



Whirlpool WGFM29 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.



Placeholder

for Bar

Code

Whirlpool Gold

®

Models

WGFD295, WGFM295

WPIO-368B

INSTALLATION INSTRUCTIONS

Tradewinds Distributing Company, LLC

14610 Breakers Drive

Jacksonville, Florida 32258

These furnaces comply with requirements embodied in the American National Standard/National Standard of Canada ANSI Z21.47-CSA-2.3 Gas Fired Central Furnaces.

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Related Manuals for Whirlpool WGFM29

[Furnace Whirlpool WGFD293 Installation Instructions Manual](#)

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

[Furnace Whirlpool Gold WGFD295 Installation Instructions Manual](#)

80% 2-stage variable speed gas furnace (40 pages)

[Furnace Whirlpool Gold WGGE45 Installation Instructions Manual](#)

Whirlpool gold models package gas electric furnaces (28 pages)

[Furnace Whirlpool WFCU Installation Instructions Manual](#)

90+ gas furnace (24 pages)

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[Furnace Whirlpool GAS FURNACE User Instructions](#)

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Placeholder These furnaces comply with requirements embodied in the for Bar American National Standard/National Standard of Canada ANSI Code Z21.47-CSA-2.3 Gas Fired Central Furnaces. Tradewinds Distributing Company, LLC Whirlpool Gold ® Models 14610 Breakers Drive WGFD295,WGFM295 Jacksonville, Florida 32258 WPIO-368B...

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[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. WARNING Recognize this symbol as a safety precaution.

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

1. Disconnect all power to the furnace. WARNING NOTE: Do not touch the integrated control module or any Goodman 43 wire connected to the control prior to discharging your body's electrostatic charge to ground. Should overheating occur or the gas supply fail to shut 2.

[Page 5: Product Application](#)

100% outside air is provided for combustion air requirements during construction. Temporary ducting can be used. Product Application NOTE: Do not connect the temporary duct directly to the This furnace is primarily designed for residential home-heating furnace. The duct must be sized for adequate combustion applications.

[Page 6: Clearances And Accessibility](#)

Hydrochloric acid WARNING Cements and glues Antistatic fabric softeners for clothes dryers Possible property damage, personal injury or death due Masonry acid washing materials Goodman 48 to fire, explosion, smoke, soot, condensation, electrical Seal off a nondirect vent furnace if it is installed near an area shock or carbon monoxide may result from improper frequently contaminated by any of the above substances.

[Page 7: Furnace Suspension](#)

The following vent testing procedure is reproduced from the American National Standard/National Standard of Canada for Gas-Fired Central Furnaces ANSI Z21.4, CSA-2.3 latest edition Section 1.23.1. The following steps shall be followed with each appliance connected to the venting system placed in operation, while any other appliances connected to the venting system are not in operation: 1.

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

When installing a furnace horizontally, additional consideration must be given to the following: Combustion and Ventilation Air Requirements Drain trap and lines Leveling the furnace WARNING Alternate vent/flue and combustion air connections Goodman 51 To avoid property damage, personal injury or death, Alternate electrical and gas line connections sufficient fresh air for proper combustion and ventilation Drain pan...

[Page 9: Alternate Electrical And Gas Line Connections](#)

See "Vent/Flue Pipe and Combustion Air Pipe" for details Recommended Installation Positions—Horizontal concerning the conversion to the alternate vent/flue and Upflow—Right Side Panel Discharge combustion air connections. When using the horizontal alternate vent configuration, you must use the RF000142 vent drain kit. See "Alternate Flue/Vent Location"...

[Page 10: Vent/Flue Pipe And Combustion Air Pipe](#)

For installations above 7,000 ft (2,133.6 m), refer to your It is the responsibility of the installer to follow the manufacturers' distributor for required kit(s). recommendations and to verify that all vent/flue piping and connectors are compatible with furnace flue products. Manifold Additionally, it is the responsibility of the installer to ensure that all Pressure...

[Page 11: Termination Locations](#)

A vent termination shall not terminate over public walkways Proper Vent/Flue and Combustion Air Piping or over an area where condensate or vapor could create a nuisance or hazard or could be detrimental to the operation Practices of regulators, relief valves or other equipment. Adhere to these instructions to ensure safe and proper furnace The combustion air intake termination of a direct vent performance.

[Page 12: Vent/Flue Pipe](#)

Standard Connection—Upflow Vent/Flue Pipe Vent/flue pipe can be secured to the vent/flue coupling using the rubber coupling and worm gear hose clamps provided with this furnace. See “Standard Connections” illustration. The rubber coupling allows separation of the vent/flue pipe from the furnace during servicing.

[Page 13: Alternate Vent/Flue Location](#)

Upflow and Counterflow Units WARNING 8. Insert the cut section of the vent/flue pipe and coupling into Goodman 56 the alternate vent/flue location. Edges of sheet metal holes may be sharp. Use gloves as 9. Attach the vent/flue pipe and coupling to the induced draft a precaution when removing hole plugs.

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

Alternate Vent/Flue Location—Counterflow CAUTION Goodman 58 Be sure not to damage internal wiring or other components when reinstalling coupling and screws. 9. For nondirect vent installations installed horizontally, a minimum of one 90° elbow should be installed on the combustion air intake coupling to guard against inadvertent blockage.

[Page 15: Nondirect Vent Applications](#)

Nondirect Vent Applications Refer to the following tables for applicable length, elbows and pipe diameter for construction of the vent/flue pipe systems of a nondirect vent (single pipe) installation. In addition to the vent/flue pipe, a single 90° elbow should be secured to the combustion air intake to prevent inadvertent blockage.

[Page 16: Direct Vent \(Dual Pipe\) Piping](#)

Vertical Vent Termination (Single Pipe) Standard Horizontal Vent Termination (Single Pipe)—Above Highest Anticipated Snow Level A. 12" (30.5 cm) minimum from wall B. Tee or 90° elbow turned down A. Tee (optional) C. 12" (30.5 cm) minimum to roof or highest anticipated snow level B.

[Page 17](#) Vent/Flue and Combustion Air Pipe Terminations The vent/flue and combustion air pipes may terminate vertically, as through a roof, or horizontally, as through an outside wall. Upflow Direct Vent (Dual Pipe) Maximum Allowable Length of Vent/Flue and Combustion Air Intake Pipe—ft (m) Number of Elbows Unit Input Termination...

[Page 18](#) Vertical Vent Terminations (Dual Pipe) Standard Horizontal Vent Terminations (Dual Pipe) A. 24" (61 cm) maximum, 3" D. 12" (30.5 cm) minimum to roof or (7.6 cm) minimum highest anticipated snow level B. 12" (30.5 cm) minimum from E. Combustion air intake wall F.

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

Alternate Horizontal Terminations (Dual Pipe)—Above Highest Anticipated Snow Level 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 20: Standard Right Or Left Side Drain Hose Connections](#)

Upright Standard Connections—Right Side Upflow (Counterflow Similar) Standard Right or Left Side Drain Hose Connections All installation positions require the use of the drain trap, hoses, tubes and clamps. The following quantity of hoses, tubes, and hose clamps are provided with the unit. Hose and Tube Identification A.

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

Alternate Upright Upflow Connections—Right Side Only Upright Standard Connections—Left Side Upflow (Counterflow Similar) (Counterflow Similar) A. Left side panel E. Tube 1 I. Tubes 2 B. Rubber elbow F. Green hose clamps (3) J. Side panel drain holes A. Front cover drain port G.

[Page 22: Horizontal Installations-Left Side Down](#)

2. Secure Hose A to the front cover drain tap with a red hose 2. Relocate the front cover pressure switch hose connection clamp. from the right side (as shipped) pressure tap to the left

(down) side tap. 3. Route Hose A to the rear right (down) side panel grommet holes.

[Page 23: Horizontal Drain Trap Mounting-Left Or Right Side Panel](#)

Use a separate fused-branch electrical circuit containing properly sized wire, and fuse or circuit breaker. The fuse or circuit breaker Horizontal Drain Trap Mounting—Left or Right must be sized in accordance with the maximum overcurrent Side Panel protection specified on the unit rating plate. An electrical disconnect must be provided at the furnace location.

[Page 24: 24-Volt Thermostat Wiring](#)

Thermostat Wiring Diagram—Single-Stage Thermostat WARNING Application NOTE: Place jumper between Y1 and O for proper To avoid the risk of injury, electrical shock or death, the dehumidification operation and proper ramping profile operation. Goodman 31 furnace must be electrically grounded in accordance with local codes or, in their absence, with the latest edition of the National Electric Code (NEC).

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

A single-stage thermostat with only one heating stage may be used to control this furnace. The application of a single-stage Fossil Fuel Applications thermostat does not offer true thermostat-driven 2-stage This furnace can be used in conjunction with a heat pump in a operation, but provides a timed transition from low to high fire.

[Page 26: Gas Supply And Piping](#)

Optional Accessories Wiring Inlet gas supply pressures must be maintained within the ranges specified in the Inlet Gas Supply Pressure chart. The supply pressure must be constant and available with all other household gas-fired appliances operating. The minimum gas supply pressure must be maintained to avoid unreliable ignition.

[Page 27: Gas Control Valve](#)

To connect the furnace to the building's gas piping, the installer Gas Control Valve must supply a ground joint union, drip leg, manual shutoff valve and line and fittings to connect to the gas control valve. In some This furnace is equipped with a 24-volt gas control valve cases, the installer may also need to supply a transition piece controlled during the furnace operation by the integrated control from ½"...

[Page 28](#) Gas Piping Connections—Upflow Gas Piping Connections—Horizontal Upflow A. Alternate gas line location F. Height required by local codes B. Manifold G. Drip leg A. Gas control valve F. Drain trap C. Gas control valve H. Grommet in standard gas line hole B.

[Page 29: Gas Piping Checks](#)

Isolate this unit from the gas supply piping system by closing Direct/Standard Inlet Piping the external manual gas shutoff valve before pressure testing supply piping system with test pressures equal to or less than ½ psig (3.48 kPa). WARNING Goodman 56 Propane Gas Tanks and Piping Edges of sheet metal holes may be sharp.

[Page 30](#) Sizing Between 1 and 2 Stage Regulator* Maximum propane capacities listed are based on 2 psig pressure drop at 10 psig setting. Capacities in 1,000 Btu/h. Propane Gas Piping Chart I Tubing Size, O.D. Type L Nominal Pipe Size Schedule 40 Pipe or Tubing Length—ft (m) ¾"...

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

CIRCULATING AIR AND FILTERS Duct Flange Cutouts Ductwork—Airflow WARNING Goodman 68 Never allow the products of combustion, including carbon monoxide, to enter the return ductwork or circulation air supply. Duct systems and register sizes must be properly designed for the CFM and external static pressure rating of the furnace. Design the ductwork in accordance with the recommended methods of "Air Conditioning Contractors of America"...

[Page 32](#) Minimum Filter Requirements Chart Upflow—Cooling Airflow Requirement (CFM)—Permanent Minimum Filter Area (sq. in.) Based On 600 ft (182.9 m) Per Minute Filter Face Velocity Input Airflow 1,000 1,200 1,400 1,600 2,000 0453 376* 0704 627* 627* 0905 836* 836* 836* 1155 940* 940*...

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

START-UP PROCEDURE AND ADJUSTMENT This furnace must have a 115 VAC power supply properly After a 120-, 150-, 180- or 210-second delay period (field- connected and grounded. Proper polarity must be maintained for selectable delay Off [90, 120, 150, 180] plus a 30-second correct operation.

[Page 34: Gas Manifold Pressure Measurement And Adjustment](#)

Gas Control Valve—Honeywell 2-Stage VR9205 NOTE: Supply pressure must be within the range specified in the Inlet Gas Supply Pressure chart. Inlet Gas Supply Pressure Natural Gas Minimum: 5.0" W.C. Maximum: 10.0" W.C. Propane Gas Minimum: 11.0" W.C. Maximum: 13.0" W.C. If the supply pressure differs from chart, make the necessary adjustments to the pressure regulator, gas piping size, etc., and/ or consult with local gas utility.

[Page 35: Gas Input Rate Measurement-Natural Gas Only](#)

4. Attach a hose and manometer to the outlet pressure barb If the dial is a 2 cubic foot dial, divide the number of seconds fitting (Honeywell valve) or outlet pressure boss recorded in Step 2 by 2. (White-Rodgers valve). 4.

[Page 36: Circulator Blower Speeds](#)

4. Subtract the return air temperature from the supply air Select the desired adjust tap by positioning DIP switches 3 and 4 appropriately. Refer to the following charts for DIP temperature to determine the air temperature rise. Allow switch positions and their corresponding taps. Verify CFM by adequate time for thermometer readings to stabilize.

[Page 37](#) Profile A Switch Bank: S4 Provides a 1-minute Off delay at 100% of the cooling demand airflow. DIP Switch Number Heating Tap 100% CFM 100% CFM Cooling 1 min Demand Profile B Ramps up to 50% of the full cooling demand airflow for 30 seconds.

[Page 38: Blower Heat Off Delay Timings](#)

Model Low- High- Low- High- NORMAL SEQUENCE Stage Stage Stage Stage Cool Cool Heat Heat OF OPERATION WGFD295090V5D 1,120 1,620 1,110 1,220 1,760 Power Up 1,430 1,280 1,860 The normal power up sequence is as follows: 1,190 1,860 1,340 1,970 115 VAC power applied to furnace.

[Page 39: Cooling Mode](#)

R and W1 (or R and W1/W2) thermostat contacts open, completing the call for heat. Operational Checks Gas control valve closes, extinguishing flame. Induced draft blower is de-energized following a 15-second Burner Flame post purge. Humidifier terminal is de-energized. The burner flames should be inspected with the burner Circulator blower continues running for the selected heat-off compartment door installed.

[Page 40: Pressure Switches](#)

Pressure Switches Filters The pressure switches are normally-open (closed during operation), negative air pressure-activated switches. They CAUTION monitor the airflow (combustion air and flue products) through Goodman 119 the heat exchanger via pressure taps located on the induced To ensure proper unit performance, adhere to the filter draft blower and the coil front cover.

[Page 41: Burners](#)

6. Remove the recuperator coil turbulators individually by slowly Burners pulling each turbulator forward firmly. 7. Clean the recuperator coil tubes using a long handle wire brush, such as a gun cleaning brush. WARNING 8. Clean the primary heat exchanger tubes using a wire brush attached to a length of high grade stainless steel cable, such To avoid personal injury or death due to electrical shock, as drain cleanout cable.

[Page 42: Troubleshooting](#)

TROUBLESHOOTING Electrostatic Discharge (ESD) Status Codes NOTE: Discharge static electricity accumulated in the body Internal control fault/no power before touching the unit. An electrostatic discharge can adversely affect electrical components. O P Normal operation Use the following steps during furnace installations and servicing E 0 Lockout due to excessive

retries to avoid damage to the integrated control module.

[Page 43: Diagnostic Chart](#)

Diagnostic Chart WARNING Goodman 118 Long HIGH VOLTAGE! To avoid personal injury or death due to electrical shock, disconnect electrical power before performing any service or maintenance. The dual 7-segment LED display will display an error code that may contain a letter and number. The error code may be used to assist in troubleshooting the unit.

[Page 44](#) Symptoms of Diagnostic/ Abnormal Status LED Operation Code Fault Description Possible Causes Corrective Actions Notes and Cautions Furnace fails to Low-stage Low-stage Replace low-stage Turn off power prior to operate. pressure switch pressure switch pressure switch. repair. circuit is closed contacts sticking.

[Page 45](#) Symptoms of Diagnostic/ Abnormal Status LED Operation Code Fault Description Possible Causes Corrective Actions Notes and Cautions No furnace Open fuse. Short in low voltage Locate and correct Turn off power prior to operation. wiring. short in low voltage repair. wiring.

[Page 46](#) Symptoms of Diagnostic/ Abnormal Status LED Operation Code Fault Description Possible Causes Corrective Actions Notes and Cautions Furnace fails to High-stage Pressure switch Inspect pressure Turn off power prior to operate on high pressure switch hose blocked, switch hose. Repair, if repair.

[Page 47](#) Symptoms of Diagnostic/ Abnormal Status LED Operation Code Fault Description Possible Causes Corrective Actions Notes and Cautions Furnace fails to Circulator Loose wiring Tighten or correct Turn off power prior to operate. blower motor is connection at wiring connection. repair. not running circulator motor Integrated...

[Page 48](#) Symptoms of Diagnostic/ Abnormal Status LED Operation Code Fault Description Possible Causes Corrective Actions Notes and Cautions Furnace fails to Circulator Abnormal motor Check filters, filter Turn off power prior to operate. blower motor loading, sudden grills/registers, duct repair. senses a loss of change in speed or system and furnace air Integrated...

[Page 49: Dip Switch Chart](#)

DIP Switch Chart WARNING Goodman 118 Long HIGH VOLTAGE! To avoid personal injury or death due to electrical shock, disconnect electrical power before performing any service or maintenance. Switch DIP Switch Number Bank Purpose Function Heat Off 90 Seconds Delay 120 Seconds 150 Seconds* 180 Seconds...

[Page 50: Wiring Diagram](#)

WIRING DIAGRAM WARNING Goodman 6 Long 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...

[Page 51: Wiring Diagram](#)

WIRING DIAGRAM WARNING Goodman 6 Long 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 115VAC / 10 / 60Hz Power Supply with Overcurrent Protection Device Induced Draft Blower 2-Stage Pressure Switch Assembly...

[Page 52: Assistance Or Service](#)

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This manual is also suitable for:

Wgfd29Gold wgfd295Gold wgfm295