

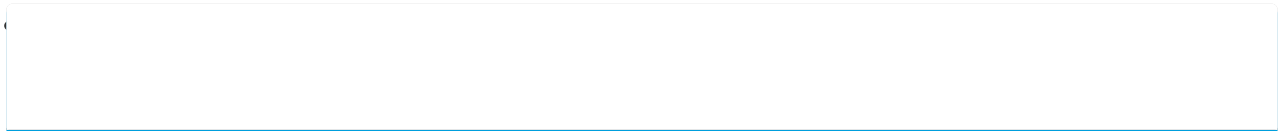


Whirlpool WGFD293 Installation Instructions Manual

93% and 95% 2-stage variable speed gas furnace

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93% AND 95% 2-STAGE VARIABLE SPEED GAS FURNACE ATTENTION INSTALLATION PERSONNEL

As a professional installer, you have an obligation to know the product better than the customer. This includes all safety precautions and related items. Prior to actual installation, thoroughly familiarize yourself with this instruction manual. Pay special attention to all safety warnings. Often during installation or repair, it is possible to place yourself in a position which is more hazardous than when the unit is in operations. Remember, it is your responsibility to install the product safely and to know it well enough to be able to instruct a customer in its safe use. Safety is a matter of common sense...a matter of thinking before acting. Most dealers have a list of specific good safety practices...follow them.



The precautions listed in this installation manual are intended as supplemental to existing practices. However, if there is a direct conflict between existing practices and the content of this manual, the precautions listed here take precedence.

Whirlpool Gold

®

Models

WGFD293, WGFM295

WPIO-368



INSTALLATION INSTRUCTIONS

Whirlpool

®

Home Cooling and Heating

14610 Breakers Drive

Jacksonville, Florida 32258

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[Furnace Whirlpool WGFM29 Installation Instructions Manual](#)

93% and 95% 2-stage variable-speed gas furnace (52 pages)

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[Furnace Whirlpool WFAU Installation Instructions Manual](#)

(20 pages)

[Furnace Whirlpool WEFV08S-1A Installation Instructions Manual](#)

Variable speed electric furnace (16 pages)

Summary of Contents for Whirlpool WGFD293

[Page 1: Installation Instructions](#)

The precautions listed in this installation manual are intended as supplemental to existing practices. However, if there is a direct conflict between existing practices and the content of this manual, the precautions listed here take precedence. Whirlpool® Home Cooling and Heating Whirlpool Gold® Models 14610 Breakers Drive WGFD293, WGFM295 Jacksonville, Florida 32258 WPIO-368...

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Table of Contents GAS FURNACE SAFETY PRECAUTIONS3 115-Volt Line Connection of Accessories (Humidifier and Electronic Air Cleaner).....26 PRODUCT DESCRIPTION AND

APPLICATION4 GAS SUPPLY AND PIPING.....26 Shipping Inspection4 High Altitude Derate27 Electrostatic Discharge (ESD)4 Propane Gas Conversion27 To The Installer.....4 Gas Control Valve.....27 Important Note to the Owner Regarding Product Warranty ..4...

[Page 3: Gas Furnace Safety Precautions](#)

GAS FURNACE SAFETY PRECAUTIONS Please adhere to the following warnings and cautions when installing, adjusting, altering, servicing or operating the furnace. To ensure proper installation and operation, thoroughly read this manual for specifics pertaining to the installation and application of this product. Recognize this symbol as a safety precaution.

[Page 4: Product Description And Application](#)

WARNING WARNING Possible property damage, personal injury or death due Should overheating occur or the gas supply fail to shut to fire, explosion, smoke, soot, condensation, electrical off, turn off the manual gas shutoff valve external to the shock or carbon monoxide may result from improper furnace before turning off the electrical supply.

[Page 5: Product Application](#)

Product limited warranty certificates can be viewed at A room thermostat is used to control the furnace. Fixed www.goodmanmfg.com or www.amana-hac.com. Each product jumpers that provide continuous heating cannot be used and overview page contains a Product Warranty link. By clicking on can cause long term equipment damage.

[Page 6: Location Requirements And Considerations](#)

LOCATION REQUIREMENTS AND CONSIDERATIONS Follow the instructions listed below when selecting a furnace Exposure to contaminated combustion air will result in safety location. Refer also to the guidelines provided in "Combustion and performance-related problems. and Ventilation Air Requirements." **NOTE:** Do not install the furnace where the combustion air is exposed to the following substances: **WARNING** Chlorinated waxes or cleaners...

[Page 7: Clearances And Accessibility](#)

Clearances and Accessibility Existing Furnace Removal Installations must adhere to the clearances to combustible **NOTE:** When an existing furnace is removed from a venting materials to which this furnace has been design-certified. The system serving other appliances, the venting system may be too minimum clearance information for this furnace is provided on large to properly vent the remaining attached appliances.

[Page 8: Combustion And Ventilation Air Requirements](#)

Combustion and Ventilation Air Requirements Most homes will require outside air to be supplied to the furnace **WARNING** area by means of ventilation grilles or ducts connecting directly to the outdoors or spaces open to the outdoors such as attics or crawl spaces.

[Page 9: Drain Trap And Lines](#)

Recommended Installation Positions—Upright Upflow Drain Trap and Lines In horizontal applications, the condensate drain trap is secured to the furnace side panel, suspending it below the furnace. A minimum clearance of 4¾" (12.1 cm) below the furnace must be provided for the drain trap. Additionally, the appropriate downward piping slope must be maintained from the drain trap to the drain location.

[Page 10: Propane Gas/High Altitude Installations](#)

PROPANE GAS/HIGH ALTITUDE INSTALLATIONS For installations above 7,000 ft (2,133.6 m), refer to your **WARNING** distributor for required kit(s). Manifold Possible property damage, personal injury or death may Pressure occur if the correct conversion kits are not installed. The Pressure appropriate kits must be applied to ensure safe and proper High Switch...

[Page 11: Materials And Joining Methods](#)

The vent termination of a nondirect vent application must **Materials and Joining Methods** terminate at least 4 ft (121.9 cm) below, 4 ft (121.9 cm) horizontally from or 12" (30.5 cm) above any door, window or As an alternative to PVC pipe, primer, solvent cement and fittings, gravity air inlet into any building.

[Page 12: Combustion Air Pipe-Direct Vent Installations](#)

Vent Termination Clearances NOTE: Because of probable material conflicts, do not use other commercially available “no hub connectors.” The combustion air intake pipe can also be secured directly to the counterflow unit air intake pipe coupling. Combustion Air Pipe—Nondirect Vent Installations A minimum of one 90°...

[Page 13: Alternate Furnace Connections](#)

Vent/Flue Pipe Cuts Alternate Furnace Connections If the standard locations are undesirable for a specific installation, alternate side panel locations are available for both combustion air inlet and vent/flue pipe connections. These locations may be of particular benefit to upright upflow installations requiring additional access to an A coil, or to upright counterflow installations requiring additional access to a filter or electronic air cleaner, or to horizontal installations desiring vent/flue (and...

[Page 14: Alternate Combustion Air Intake Location](#)

Alternate Vent/Flue Location—Upflow Alternate Combustion Air Intake Location The alternate combustion air intake location consists of a large, unobstructed hole (alternate vent connection is aligned with the induced draft blower). To use the alternate combustion air intake location, refer to the following steps and the “Alternate Combustion Air Intake Location”...

[Page 15: Nondirect Vent \(Single Pipe\) Piping](#)

Nondirect Vent (Single Pipe) Piping Nondirect vent installations require only a vent/flue pipe. The vent Refer to the following “Nondirect Vent (Single Pipe) Piping—Vent/ pipe can be run horizontally with an exit through the side of the Flue Pipe Terminations” for specific details on termination building or run vertically with an exit through the roof of the construction.

[Page 16: Vent/Flue Pipe Terminations](#)

Vent/Flue Pipe Terminations The vent/flue pipe may terminate vertically, as through a roof, Alternate Vertical Vent Termination (Single Pipe) or horizontally, as through an outside wall. Vertical vent/flue pipe terminations should be as shown in “Vertical Vent Termination (Single Pipe)” illustration. Refer to “Termination Locations”...

[Page 17: Direct Vent \(Dual Pipe\) Piping](#)

Direct Vent (Dual Pipe) Piping Vent/Flue and Combustion Air Pipe Lengths and Diameters The inlet air screens provided in the installation instruction packet are available for the installer to use in the inlet of the combustion Refer to the following table for applicable length, elbows and pipe air pipe to prevent animals from building nests in the combustion diameter for construction of the vent/flue and combustion air air pipe.

[Page 18](#) Counterflow Direct Vent (Dual Pipe) Maximum Allowable Length of Vent/Flue and Combustion Air Intake Pipe—ft (m) Number of Elbows Unit Input Termination Pipe— (Btu) Style in. (cm) 70,000 Standard 2 or 2½ 49 (14.9) 46 (14) 43 (13.1) 40 (12.2) 37 (11.3) 34 (10.4) 31 (9.5) 28 (8.5) (5.12 or 6.4) 3 (7.6) 71 (21.6)

[Page 19: Vent/Intake Terminations For Installation Of Multiple Direct Vent Furnaces](#)

Horizontal terminations should be as shown in “Standard Standard Horizontal Terminations (Dual Pipe)—Above Horizontal Vent Terminations (Dual Pipe)” illustration. Refer to Highest Anticipated Snow Level “Termination Locations” in this section for location restrictions. A 2¾" (6.1 cm) diameter wall penetration is required for 2" (5.1 cm) diameter pipe.

[Page 20: Concentric Vent Termination](#)

Horizontal Venting of Multiple Furnaces Concentric Vent Termination Refer to the directions provided with the Concentric Vent Kit (DCVK) for installation specifications. Side Wall Vent Kit This kit is to be used with 2" or 3" (5.1 cm or 7.6 cm) direct vent systems.

[Page 21: Upright Installations-Trap On Left Side](#)

6. Cut 17¾" (45.1 cm) from the long end of Hose B and discard. 12. Insert the short end of one Tube 2 through the rear right side panel grommet drain hole. 7. Secure the remaining Hose B to Tube 1 with a green hose clamp.

[Page 22: Upright Drain Trap Mounting-Left Or Right Side Panel](#)

Upright Standard Connections—Left Side Upflow 2. Secure Hose A to the front cover drain tap with a red hose (Counterflow Similar) clamp. 3. Route Hose A to the rear right (down) side panel grommet holes. 4. Cut ¼" (6.4 cm) from the end of the drain port on the externally mounted rubber elbow.

[Page 23: Horizontal Installations-Left Side Down](#)

For details concerning the mounting of the drain trap, refer to "Horizontal Drain Trap Mounting" in this section. Horizontal Installations—Left Side Down Horizontal installations with the left side panel down will require Horizontal Upflow Connections—Left Side Down the drain hoses to be connected to the left side front cover drain (Counterflow Similar) port and the side drain port on the rubber elbow.

[Page 24: 115-Volt Line Connections](#)

1. Remove the burner compartment door. 115-Volt Line Connections 2. Remove and save the 2 screws securing the junction box to the side panel. Before proceeding with electrical connections, ensure that the 3. Relocate junction box and associated plugs and grommets to supply voltage, frequency and phase correspond to that opposite side panel.

[Page 25: 24-Volt Dehumidistat Wiring](#)

Thermostat Wiring Diagram—Single-Stage Thermostat A single-stage thermostat with only one heating stage may be Application used to control this furnace. The application of a single-stage thermostat does not offer true thermostat-driven 2-stage operation, but provides a timed transition from low to high fire. The furnace will run on low stage for a fixed period of time before stepping up to high stage to satisfy the thermostat's call for heat.

[Page 26: Fossil Fuel Applications](#)

All field wiring must conform to applicable codes. Fossil Fuel Applications Connections should be made as shown in the "Optional Accessories Wiring" illustration. This furnace can be used in conjunction with a heat pump in a fossil fuel application. A fossil fuel application refers to a Optional Accessories Wiring combined gas furnace and heat pump installation which uses an outdoor temperature sensor to determine the most cost efficient...

[Page 27: High Altitude Derate](#)

High Altitude Derate Gas Piping Connections When this furnace is installed at high altitude, the appropriate high altitude orifice kit must be applied. This is required due to CAUTION the natural reduction in the density of both the gas fuel and combustion air as altitude increases.

[Page 28](#) Install a ½" NPT pipe plug fitting, accessible for test gage Gas Piping Connections—Counterflow connection, immediately upstream of the gas supply connection to the furnace. Always use a backup wrench when making the connection to the gas control valve to keep it from turning. NOTE: The orientation of the gas control valve on the manifold must be maintained as shipped from the factory.

[Page 29: Gas Piping Checks](#)

Gas Piping Connections—Horizontal Counterflow Gas Piping Checks Before placing the furnace in operation, leak test the furnace and gas connections. WARNING To avoid the possibility of explosion or fire, never use a match or open flame to test for leaks. Check for leaks using an approved chloride-free soap and water solution, an electronic combustible gas detector, or other approved testing methods.

[Page 30](#) Complete information regarding tank sizing for vaporization, Propane Gas Installation—Typical recommended regulator settings, and pipe sizing is available from most regulator manufacturers and propane gas suppliers. Since propane gas will quickly dissolve white lead and most standard commercial compounds, special pipe dope must be used.

[Page 31: Circulating Air And Filters](#)

Propane Gas Piping Chart II Tubing Size, O.D. Type L Nominal Pipe Size Schedule 40 Pipe or Tubing Length—ft (m) ⅜" ½" ⅝" ¾" ⅞" 1½" ¾" 1" 1¼" 1½" 150 (45.7) 200 (61) 250 (76.2) Data in accordance with NFPA pamphlet Number 54. CIRCULATING AIR AND FILTERS 4.

[Page 32: Filters-Read This Section Before Installing The Return Air Ductwork](#)

Filters—Read This Section Before Installing the Return Air Ductwork Filters must be used with this furnace. Discuss filter On upflow units, guide dimples locate the side return cutout maintenance with the building owner. locations. Use a straight edge to scribe lines connecting the dimples.

[Page 33: Start-Up Procedure And Adjustment](#)

Filter Locations—Possible Upright Counterflow Upright Installations Depending on the installation and/or customer preference, filters can be installed in the central return register or a side panel external filter rack kit (upflows). As an alternative, a media air filter or electronic air cleaner can be used as the requested filter. The following illustrations show possible filter locations.

[Page 34: Furnace Shutdown](#)

Honeywell 2-Stage Gas Control Valve—Model VR9205 Furnace Shutdown 1. Set the thermostat to the lowest setting. The integrated control will close the gas control valve and extinguish the flame. Following a 15-second delay, the induced draft blower will be de-energized. After a 120-, 150-, 180- or 210-second delay period (field-selectable delay Off [90, 120, 150, 180] plus a 30-second ramp down), the circulator blower de-energizes.

[Page 35: Gas Manifold Pressure Measurement And Adjustment](#)

NOTE: Supply pressure must be within the range specified in the White-Rodgers 36G54 valve: Back outlet pressure test screw (inlet/outlet pressure boss) out one turn Inlet Gas Supply Pressure chart. (counterclockwise, not more than one turn). Inlet Gas Supply Pressure 4.

[Page 36: Gas Input Rate Measurement-Natural Gas Only](#)

Temperature Rise Measurement Gas Input Rate Measurement—Natural Gas Only Rise = Supply air temperature - Return air temperature The gas input rate to the furnace must never be greater than that specified on the unit rating plate. To measure Natural gas input using the gas meter, use the following procedure.

[Page 37](#) 3. Knowing the furnace model, locate the high-stage cooling Comfort Mode Profiles airflow charts in the Specification Sheet applicable to your The multispeed circulator blower also offers several custom On/ model. Look up the cooling airflow determined in Step 2 and Off ramping profiles.

[Page 38](#) Profile D To Set Airflow Ramps up to 50% of the full cooling demand airflow for 30 seconds. 1. Select the model and desired high-stage cooling airflow. Then ramps to 82% of the full cooling demand airflow for 2. Determine the corresponding tap (A, B, C, or D). approximately 7½...

[Page 39: Blower Heat Off Delay Timings](#)

Blower Heat Off Delay Timings The integrated control module provides a selectable heat-off Switch Bank: S1 delay function. The heat off delay period may be set to 90, 120, 150 or 180 seconds using the DIP switches or jumper provided DIP Switch Number on the control module.

[Page 40: Fan Only Mode](#)

Circulator blower continues running during a cool-off delay period. The Off delay time and airflow level are determined by Operational Checks the selected ramping profile. Electronic air cleaner terminal and circulator blower are Burner Flame de-energized. Furnace awaits next call from thermostat. The burner flames should be inspected with the burner compartment door installed.

[Page 41: Maintenance](#)

MAINTENANCE To remove filters from an external filter rack in an upright upflow WARNING installation, follow the directions provided with external filter rack kit. HIGH VOLTAGE! Horizontal Unit Filter Removal To avoid personal injury or death due to electrical shock, disconnect electrical power Filters in horizontal installations are located in the central return before performing any maintenance.

[Page 42: Before Leaving An Installation](#)

Flue Passages (Qualified Servicer Only) Before Leaving an Installation The heat exchanger flue passageways should be inspected at the Cycle the furnace with the thermostat at least 3 times. Verify beginning of each heating season. If necessary, clean the cooling and fan only operation. passageways as outlined below.

[Page 43: Resetting From Lockout](#)

Resetting from Lockout Furnace lockout results when a furnace is unable to achieve 2. Manual power interruption. Interrupt 115-volt power to the furnace. ignition after 3 attempts during a single call for heat. It is 3. Manual thermostat cycle. Lower the thermostat so that there characterized by a nonfunctioning furnace and a "E0"...

[Page 44](#) Symptoms of Diagnostic/ Abnormal Staus LED Operation Code Fault Description Possible Causes Corrective Actions Notes and Cautions Furnace fails to None No 115-volt Manual disconnect Assure 115-volt power Turn off power prior to operate. power to switch Off, door to the furnace, and 24- repair.

[Page 45](#) Symptoms of Diagnostic/ Abnormal Staus LED Operation Code Fault Description Possible Causes Corrective Actions Notes and Cautions Induced draft Low-stage Pressure switch Inspect pressure Turn off power prior to blower runs pressure switch hose blocked, switch hose. Repair/ repair. continuously circuit is not pinched or replace, if necessary,...

[Page 46](#) Symptoms of Diagnostic/ Abnormal Staus LED Operation Code Fault Description Possible Causes Corrective Actions Notes and Cautions Furnace not Flame sense Flame sensor is Sand flame sensor if Turn off power prior to operating. microamp signal coated/oxidized. coated/oxidized. repair. is low. Integrated Flame sensor Inspect for proper...

[Page 47](#) Symptoms of Diagnostic/ Abnormal Staus LED Operation Code Fault Description Possible Causes Corrective Actions Notes and Cautions Furnace fails to Polarity of 115- Polarity of 115-volt Review wiring diagram Turn off power prior to operate. volt AC is AC power to to correct polarity.

[Page 48](#) Symptoms of Diagnostic/ Abnormal Staus LED Operation Code Fault Description Possible Causes Corrective Actions Notes and Cautions Furnace fails to Integrated Loose wiring Tighten or correct Turn off power prior to operate. control module connection at wiring connection. repair. has lost circulator motor Integrated Check circulator...

[Page 49](#) Symptoms of Diagnostic/ Abnormal Staus LED Operation Code Fault Description Possible Causes Corrective Actions Notes and Cautions Furnace fails to Circulator Obstruction in Check circulator Turn off power prior to operate. blower motor circulator blower blower for repair. fails to start 10 housing.

[Page 50: Wiring Diagram](#)

WIRING DIAGRAM WARNING HIGH VOLTAGE! Disconnect ALL power before servicing. Multiple power sources may be present. Failure to do so may cause property damage, personal injury or death. To 115 VAC/10/60 Hz Power Supply with Overcurrent Protection Device Induced Draft Blower 2-Stage Pressure Switch Assembly WARNING: Equipment GND Disconnect Power...

[Page 51: Assistance Or Service](#)

ASSISTANCE OR SERVICE If you need further assistance, you can write to the below Whirlpool ® Home Cooling and Heating address with any questions or concerns: 14610 Breakers Drive Jacksonville, FL 32258 Please include a daytime phone number in your correspondence.

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This manual is also suitable for:

[Wgfm295](#)