal Lock-out / Re-start Temperatures):

- System cuts out in heating mode to avoid thermistor error and automatically restarts at these temperatures.

INDOOR UNIT ACCESSORIES: PKA-A36KA7

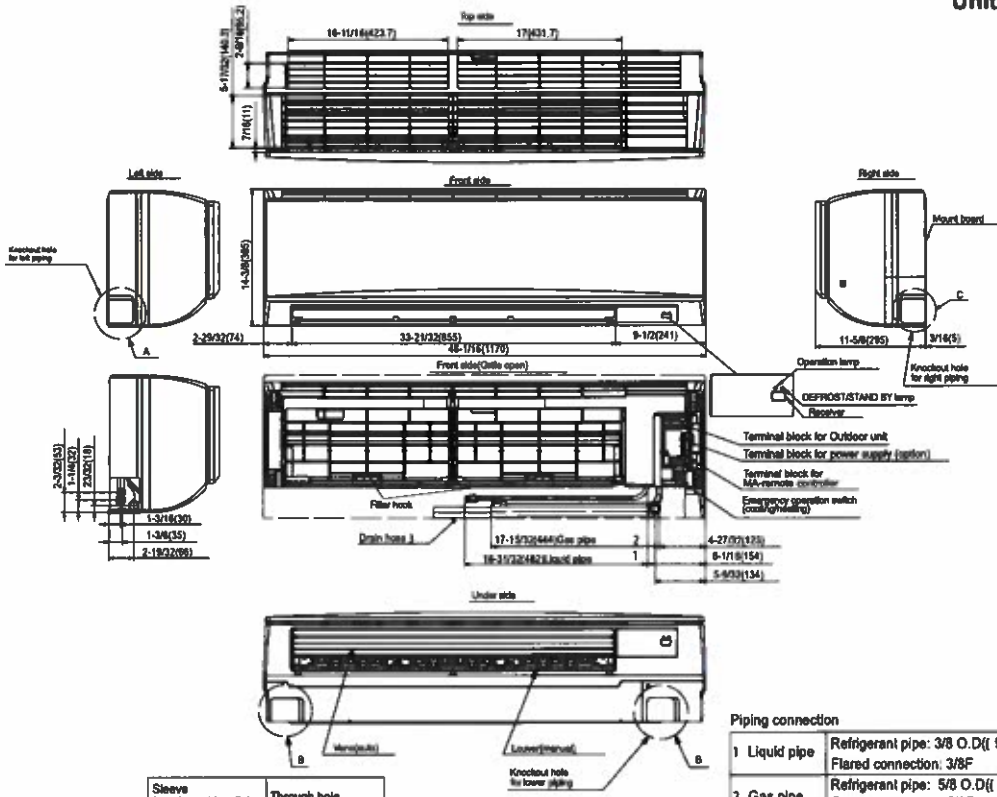
Control Interface	3-Pin Connector	<input type="checkbox"/> PAC-715AD
	BACnet® and Modbus® Interface	<input type="checkbox"/> PAC-UKPRC001-CN-1
	IT Extender	<input type="checkbox"/> PAC-WHS01IE-E
	kumo station® for kumo cloud®	<input type="checkbox"/> PAC-WHS01HC-E
	Lockdown bracket for remote controller	<input type="checkbox"/> RCMKP1CB
	Thermostat Interface	<input type="checkbox"/> PAC-US444CN-1
	Thermostat Interface	<input type="checkbox"/> PAC-US445CN-1
	USNAP Adapter	<input type="checkbox"/> PAC-WHS01UP-E
Remote Sensor	Wireless Interface for kumo cloud®	<input type="checkbox"/> PAC-USWHS002-WF-2
	Flush Mount Remote Temperature Sensor	<input type="checkbox"/> PAC-USSEN002-FM-1
	Flush Mount Temperature Sensor	<input type="checkbox"/> PAC-USSEN001-FM-1
	Remote Temperature Sensor	<input type="checkbox"/> PAC-SE41TS-E
Wired Remote Controller	Wireless temperature and humidity sensor for kumo cloud®	<input type="checkbox"/> PAR-USWHS003-TH-1
	Deluxe Wired MA Remote Controller†	<input type="checkbox"/> PAR-40MAAU
	Simple MA Remote Controller†	<input type="checkbox"/> PAC-YT53CRAU-J
Wireless Remote Controller	Touch MA Controller†	<input type="checkbox"/> PAR-CT01MAU-SB
	kumo touch™ RedLINK™ Wireless Controller	<input type="checkbox"/> MHK2
	Wireless MA Receiver	<input type="checkbox"/> PAR-FA32MA-W
Condensate	Wireless MA Remote Controller	<input type="checkbox"/> PAR-FL32MA-E
	Blue Diamond (Advanced) Mini Condensate Pump w/ Reservoir & Sensor (208/230V) [recommended]	<input type="checkbox"/> X87-721
	Blue Diamond (MegaBlue Advanced) Condensate Pump w/ Reservoir & Sensor	<input type="checkbox"/> X87-835
	Blue Diamond Sensor Extension Cable — 15 Ft.	<input type="checkbox"/> C13-103
	Drain Pan Level Sensor/Control	<input type="checkbox"/> SS810E
	Refco Condensate Pump (100-240 VAC)	<input type="checkbox"/> GOBI-II
	Refco Condensate Pump (100-240 VAC) up to 120,000 BTU/H	<input type="checkbox"/> COMBI
Disconnect Switch	Sauermann Condensate Pump	<input type="checkbox"/> S130-230
	(30A/600V/U/L) [fits 2" X 4" utility box] - Black	<input type="checkbox"/> TAZ-MS303
Drain Hose	(30A/600V/U/L) [fits 2" X 4" utility box] - White	<input type="checkbox"/> TAZ-MS303W
	Flexible Mini-Split Drain Hose	<input type="checkbox"/> DRX-16
Lineset	10' x 3/8" x 10' x 5/8" Lineset (Twin-Tube Insulation)**	<input type="checkbox"/> MPLS385812T-10
	100' x 3/8" x 100' x 5/8" Lineset (Twin-Tube Insulation)**	<input type="checkbox"/> MPLS385812T-100
	15' x 3/8" x 15' x 5/8" Lineset (Twin-Tube Insulation)**	<input type="checkbox"/> MPLS385812T-15
	30' x 3/8" x 30' x 5/8" Lineset (Twin-Tube Insulation)**	<input type="checkbox"/> MPLS385812T-30
	50' x 3/8" x 50' x 5/8" Lineset (Twin-Tube Insulation)**	<input type="checkbox"/> MPLS385812T-50
	65' x 3/8" x 65' x 5/8" Lineset (Twin-Tube Insulation)**	<input type="checkbox"/> MPLS385812T-65

OUTDOOR UNIT ACCESSORIES: PUZ-HA36NKA

Air Outlet Guide	Air Outlet Guide (1 Piece)	<input type="checkbox"/> PAC-SH96SG-E (two pieces are required)
Centralized Drain Pan	Central Drain Pan	<input type="checkbox"/> PAC-SH97DP-E
Control/Service Tool	Control/Service Tool	<input type="checkbox"/> PAC-SK52ST
Distribution pipe	Twinning Distribution Pipe (50:50)**	<input type="checkbox"/> MSDD-50TR-E
Hail Guards	Hail Guard	<input type="checkbox"/> HG-A2
Lineset	10' x 3/8" x 10' x 5/8" Lineset (Twin-Tube Insulation)**	<input type="checkbox"/> MPLS385812T-10
	100' x 3/8" x 100' x 5/8" Lineset (Twin-Tube Insulation)**	<input type="checkbox"/> MPLS385812T-100
	15' x 3/8" x 15' x 5/8" Lineset (Twin-Tube Insulation)**	<input type="checkbox"/> MPLS385812T-15
	30' x 3/8" x 30' x 5/8" Lineset (Twin-Tube Insulation)**	<input type="checkbox"/> MPLS385812T-30
	50' x 3/8" x 50' x 5/8" Lineset (Twin-Tube Insulation)**	<input type="checkbox"/> MPLS385812T-50
M-NET Converter	M-NET Converter	<input type="checkbox"/> PAC-SJ85MA-E
	M-NET Converter	<input type="checkbox"/> PAC-SJ95MA-E
Mounting Pad	Condensing Unit Mounting Pad: 24" x 42" x 3"	<input type="checkbox"/> ULTRILITE2
Optional Defrost Heater	Optional Defrost Heater	<input type="checkbox"/> PAC-SJ20BH-E
	18" Dual Fan Stand	<input type="checkbox"/> QSMS1802M
Stand	24" Dual Fan Stand	<input type="checkbox"/> QSMS2402M
	Condenser Wall Bracket	<input type="checkbox"/> QSWB2000M-1
	Condenser Wall Bracket - Stainless Steel Finish	<input type="checkbox"/> QSWBSS
Wind Baffle	Outdoor Unit Stand — 12" High	<input type="checkbox"/> QSMS1202M
	Front Wind Baffle	<input type="checkbox"/> WB-PA3 (two pieces are required)

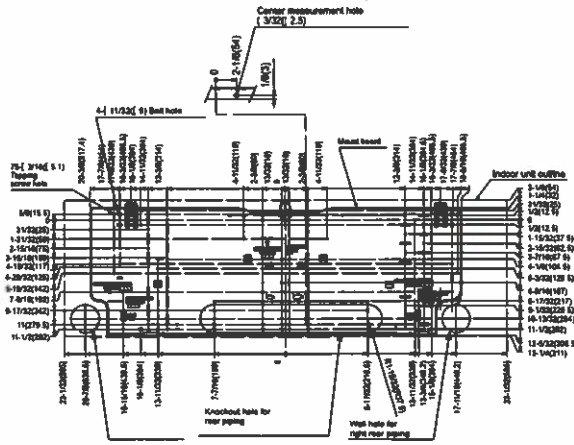
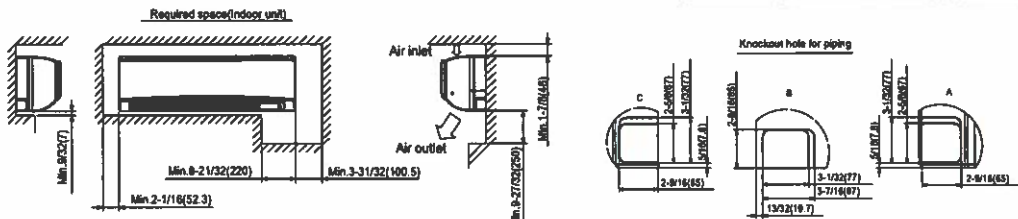
INDOOR UNIT DIMENSIONS: PKA-A36KA7

Unit: inch (mm)



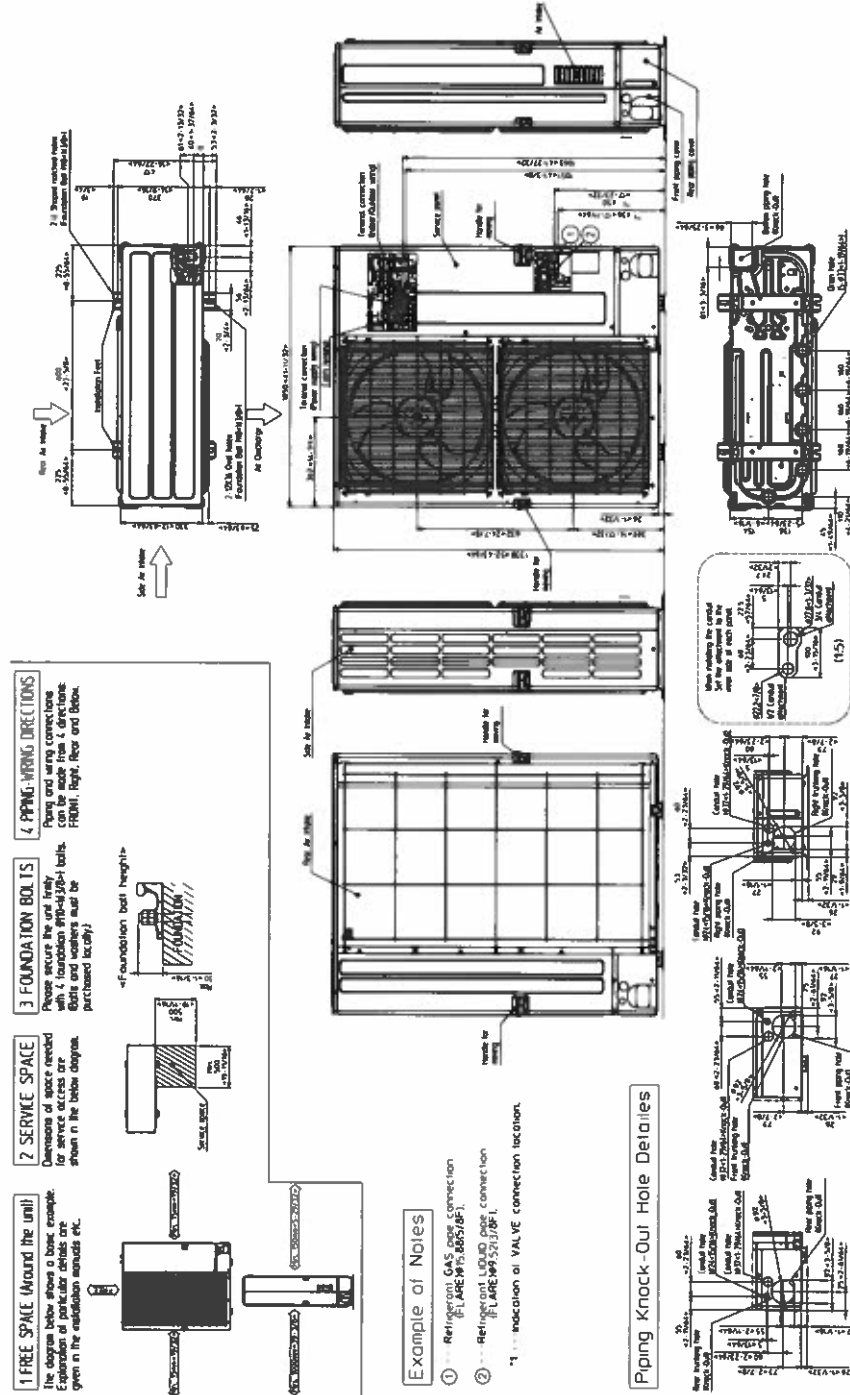
Sleeve (purchased locally)	Through hole
2-15/16 (75)	2-15/16 - 3-5/32 (75-80)

Piping connection	
1 Liquid pipe	Refrigerant pipe: 3/8 O.D.(9.52)
	Flared connection: 3/8F
2 Gas pipe	Refrigerant pipe: 5/8 O.D.(15.88)
	Flared connection: 5/8F
3 Drain hose	5/8(16) O.D Effective length: 23-1/32 (585)



OUTDOOR UNIT DIMENSIONS: PUZ-HA36NKA

Unit: mm<In>



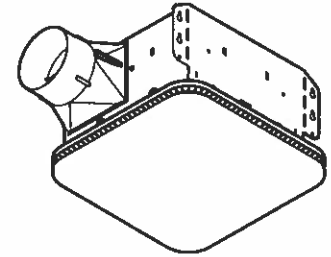
FORM# PKA-A36KA7 & PUZ-HA36NKA - 202211

1340 Satellite Boulevard Suwanee, GA 30024
Toll Free: 800-433-4822 www.mehvac.com



Section #4 "EF-1's" Broan Ceiling Mounted Exhaust Fan

MODEL AE110K FLEX™ SERIES FAN



DESCRIPTION

BLOWER:

- Plug-in, permanently lubricated motor - engineered for continuous operation
- Dynamically balanced centrifugal blower wheel for quiet, efficient performance
- Low RPM for quiet operation

HOUSING:

- Rugged, 26 gauge, galvanized steel construction
- Polymeric, 4" duct connector with tapered sleeve and no metallic clatter
- 5-3/4" height allows for 2" x 6" ceiling installations
- Sturdy, easy, four-point mounting directly to joist
- Can be mounted in ceilings up to 7/12 pitch
- Can be installed in a wall if mounted 8-ft. or more above the floor

GRILLE:

- Polymeric construction
- Innovative design - the result of extensive research with designers and consumers

CONTROLS (Purchase separately):

- Refer to Broan's catalog for a complete line of accessories to effectively adapt these fans to your construction requirements.

U.L. Listed for use over bathtubs and showers when connected to a GFCI protected branch circuit (ceiling mount only).

U.L. Listed for use in insulated ceilings (TYPE I.C.)
3-Year Warranty

TYPICAL SPECIFICATION

Fan shall be Broan Model AE110K.

Fan shall have corrosion resistant galvanized steel housing with four-point mounting capability. It shall be ducted to a roof or wall cap using 4" round ductwork.

Blower assembly shall be removable, have a centrifugal-type blower wheel and a permanently lubricated motor designed for continuous operation.

Non-metallic damper/duct connector shall be included.

Air delivery shall be no less than the airflow values and no greater than the sound level values listed in the HVI Performance Specifications provided in this specification (see following chart). All air and sound ratings shall be certified by HVI.

Ceiling Ventilator shall be U.L. Listed for use in insulated ceilings (Type I.C.) and for use over bathtubs and showers when connected to a GFCI protected branch circuit.



Broan Hartford, Wisconsin www.broan.com 800-558-1711

REFERENCE	QTY.	REMARKS	Project
			Location
			Architect
			Engineer
			Contractor
			Submitted by Date

PERFORMANCE RATINGS

FLEX™ SERIES FAN

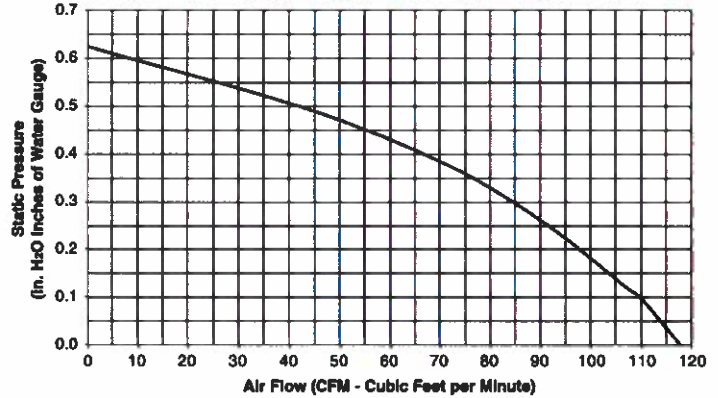
HVI PERFORMANCE

0.1 Ps - Static Pressure (in H2O)				0.25 Ps
Airflow (CFM)	Sound (Sones)	Power (Watts)	Efficacy (CFM / W)	Airflow (CFM)
110	1.0	23.4	4.71	92



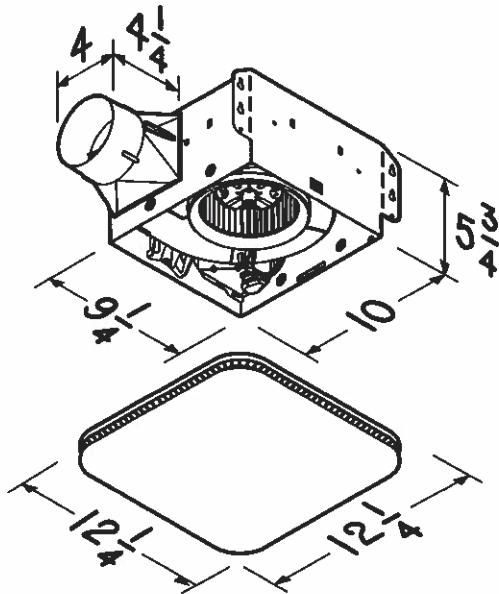
HVI-2100 CERTIFIED RATINGS comply with new testing technologies and procedures prescribed by the Home Ventilating Institute, for off-the-shelf products, as they are available to consumers. Product performance is rated at 0.1 in. static pressure, based on tests conducted in a state-of-the-art test laboratory. Sones are a measure of humanly-perceived loudness, based on laboratory measurements.

AIR FLOW PERFORMANCE



ELECTRICAL & WEIGHT

Volts	Hz	Amps	Shipping Weight
120	60	0.3	10.0



Section #5 "IEF-1's" Solar & Pau TD-Silent Inline Exhaust Fans

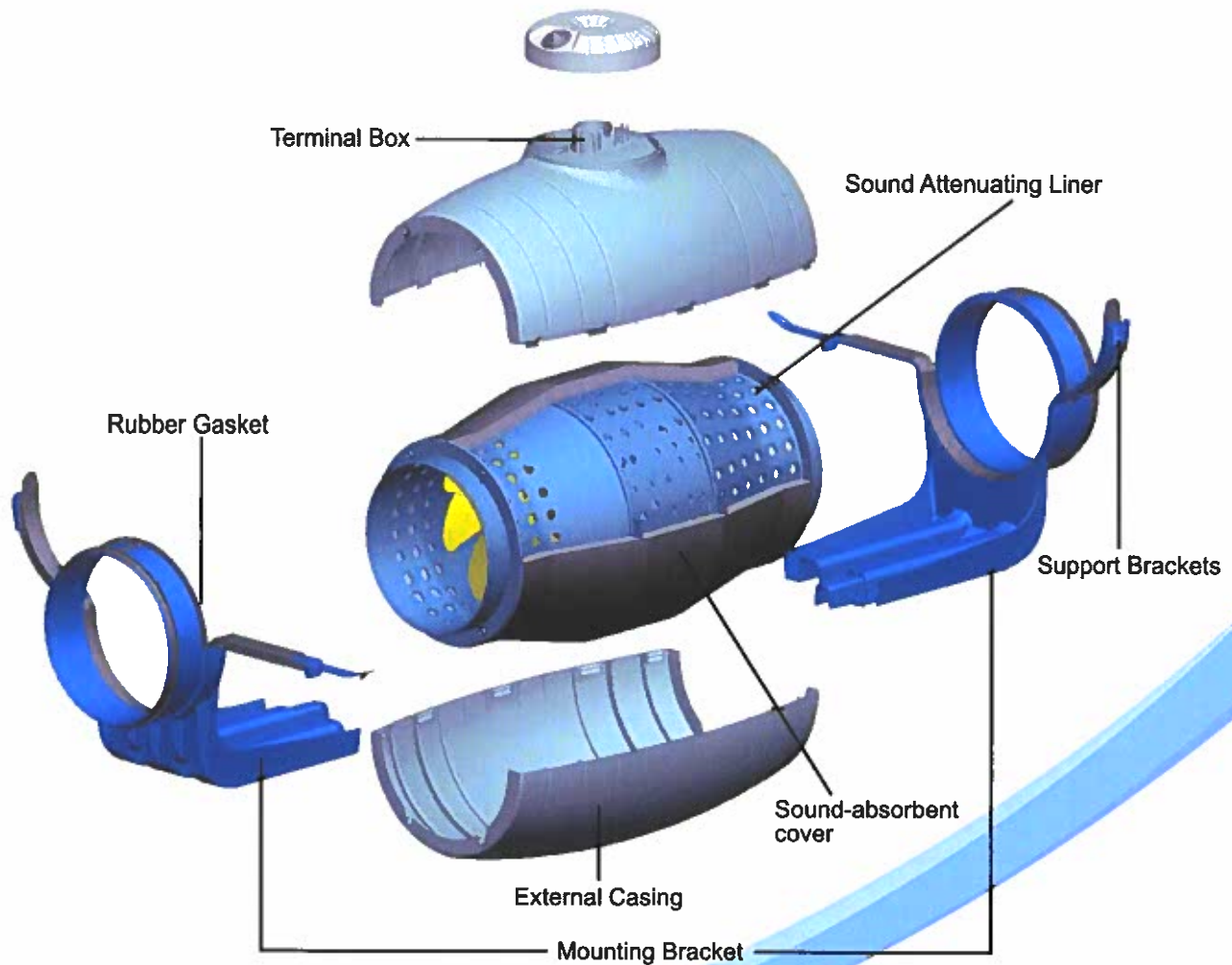
General Details of the TD-SILENT Range



As the name suggests these fans are extremely quiet, low profile "Mixed-flow" fans. Manufactured in plastic material with an external connection box, the body is easily dismantled with a full speed controllable, single speed motor. Sound waves are directed through the perforated inner skin and absorbed by a layer of sound-absorbent insulation. Plus the TD-SILENT is fitted with rubber gaskets on the inlet and outlet to absorb vibrations.

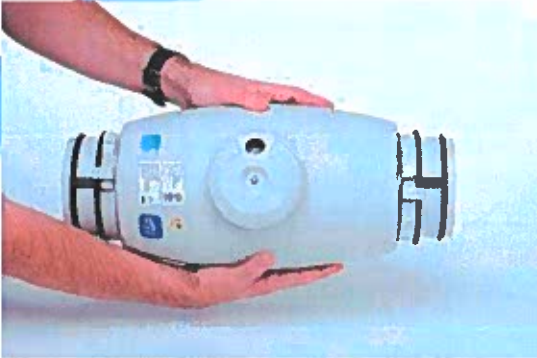
Construction characteristics

	125XS	150S	200S
Polypropylene housing	•	•	•
ABS fan blades	•	•	•
Thermal link with automatic reset	•	•	•
Permanently lubricated ball bearings	•	•	•



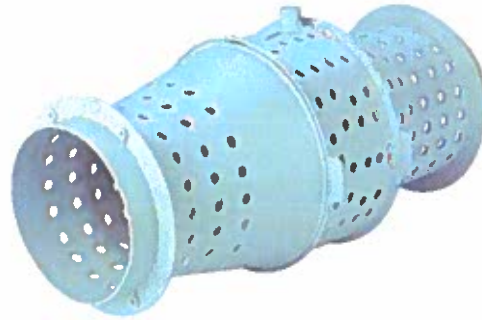
TD-SILENT Innovative Design Features

Low Profile



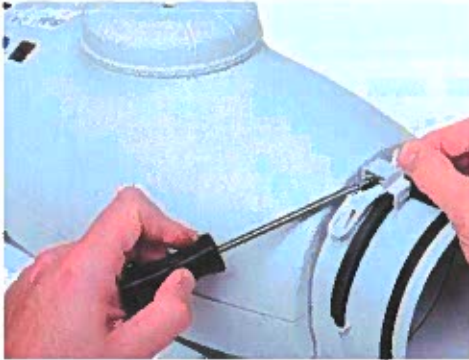
The low profile of the fans in the TD-SILENT range makes them the ideal product for installations with low height limits, such as the case of suspended ceilings.

Low Noise Levels



Sound waves produced inside the TD, are directed through the perforated inner skin and absorbed by the layer of sound-absorbent material.

Easy Maintenance



Bi-material support brackets, which in addition to simplifying installation, serve as joint seals.

Connection Box Rotates 360°



Connection box can be rotated 360°, to facilitate easy connection of the power cable.

Duct Air-Seals



Bi-material inlet and outlet incorporating a flexible washer to facilitate installation, absorb vibrations and provide a virtually air-tight seal.

Integral Mounting Bracket



Mounting bracket for installing on a wall or ceiling, incorporating twin-material support brackets for the motor section that absorbs vibration.

TD-SILENT Easy Installation

1



Loosen the clamps.

2



Open the clamps on both ends.

3



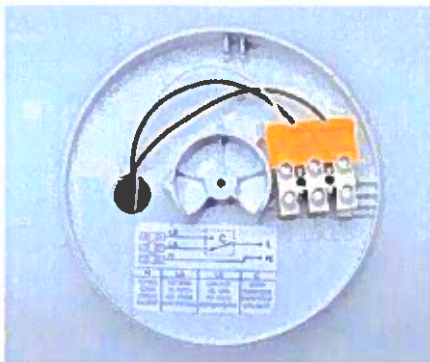
Remove the fan body.

4



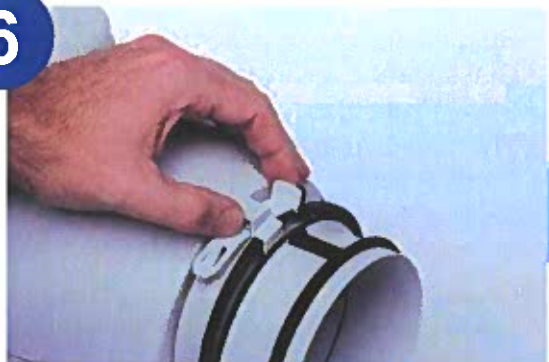
Remove the terminal box lid.

5



Connect electrical supply.

6



Re-mount fan body by tightening the clamps.

TD-SILENT Technical Specifications



Warranty

Five (5) year limited warranty.

Range

The TD-SILENT consists of three (3) nominal sized in-line fans. All models are specifically designed for direct connection in-line with industry standard diameter round ducting.

Construction

The TD-SILENT models 125XS, 150S and 200S are manufactured in tough reinforced plastic. Sound waves are directed through the perforated inner skin and absorbed by a layer of sound-absorbent insulation. Plus the TD-SILENT is fitted with rubber gaskets on the inlet and outlet to absorb vibrations.

Impellers

The impeller blades are molded in tough ABS plastic.

Motors

Models 125XS:

Single-phase, 120V 60Hz, shaded pole induction asynchronous motor in die cast aluminum. All motors include direct single speed connection and are also suitable for voltage speed control.

- Class I electrical insulation
- IP 44 Protection
- Class B Motor Insulation
- Safety auto reset Thermal Overload Protection (fuse type)
- Self-lubricating sleeve bearings.
- Suitable for working airstreams up to 104° F (40°C).

Models 150S and 200S:

Single-phase induction asynchronous motor, with permanent capacitor and external rotor in die cast aluminum. All models include direct single speed connection and are also suitable for voltage speed control.

- Suitable for working airstreams up to 140° F (60°C).
- Class I electrical insulation
- IP 44 Protection
- Thermal Overload Protection
- Class B Motor Insulation
- Sealed For Life, ball bearings

Code Approval

- All models have been independently safety tested by Underwriters Laboratories, Inc. and are UL and cUL Listed.
- Independently tested for Airflow Performance.
- The TD product range is certified by the Home Ventilating Institute (HVI) for Air Performance.
- All models are ENERGY STAR® qualified.

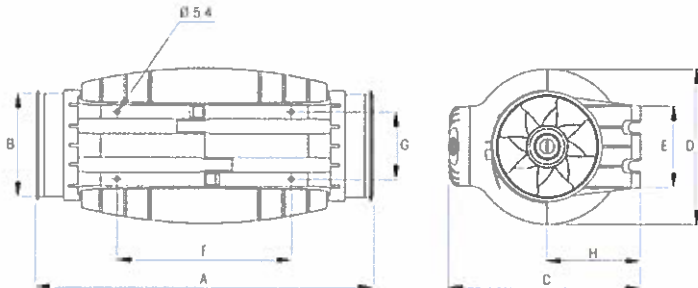
Air Performance

Model	Duct Dia. Ins.	Nom. RPM	Volts	Max. Watts	CFM v Static Pressure (SP) Ins. WG							Max. SP	Max operating temp. (°F)	Wgt. (lbs)
					0"	0.125"	0.25"	0.375"	0.5"	0.75"	1.0"			
TD-125XS	5"	2500	120	36	203	175	138	84	33	-	-	0.6	104	11.9
TD-150S	6"	2700	120	65	333	315	286	271	257	178	77	1.2	140	13.2
TD-200S	8"	2200	120	122	530	503	472	443	415	349	204	1.2	140	19.2



The TD-SILENT Models 125XS and 150S are California Title 24 compliant and meet ASHRAE 62.2 when installed with a CVC and other TD models are compliant when installed with a 3 way switch and remotely mounted speed control.

Dimensions (inches)



Model	A	B Ø	C	D Ø	E	F	G	H
TD-125XS	22 5/8	3 13/16	9 15/16	8 1/16	3 15/16	9 13/16	3 1/4	4 3/4
TD-150S	19 1/16	5 13/16	10 13/16	8 11/16	4 9/16	9 13/16	3 3/4	5 1/4
TD-200S	22 3/8	7 13/16	12 7/8	10 3/8	5 11/16	13 3/8	5 1/16	6 7/16

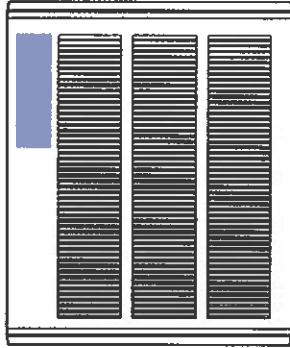


Section #6 "EWH-1's" Q-Mark Electric Wall Heater



470 Beauty Spot Rd. E, Bennettsville, SC 29512

**SUBMITTAL SHEET
SMART SERIES
DIGITAL FAN-FORCED
HIGH OUTPUT WALL HEATERS
SSHO SERIES**



CAPACITIES
1800 - 4000 Watts 208V, 240V, and 277V @ 1Ø

Thermostat Range: 40 - 99 Degrees F Air Movement: 100 CFM
--

JOB NAME: _____
 LOCATION: _____
 ARCHITECT: _____
 ENGINEER: _____
 CONTRACTOR: _____
 SUBMITTED BY: _____
 DATE: _____

ITEM	QTY.	CATALOG NUMBER	TAG	WATTS	VOLTS	AMPS	BMS CONNECTION (Y/N)

**ACCESSORIES
AND
CONTROLS**

ITEM	QTY.	CATALOG NUMBER	TAG	DESCRIPTION

SUBMITTED BY:	DATE	APPROVED BY:	DATE

SSHO SERIES - DIGITAL FAN-FORCED HIGH OUTPUT WALL HEATERS



470 Beauty Spot Rd. E, Bennettsville, SC 29512



SELECTION CHART

CATALOG NUMBER	VOLTS	WATTS	AMPS	BTUHR
SSH04008	208	1800 - 4000	8.7 - 19.2	13,650
SSH04004	240	1800 - 4000	7.5 - 16.7	13,650
SSH04007	277	1800 - 4000	6.5 - 14.4	13,650

Note: Standard grille color is Northern White

Add NV (Navajo White) or SB (Slat Bronze) suffix to catalog number.

Example: SSH04008NV

Allow two weeks delivery for models with special color.

See Color Selection Chart for custom colors.

SELECTION CHART

CATALOG NUMBER	DESCRIPTION
HTWHSM	Surface Mounting Frame 16-1/4" W x 19-3/8" H x 3-7/8" D
HTWHS1	1" Semi-Recess Mounting Frame 16-1/4" W x 19-3/8" H x 1" D
HTWHS2	2" Semi-Recess Mounting Frame 16-1/4" W x 19-3/8" H x 2" D

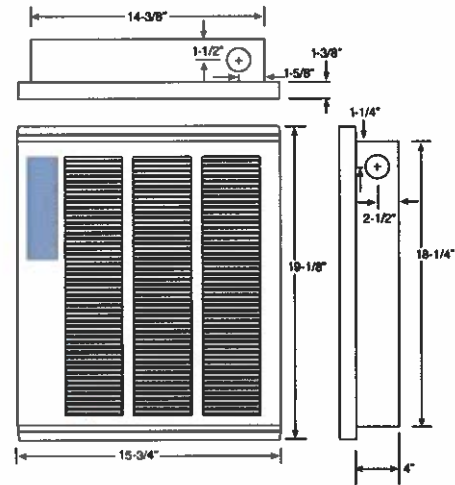
Note: Standard grille color is Northern White

Add NV (Navajo White) or SB (Slat Bronze) suffix to catalog number.

Example: SSH04008NV

Allow two weeks delivery for models with special color.

See Color Selection Chart for custom colors.



MOUNTING LIMITATIONS

Do not install heater closer than 12 inches to the floor, 12 inches to an adjacent wall, 36 inches to the ceiling. Do not install heater behind towel rack or door, upside down or sideways, in the floor, in the ceiling, or in closets.

Architect's and Engineer's Specifications

The electric fan-forced High Output wall heater shall be as manufactured by QMark, A Marley Engineered Products Brand, Bennettsville, SC. Heaters shall be certified by ETL to standard for heating equipment and meet UL standard 2021. All capacities, voltages, physical sizes, grille arrangements and options shall be specified in the heater schedule. The heater shall be designed for wall recess or surface mounting.

Heater Assembly: The heater assembly which fits into the back box shall consist of an 18 gauge, powder coated steel fan panel which are mounted all of the operational parts of the heater. The front grille shall be of the louvered type and shall be commercial grade 20 gauge steel construction finished in polyester powder coating which resists fading and abrasion.

Heating Elements: The heating elements shall be warranted for five years and shall be of non-glowing design consisting of 80-20 Ni/Cr resistance wire enclosed in a steel sheath to which steel plate fins are brazed. The heating element shall cover the entire air discharge area to ensure uniform heating of all discharge air.

Thermal Limit: The heater shall be equipped with a manual-reset safety limit control that will automatically shut off heater in event of overheating due to any cause. The safety cutouts shall directly interrupt power to the elements. A red warning light will illuminate (visible through the grille) to alert that this control has been activated.

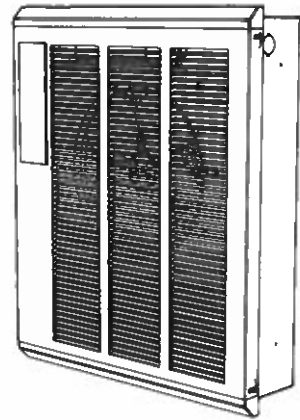
Fan and Motor Assembly: The motor and fan assembly shall be direct drive and mounted on rigid heavy gauge brackets for quiet operation. The fan shall be five-bladed aluminum. The fan motor shall be totally enclosed.

Fan Delay Control: Fan control shall delay fan startup of the fan motor until the heating elements have warmed up. It shall maintain motor operation after heating elements have been de-energized to dissipate residual heat build-up.

Temperature Control: The unit is designed to be controlled electronically with a built-in electronic digital LCD touch screen display mounted on the grille and control board mounted on the fan panel. This control will maintain room temperatures within 1-½ degrees of set point. The output of heat is proportionally controlled as to how much heat is needed to satisfy the set point. Heater automatically adjusts wattage output for optimum comfort. Heater settings can be locked out for security purposes.

Disconnect Switch: This ON/OFF switch shall be mounted on the fan deck to disconnect single point connection to power supply for the internal electrical components, including the heating element. It will be completely concealed behind the front grille panel.

Building Management Connection: The unit shall include a unique built-in Building Management System (BMS) connection. This allows the building management system to connect directly to the heater using a dry contact switch (no voltage) to control the heater. A BMS icon is illuminated and all other icons are turned OFF and all buttons are disabled.



HOSS Series (Rev B)

Smart Series

Large Wall Heater

Installation, Operation & Maintenance Instructions

READ CAREFULLY - This manual provides instructions for the correct installation, safe use, and care of this product. Special attention should be directed to the warnings provided below which identify certain precautions and special instructions for safe and efficient installation and use. Studying these instructions first may save you considerable time and money later and keep your installation time to a minimum. If you are not familiar with electricity or feel uncomfortable in working with electricity, refer the installation of this product to a licensed electrician or qualified person.

Table 1. Specifications

MODEL	VOLTS	PHASE	WATTS	AMPS	MIN. SUPPLY WIRE GAUGE
HOSS4008	208	1	1800-4000	19.2	10
HOSS4004	240	1	1800-4000	16.7	10
HOSS4007	277	1	1800-4000	14.4	12

IMPORTANT INSTRUCTIONS

WARNING

WHEN USING ELECTRIC APPLIANCES, BASIC PRECAUTIONS SHOULD ALWAYS BE FOLLOWED TO REDUCE THE RISK OF FIRE, ELECTRIC SHOCK, AND INJURY TO PERSONS, INCLUDING THE FOLLOWING:

1. Read all instructions before installing or using this heater.
2. This heater is hot when in use. To avoid burns, do not let bare skin touch hot surfaces. Keep combustible materials, such as furniture, pillows, bedding, papers, clothes, curtains, etc. at least 3 feet (0.9 m) from the front of the heater.
3. Extreme caution is necessary when any heater is used by or near children or invalids and whenever the heater is left operating and unattended.
4. Do not operate any heater after it malfunctions. Disconnect power at service panel and have heater inspected by a qualified electrician before using.
5. Do not use outdoors.
6. To disconnect heater, turn controls to OFF, and turn OFF power to heater circuit at main disconnect panel.
7. Do not insert or allow foreign objects to enter any ventilation or exhaust opening as this may cause an electric shock, fire, or damage to the heater.
8. To prevent a possible fire, do not block air intake or exhaust in any manner.
9. A heater has hot and arcing or sparking parts inside. Do not use it in areas where gasoline, paint, or flammable liquids are used or stored.
10. Use this heater only as described in this manual. Any other use not recommended by the manufacturer may cause fire, electric shock, or injury to persons.
11. This heater is provided with a red alarm light that will illuminate ONLY if the heater has turned off as a result of overheating. If you see the light on, immediately turn the heater OFF and inspect for any objects on or adjacent to the heater that may have blocked the airflow or otherwise caused high temperatures to have occurred. **DO NOT OPERATE THE HEATER WITH THE ALARM LIGHT ILLUMINATING.**
12. This heater is intended for comfort heating applications and not intended for use in special environments. Do not use in damp or wet locations such as marine or greenhouse or in areas where corrosive or chemical agents are present.
13. When installing, see INSTALLATION INSTRUCTIONS for additional warnings and precautions.
14. For safe and efficient operation, and to extend the life of your heater, keep your heater clean - See MAINTENANCE INSTRUCTIONS.

SAVE THESE INSTRUCTIONS

INSTALLATION INSTRUCTIONS

⚠ WARNING ⚠

To prevent a possible fire, injury to persons or damage to the heater, adhere to the following:

1. Disconnect all power coming to heater at main service panel before wiring or servicing.
2. All wiring procedures and connections must be in accordance with the National and Local Codes having jurisdiction and the heater must be grounded.
3. Verify the power supply voltage coming to heater matches the ratings as shown on the heater nameplate.

CAUTION: ENERGIZING HEATER AT A VOLTAGE GREATER THAN THE VOLTAGE PRINTED ON THE NAMEPLATE WILL DAMAGE THE HEATER AND VOID THE WARRANTY AND COULD CAUSE A FIRE.

4. **CAUTION** - High temperature, risk of fire, keep electrical cords, drapery, furnishings, and other combustibles at least 3 feet (0.9 m) from front of heater. Do not install heater behind doors, below towel racks, or in an area where it is subject to being blocked by furniture, curtains or storage materials. Hot air from the heater may damage certain fabrics and plastics.
5. To reduce the risk of fire, do not store or use gasoline or other flammable vapors and liquids in the vicinity of the heater.
6. For wall mounting only with air discharge downward. Do NOT install in floor, ceiling, upside down (air discharge upward), or sideways.
7. The following minimum clearances must be maintained:
 - Bottom of heater to floor - 12" (305 mm).
 - Sides of heater to adjacent wall - 12" (305 mm).
 - Top of heater to ceiling - 36" (915 mm).
8. Do not operate the heater without the grille installed.
9. Do not use this heater for dry out as the paint, plaster, sawdust and drywall sanding dust will permanently damage the heater and must be kept out of the heater.

The heater is designed for recessed installation in 2" x 4" (50 mm x 101 mm) studs or larger wall sections using the back box provided. The heater may be wired with standard building wire (60°C). Refer to "Specifications" and heater nameplate for correct supply voltage and wire size.

NOTE: The optimum mounting height for this heater is 18" to 24" (450 mm to 600 mm) from floor to bottom of back box. DO NOT install closer than 12" (305 mm) from the floor.

Installation of Back Box in New Construction

⚠ WARNING ⚠

TO PREVENT HAZARD OF FIRE OR ELECTRICAL SHOCK, DO NOT INSTALL WITHOUT BACK BOX.

CAUTION ⚠

TO PREVENT POSSIBLE DAMAGE TO POWER WIRING, USE ONLY THE KNOCKOUTS PROVIDED IN BACK BOX WITH LISTED CABLE CLAMP OR BUSHING.

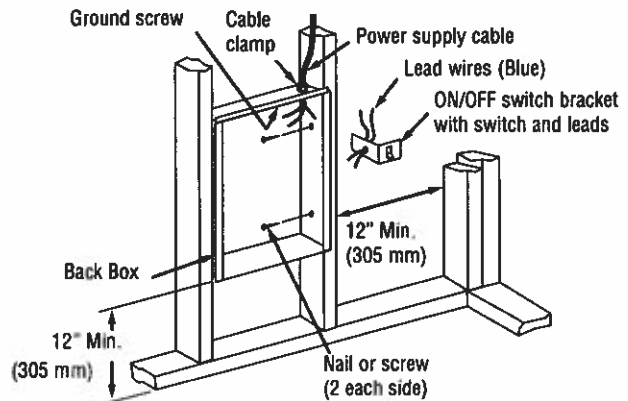


Figure 1 - Locating Back Box in New Construction

NOTE: If the finished wall surface is already up, follow instructions for "Installation of Back Box in Existing Construction."

1. Place the back box between two 16" (406 mm) center-to-center wall studs at the desired mounting height but no closer than 12" (305 mm) to adjacent wall or floor.

NOTE: If wall studs are spaced greater than 16" on center, additional framing supports may be necessary.

2. Align back box such that the bottom and sides will be flush with finished wall surface (top flange of back box should protrude approximately 1/2" (13 mm) from finished wall surface (You must know the thickness of the finished wall when installing)).
3. Secure the back box in position with wood screws or nails as shown in Figure 1.
4. Run a power supply cable into the knockout area in the upper right hand corner of the back box (see Figure 1). All wiring must be in accordance with National and Local Electrical Codes. Refer to Specifications for correct wire size.
5. Remove ON/OFF switch bracket by loosening two screws on the right side.
6. Install a cable clamp in the knockout in the top of the back box.
7. Insert power supply cable through cable clamp, allowing at least 6" (152 mm) of leads to extend inside the back box. Connect the blue lead wires of ON/OFF switch to the supply wire leads using wire connectors (see Figure 3, Wiring Diagram).

NOTE: If power supply is provided by standard non-metallic sheathed cable (Romex) and the supply voltage is 240 or 208 volts (two power wires), the white wire color must be changed using black electrical tape to comply with the NEC. White is only allowed for a Neutral conductor.

8. Connect building ground conductor to the back box using the green screw located in the inside top of the back box.
9. Secure ON/OFF switch bracket in place by tightening screws.

Installation of Back Box in Existing Construction

1. Provide a wall opening 14-1/2" (362 mm) wide by 18-1/2" (470 mm) high at the desired mounting height, but no closer than 12" (305 mm) from floor or adjacent wall. (See Figure 2.) Locate so at least one side of opening is at wall stud.
2. Run a power supply cable into the knockout area in the upper right hand corner of the wall opening (see Figure 2). All wiring must be in accordance with National and Local Electrical Codes. Refer to Specifications for correct wire size.
3. Remove ON/OFF switch bracket by loosening two screws on the right side.
4. Install a cable clamp in the knockout in the top of the back box.
5. Insert power supply cable through cable clamp, allowing at least 6" (152 mm) of leads to extend inside the back box. Connect the blue lead wires of ON/OFF switch to the supply wire leads using wire connectors (see Figure 3, Wiring Diagram).

NOTE: If power supply is provided by standard non-metallic sheathed cable (Romex) and the supply voltage is 240 or 208 volts (two power wires), the white wire color must be changed using black electrical tape to comply with the NEC. White is only allowed for a Neutral conductor.

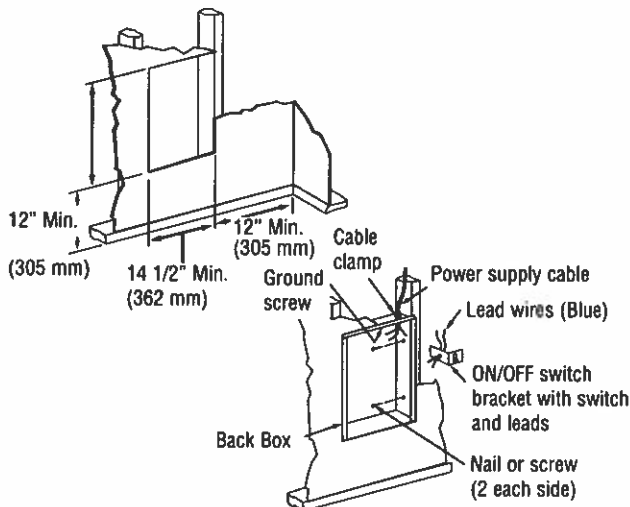


Figure 2 - Locating Back Box in Existing Construction

6. Connect building ground conductor to the back box using the green screw located in the inside top of the back box.
7. Secure ON/OFF switch bracket in place by tightening screws.
8. Insert back box in wall opening being careful not to damage the supply wiring. Secure the back box in place with wood screws or nails.

Installation of Heater Assembly

Carefully position the heater assembly, with fan on top, and element on bottom into the back box (see Figure 4).

NOTE: The heater assembly must be carefully positioned to ensure the wires and wire connector are not trapped between the heater assembly and the back box.

Once the heater assembly is positioned correctly in the back box, fasten securely using the four screws provided, one in each corner (see Figure 4).

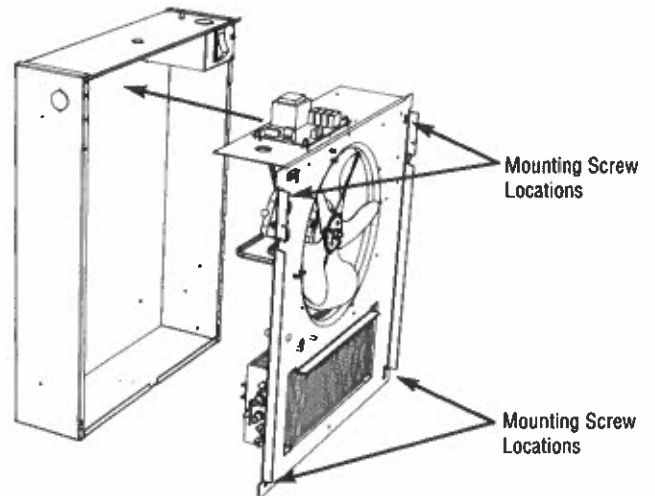


Figure 4 - Installation of Heater Assembly

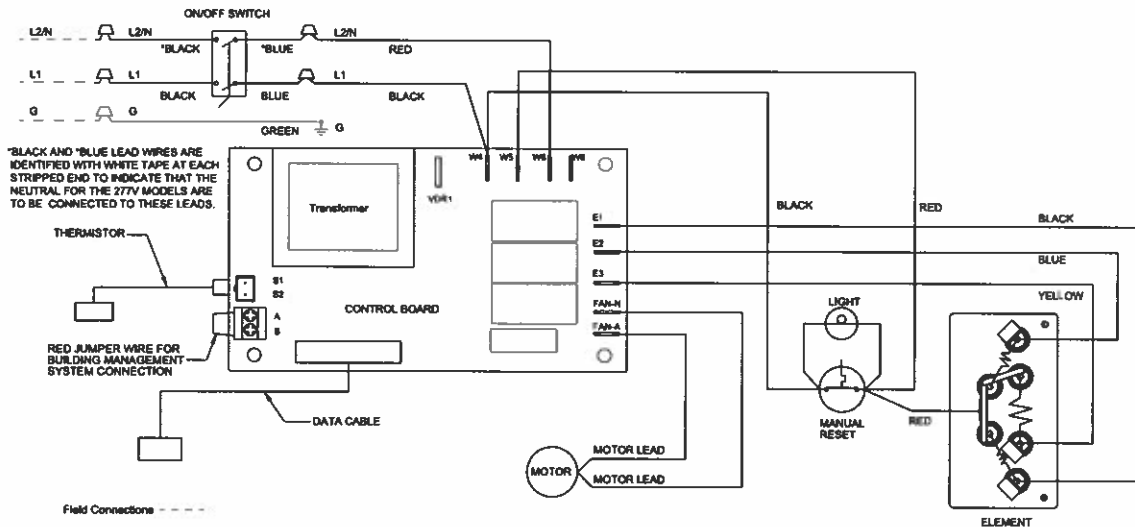


Figure 3 - Wiring Diagram

Wiring of Heater

Refer to Wiring Diagram, Figure 4

⚠ WARNING ⚠

POWER SUPPLY VOLTAGE MUST BE THE SAME AS HEATER VOLTAGE RATING SHOWN ON HEATER NAMEPLATE. CONNECTING TO A VOLTAGE IN EXCESS OF NAMEPLATE RATING WILL DAMAGE HEATER AND VOID WARRANTY. ALL CONNECTIONS MUST BE MADE WITH APPROPRIATELY SIZED LISTED WIRE CONNECTORS.

1. Connect the black (L1) heater pigtail from ON/OFF switch to the black power lead on the heater assembly.
2. Connect the red (L2) heater pigtail to the other black power lead.

NOTE: L2/N heater pigtail is white for 277 volt model and must be connected (through ON/OFF Switch) to a white Neutral supply lead.

3. If not already done, connect building ground conductor to green ground screw in heater back box.

Building Management Systems (BMS)

To utilize the BMS capabilities of this unit, remove the red jumper wire between terminals A and B on the control terminal board (see figure 3, wiring diagram). Connect two wires from a dry contact (no voltage) in the BMS system to terminals A and B.

NOTE: DO NOT REMOVE THE RED JUMPER UNLESS CONTROL BY A BUILDING MANAGEMENT SYSTEM IS BEING USED.

When BMS takes control, heater functions will not work, the touch screen is locked, BMS light on the heater touchscreen blinks.

When BMS releases control, heater functions are available, heater resumes operating at previously programmed settings. Refer to Operations Manual for programming options and details.

Installation of Grille and Control Wire Connector

1. Push ON/OFF switch into ON position.
2. Install (2) plastic covers on back box as follows:
(See Figure 5)

NOTE: Both top and bottom plastic covers are identical.

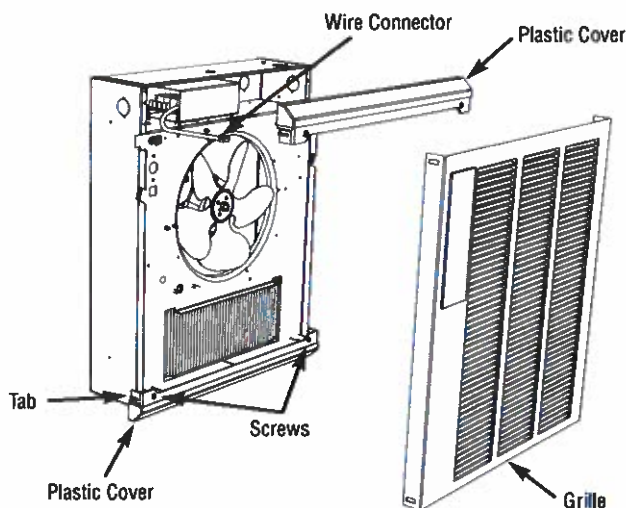


Figure 5 - Installation of Grille Assembly

- TOP - Align the screw bosses on the back of the plastic cover with the second hole down from the top of the back box and attach it with the two screws provided.
 - BOTTOM - Align the screw bosses on the back of the second plastic cover with holes at the bottom of the back box that are just above the fan deck mounting screws and attach it with two screws provided.
3. Position the grille in front of the heater assembly, extend the control wire connector from the heater assembly to the matching connector from the back of the electronic control, behind the grille. The connector is keyed so it will fit only one way.

NOTE: Press the connector gently and firmly, but do not force, making sure the clip on the connector engages.

4. Install the front cover by hooking the (2) tabs on top and bottom plastic covers on one side then rotating the front cover into place making sure that all four tabs are snapped into the grille.

NOTE: Use caution when installing the grille to avoid trapping the control wire in between the grille and heater assembly.

OPERATION INSTRUCTIONS

Initial Setup Instructions (Performed by Installer)

NOTE: After installation, the installer should perform the following procedures to ensure proper operation of the heater. See "Customizing Heater Settings" for details on programming other functions of the heater.

1. Switch the power on at the main circuit panel. When the heater is first powered up the buzzer beeps for one second and displays all indicators in high luminance and the POWER button in half blue luminance for 3 seconds, then the unit will turn OFF. When OFF, only the POWER button illuminates in orange color in half luminance and all other buttons and icons will be OFF. When OFF, if the POWER button is touched, all 4 buttons will illuminate indicating the heater is ON and the control panel is powered up. See Figure 6 for Control Panel layout details.

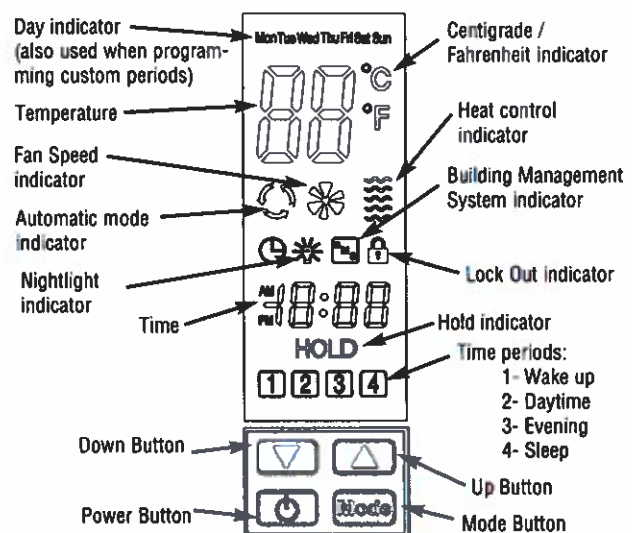


Figure 6 - Control Panel

2. Set Day and Time:

NOTE: For the following setup procedures, the display will automatically save the setting after a 30 second pause and return to the previous operating setting. If this occurs, start back at Step a of the Set Day and Time procedure.

- a. Simultaneously touch and hold the UP button and DOWN button for 1.5 seconds. A beep will sound and the Day indicator at the top of the display will flash (the buttons on the display respond to touch, not pressure).

NOTE: If user touches the POWER button at any point during setup procedure, the display will automatically save settings and return to the previous operating setting.

- b. Using the UP or DOWN buttons, adjust to appropriate DAY of week.
 - c. Touch the MODE button. AM / PM indicator will flash. Use the UP and DOWN buttons to set appropriate time. AM / PM will change automatically once you pass 12:00.
 - d. Touch the MODE button, MINUTES will flash. Use the UP and DOWN buttons to set MINUTES to the appropriate time.
 - e. After the last parameter is set, touch the MODE button to lock in your settings.
3. Once the installer has performed the initial setup, power down the unit by touching the POWER button if no other programming will be done at this time.

NOTE: The unit is programmed with default time and temperature settings for the Automatic Mode (see below). If these settings are satisfactory, then skip "Programming the Thermostat for Automatic Mode" and continue to the other programmable options under "Customizing Heater Settings."

Default settings for Automatic Mode:

Period	Time	Setpoint
1. Wake Up	6:00 AM	70°F (21°C)
2. Daytime	8:00 AM	62°F (17°C)
3. Evening	6:00 PM	70°F (21°C)
4. Sleep Time	10:00 PM	62°F (17°C)

Customizing Heater Settings

The heater has three modes of operation, Automatic (Heat) Mode, Ventilation Mode, and Hold Mode with five user programmable options, 7 Day Programmable Thermostat, Lockout Setting, Volume Adjustment, Centigrade/Fahrenheit, and a Nightlight.

NOTE: For the following setup procedures, the display will automatically save the setting after a 30 second pause and return to the previous operating setting. If this occurs, start back at Step 1 of the procedure.

Programming the Thermostat for Automatic Mode

The 7 day programmable thermostat can be customized for two categories, Weekdays (Monday-Friday) and Weekends (Saturday & Sunday). Each category has 4 periods, see the Default settings above for an example. Set a start time and temperature for each period:

1. Simultaneously touch and hold the POWER and MODE buttons for 1.5 seconds. MON through FRI will display with the hour and Period 1. This is your wake-up time.
2. Touch MODE button once to start programming the HOUR for Period 1 (Monday through Friday). Touch either the UP or Down buttons to set the hour for START time.

3. Touch MODE button again to program the MINUTES for Period 1. Touch the UP or DOWN buttons to set MINUTES.
4. Touch MODE button again to start programming the TEMPERATURE for Period 1 (Wake Up). Touch the UP or Down buttons to set temperature for Wake Up.
5. Touch the MODE button again to move to Period 2 and follow steps 2 through 4 for each of the remaining periods. Once the Weekdays (Monday through Friday) are set, touching the MODE button again will move to the Weekend settings. Follow steps 2 through 4 again for the weekend settings.
6. Once the previous steps are complete, touch the MODE button once more to lock the settings or wait 30 seconds and the unit will lock the settings automatically. Once the settings have been locked the unit will begin normal operation.

Hold Mode (Vacation Setting)

The HOLD mode overrides the programmed settings and is useful when a constant temperature needs to be maintained for comfort or can be set at a lower temperature for times when the area is unoccupied for long periods (vacation setting) or if freeze protection is needed in colder climates.

1. Touch MODE button once to activate the display and touch the MODE button again until the HOLD indicator appears.
2. Touch the Up or Down buttons to set temperature to your "Hold" temperature. During HOLD mode, default settings along with the automatic rotation of the 4 periods will be disabled. The heater will operate from the current setting, where the setpoint can be adjusted.
3. To exit out of the HOLD mode, the user has to press the MODE button.

NOTE: HOLD mode setting will not be saved after exiting.

Ventilation Mode

This heater also has the option to use as a FAN ONLY device. Heat will not be produced, but the ventilator fan will operate to provide a nice gentle breeze to circulate the air.

Touch the MODE button until you see the FAN icon illuminate and flash. Use the Up or Down buttons to increase or decrease the fan speed.

NOTE: The fan icon will flash for 3 seconds. After 3 seconds, the heater will enter Fan Only Operation. Touching the MODE button again will switch the heater into another operation.

Celsius / Fahrenheit Indication

The default temperature scale for the heating unit is Fahrenheit. To change the temperature scale, simultaneously touch and hold the MODE and DOWN buttons for 1.5 seconds. Notice the C indicator illuminates. Touch both buttons again to change back to the F (Fahrenheit) scale.

Lock Out Feature

Touch and hold the POWER and DOWN buttons simultaneously for 1.5 seconds. Notice that the Padlock symbol will be visible. Touch and hold both buttons again to toggle Padlock symbol ON or Padlock symbol OFF.

NOTE: With the Padlock symbol ON, the unit is locked (the POWER button is functional, the normal functions of the other buttons are disabled).

Night Light Operation

Touch and hold MODE and UP Buttons simultaneously for 1.5 seconds. Notice that the NIGHT LIGHT (Light bulb) indicator will be visible and the backlight will illuminate at 100% brightness. Touch both buttons again and the NIGHT LIGHT indicator and backlight will turn OFF.

Beep Volume Control

There are three settings for the audible beep, 2=HIGH , 1=LOW, 0=OFF. To adjust the audible beep, follow these instructions.

1. Make sure the display is OFF.
2. Simultaneously touch the POWER and MODE buttons until either a 2, 1 or 0 is displayed.
3. Press the Up or Down Buttons to make a selection between 2 (HIGH), 1 (LOW) or 0 (OFF).
4. After the desired volume is set, touch the POWER button or MODE button to exit the volume adjustment menu; or do not touch any button for 30 seconds to lock in your selection.

Restore Factory Settings

(Display must be OFF, POWER button is amber color) Press the MODE and DOWN buttons simultaneously for 1.5 seconds, the beeper sounds a beep and factory settings are restored. See "Default Settings For Automatic Mode."

Remote Control

The remote control will control your heater from a distance no more than 20 feet away from the unit. When pointing the device it must be in line of sight in order to operate correctly. The remote will not program your heater. It will only turn the heater ON or OFF and adjust the set temperature UP or DOWN.

There are only four buttons that are active:

1. Power ON ON button.
2. Power OFF OFF button.
3. DOWN button to lower the displayed temperature (located bottom left)
4. UP button to raise the displayed temperature (located bottom right)

NOTE: Should you misplace your remote; the operation of your heater can be controlled at the heater display.

Operational Notice

This heater is equipped with a manual-reset safety limit control that will automatically turn off the heater if it overheats to prevent a fire. A red warning light will illuminate (visible through the grille) to alert that this control has activated. See Figure 8 for the location of these devices.

CAUTION ⚠

THE ACTIVATION OF THE SAFETY LIMIT CONTROL AND RED WARNING LIGHT OCCURS WHEN THE HEATER OVERHEATS. CHECK HEATER TO MAKE SURE IT IS NOT BLOCKED – IF SO, REMOVE THE BLOCKAGE. IF THERE IS NO BLOCKAGE, IT IS RECOMMENDED THAT THE HEATER BE INSPECTED BY A REPUTABLE ELECTRICIAN OR REPAIR SERVICE TO ENSURE THE HEATER IS NOT DAMAGED. DO NOT CONTINUE TO USE HEATER IF IT REPEATEDLY CYCLES OFF ON THIS SAFETY LIMIT.

TO RESET SAFETY LIMIT (SEE FIGURE 8)

The manual reset button is located behind the front grille above the element on the left side. Once the heater has cooled, push the reset button through the grille. The heater should return to normal operation.

⚠ WARNING ⚠

DO NOT TAMPER WITH OR BYPASS ANY SAFETY LIMITS INSIDE HEATER.

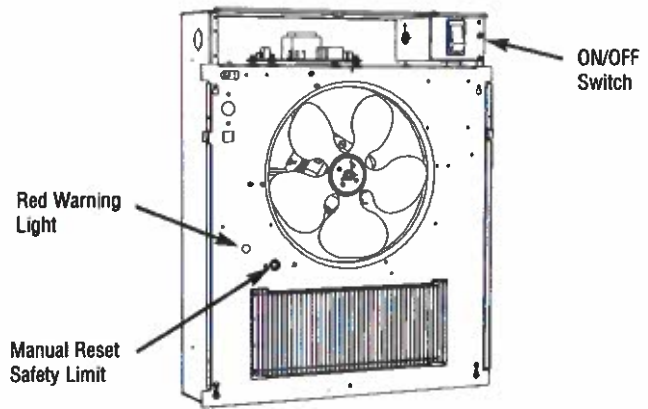


Figure 8 Reset Button Location

CAUTION ⚠

CAUTION - DO NOT CONTINUE TO ATTEMPT TO USE THE HEATER IF THE SAFETY CONTROL REPEATEDLY OPERATES AFTER BEING RESET. TO DO SO COULD PERMANENTLY DAMAGE THE HEATER OR CREATE A FIRE OR SAFETY HAZARD.

MAINTENANCE INSTRUCTIONS

Your heater is designed for years of trouble-free operation and requires no special maintenance other than occasional cleaning. The motor is permanently lubricated.

Cleaning

At least once each year (or more often in dirty environments), the heater should be cleaned to remove dust and other foreign material which has collected during the heating season, as follows:

⚠ WARNING ⚠

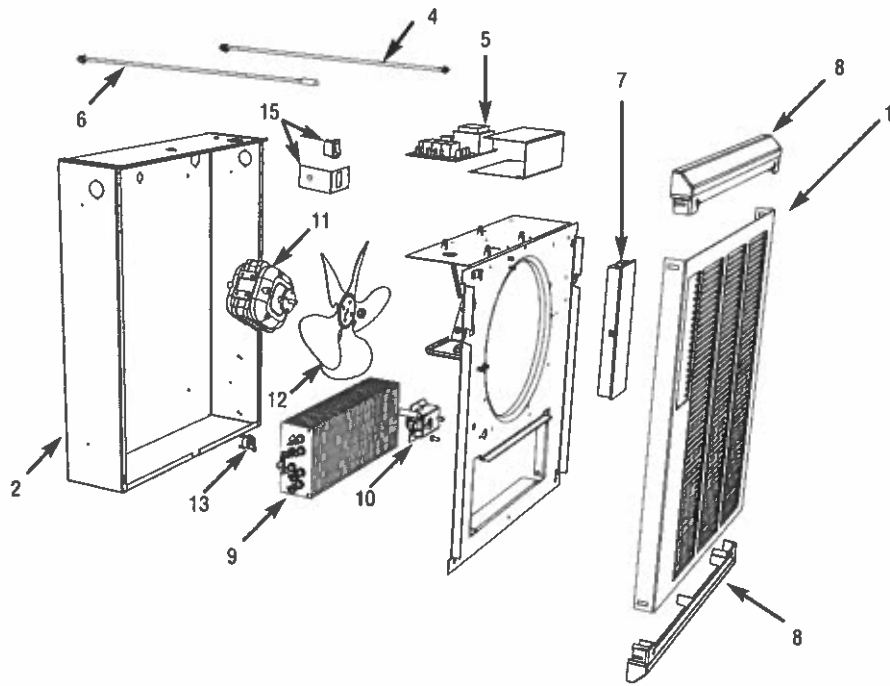
THE OUTSIDE SURFACES MAY BE CLEANED WITH MILD DETERGENT AND A DAMP CLOTH BY THE USER. ALL OTHER SERVICING SHOULD BE PERFORMED BY AN ELECTRICIAN OR QUALIFIED PERSON

1. Turn power OFF at main switch.

NOTE: With grille removed, the ON/OFF switch located in upper right corner of heater may be used to turn off power to heater during cleaning and servicing (see Figure 8).

2. Remove front grille by removing the four screws in each corner.
3. Use vacuum cleaner with brush attachment to remove dust and dirt that has accumulated in heater (especially around element and blower blade). Do not use water or any cleaners to clean heater components.
4. Replace grille.
5. Wipe grille clean with a damp cloth. DO NOT use waxes or any cleaners that leave a residue since these may discolor during heater operation.
6. Turn the main line switch ON at the switch panel to restore power to heater. The heater is now ready for another season of operation.

REPAIR PARTS



Repair Parts List

Ref No.	Description	Part Number			Quantity
		HTWH4008 208V 4000W	HTWH4004 240V 4000W	HTWH4007 277V 4000W	
1	Painted Grille				
	Northern White	2501-11022-000	2501-11022-000	2501-11022-000	1
	Statuary Bronze	2501-11022-001	2501-11022-001	2501-11022-001	1
	Navajo White	2501-11022-002	2501-11022-002	2501-11022-002	1
2	Back Box Assembly	1203-2015-000	1203-2015-000	1203-2015-000	1
3	Parts Bag (not shown)	1205-2020-002	1205-2020-002	1205-2020-002	1
4	Data Cable	1426-11010-001	1426-11010-001	1426-11010-001	1
5	Control Board (power board)	1414-11043-000	1414-11043-000	1414-11043-001	1
6	Thermistor	5262-11006-000	5262-11006-000	5262-11006-000	1
7	Touch Pad / Bezel Assembly	1016-11199-000	1016-11199-000	1016-11199-000	1
8	Plastic Cover (top and bottom identical)				
	Northern White	1402-2120-002	1402-2120-002	1402-2120-002	1
	Statuary Bronze	1402-2120-001	1402-2120-001	1402-2120-001	1
	Navajo White	1402-2120-000	1402-2120-000	1402-2120-000	1
9	Element Assembly	1802-11005-000	1802-11005-001	1802-11005-002	1
10	Safety Limit - Manual	4520-2027-000	4520-2027-000	4520-2027-000	1
11	Fan Motor	3900-2002-522	3900-2002-522	3900-2002-523	1
12	Fan Blade	490030103	490030103	490030103	1
13	Fan Delay	410074000	410074000	410074000	1
14	Indicator Light (not shown)	3510-2017-005	3510-2017-005	3510-2017-005	1
15	ON/OFF Assembly	5216-2008-000	5216-2008-000	5216-2008-000	1

LIMITED WARRANTY

All products manufactured by Marley Engineered Products are warranted against defects in workmanship and materials for one year from date of installation, except heating elements which are warranted against defects in workmanship and materials for five years from date of installation. This warranty does not apply to damage from accident, misuse, or alteration; nor where the connected voltage is more than 5% above the nameplate voltage; nor to equipment improperly installed or wired or maintained in violation of the product's installation instructions. All claims for warranty work must be accompanied by proof of the date of installation.

The customer shall be responsible for all costs incurred in the removal or reinstallation of products, including labor costs, and shipping costs incurred to return products to Marley Engineered Products Service Center. Within the limitations of this warranty, inoperative units should be returned to the nearest Marley authorized service center or the Marley Engineered Products Service Center, and we will repair or replace, at our option, at no charge to you with return freight paid by Marley. It is agreed that such repair or replacement is the exclusive remedy available from Marley Engineered Products.

THE ABOVE WARRANTIES ARE IN LIEU OF ALL OTHER WARRANTIES EXPRESSED OR IMPLIED, AND ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE WHICH EXCEED THE AFORESAID EXPRESSED WARRANTIES ARE HEREBY DISCLAIMED AND EXCLUDED FROM THIS AGREEMENT. MARLEY ENGINEERED PRODUCTS SHALL NOT BE LIABLE FOR CONSEQUENTIAL DAMAGES ARISING WITH RESPECT TO THE PRODUCT, WHETHER BASED UPON NEGLIGENCE, TORT, STRICT LIABILITY, OR CONTRACT.

Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above exclusion or limitation may not apply to you. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

For the address of your nearest authorized service center, contact Marley Engineered Products in Bennettsville, SC, at 1-800-642-4328. Merchandise returned to the factory must be accompanied by a return authorization and service identification tag, both available from Marley Engineered Products. When requesting return authorization, include all catalog numbers shown on the products.

HOW TO OBTAIN WARRANTY SERVICE AND WARRANTY PARTS PLUS GENERAL INFORMATION

- | | |
|--------------------------------|--|
| 1. Warranty Service or Parts | 1-800-642-4328 |
| 2. Purchase Replacement Parts | 1-800-654-3545 |
| 3. General Product Information | www.marleymep.com |

Note: When obtaining service always have the following:

1. Model number of the product
2. Date of manufacture
3. Part number or description



Marley
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