G34M/G34MV
MULTI – POSITION GAS FURNACE

G34M/G34MV

Bulletin #69/140103
SEPTEMBER 2003
REPLACES JULY 2003

USER'S INFORMATION MANUAL

****INSTALLER** – AFFIX THIS INSTRUCTION PACKET ADJACENT TO THE FURNACE.

****HOMEOWNER** – RETAIN THESE INSTRUCTIONS FOR FUTURE REFERENCE.

LENNOX HEATING & AIR CONDITIONING - DIVISION OF HEATCRAFT AUSTRALIA PTY LTD

Owner Record

Furnace Model # _____

Serial # _____

Installation Date _____

INSTALLED BY:

Dealer _____

Address _____

Telephone # _____ Licence # _____

Contact Person _____

Other Equipment Installed:

Equipment Type _____ Installation Date _____

Model # _____ Serial # _____

Equipment Type _____ Installation Date _____

Model # _____ Serial # _____

Equipment Type _____ Installation Date _____

Model # _____ Serial # _____

USER'S INFORMATION MANUAL
Gas-Fired Furnace

READ ALL INSTRUCTIONS IN THIS MANUAL AND RETAIN THIS AND ALL ADDITIONAL INSTRUCTIONS FOR FUTURE REFERENCE.

Congratulations...

...you have one of the most modern gas furnaces made. Your unit has been carefully selected to keep you warm and comfortable during the winter months. It will deliver superb performance with only minimal help from you.

To keep your operating costs low and to eliminate unnecessary service calls, we have provided a few guidelines. These guidelines will help you understand how your gas furnace operates and how to maintain it so you can get years of safe and dependable service.

⚠ WARNING

FIRE OR EXPLOSION HAZARD

Failure to follow safety warnings exactly could result in serious injury death or property damage.

- **Do not store or use gasoline or other flammable vapors and liquids 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.**
- **Leave the building immediately.**
- **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.**
- **Installation and service must be performed by a qualified installer, service agency or the gas supplier.**

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For your safety - Read before operating

Here are a few "Do's and Don'ts"

- **Do** become familiar with the instructions.
- **Do** check to see that your home has adequate insulation, weatherstripping, caulking, and storm windows. Elimination of infiltration of outside air and drafts can save up to 40% of your fuel bill.
- **Do** consider adding a humidifier to your heating system. Higher indoor humidity slows evaporation of perspiration, making the home seem warmer.
- **Don't** waste fuel by setting your thermostat too high. Energy conservation experts recommend a daytime thermostat setting of 20°C, with a lower setting at night.
- **Do** lower the thermostat setting a few degrees if you expect to be away for more than a day. Your normal temperature setting can then be restored more economically.
- **Don't** turn off the furnace when you expect to be away for more than a day. Instead, lower the thermostat setting a few degrees. You can then restore normal comfort level quickly and save fuel too.
- **Don't** block registers with furniture.
- **Don't** put a lamp, TV, or radio too near your thermostat. This will cause it to give a false reading.

⚠WARNING

If you do not follow these instructions exactly, a fire or explosion may result, causing property damage, personal injury, or loss of life.

These furnaces are equipped with an ignition device which automatically lights the burners. **Do not try to light the burners by hand.**

If the switch will not move by hand, don't try to repair it, call a qualified service technician. **Force or attempted repair may result in a fire or explosion.**

Do not use this furnace if any part has been under water. A flood-damaged furnace is extremely dangerous. Attempts to use the furnace can result in fire or explosion. A qualified service agency should be contacted to inspect the furnace and to replace all gas controls, control system parts, electrical parts that have been wet or the furnace if deemed necessary.

⚠WARNING

The furnace area must be kept clear and free of combustible materials, gasoline, and other flammable vapors and liquids. Failure to do so could cause actions that may result in property damage, personal injury, or loss of life.

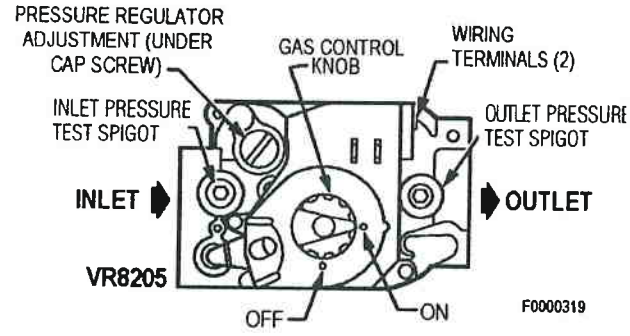
Operating Your Furnace

Lighting Instructions

1. **STOP!** Read the previous safety information.
2. Set the thermostat to the lowest setting.
3. Turn off all electric power to the furnace.
4. Remove the burner compartment access panel.
5. This appliance is equipped with an automatic ignition. device. **Do not try to light the burners by hand.**
6. Move the gas control switch to "OFF" (see Figure 1).

Figure 1

Gas Control Diagram



7. Wait 5 minutes to clear out any gas. Then smell for gas (including at the bottom of the unit near the ground).
   If you smell gas, **stop** and follow the directions in **"What to do if you smell gas"** on page 1. If you don't smell gas, continue to next step.
8. Move the gas control switch to "ON".
9. Replace the burner compartment access panel.
10. Turn on all electric power to the furnace.

11. Set the thermostat to the desired setting.

12. If the furnace will not operate, follow the instructions in "To Turn Off Gas to Furnace" and call your service technician or gas supplier.

To Turn Off Gas to Furnace

1. Set the thermostat to the lowest setting.
2. Turn off all electric power to the furnace if service is to be performed.
3. Remove the burner compartment access panel.
4. Move the gas control switch to "OFF" (see Figure 1). Do not force.
5. Replace the burner compartment access panel.

Temperature Control

There are many types and styles of thermostats. Yours may look different from the one pictured in Figure 2, depending on the type of thermostat and whether cooling was installed with the system. However, almost all thermostats perform the same basic functions described in the following section.

Thermostat

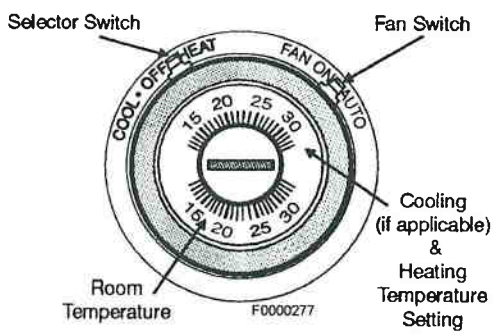


Figure 2

Thermostat Operation

There are two (2) switches located on the thermostat (see Figure 2). One switch controls the heating and cooling (if applicable) functions. The other switch is for "FAN" operation, either continuous or automatic. On the thermostat is the temperature range for the heating temperature and the cooling temperature desired.

To put the system into operation, push the switch to either "HEAT" or "COOL" position. After you have chosen the type of operation you desire, move the thermostat dial or lever to select the temperature you would like the system to maintain.

Fan Operation

You may wish to increase your comfort by setting your system for continuous air circulation of the indoor air. The fan switch on the thermostat permits you to do this.

With the switch in the "ON" position the fan will operate continuously. "AUTO" position gives fan operation only when the unit is in either heating or cooling.

What to do if your unit is not heating properly

If your furnace is operating but fails to provide complete comfort, check the following before calling for service:

1. Be sure the thermostat setting is correct.
2. Check to see if the filter is clean.
3. Check with the contractor for return air grille locations.
4. Be sure air can circulate freely throughout your home. Do not block supply registers or return air grilles with furniture or rugs.

And if you also have cooling...

5. Keep surface of the outdoor coil free from dirt, lint, paper, or leaves.
6. Check and clean indoor coil, if necessary. (This check should be made at the start of each cooling season by your service technician).

What to do if your unit fails to operate

1. Be sure the main switch that supplies power to the furnace is in the "ON" position.
2. Replace any burned-out fuses or reset circuit breakers.
3. Be sure the thermostat is properly set.
4. If the furnace still does not start, call your service technician.

⚠ WARNING

Should the gas supply fail to shut off or if overheating occurs, shut off the gas valve to the furnace before shutting off the electrical supply.

Maintenance Of Your Furnace

⚠ WARNING

Always shut off all power to the unit before attempting any of the following maintenance procedures. Failure to do so may result in personal injury.

There are routine maintenance steps you should take to keep your furnace operating efficiently. This maintenance will assure longer life, lower operating costs, and fewer service calls. In addition to the maintenance procedures listed in this manual, there are also other service and maintenance procedures that require the skills of a service person who has specialized tools and training. (See "Servicing the Furnace" section of the Installation and Servicing part of this booklet.) **Personal injury can result if you are not qualified to do this work.** Please call your dealer when service is needed.

Cleaning

The cabinet of the furnace can be cleaned with soap and water. Grease spots can be removed with a household cleaning agent. The cabinet can be kept attractive by polishing with automotive wax at least twice a year.

Installations Around Insulation

Insulating materials may be combustible. Therefore, a furnace installed in an attic or other insulated space must be kept free and clear of insulating materials. Make sure to examine the furnace area when the furnace is installed or additional insulation has been added.

Periodic Inspections

Your gas furnace is designed to give many years of efficient, satisfactory service. However, the varied air pollutants commonly found in most areas can affect longevity and safety. Chemicals contained in everyday household items such as laundry detergents, cleaning sprays, hair sprays, deodorizers, and other products which produce airborne residuals may have an adverse affect upon the metals used to construct your appliance.

It is important that you conduct periodic physical inspections of your appliance, paying special attention to the gas burner and the flue outlet from the furnace. These components are located at the front of the unit. A flashlight will be useful for these inspections. Make one inspection prior to the beginning of the heating season and another during the middle.

Should you observe unusual amounts of any of the following conditions, it is important that you call your authorized dealer at once to obtain a qualified service inspection:

- Rust, flakes, or other deposits
- Coatings
- Corrosion

Even if no unusual rust or other conditions are observed, **it is recommended that the furnace be inspected and serviced at least once per year by a qualified service technician.** Regular inspection and planned maintenance will assure many years of economical performance from your gas furnace.

Combustion Air

⚠ WARNING

Adequate combustion and ventilation air must reach your gas furnace to provide for proper and safe operation. Do not block or obstruct air openings on the furnace, air openings communicating with the area in which the furnace is installed and the spacing around the furnace. Any obstruction of this airflow can cause an unsafe condition which may result in death or permanent injury.

Furnaces located in a closet, alcove, or utility room must have provision for adequate air supply by means of upper and lower grilles in the door, or by the introduction of outside air, or both. AGA codes must be adhered to.

Flueing and Furnace Support

Flueing of this furnace must comply with our published instructions. Be sure the installer has followed these requirements. If not, you should request the installer to comply as soon as possible.

For your safety, please note the following:

1. Non-condensing furnaces may be common vented with another appliance in certain circumstances. Refer to the installation instructions. Refer to the installation instructions and AGA 601 code for proper installation guidelines.

The vent from your furnace may rise vertically and terminate above the roof. When horizontal flueing a non-condensing furnace, an approved flue cowl must be used. Refer to the installation instructions for further information on horizontal flueing.

Make sure all flue product carrying areas and materials external to the furnace (i.e. vent terminals, etc..) are clear and free of any obstruction, slope upward, and have no holes or leaks.

Check to see that the furnace cabinet is sound and firmly supported, without sagging. There should be no cracks or gaps between the furnace and the base or floor, which would permit entry of unfiltered air.

It is important that the outside area where the vent terminates is kept clear of any obstructions which might block or impede the venting of the furnace. Should venting become blocked at anytime, your furnace is equipped with a special safety control to prevent operation of the furnace until the condition has been corrected. Contact your dealer if you desire more information about this safety feature.

Should any unusual conditions be observed during your inspections, call an authorized service dealer immediately.

For proper venting terminations, see the Installation Instructions furnished with the furnace.

Return Air

Ascertain that all return air duct connections are tight and sealed to the furnace cabinet and that all return air grilles or registers are located outside the space containing the furnace.

Cleaning/Replacing the Filter

It is very important to clean or replace the air filter regularly. Dirty filters are the most common cause of inadequate heating or cooling performance and can sharply increase the operational costs of your unit. In some cases, they can double the cost. The air filter should be inspected at least every 6 weeks and cleaned or replaced as required.

Your furnace may use either a disposable filter or a permanent filter. The type of filter may be indicated on a label attached to the filter. If a disposable filter is used, replace with the same type and size. If a permanent filter is used, clean filter and place back in furnace. To clean a permanent filter, shake filter to remove excess dirt and/or use a vacuum cleaner. Wash filter in soap or detergent water and replace after filter is dry. Permanent filters do not need to be oiled after washing.

Permanent filters may be replaced with disposable filters.

Refer to Table 1 when selecting the proper size and quantity of disposable filter.

If your air distribution system has a central return air filtergrille, you do not need a filter in your furnace. Clean the filter-grille the same way permanent filters are cleaned.

Table 1

EXTERNAL FILTER RACK SIZE

SIDE RETURN	BOTTOM/END RETURN
394 X 635	305 X 635
394 X 635	394 X 635
394 X 635	483 X 635

Note: Filters not supplied

Safety Interlock Switch

The blower compartment door on your furnace is equipped with a safety interlock switch that will automatically shut off your complete system (including blower) once the door is removed. This is for your personal safety. Be sure to check your furnace for proper operation once the door or panel has been replaced.

If the system does not operate once the panel has been replaced, try removing and replacing it once again. If the furnace still does not operate, call your dealer for service.

Rollout Switch

This unit is equipped with a manual reset high temperature sensor or rollout switch. In the unlikely event of a sustained main burner flame rollout, the rollout switch will shut off the flow of gas by closing the main gas valve. The switch is located inside the gas burner area. Flame rollout can be caused by blockage of the power vent system, a blocked heat exchanger, or improper gas pressure or adjustment. If this event occurs, the unit will not operate properly. The gas supply to the unit should be shut off and no attempt should be made to place it in operation. The system should be inspected by a qualified service technician.

Lubrication

Lubrication of the bearings in the circulating air blower motor and the combustion blower motor is not recommended.

Burner Flame

While the furnace is in operation, observe the mainburner flames. Compare these observations to Figure 3 to determine if proper flame adjustment is present. If your observations indicate improper flame adjustment, call your authorized service dealer for service.

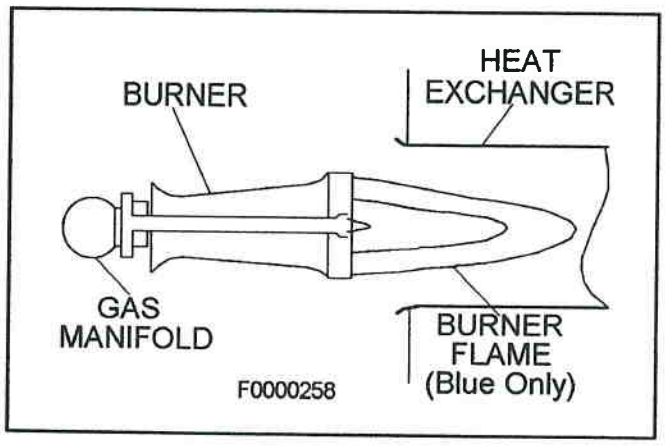


Figure 3

Do not attempt to adjust flame! Your service representative will perform this adjustment correctly.

Warranty Procedure

When warranty parts are required:

1. Be prepared to furnish the following information:
   a. Purchaser's name
   b. Complete model number, serial number, and date of installation.
   c. An accurate description of the problem or defective parts.
2. Contact your dealer or distributor.

Keep this User's Information Manual (including Warranty) and proof of purchase for your records. Your warranty is determined from your date of installation. If proof of your date of installation is not supplied, the warranty will be based on the manufacture date code.

Failure to follow the correct warranty procedure could result in disallowance of warranty claim.

PARTS REPLACEMENT INFORMATION GUIDE

CASING GROUP

Top Panel
Bottom Panel
Cabinet Wrapper Partition
Front Door
Blower Door

GAS CONTROL

Manifold
Burner
Orifice
Gas Control
Sensor
Ignitor
Shield Top & Bottom

GROUP BLOWER GROUP

Blower Assembly
Blower Housing
Blower Motor
Blower Wheel
Capacitor
Blower Cutoff
Blower Support

ELECTRICAL GROUP

Control Box
Limit Switch
Fan Timer Control Board
Rollout Switch
Transformer

HEAT EXCHANGER

Primary Heat Exchanger
Flue Box Inducer
Burner Opening Panel
Burner Inlet Plate
Flue Opening Pane

GROUP INDUCER GROUP

Pressure Switch
Blower & Motor
Inducer Adapter Plate

TO OBTAIN INFORMATION ON PARTS: Consult your installing dealer or classified section of your local telephone directory under the "Heating Equipment" or "Air Conditioning Contractors & Systems" headings for dealer listing or see the first page of the installation instruction section of this manual for the name and address to contact.

Have available the Model No. and Serial No. located on the unit rating label located on the furnace to insure correct replacement part.

WARNING: Improper installation, adjustment, alteration, service or maintenance can cause personal injury or property damage. Consult a qualified installer, service agency, or your local gas supplier for information or assistance.

G34M/G34MV
MULTI – POSITION GAS FURNACE

AFFIX LABEL HERE

INSTALLATION AND SERVICING INSTRUCTIONS
UPFLOW, DOWNFLOW OR HORIZONTAL GAS-FIRED
NON-CONDENSING
WARM AIR FURNACE

Issue 0241

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RETAIN THESE INSTRUCTIONS FOR FUTURE REFERENCE

⚠WARNING

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.

⚠ DANGER

Electric Shock Hazard

Turn Off All Power Before Servicing.

Do not store or use petrol or other flammable vapors and liquids in the vicinity of this or any other appliance.

Installation and service must be performed by a qualified installer, service agency or the gas supplier to AGA 601 installation codes. Installation by an unqualified person may lead to equipment damage and/or a hazardous condition which may cause bodily injury and harm and, as such, at the sole discretion of the manufacturer, the entire warranty may be voided and be of no further force and effect.

WHAT TO DO IF YOU SMELL GAS:

- **Do not try to light any appliance.**
- **Extinguish any open flame.**
- **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.**

SAFETY

The following is a list of safety precautions and their locations in this manual.

These safety rules and precautions must be followed when installing this furnace.

1. Use only with type of gas approved for this furnace. Refer to the furnace rating plate.

2. Install this furnace only in a location and position as specified in *The Location/Placement Section* on page 6 of these instructions.

3. Provide adequate combustion and ventilation air to the furnace space as specified in *Air for Combustion and Ventilation section* on page 8 of these instructions.

4. Combustion products must be discharged outdoors. Connect this furnace to an approved vent system only, as specified in *Flueing on page 10* of these instructions.

5. Never test for gas leaks with an open flame. Use a commercially available soap solution made specifically for the detection of leaks to check all connections, as specified in *The Gas Connection section on page 13* of these instructions.

6. Always install furnace to operate within the furnace's intended temperature-rise range with a duct system which has an external static pressure within the allowable range, as specified in *Furnace Specifications on page 3* of these instructions. See furnace rating plate.

7. When a furnace is installed so that supply ducts carry air circulated by the furnace to areas outside the space containing the furnace, the return air shall also be handled by duct(s) sealed to the furnace casing and terminating outside the space containing the furnace. *See page 11 for Ducting.*

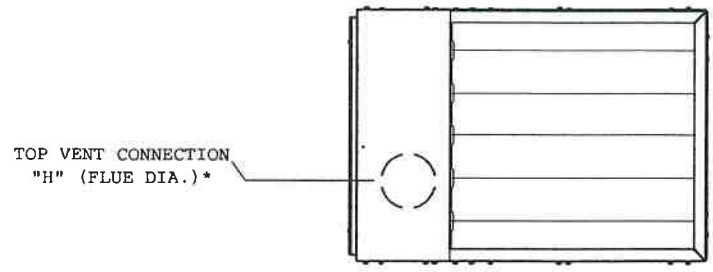
8. A gas-fired furnace for installation in a residential garage must be installed as specified in *The Location / Placement section on page 6* of these instructions.

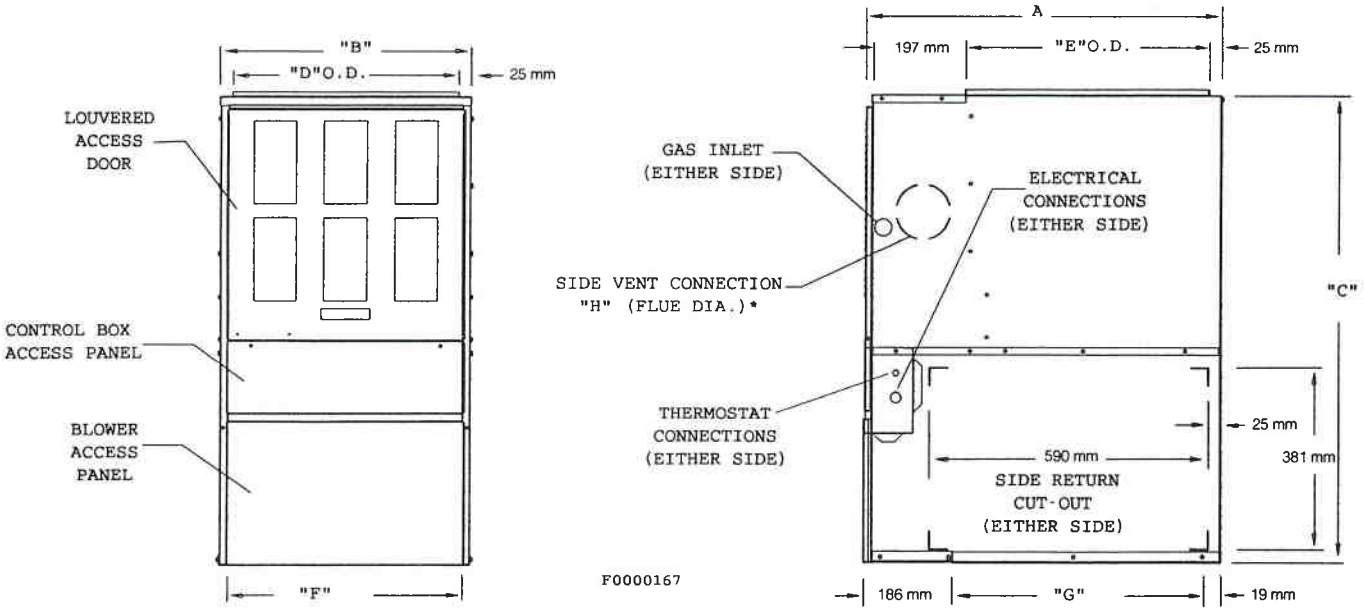
9. The furnace is not to be used for temporary heating of buildings or structures under construction. As noted on *page 6 under Introduction.*

G34 FURNACE SPECIFICATIONS

MODEL	DIMENSIONS mm			DUCT SUPPLY OPENING mm		DUCT RETURN OPENING mm		VENT PIPE DIA. mm	MAX. OVER CURRENT PROTECTION	MAX. UNIT AMPS	ELECTRICAL SUPPLY MIN. WIRE SIZE (AWG)	NETT WEIGHT kg
	LENGTH	WIDTH	HEIGHT									
	A	B	C	D	E	F	G	H				
G34050Q3	749	343	971	292	517	305	549	102	15	9.9	14	47.6
G34080Q3	749	343	971	292	517	305	549	102	15	9.9	14	51.2
G34080Q4	749	432	971	381	517	394	549	102	15	11.7	14	60.8
G34110Q4	749	432	971	381	517	394	549	102	15	11.7	14	63.9
G34110Q5	749	521	971	470	517	483	549	102	15	11.7	14	72.1
G34130Q5	749	521	971	470	517	483	549	102	20	11.7	14	75.7

* REDUCER SUPPLIED WITH FURNACE WHEN CONNECTION SIZE IS DIFFERENT THAN PIPE DIA. REQUIRED (H) FOR FLUTE VENT PIPE.





FURNACE BLOWER SPECIFICATIONS AND AIR FLOW DATA

MODEL	BLOWER SPEED	EXTERNAL STATIC (IN W.C.)									
		0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
G34050Q3 (254 X 152 WHEEL) (1/3 HP MOTOR)	LOW	390	366	343	320	295	270	241	214	185	157
	MED	552	529	503	476	448	418	386	353	318	281
	HIGH	698	674	648	619	589	558	525	490	454	416
G34080Q3 (254 X 152 WHEEL) (1/3 HP MOTOR)	LOW	390	366	343	320	295	270	241	214	185	157
	MED	552	529	503	476	448	418	386	353	318	281
	HIGH	698	674	648	619	589	558	525	490	454	416
G34080Q4 (305 X 228 WHEEL) (1 HP MOTOR)	LOW	612	603	593	582	570	556	541	526	509	491
	MED	772	764	755	744	733	720	706	691	675	658
	HIGH	951	931	908	884	857	828	797	764	728	690
G34110Q4 (305 X 228 WHEEL) (1 HP MOTOR)	LOW	612	603	593	582	570	556	541	526	509	491
	MED	772	764	755	744	733	720	706	691	675	658
	HIGH	951	931	908	884	857	828	797	764	728	690
G34110Q5 (305 X 305 WHEEL) (1 HP MOTOR)	LOW	794	761	725	687	646	604	558	510	459	406
	MED	982	945	908	875	846	818	794	773	754	738
	HIGH	1204	1178	1152	1126	1100	1075	1050	1025	1000	976
G34130Q5 (305 X 305 WHEEL) (1 HP MOTOR)	LOW	794	761	725	687	646	604	558	510	459	406
	MED	982	945	908	875	846	818	794	773	754	738
	HIGH	1204	1178	1152	1126	1100	1075	1050	1025	1000	976

NOTES:

1. Air flow values in litres per sec (L/S).
2. Data taken without filters in place or A/C evaporator in place.

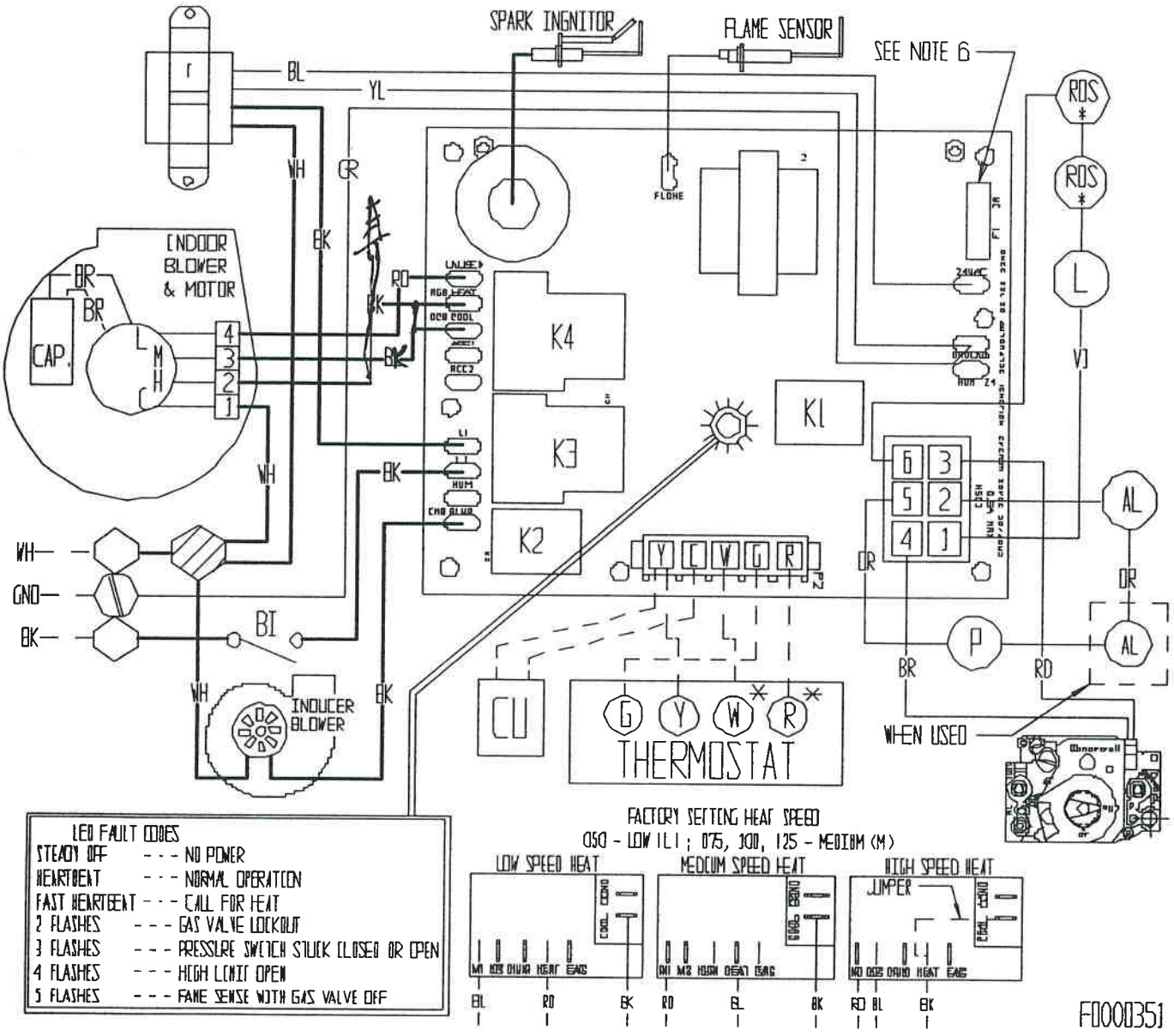
⚠ WARNING

When operating the furnace in the heating mode, the static pressure and the temperature rise (supply air temperature minus return air temperature) must be within those limits specified on the rating label. Failure to follow this warning could lead to severe furnace damage.

⚠ WARNING

Turn OFF all gas and electrical power to furnace before performing any maintenance or service on unit. (Unless specific test requires gas and electrical supplies.) Failure to take this precaution may result in personal injury due to electrical shock or uncontrolled gas leakage.

FURNACE WIRING SPECIFICATIONS



LINE V / 24 V — FACTORY WIRING

LINE V / 24 V — FIELD WIRING

ORANGE WIRE NUT

GROUND

LEGEND

BK	BLACK
BL	BLUE
BR	BROWN
GR	GREEN
OR	ORANGE
RD	RED
VI	VIOLET
WH	WHITE
YL	YELLOW

L	LIMIT
P	PRESSURE SWITCH
ROS	ROLL OUT SWITCH *
BI	BLOWER INTERLOCK
CU	CONDENSING UNIT
*	MANUAL RESET
AL	AUXILIARY LIMIT
T	TRANSFORMER
FU	LOW VOLT. FUSE
IL	IN LINE CONNECTION
IBS	INDUCER BLOWER SWITCH

NOTES:

(1) MAKE FIELD POWER SUPPLY CONNECTIONS TO BLACK AND WHITE WIRES CAPPED WITH ORANGE WIRE NUTS.

(2) WARNING--UNIT MUST BE GROUNDED. WIRING MUST CONFORM TO N.E.C AND LOCAL CODES.

(3) IF ANY OF THE ORIGINAL WIRE, AS SUPPLIED WITH THE FURNACE, MUST BE REPLACED, IT MUST BE REPLACED WITH WIRING MATERIAL HAVING A TEMPERATURE RATING OF AT LEAST 105 C AND BE A MINIMUM OF 16 GA. AWG COPPER STRAND WIRE.

(4) CONNECT REBLOWER MOTOR LEAD TO HEAT TERMINAL ON CIRCUIT BOARD TO DELIVER A TEMPERATURE RISE WITHIN THE RANGE SPECIFIED ON THE RATING LABEL. CONNECT UNUSED LEADS TO THE M1 OR M2 TERMINALS.

(5) SET THE HEAT ANTICIPATOR ON THE THERMOSTAT AT 0.25 AMPS.

(6) LOW VOLT. FUSE 5 AMP AUTOMOTIVE TYPE LITTLEFUSE 257005 OR BUSS ATC.

F0000352

⚠WARNING

The furnace cabinet must have an uninterrupted or unbroken electrical ground to minimize personal injury if an electrical fault should occur. The unit must also be electrically grounded in accordance with Australian AGA-601 codes. DO NOT use gas piping as an electrical ground.

INTRODUCTION

This furnace is designed and tested to AG-106 central furnace standards as a Category I furnace using air from inside the structure for combustion.

It is shipped as a packaged unit, complete with burners and controls, and requires a line voltage connection to the junction box, a thermostat hook-up as per the wiring diagram and a gas line connection. **This furnace can be installed in either upflow, downflow or horizontal airflow positions. The design of this furnace is NOT for installation in recreation vehicles, in manufactured (mobile) homes, outdoors or for temporary construction heating.**

This furnace has been designed to interface with split system cooling equipment (approved by a nationally recognized testing laboratory) so as to provide "year round air conditioning". The blower has been sized for both heating and cooling and the furnace controls include a cooling fan relay.

The furnace installation must conform with the AG-601 code.

This furnace is designed for minimum continuous return-air temperature of 15.6°C dB or intermittent operation down to 12.8°C dB such as when used with a night setback thermostat. Return-air must not exceed a maximum continuous temperature of 29.4°C dB.

These instructions are written for individual residential installation only. For multi-unit installation, please contact manufacturer for recommendations. Refer to Australian Gas Association AG-601 installation codes for clearances.

LOCATION / PLACEMENT

Site Selection: This furnace may be located in an attic, closet, basement, crawl space, alcove or suspended from the ceiling of a utility room or basement. Select a location that will meet all requirements for safety, clearances, ventilation and combustion air, ductwork design, gas piping, electrical wiring and venting.

Clearances: The following minimum clearances, or greater, must be provided between the furnace and adjacent construction. Refer to Australian Gas Association AG-601 installation codes for clearances.

TABLE 1 MINIMUM INSTALLATION CLEARANCES

<table>
<tr><td colspan="2">"UPFLOW" POSITION</td><td colspan="2">"DOWNFLOW" POSITION</td><td>"HORIZONTAL" POSITION</td></tr>
<tr><td colspan="2">Suitable for alcove or closet installation† on combustible flooring at minimum clearance from adjacent construction not less than the following:</td><td colspan="2">Suitable for alcove or closet installation† on noncombustible flooring at minimum clearance from adjacent construction not less than the following:
† Installation on combustible flooring only when installed on special base (see model & rating label for proper special base).</td><td>Suitable for attic, alcove or closet installation† on combustible flooring at minimum clearance from adjacent construction not less than the following:
† Line contact only permissible between lines formed by intersection of the top and two sides of the furnace jacket and building joist, studs, or framing.</td></tr>
<tr><td>Top</td><td>Sides</td><td>Back</td><td>Front</td><td>Flue</td></tr>
<tr><td>50mm</td><td>25mm</td><td>25mm</td><td>153mm</td><td>153mm with single wall vent</td></tr>
<tr><td>50mm</td><td>25mm</td><td>25mm</td><td>76mm</td><td>25mm with B1 vent</td></tr>
</table>

† For closet installation see: Air for Combustion and Ventilation - pages 8-10.

⚠WARNING

Failure to comply with all of the clearances will create a fire hazard.

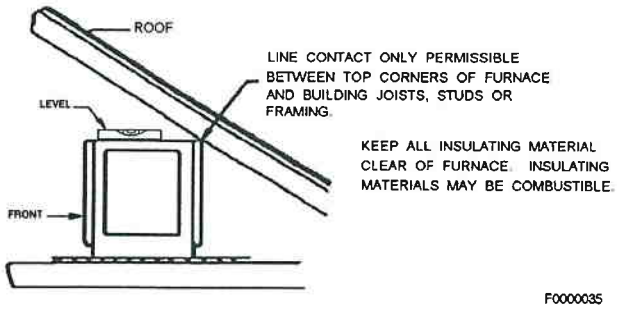
The furnace should also be located as near to the center of the air distribution system as possible, and should be installed level.

This furnace must be installed to (Aus) AG-601 Installation Code and ***must not*** *be installed directly on carpeting, tile or any other combustible material. In the* ***downflow*** *position, it* ***must*** *be installed on non-combustible flooring or on the special base listed on the rating label.*

In a horizontal position, line contact is only permissible between lines formed by the intersection of the furnace top, the front and back sides, and building joists, studs or framing (See Figure 1).

Figure 1

HORIZONTAL LINE CONTACT



Furnace must not lean back. It must be level or tilt up to 2° to the front. (See Figure 1.)

A clearance of at least 762mm should be provided at the front of the unit for servicing. For attic installations, the passageway and servicing area adjacent to the furnace should be floored, as per (Aus) AG-601.

If the furnace is to be installed in a crawl space, consult local codes. (Use of a concrete pad 25mm to 50mm thick is recommended.)

If the furnace is to be suspended from the ceiling, it will be necessary to use steel pipe straps around each end of the furnace. These straps should be attached to the furnace with sheet metal screws and to the rafters with bolts. The furnace may also be suspended by using an angle iron frame bolted to the rafters. (See Table on page 2 for size and weight of furnace.) Care must be taken to allow for service access.

If a furnace is to be installed in a residential garage, it must be installed so the burners and the ignition source are located not less than 460mm above the floor and the furnace must be located or protected to avoid physical damage by vehicles.

⚠WARNING

Do not place combustible material on the furnace jacket. Failure to comply with this warning will create a fire hazard.

⚠WARNING

This furnace is not watertight and is not designed for outdoor installation. This furnace shall be installed in such a manner as to protect the electrical components from water. Outdoor installation would lead to a hazardous electrical condition and to premature furnace failure.

AIR FOR COMBUSTION AND VENTILATION

Contaminated Combustion Air:

This furnace is not to be installed in a structure defined as having contaminated combustion air. Allowing exposure to substances containing chlorine or fluoride could harm the furnace. Substances to avoid include, but are not limited to:

- Permanent wave solutions
- Chlorinated waxes and cleaners
- Chlorine based swimming pool chemicals
- Water softening chemicals
- De-icing salts or chemical
- Carbon tetrachloride
- Halogen type refrigerants
- Cleaning solvents (such as perchloroethylene)
- Printing inks, paint removers, varnishes, etc.
- Hydrochloric acid
- Cements and glues
- Antistatic fabric softeners for clothes dryers
- Masonry acid washing materials

⚠ WARNING

Contaminated combustion air may cause premature failure of the heat exchanger that may lead to a hazardous condition and/or bodily harm, or loss of life.

Adequate Ventilation and Combustion Air:

This section is provided to give guidelines for the introduction of air for ventilation and combustion air. The total quantity of air provided to the installation area must equal the requirements of all gas appliances in the area.

Adequate facilities for providing air for combustion and ventilation must be provided in accordance with AGA-601 or applicable provisions of the Australian AG-601 installation codes.

The furnace shall be installed in a location in which the facilities for ventilation permits satisfactory combustion of gas, proper venting and maintenance of ambient temperature at safe limits under normal conditions of use.

The furnace shall be located so as not to interfere with proper circulation of air.

In addition to air needed for combustion, ventilation in the form of process air must be provided as required for: cooling of equipment or material, controlling dew point, heating, drying, oxidation or dilution, safety exhaust and odor control. Air must be supplied for ventilation, including all air required for comfort and proper working conditions for personnel.

See AGA-601 for flueing requirements.

⚠ CAUTION

Whenever this furnace is installed in an area along with one or more gas appliances, the total Mj/hr input of all appliances must be included when determining the free area requirements for combustion and ventilation air openings.

⚠ WARNING

Do not block the combustion or ventilation air openings in the furnace. Any blockage will result in improper combustion and may result in a fire hazard or unsafe condition.

⚠ CAUTION

For an attic installation it is important to keep insulation 305mm or more away from any furnace openings. Some types of insulating materials may be combustible. Refer to AGA-601 Installation Codes.

⚠ WARNING

Furnaces installed with combustion air drawn from a heated space which includes exhaust fans, fireplaces, or other devices that may produce a negative pressure should be considered confined space installations. Refer to AGA-601 Installation Codes.

DUCTING

The proper sizing of warm air ducts is necessary to insure satisfactory heating operation. Ductwork should be in accordance with AGA-601 Codes.

Ductwork Recommendation:

The supply duct work should be attached to the flanged opening provided at the discharge end of the furnace. See Figure on page 3 for the dimensions of this opening.

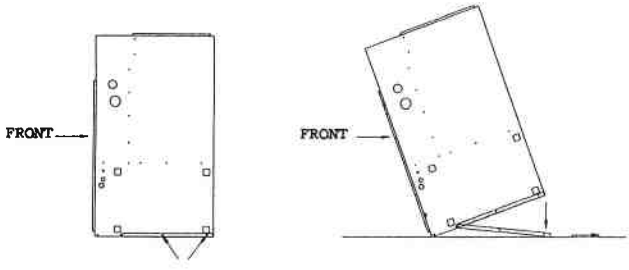
A left, right, or bottom return air opening must be used as determined by the layout of the installation. An externally mounted air filter is required.

This furnace has a two piece bottom panel. For bottom or end duct return, remove the back portion of the bottom panel by removing the four (4) screws - two (2) on each side toward the back of the furnace (See Figure 7).

Tilt furnace toward the front, the back portion of the panel will drop down. Then the back portion can be removed by pulling toward the back of the furnace.

Figure 7

BOTTOM PANEL REMOVAL



Knockouts are provided on both sides of the furnace to facilitate the cutout required to the return air ductwork. Furnace cutouts must be the full size specified by the corner markers. Undersized cutouts will adversely affect the airflow capability of the furnace and could cause overheating of the heat exchanger.

The following recommendations should be followed when installing the ductwork:

1. Install locking-type dampers in all branches of the individual ducts to balance out the system. Dampers should be adjusted to impose the proper static at the outlet of the furnace.
2. Noncombustible flexible duct connectors are recommended to connect both the supply and return ducts to the furnace.
3. In cases where the return air grille is located close to the blower inlet, there should be at least one 90° air turn between blower and return grille. Further reduction in sound can be accomplished by installing acoustical air turning vanes and/or lining the inside of the duct with acoustical material.
4. It is recommended that the supply duct be provided with a removable access panel. This opening shall be accessible when the furnace is installed and shall be of such a size that the heat exchanger can be viewed for possible openings using light assistance or a probe can be inserted by sampling the air stream. The access panel shall be designed so as to prevent leaks when locked in position. If an air conditioning coil is installed, the access panel to the coil can be used for this purpose.

⚠ WARNING

When supply ducts carry air circulated by the furnace to areas outside the spaces containing the furnace, the return air shall also be handled by a duct sealed to the furnace casing and terminating outside the space containing the furnace. Incorrect ductwork termination and sealing will create a hazardous condition that could lead to bodily harm.

⚠ CAUTION

Air openings, intake and outlet pipes, return air grilles and warm air registers must not be obstructed.

To Convert to Downflow Position:

1. Convert the combustion blower to side exit, as outlined on page 14.
2. Install proper special base per Table 2 for installation on combustible flooring (follow instructions supplied with special base).
3. It is recommended that the return air be connected to the bottom panel of the furnace when it is installed in the downflow position.

MODEL	SPECIAL BASE NUMBER	CAT No.
G34MQ3 - 050/080	20066501	68L77
G34MQ4 - 080-110	20066502	68L78
G34MQ5 - 110/130	20066503	68L79

NOTE: Installation on combustible flooring only when installed on one of the above listed special bases or as identified on the furnace model and rating label.

Filters:

Air filters must be used in every installation. For side return installations, air filters must be installed external to the furnace casing. An external filter rack kit with filter (parts No. 20069901 or Cat. No. 68L75 310 X 394 X 635mm sizes and 20069902 or Cat. No. 68L76 for 394 X 483 X 635mm sizes) is available as an optional accessory.

For bottom (end) return installations, the above optional external rack may be used, if the unit was not provided with a internal filter. Minimum filter size and suggested filter materials are shown in Table 3. (If different type filter is used, it must be an equivalent high airflow capacity.)

Table 3 EXTERNAL FILTER RACK SIZE

MODEL	SIDE RETURN	BOTTOM/END RETURN
G34MQ3 - 050/080	394 X 635 mm	305 X 635mm
G34MQ4 - 080/110	394 X 635 mm	394 X 635mm
G34MQ5 - 110/130	394 X 635 mm	483 X 635mm

When installing the furnace with cooling equipment for year round operation, the following recommendations must be followed for series or parallel air flow:

1. In series flow applications, the coil is mounted after the furnace in an enclosure in the supply air stream.The furnace blower is used for both heating and cooling airflow.

2. In parallel flow installation, dampers must be provided to direct air over the furnace heat exchanger when heat is desired and over the cooling when cooling is desired.

IMPORTANT: The dampers should be adequate to prevent cooled air from entering the furnace, and if manually operated, must be equipped with means to prevent operation of either the cooling unit or furnace unless the damper is in the full cool or full heat position.

⚠ WARNING

The coil MUST be installed on the air discharge side of the furnace. Under no circumstances should the air flow be such that cooled, conditioned air can pass over the furnace heat exchanger. This will cause condensation in the heat exchanger and possible failure of the heat exchanger that could lead to a fire hazard and/or hazardous conditions that may lead to bodily harm. Heat exchanger failure due to improper installation will not be covered by warranty.

FLUEING

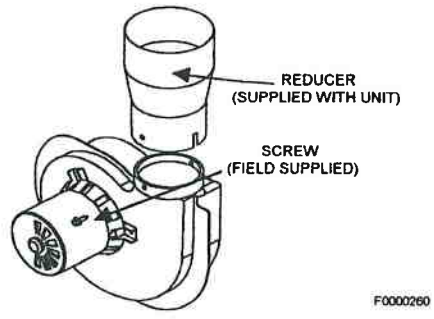
Flueing for the furnace must be to the outside and in accordance with (Aus) AGA codes or requirements of the local utility. In the absence of local codes, flueing must conform to AGA-601 Installation Codes, and the vent manufacturers instructions.

This furnace is a Category I forced air appliance and can not be vented into a flue system with any Category II, III or IV appliance. It must be flued vertically, or nearly vertically, unless installed with a listed mechanical venter in accordance with horizontal flueing instructions. It must not be connected to any portion of a mechanical draft system operating under positive pressure.

The 76mm to 102mm flue adaptor coupling (supplied with unit) MUST BE USED. It must be connected directly to the outlet of the combustion blower using a field supplied corrosion resistant sheet metal screw (See Figure 8).

Figure 8

FLUE ADAPTOR MOUNTING



Pre-Installation Flue System Inspection: Before this furnace is installed, it is highly recommended that any existing vent system be completely inspected.

For a chimney this should include the following:

1. Inspection for any deterioration in the chimney. If deterioration is discovered, the chimney must be repaired.

2. Inspection to ascertain that the vent system is clear and free of obstructions. Any blockage must be cleared before installing this furnace.
3. Cleaning the chimney if previously used for venting a solid fuel burning appliance or fireplace.
4. Confirming that all unused chimney connections are properly sealed.
5. Verification that the chimney is properly lined and sized per the applicable codes.

Note: Refer to AGA installation code AG-601 for all flue venting requirements.

Horizontal Flueing:

Location Requirements for Horizontal Flueing:

Locate the flue terminal adhering to the following minimum clearances and AGA codes:

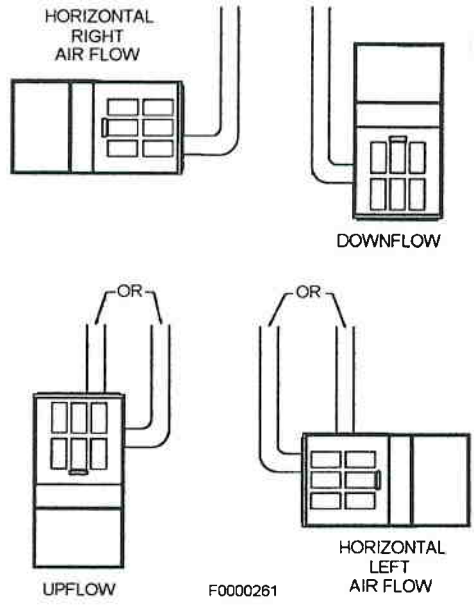
1. Flue terminal must be located at least 305mm above the grade or at least 305mm above the normal expected snowfall.
2. Avoid installing flue terminal above public walkways. If this is not possible, install the terminal at least 2.1 meters above the walkway.
3. Flue terminal should be at least 1.2 metres to the side of and at least 305mm above doors and windows.
4. Flue terminal should be at least 915mm above any forced air inlet located within 3 metres.
5. Flue terminal should be located at least 1.8 metres from the combustion air intake of another appliance.
6. Flue terminal should be located at least 1.2 metres above any electric or gas meters, regulators, and relief equipment.

General Flueing Requirements:

Refer to AGA-601 codes for details.

Figure 9

FLUE EXIT OPTIONS



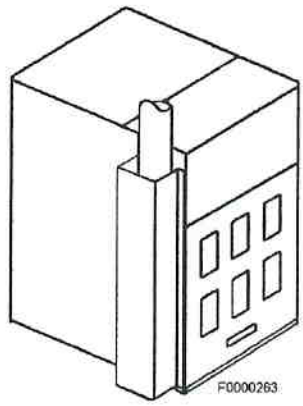
10. The 76 to 101mm flue adaptor coupling must be used to connect to the combustion blower outlet. It must be installed directly to the combustion blower outlet (Se Figure 8).

To Convert to Side Flue Exit:

1. Remove the louver door from the furnace. (Be sure the side flue exit knock-out is removed from the right side panel of the cabinet. See Figure 9.)
2. Disconnect the pressure switch tubing from the combustion blower.
3. Remove the four (4) screws that secure the combustion blower adaptor plate to the flue collector box, taking care to support the blower assembly so that it does not fall.
4. Rotate the blower 90° (degrees) clockwise, so that the outlet of the blower is pointing toward the right side panel of the furnace.
5. Insure that the gasket is in place between the blower adaptor plate and the flue collector box. Reattach the blower assembly to the flue collector box, using the four (4) screws removed in step 3. Be sure that the screws are properly tightened and that the gasket seals the plate to the box.
6. Reconnect the pressure switch tubing to the combustion blower.
7. (Optional) Install flue pipe guard.
   Kit Number 20284801.

Figure 10

FLUE PIPE GUARD KIT



For Horizontal Positions:

It is not necessary to reposition any of the components of the furnace in order to install it in either horizontal position. As outlined above, it is permissible to use the side flue exit for the horizontal-left position, if desired.

Checking For Vent Oversizing:

If this furnace is replacing a furnace that is attached to a venting system serving other appliances, the venting system is likely to be too large to properly flue all of the attached appliances. An improperly sized venting system can lead to condensation, leakage, or spillage.

Each appliance connected to the common flueing system should be individually checked for proper operation while the other appliance connected to the common flueing system are not in operation. The following steps must be followed:

(a) Seal any unused opening in the common flueing system.

(b) Visually inspect the flueing system for the proper size and horizontal pitch and determine there is no blockage or restriction, leakage, corrosion and other deficiencies which could cause an unsafe condition.

(c) Insofar as is practical, close all building doors and windows and all doors between the space in which the appliances remaining connected to the common flueing system are located and other spaces of the building. Turn on clothes dryers and any appliance not connected to the common flueing system. Turn on any exhaust fans such as range hoods and bathroom exhausts, so they will operate at maximum speed. Do not operate a summer exhaust fan. Close fireplace dampers.

(d) Follow the lighting instruction. Place the appliance being inspected in operation. Adjust thermostat so appliance will operate continuously.

(e) After it has been determined that each appliance remaining connected to the common flueing system properly flues when tested as outlined above, return doors, windows, exhaust fans, fireplace dampers and any other gas burning appliance to their previous conditions of use.

(f) If improper flueing is observed during any of the above tests, the common flueing system must be corrected. The flue system or flue connectors may need to be re-sized.

(g) When re-sizing any part of the common flue system or flue connectors, the common flue system or connector must be sized to approach the minimum size as determined using the appropriate flueing table found in AGA-601 installation Codes.

ELECTRICAL CONNECTIONS

When installed, the furnace must be electrically grounded in accordance with Australian codes. For proper installation refer to furnace rating label for electrical ratings and for the field wiring of this unit refer to furnace wiring specifications on page 5 or alternately from the wiring diagram on page 26.

In all instances, other than wiring for the thermostat, the wiring to be done and any replacement of wire shall conform with the temperature limitation for Type T wire [35°C rise].

The electrical connections and the thermostat connections are made at the openings on either side panel of the unit in the control box area. Either side may be used as convenient, but the provided hole plugs must be inserted in the unused holes.

The control system depends on the correct polarity of the power supply. Connect "Hot" (H) wire and "Ground" (G) wire as shown in furnace wiring specification on wiring diagram. Use reference Table on page 3 (Furnace Specifications), for over current protection, max unit amp rating and wire size. Use copper wire only for supply service to unit. When replacing any original internal wiring, use only 105°C, 16 AWG copper wire.

Instructions for wiring the thermostat are packed in the thermostat (field supplied) box. Make the thermostat connections as shown in furnace wiring specifications at the 24-volt terminal board located in the control box.

When installing optional accessories to this appliance, follow the manufacturer's installation instructions included with the accessory.

⚠WARNING

The unit cabinet must have an uninterrupted or unbroken electrical ground to minimize personal injury if an electrical fault should occur. This may consist of electrical wire or approved conduit when installed in accordance with existing electrical codes. Do not use gas piping as an electrical ground. Failure to follow this warning can result in an electrical shock, fire, bodily harm, or loss of life.

GAS CONNECTIONS

Gas piping shall be of such size and so installed as to provide a supply of gas sufficient to meet maximum demands without undue loss of pressure between the gas meter and the furnace. It is recommended that the gas line to the furnace shall be a separate line direct from the meter, unless the existing gas line is of ample capacity.

Refer to gas pipe capacity table in the AG-601 codes.

Use an approved joint compound (pipe dope) that is resistant to the action of liquefied petroleum gases or any other chemical constituents of the gases to be conducted through the piping.

For proper furnace operation the maximum gas supply pressure is 3.5 kPa and the minimum gas supply pressure is 1.1 kPa - Natural (2.7 kPa - LP) as shown on rating label.

Before any system of gas piping is finally put into service, it should be carefully tested to determine if it is gas tight. Check all piping for leaks using soapy water and a brush. The piping must stand a pressure of six (6) inches of mercury (20.6 kPa) for a period of ten (10) minutes or as required by local authority.

⚠ WARNING

The furnace and its individual shutoff valve must be disconnected from the supply piping system during any pressure testing of that system at test pressures in excess of 3.5kPa. The furnace must be isolated from the gas supply piping system by closing its individual manual shutoff valve during any pressure testing of the gas supply piping system at pressures equal to or less than 3.5kPa. Failure to follow the above procedures could lead to a hazardous condition and bodily harm.

Figure 11

GAS CONTROL PIPING

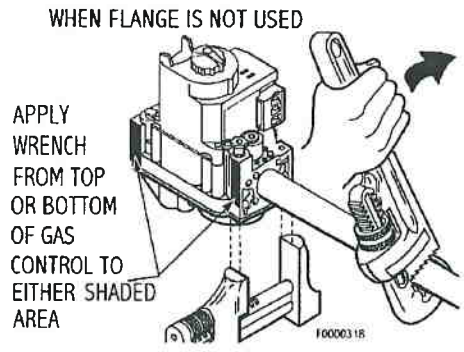
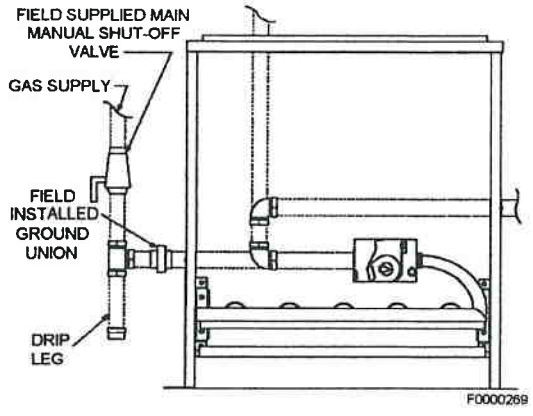


Figure 12

TYPICAL GAS SERVICE CONNECTION



This furnace is manufactured for use with Natural gas and must be converted using the proper LP conversion kit for use with LP (Propane) gas. For LP (Propane) gas, a tank regulator is required to reduce supply pressure to 2.98-3.2 kPa For manifold pressure see Table 6.

A main manual shut off valve must be used in the gas piping. The shut off type and location must follow local codes and should always be in an accessible but protected location. In the absence of local codes the recommended methods for installing the gas piping to the furnace are shown in Figures 11 and 12.

The gas valve contains two test spigots in order to test incoming gas pressure and outgoing manifold pressure (See Figure 13).

⚠ CAUTION

Many soaps used for leak testing are corrosive to certain metals. Piping must be rinsed thoroughly with clean water after leak check has been completed.

Never use an open flame when testing for gas leaks! Use of an open flame could lead to a fire or explosion.

⚠ WARNING

Never use an open flame when testing for gas leaks! Use of an open flame could lead to a fire or explosion.

THEORY OF OPERATION

Here's How Your System Works:

Call For Heat

The thermostat calls for heat by energizing the "W" terminal. The control checks to see the limit switch is closed and pressure switch is open. If the limit switch is open, the control responds per the Open Limit section following. If the pressure switch is closed, the control will flash "3" on the LED and wait indefinitely for the pressure switch to open. If the pressure switch is open, the control proceeds to pre-purge.

Pre-Purge

The control energizes the induced draft motor and waits for the pressure switch to close. The control flashes "3" on the LED while the pressure switch is open.

If the pressure switch does not close within 60 seconds of the inducer energizing, the control will de-energize the inducer for 300 seconds, and then re-energize the inducer. This cycle shall continue as long as a call for heat exists until the pressure switch is proven.

When the pressure switch is proven closed, the control begins the pre-purge time. If flame is present any time while in pre-purge, the control will flash "5" on the LED and go into soft lockout. The control runs the inducer for a 15 second pre-purge time, then proceeds to the ignition trial period.

Ignition Trial Period

The control energizes the spark and main gas valve.The inducer remains energized. If flame has not been sensed within the 7 second ignition trial, the control de-energizes the gas and spark outputs and proceeds with ignition retires. If flame is not established after three (3) trials for ignition, the control will flash "2" on the LED and goes into lockout.

Blower On Delay

The control waits for 30 seconds from the time the gas valve opened and then energizes the indoor blower heat speed. The gas valve and inducer remain energized. The control proceeds to steady heat mode.

Steady Heat

Control inputs are continuously monitored to ensure limit and pressure switches are closed, flame is established, and the thermostat call for heat remains. When the thermostat call for heat is removed, the control de-energizes the gas valve and begins post-purge and blower off delay time.

Open Limit

Any time the limit switch is open, the control deenergizes the gas valve and runs the indoor blower motor on heat speed, and runs the induced draft motor. While the llimit switch is open, the control flashes "4" on the LED. Check for a restriction in the duct system (i.e. dirty filters, blocked ductwork, closed registers.....) .

When the switch re-closes, the control runs the induced draft motor through post-purge and runs the indoor blower through the selected fan off delay. If the call for heat is still present when the limit switch closes, the control will begin an ignition sequence while the blower off delay continues. **Note:** An open limit switch breaks the power ("R") to the thermostat. Cycling on the limit is an abnormal condition and a corrective action must be taken. Failure to correct this condition could damage the heat exchangers and void the warranty.

Post Purge

The inducer output remains on for a 15 second postpurge period after the thermostat is satisfied.

Blower Off Delay

The indoor blower motor is de-energized after a 90 second blower off delay. Blower timing begins when the thermostat is satisfied. If the thermostat calls for heat while in the blower off delay, the control immediately restarts the ignition sequence while the blower off delay continues.

⚠WARNING

Should overheating occur, or the gas supply fail to shut OFF, turn OFF the manual gas valve to the appliance BEFORE turning OFF the electrical supply. A failure to adhere to this warning can result in a fire or explosion and bodily harm.

For cooling operation, when the inside temperature exceeds the thermostat setting, the thermostat will turn ON the cooling system.

When the thermostat calls for cooling, power from the transformer energizes the fan control board (for blower operation) and the outdoor condensing unit (for air conditioning).

The fan control board will automatically turn on the blower and condensing unit. The air moving over the indoor coil by the blower is cooled (and dehumidified) and passes through the ducts to the room registers.

When the thermostat is satisfied, the fan control board is de-energized and the condensing unit is shut-off.

The blower will continue to operate for an additional 30 seconds for added cooling efficiency.

STARTUP AND OPERATIONAL CHECKOUT

⚠WARNING

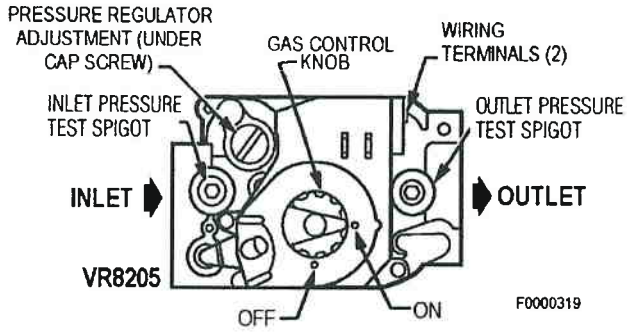
Do not use this furnace as a construction heater. Use of this furnace as a construction heater exposes the furnace to abnormal conditions, contaminated combustion air and the lack of air filters. Failure to follow this warning can lead to premature furnace failure and/or vent failure which could result in a fire hazard and/or bodily harm.

The automatic gas valve controls the flow of gas to the main burners. The ignition system control switch built into the automatic valve body has 2 positions: "OFF" and "ON" (Figure 13). To shut off gas manually: Rotate switch from "ON" to "OFF" position. When in "OFF" position, the main burners are extinguished.

This furnace is equipped with an automatic spark ignition control and does not require the manual lighting for furnace operation.

Figure 13

GAS CONTROL DIAGRAM



⚠WARNING

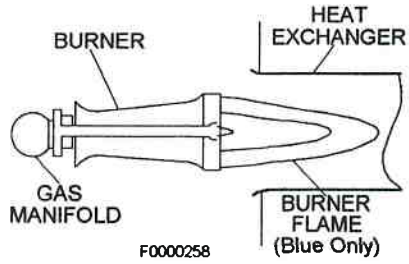
Do not attempt to manually light the burners. Failure to follow this warning can lead to electrical shock that could result in bodily harm.

After the ductwork connections have been made, gas piping and electrical wiring completed and the furnace has been properly vented, the unit should be started and adjusted for proper operation. Check off the following steps as they are completed.

1. Be sure all electrical power is OFF.
2. Check all wiring using proper wiring diagram on inside of the control box cover.
3. Turn ON the electrical power.
4. Set the gas control knob in the "ON" position.
5. Set the thermostat above room temperature.
6. The ignitor will spark and the main burners will ignite.

Figure 14

TYPICAL FLAME APPEARANCE (Main Burners)



7. Recheck for leaks in the manual shut off valve, gas control valve and gas connections using a soap solution.

⚠WARNING

Never use an open flame when testing for gas leaks! Use of an open flame could lead to a fire or explosion.

⚠CAUTION

Many soaps used for leak testing are corrosive to certain metals. Piping must be rinsed thoroughly with clean water after leak check has been completed.

Manifold Pressure Adjustment:

Turn OFF the gas and electrical before preceeding! Using the pressure test spigots on gas valve, connect a manometer. Turn on the gas and electrical supplies, then measure the manifold pressure **with the furnace in operation.**

Remove the cap to access the screw for input adjustment (Figure 13 Pressure Regulator). **Turn regulator-adjusting screw IN to increase pressure,** OUT to decrease pressure. Replace the cap. Measure the manifold pressure.

For Natural gas, best results are obtained with a manifold pressure of 0.80 to 0.87 kPa. For units that have been converted to LP (Propane) gases, a manifold pressure of 2.49 kPa. is necessary. After proper adjustment, turn OFF gas, replace manifold pressure tap pipe plug and turn ON gas.

⚠ WARNING

At higher altitudes and varying heating valves, manifold pressure or orifice changes maybe required. Consult Tables 7 and 8 for appropriate values. Failure to follow this warning could lead to a hazardous furnace operating condition and result in serious bodily injury or loss of life.

Determining Furnace Input - Natural Gas ONLY:

NOTE: Burner access panel of furnace must be in place when checking gas input.

1. Turn OFF all other gas appliances (except for pilot burners) served by the same gas meter.
2. With furnace operating in full heat cycle, note how many seconds it takes for one full revolution of the smallest dial on the meter. Typically, this will be a 0.05 - cubic metres (50 Litres) test dial.
3. Using the number of seconds for one revolution and the size of the meter dial, determine the cubic metres per hour of gas flow by using the formula provided below or Table 5.

$$\text{Cubic Mts/Hr} = \frac{\text{Number of Dial Revolutions x Cubic metres/Revolution x 3600}}{\text{Time (in seconds) Required for Number of Timed Revolutions}}$$

TABLE 5

Gas Rate (Cubic Metres per Hour) (0.05³ M/Rev)

Seconds for One Revolution	TEST DIAL 0.05³m m³/h	TEST DIAL Mj/h	Seconds for One Revolution	TEST DIAL 0.05³m m³/h	TEST DIAL Mj/h
10	18.00	697	36	5.00	194
12	15.00	581	38	4.73	183
14	12.86	257	40	4.50	174
16	11.25	435	42	4.28	166
18	10.00	387	44	4.09	158
20	9.00	348	46	3.91	151
22	8.16	317	48	3.75	145
24	7.50	290	50	3.60	139
26	6.92	268	52	3.46	134
28	6.43	249	54	3.33	129
30	6.00	232	56	3.21	124
32	5.62	217	58	3.10	120
34	5.29	205	60	3.00	116

4. Calculate the furnace input using the following formula:

Mj/H - Cubic Metres/Hr x Heating Value x Pressure factor

The local gas supplier should be able to provide the heating value of the gas, in Mj/cubic metre. If a specific value is not available, use 38.5 Mj/cubic metre.

⚠ WARNING

WARNING Furnace input should be maintained within ± 2% of the value on the rating plate or appropriate altitude derate. Adjust manifold pressure or change main orifices size if required.

5. Calculate the unit's actual input rate.

Example: If the heating value of the natural gas is 38.5 Mj/cubic metre and it takes 60 seconds to burn 0.05 cubic metre of gas then:

$$\text{Input} = \frac{38.5 \text{ mj/cu. m} \times 1 \text{ rev} \times 0.05\text{cu. m./rev.} \times 3600}{60 \text{ sec.}}$$

Input = 115.5 Mj/hr or 33.84kW.

Burner Orifice Sizing:

The furnace is supplied with standard orifices for the gas shown on the rating plate. Table 6 shows combinations of heating values and specific gravities for various gases, from which proper input can be obtained.

If changing orifices is required, remove the manifold from the furnace (following the instructions found on page 22) and replace orifices as required by Table 6, the altitude derating section of this instruction or as local code dictates.

TABLE 6

Burner Orifice Selection

Type of Gas@Manifold Pressure (Heating Value-Specific Gravity) Mj per Cu. Mt.	Orifice Size (Drill #)
Natural Manifold Pressure = 0.872 kPa	
800-0.6	40
900-0.6	41
1000-0.6	42
1100-0.6	43
Propane Manifold Pressure = 2.49 kPa	
2500-1.53	54

After securing the manifold assembly, replace all other components and/or wiring, being sure that all connections and screws are tightened properly.

Altitude Derating:

The following information is provided as guidelines for altitude derating and is not meant to supersede any state or local codes. Local codes have priority over any others and in some case might limit your options in dealing with an altitude derate situation.

NOTE: For altitudes up to 1372 metres, see the rating label on this furnace for proper manifold pressure and orifice size. Certification for installations at altitudes over 1372 metres is the jurisdiction of local authorities.

Check with your local gas company to find out if the gas supply in your area is derated. Gas deration negates the necessity of performing any adjustment on the furnace.

If your gas supply is not derated, and regardless of the type of gas used, installation of this furnace at altitudes above 610 metres requires an input reduction at the rate of four percent (4%) for each 305 metres above sea level.

Unless an orifice change is specified by an applicable code, or the furnace is to be installed above 2133 metres, the recommended method of altitude derating this furnace is to appropriately lower your manifold pressure. The appropriate manifold pressures based on the altitude and the heating value can be found in Table 7.

TABLE 7

High Altitude Manifold Pressure Derate

(with standard 42 orifice Natural / 54 orifice LP sizes)

Altitude (Feet)	*Heating Value of Natural Gas (BTU/FT3)					LP Propane
	900	950	1000	1050	1100	2500
0-999	4.32	3.88	3.50	3.16	2.84	10
1000-1999	4.32	3.88	3.50	3.16	2.84	10
2000-2999	3.67	3.29	2.97	2.68	2.41	8.46
3000-3999	3.38	3.04	2.74	2.47	2.22	7.74
4000-4999	3.11	2.79	2.52	2.27	2.04	7.05
5000-5999	2.88	2.58	2.33	2.10	1.89	6.40
6000-6999	2.64	2.37	2.14	1.93	1.73	5.77

* Heating-Value based on atmospheric pressure of 30 in hg and 15.5°C temperature.

If local codes require an orifices change or if the furnace installation is above 2133 metres. The appropriate orifice size based on the elevation and the heating value can be found in Table 8. Sizing of the orifice must be based on the previously mentioned 4% derate for each 305 metres for installations at/or above 610 metres rule and the orifices must be drilled in such a way as to assure concentricity. **Hand drilling of orifices is unacceptable.**

TABLE 8

High Altitude Orifice Size Derate

Altitude (Feet)	*Heating Value of Natural Gas (BTU/FT3)					LP Propane
	900	950	1000	1050	1100	2500
2000-2999	N.C.	N.C.	43	43	44	N.C.
3000-3999	N.C.	N.C.	43	44	44	N.C.
4000-4999	43	43	44	44	45	55
5000-5999	43	44	44	45	46	55
6000-6999	44	44	45	46	47	55
7000-7999	44	45	46	47	48	56
8000-8999	45	46	47	48	48	56
9000-9999	46	47	48	48	49	56
10000-10999	47	48	49	49	50	57

* Heating-Value based on atmospheric pressure of 30 in hg and 15.5°C temperature.

⚠WARNING

Hand drilling of orifices is never acceptable since it could lead to delayed ignition, overfiring, improper combustion, flashback and flame rollout. All these conditions could lead to a fire hazard and bodily harm, or loss of life.

Blower Adjustment Checkout:

Prior to any blower adjustment, electrical service must be turned OFF.

This furnace is equipped with a 3 speed direct drive motor to deliver a temperature rise within the range specified on the rating label, between the return and supply plenums, at the external duct static pressure noted on the rating label.

Adjust the blower speed so that the temperature rise is within the rise specified on the rating plate. Consult the wiring diagram for speed changes on the direct drive motor.

Limit Control Checkout:

After the furnace has been in operation for at least 15 minutes, restrict the return air supply by blocking the filters or closing the return registers and allow the furnace to shut down on high limit. The main burners will shut OFF and the main blower and combustion blower should continue to run. Remove the restriction and the burners should come back on in a few minutes.

Flame Rollout Switch:

This unit is equipped with two (2) manual reset flame-rollout switches that protects against improper venting of the flue gases from the heat exchanger due to blockage causing heat (or flames) to "rollout" into the burner box from the heat exchangers, either safety device will activate and shut off power to the automatic gas valve before there is damage to the furnace. The loss of power to the gas valve will shut off the gas burners. Should this occur, it will be necessary to determine the cause of the rollout, correct the condition that caused it, and reset the flame-rollout switch.

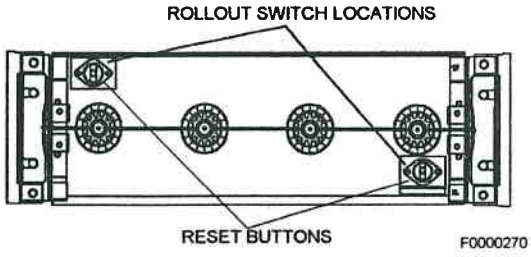
⚠WARNING

The furnace should be allowed to cool-off before attempting to reset the switch. Failure to follow these instructions could result in injury due to burns!

The switches are located behind the burner access panels they are accessed by removing the burner access panels from the furnace, and are reset by pushing in the button in the middle of the switch (between the two wire connections - See Figure 15). Very little force is required to push the reset button, and a "click" should be heard when the switch resets.

Figure 15

FLAME ROLLOUT SWITCH



Pressure Switch Check:

To check the operation of the pressure switch vent safety control, remove the vent from the combustion blower. Place the furnace into operation. Gradually cover up the blower outlet; the main burners should shut OFF. Remove the restriction and the unit should relight. Replace the vent adaptor and reseal the opened joints as required.

The operational checkout is now complete. Be sure to adjust the thermostat to the desired setting and inform the homeowner how to operate the furnace system before leaving the job site.

⚠WARNING

If the pressure switch activates to shut the furnace down, the vent system must be checked and cleared. Failure to do so may result in serious bodily harm or nuisance furnace shutdown and/or a hazardous condition that may lead to property damage, personal injury or death.

SERVICING THE FURNACE

⚠ CAUTION

Label all wires prior to disconnection when servicing controls. Wiring errors can cause improper and dangerous operation.

⚠ WARNING

The ability to properly perform maintenance on this equipment requires certain mechanical skills and tools. If you are at all uncertain, contact your dealer for qualified maintenance and service since improper service could lead to furnace shutdown or a hazardous condition which could lead to an unsafe condition and bodily harm.

Combustion Component Check:

The heat exchanger, gas burners and venting system must be checked each year, prior to the heating season, by a qualified dealer/serviceman.

The following procedures should be performed:

1. Remove the burner/manifold assembly from the furnace, follow the instructions found on this page.
2. Place the burner/manifold assembly on a flat work area and vacuum the burners. It might be necessary to use a soft bristly brush to remove dirt and then vacuum.
3. Disconnect wiring to combustion blower.
4. Disconnect wiring to pressure switch, and remove pressure switch.
5. Remove the burner opening inlet plate and the flue collector box with the combustion blower attached. This will expose both the burner and flue openings of the primary heat exchangers.
6. Vacuum the length of each heat exchanger tube using a straight attachment into the burner openings and the flue openings.
7. Replace the flue collector box, burner opening inlet plate, and burner/manifold assembly. Insure that all gaskets are properly positioned and that no leaks exist.
8. Reattach all wiring and piping as per the wiring diagram and installation instructions.
9. Turn on utilities and check for leaks using soapy water and a brush.
10. A visual check of the main burner should be made at the beginning of each heating season.
11. Check the input rate and adjust if necessary.
12. Perform a safety check of the limit control and pressure switch.
13. Check the air filter, clean and/or replace as necessary.
14. Replace the appropriate access panels or door.

⚠ WARNING

Never use an open flame when testing for gas leaks! Use of an open flame could lead to a fire or explosion!

⚠ CAUTION

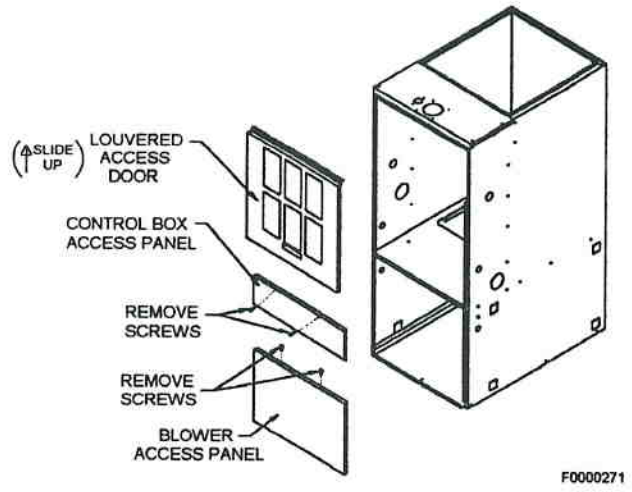
Many soaps used for leak testing are corrosive to certain metals. Piping must be rinsed thoroughly with clean water after leak check has been completed.

Manifold (or Burner/Manifold) Removal/Replacement:

1. Make sure that all utilities (gas and electricity) are turned off upstream of the furnace.
2. Remove the louvered access door by sliding the door straight up, swinging the bottom of the door away from the furnace, and pulling the door down and out of the furnace (See Figure 16).
3. Disconnect the gas line from the gas valve. Be sure that a wiring diagram is available, or be ready to mark any wires that are disconnected. Unplug the three connectors from the gas valve.

Figure 16

FURNACE PANEL REMOVAL



4. Disconnect wires from rollout switch.
5. Remove manifold or burner/manifold assembly.

Manifold ONLY

a. Remove the No. 10 screws that secure the manifold pipe to both legs of the manifold assembly. The manifold pipe must be supported during this step, or it could fall and damage the furnace or cause bodily injury!
b. Slide the manifold pipe (with valve and orifice) forward, out of the furnace.

Burner/Manifold Assembly

a. Remove the No. 10 screws that secure the burner/manifold assembly legs to the furnace. **The manifold pipe must be supported during this step, or it could fall and damage the furnace or cause bodily injury!**
b. Slide the burner/manifold assembly forward, out of the furnace until the assembly is clear of the manifold retention pins.
c. Rotate the assembly slightly, in order for the legs to clear the sides of the cabinet, and remove through the front of the furnace.
8. To reinstall the manifold pipe or burner/manifold assembly, reverse the above steps.

Blower Removal/Replacement:

Removal

1. Turn OFF all electrical power to the furnace.
2. Remove the control box access panel and blower access panel.
3. Unplug wires from the blower assembly to the control box.
4. Remove the four (4) screws securing the control box in the unit (two (2) in the cabinet at the sides of the blower door opening and two (2) at the top rear of the control box). Be sure to support the control box so that it does not fall!
5. Rotate the control box out of the cabinet and support it so that no strain is placed on any wiring. It may be necessary to disconnect the electrical supply and thermostat wiring from the control board.
6. Remove the blower retaining screws from the front of each blower leg (See Figure 17). These are the two (2) screws located in the blower compartment that secure the blower legs to the blower partition panel.
7. Slide the blower forward about two (2) inches. This will disengage the rear of the blower legs from the blower partition. Rotate the front of the blower down to clear the control box mounting tabs on the underside of the blower partition, and continue sliding the blower forward until it is out of the unit. Take care to clear the control box mounting tabs. If necessary, disconnect the auxiliary limit leads on the sides of the blower housing.

Replacement

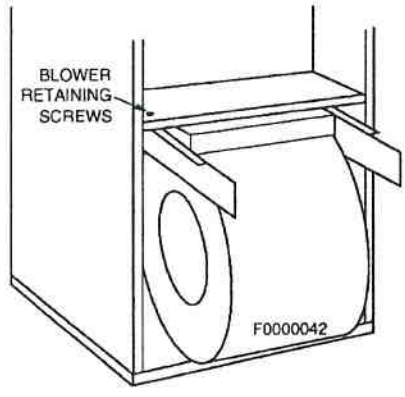
1. Place the blower in the blower opening of the unit and reconnect the auxiliary limit leads.
2. Slide the blower back, into the unit, taking care to clear the control box mounting tabs.
3. When the blower is about halfway into the cabinet, rotate the rear of the blower UP so that the rear of the blower legs engage the side rails in the blower partition.
4. Continue sliding the blower into the unit until the front of the blower housing is behind the control box mounting tabs. Rotate the front of the blower UP until the legs lie flat against the bottom of the blower partition, then slide blower fully into position. The rear of the blower should be against the stop in the partition and the rear of the blower legs should be under the partition.
5. Re-attach the two (2) blower securing screws, the control box, any disconnected wiring, the blower access panel, and the control box access panel.

Lubricating Motors:

Direct drive motor and blower assemblies are factory lubricated and normally do not require oiling. If oiling is required lubrication of the blower motor is to be performed only by a qualified service agency.

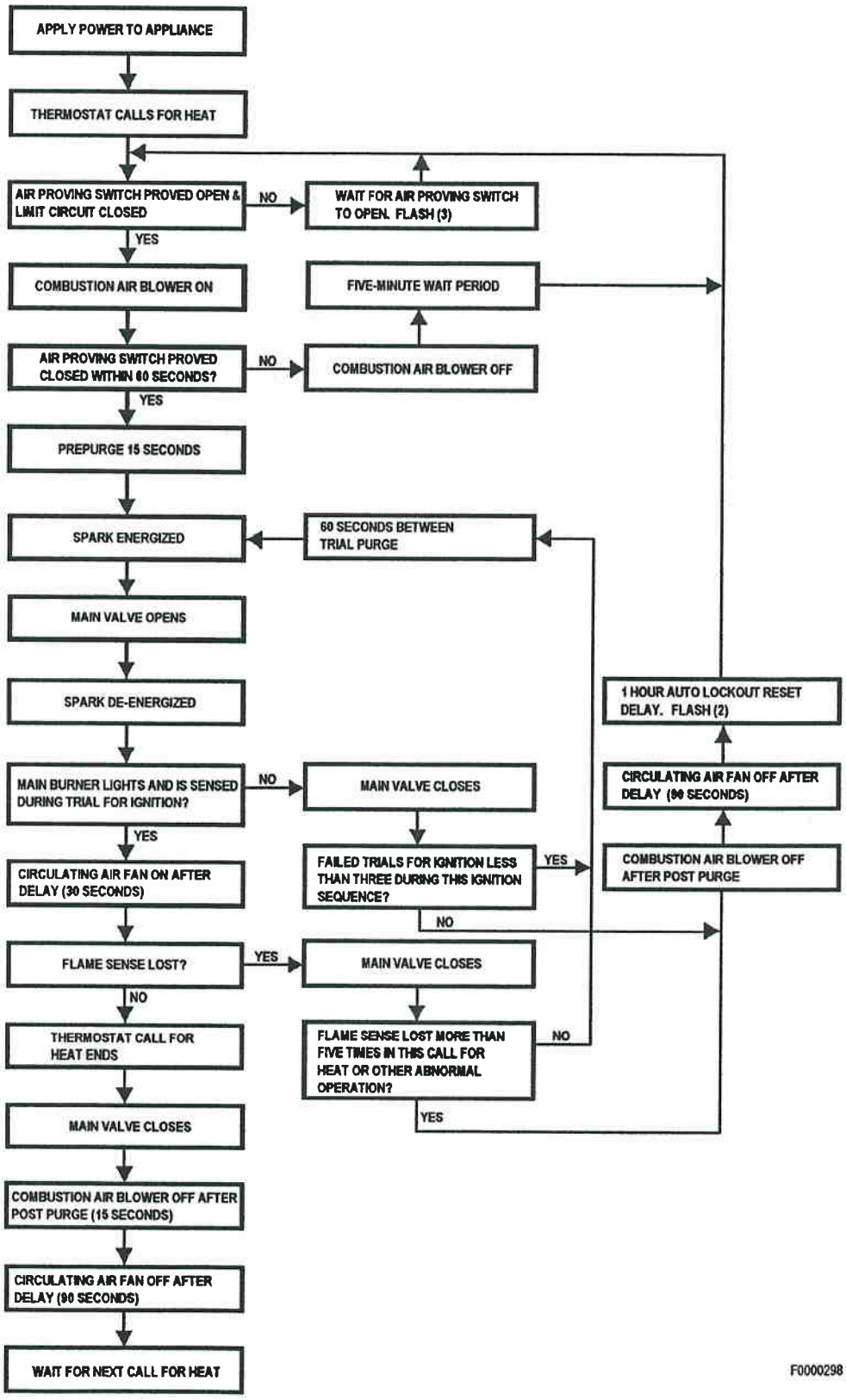
Figure 17

BLOWER REMOVAL AND REPLACEMENT



SEQUENCE OF OPERATION

DIRECT IGNITION SYSTEM CONTROL



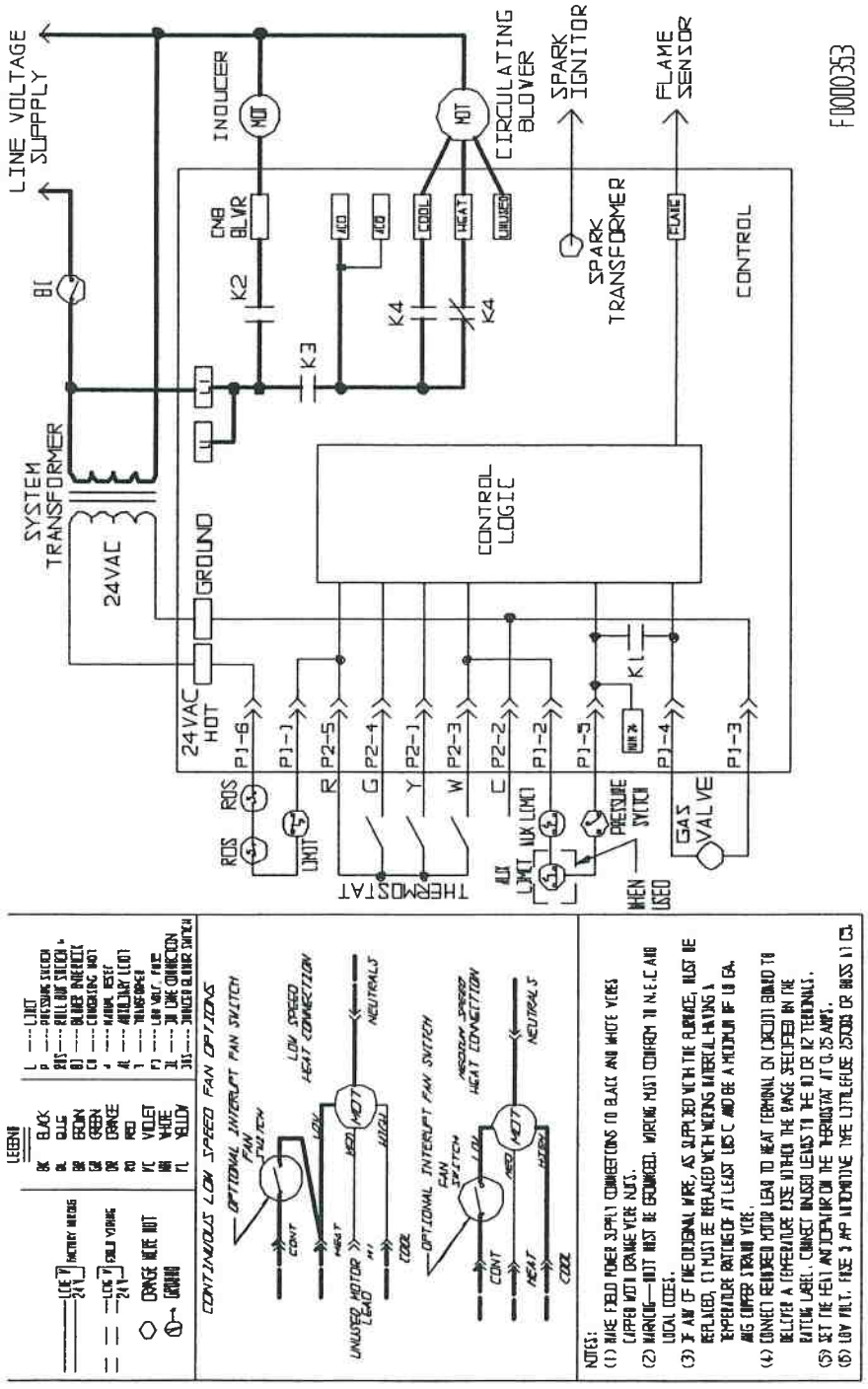
TROUBLE SHOOTING With LED Indicator Assistance

LED Flash Code	Indicates	Check/Repair
OFF	Control not powered or gas valve/control failure.	1. Line voltage input power at L1 and L2 connectors on (IFC) Board. 2. Low voltage (24Vac) power at 24VAC and COM on (IFC) board. 3. Fuse open on (IFC) board. 4. System wiring harness in good condition and securely connected at both ends. 6. Control not functioning, replace.
"Heartbeat"	Normal Operation (Standby).	
Fast "Heartbeat"	Call for heat.	
2 Flashes	Ignition re-try or recycle error.	1. Gas supply off or supply pressure too low to operate appliance. 2. Damaged or broken spark element. 3. Appliance power supply not properly earth grounded. 4. Flame sense rod contaminated, grounded to appliance chassis, or in incorrect location. 5. Spark element or flame sense wiring not properly connected. 6. Gas valve stuck, replace. 7. Move gas control switch to ON.
3 Flashes	Pressure switch closed when should be open-system waits until pressure switch opens, then proceeds with ignition sequence. Pressure switch or aux. limit was still open 60 seconds after the inducer was energized. System is in 5-minute delay mode, with inducer on. After 5- minute delay, new ignition sequence is initiated.	1. Pressure switch stuck closed. 2. Pressure switch miswired, jumpered or tubing open. 3. Pressure switch captured or out of calibration, replace. 4. Inducer and inducer wiring not connected. 5. Low line voltage power supply. 6. Obstructions or restrictions in appliance air intake or exhaust flue system that prevent proper combustion air flow. 7. Circulating air blower not operating. 8. Open auxiliary temperature limit.
4 Flashes	Limit or flame rollout switch open. Combustion air blower is energized. The heat speed circulating air fan will be energized. System waits for limit string to close, then initiates a new ignition sequence. System will remain waiting until flame rollout manual reset is activated.	1. Open high temperatures limit. 2. Open manual reset flame rollout switch in the limit circuit. 3. Limit and rollout switch circuit wiring in good condition and securely connected. 4. Circulating air fan wiring and operation. 5. Dirty air filters. 6. Blower speed too low. 7. Registers closed.
5 Flashes	Flame signal sensed out of proper sequence (with flame signal still present). Combustion blower energized. The heat speed circulation air fan will be energized after the selected heat fan on delay. System waits for flame signal to disappear, then goes to Soft Lockout.	1. Flame at main burner. 2. Flame sense ground to chassis
Steady ON	Control board fault hard lockout.	1. System wiring harness in good condition and securely connected at both ends. 2. All components functioning properly (i.e. inducer, blower, ignitor....). 3. Replace IFC control board.

Soft Lockout
The control shall not initiate a call for heat or call for continuous fan while in lockout. A call for cooling operates as normal. The control will still respond to an open limit and desired flame. Lockout shall automatically reset after 1 hour. Lockout may be manually reset by removing power from the control for more than 1 second or removing the thermostat call for heat for more than 1 and less than 20 seconds.

Hard Lockout
If the control detects a fault on the control board, the status LED will be energized steady and the control will lockout as long as the fault remains. A hard lockout will automatically reset if the hardware fault clears.

WIRING DIAGRAM



G34MV & EV SERIES

2-STAGE-SET-UP

THERMOSTAT INSTALLATION

Install a room thermostat according to the instructions furnished with it. Select a location on an inside wall not subject to drafts, direct sunshine or other heat sources. The initial heat anticipator setting should be equal to the total current draw of the control circuit.

Low voltage thermostat connections are to be made as indicated on the furnace 2 STAGE wiring diagram.

FURNACE CHECK-OUT

Before leaving, the installer should make the following checks to ensure that the controls are functioning properly.

CHECKING AND ADJUSTING GAS INPUT

The minimum permissible gas supply pressure for the purpose of input adjustment is 5 in. W.C. (1.25 kPa) for natural gas, 11 in. W.C. (2.74 kPa) for propane gas.

GAS PRESSURE REGULATOR

Gas input must never exceed the value shown on the furnace rating plate. The furnace is equipped for rated input at manifold pressures of 1.7 in. W.C. (0.42 kPa)–1st stage–and 3.5 in. W.C. (0.87 kPa)–2nd stage–for natural gas; 3.6 in. W.C. (0.90 kPa)–1st stage–and 10.0 in. W.C. (2.49 kPa)–2nd stage–for propane gas.

The manifold pressure can be measured by connecting a water manometer or gauge to the pressure tap in the downstream side of the gas valve.

Only small variations in gas input may be made by adjusting the regulator. In no case should the final manifold pressure vary more than 0.3 in. W.C. (0.07 kPa) from the above specified pressures.

Turn the gas valve ON. To adjust the regulator, turn the adjusting screw on the regulator clockwise to increase pressure and input;

Counter-clockwise to decrease pressure and input. There are separate adjusting screws for 1st stage (marked "LO", on top of solenoid coil) and 2nd stage (marked "HI", on outlet end of valve). NOTE: The pressure regulator adjustment is sensitive; one turn of the adjusting screw will result in a relatively large change in manifold pressure.

If adjustments are being made for propane gas, follow this procedure:

1. Adjust high fire setting by turning hex adjustment screw full clockwise.
2. Set low fire setting by turning the low fire adjustment screw clockwise (located on top of 2nd stage coil) to desired rate.
3. Set high fire setting by turning the high fire adjustment screw counter-clockwise to 10.0 in. W.C. (2.49 kPa) manifold pressure.

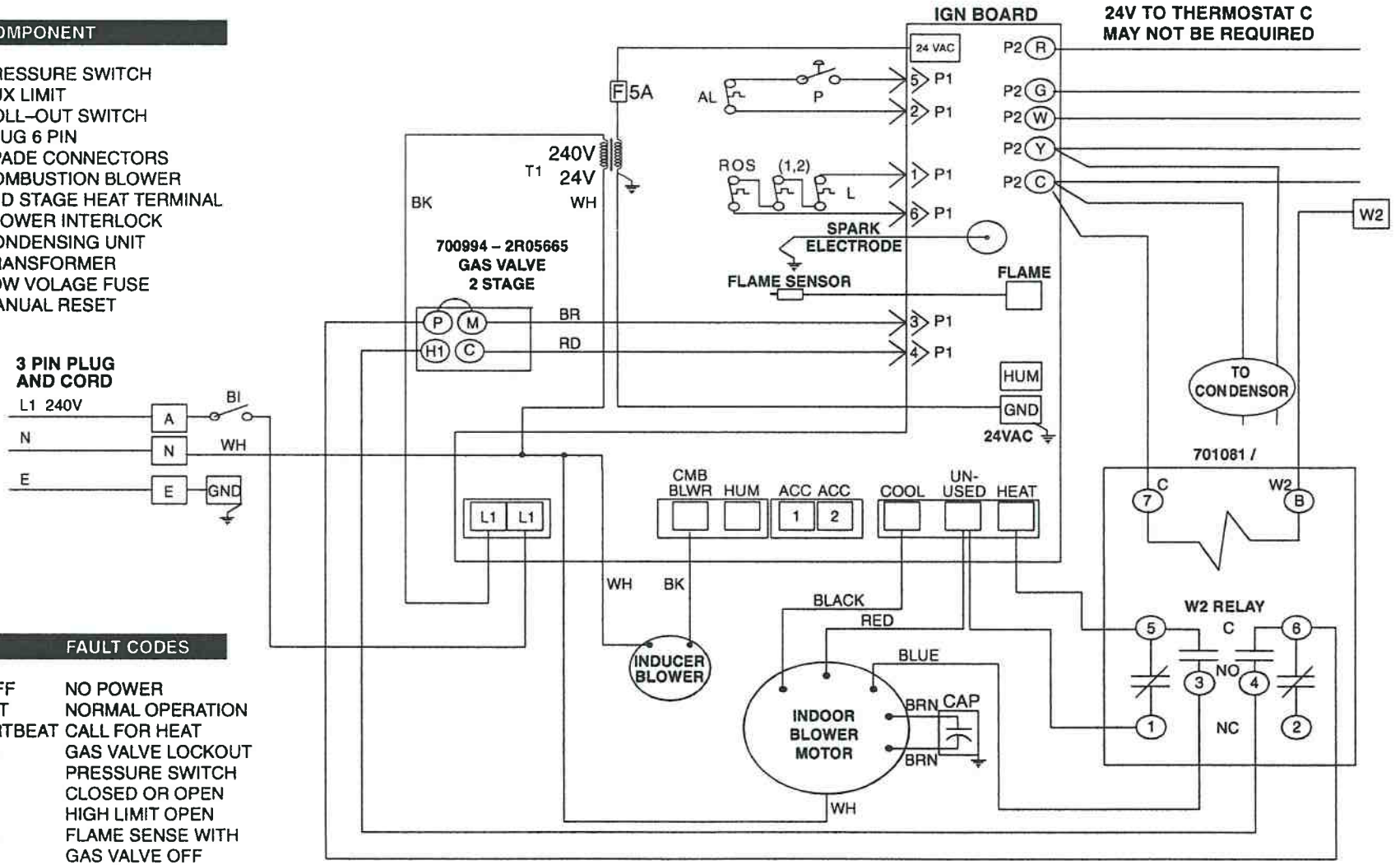
Important: Make sure the final high and low fire manifold pressures are within the allowable ranges specified above for the gas being used.

Check the furnace rate by observing the gas meter, when available, making sure all other gas appliances are turned off. The test hand on the meter should be timed for at least one revolution.

TEMPERATURE RISE

Check the temperature rise and, if necessary, adjust blower speed to maintain temperature rise within the range shown on the unit rating plate.

KEY	COMPONENT
P	PRESSURE SWITCH
AL	AUX LIMIT
ROS	ROLL–OUT SWITCH
P1	PLUG 6 PIN
P2	SPADE CONNECTORS
CMB	COMBUSTION BLOWER
W2	2ND STAGE HEAT TERMINAL
BI	BLOWER INTERLOCK
CU	CONDENSING UNIT
T1	TRANSFORMER
F	LOW VOLAGE FUSE
X	MANUAL RESET



LED	FAULT CODES
STEADY OFF	NO POWER
HEARTBEAT	NORMAL OPERATION
FAST HEARTBEAT	CALL FOR HEAT
2 FLASHES	GAS VALVE LOCKOUT
3 FLASHES	PRESSURE SWITCH CLOSED OR OPEN
4 FLASHES	HIGH LIMIT OPEN
5 FLASHES	FLAME SENSE WITH GAS VALVE OFF

BK	**BLACK**	**GR**	**GREEN**	**VI**	**VIOLET**
BL	**BLUE**	**OR**	**ORANGE**	**WH**	**WHITE**
BR	**BROWN**	**RD**	**RED**	**YL**	**YELLOW**

FLUE SIZING FOR HORIZONTAL FLUE

G34/G39M\E	HANDING	MINIMUM FLUE PIPE DIAMETER (mm)	MINIMUM FLUE EQUIVALENT LENGTH* (M)	MAXIMUM FLUE EQUIVALENT LENGTH* (M)
80	HORIZONTAL	102	3	9.2
80	UPFLOW DOWNFLOW	102	3	13.7
100	HORIZONTAL	102	3	9.2
100	UPFLOW DOWNFLOW	102	3	13.7
130	HORIZONTAL	122	3	9.2
130	UPFLOW DOWNFLOW	122	3	13.7

⚠ WARNING

RESTRICTIONS TO HORIZONTAL FLUING.

The use of horizontal only fluing is limited to flues passing through areas ventilated in accordance with **AG601 Cl.5.4.** The size and effective length of **double skin** flue for this application is listed in the table above.

Flues passing through any internal living space, cupboards, walls and the like, **must** have **double skin** flue sized in accordance with **AG601 Appendix H 1.3 Table H2.** and consist of vertical height to horizontal ratio specified therein.

Flues passing through any space where there may be occasional human or animal occupancy, even for short periods of time, such as garages, crawl spaces, roof spaces, and the like, that are not ventilated in accordance with **AG601 C1.5.4. must** have **double skin** flue sized in accordance with **AG601 Appendix H 1.3 Table H2.** and consist of vertical height to horizontal ratio specified therein.

NOTES

One 90° elbow equals 1.5 M of straight pipe. One 45° elbow equals 0.75 M of straight pipe. Maximum number of bends to be applied is five (5).

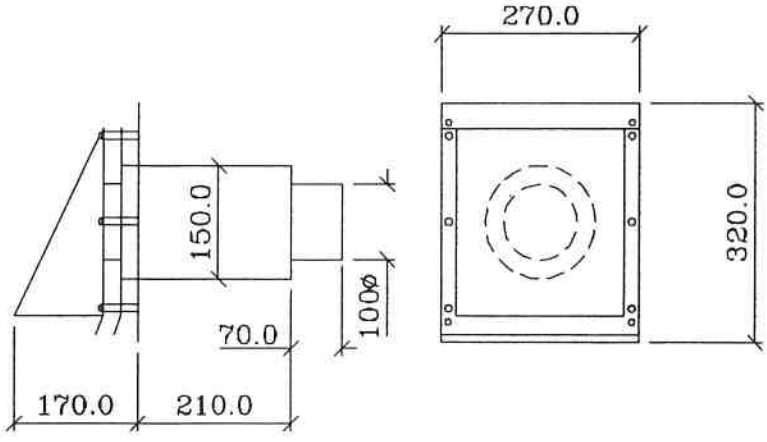
All horizontal flue pipe runs should have minimum 6.4mm per 300mm of upward slope from furnace to flue terminal and should be accessible for periodic inspection.

Flues must be terminated, vertically, with an **A.G.A.** approved cowl, or horizontally, with a Lennox horizontal flue terminal #700955 and adaptor available from your Lennox supply office.

Terminal height to be minimum of 300 mm above ground level and in accordance with **AG601** for minimum clearance from building openings and other limitations.

For longer flues and combined flues refer to the **AGA. AG-601 Gas Installation Code.**

E type-External furnaces may be installed internally and in this case the flue is to be treated for UPFLOW orientation.

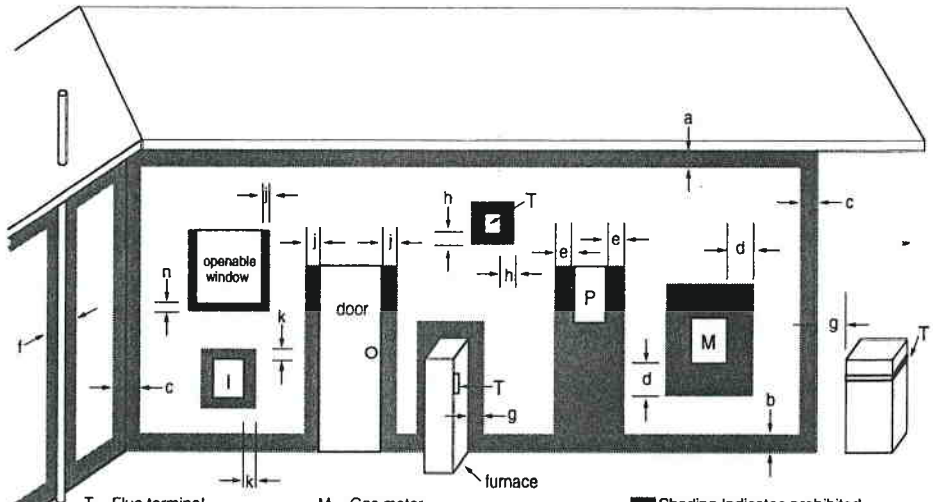


HORIZONTAL
FLUE TERMINAL
#700955

VENTING

The G24E unit is shipped standard for top flue discharge. A flue adapter is supplied with the furnace. It must be installed on the outside of the furnace .

FLUE TERMINATION CLEARANCES



T = Flue terminal
I = Mechanical air inlet
M = Gas meter
P = Electricity meter or fuse box
Shading Indicates prohibited areas for flue termination

Ref.	Item	Minimum clearances mm	
		Natural draft	Fan assisted
A	Below eaves, balconies and other projections: • Appliances up to 50 MJ/h input • Appliances over 50 MJ/h input	 300 500	 200 300
B	From the ground, above a balcony or other surface •	300	300
C	From a return wall or external corner •	500	300
D	From a gas meter (M) (see 4.7.11 for vent terminal location of regulator)	1000	1000
E	From an electricity meter or fuse box (P)	500	500
F	From a drain pipe or soil pipe	150	75
G	Horizontally from any building structure • or obstruction facing a terminal	500	500
H	From any other flue terminal, cowl, or combustion air intake •	500	300
J	Horizontally from an openable window, door, non-mechanical air inlet, or any other opening into abuilding with the exception of sub-floor ventilation: • Appliances up to 150 MJ/h input • Appliances over 150 MJ/h input up to 200 MJ/h input • Appliances over 200 MJ/h input • All fan-assisted flue appliances, in the direction of discharge	 500 1500 1500	 300 500 1500 1500
K	From a mechanical air inlet, including a spa blower	1500	1000
N	Vertically below an openable window, non-mechanical air inlet, or any other opening into a building with the exception of sub-floor ventilation: • Space heaters up to 50 MJ/h input • Other appliances up to 50 MJ/h input • Appliances over 50 MJ/h input and up to 150 MJ/h input • Appliances over 150 MJ/h input	 150 500 1000 1500	 150 500 1000 1500

• Unless appliance is approved for closer installation

NOTES:

1 All distances are measured to the nearest part of the terminal.
2 Prohibited area below electricity meter or fuse box extends to ground level.
3 See Clause 5.13.6.6 for restrictions on a flue terminal under a covered area.
4 See Appendix J, Figures J2(a) and J3(a), for clearances required from a flue terminal to an LP Gas cylinder. A flue terminal is considered to be a source of ignition.
5 For appliances not addressed above, approval shall be obtained from the Authority.

G34M/MV & G34E/EV SERIES

GAS FURNACES

INSTALLATION INSTRUCTIONS - SUPPLEMENT

IN THESE INSTALLATION INSTRUCTIONS

Any reference to "Qualified Installer" or "Service Technician" should be read as "Authorised Personnel".

Any reference to "Vent" or "Venting" should be read as "Flue" or "Flueing".

Any reference to installation and service must be to Australian Gas Association – AG601 and local requirements.

For conversion from imperial measurements to metric use:

1 cubic foot	=	0.028 cubic metres
1 BTU/Hr	=	0.001055 Mj
1 square inch	=	645.2 square mm
1 inch	=	25.4 mm
1 inch w.c.	=	0.25 Kpa
1 foot	=	0.3048 metres
1 cubic foot/hr	=	1.055 Mj/hr

Any reference to American or Canadian Codes to also include Australian Association Standard AG601.

Any reference to 120 volts replace with 240 volts.

THIS APPLIANCE MUST NOT BE INSTALLED ON ITS BACK.

FAILURE TO PROPERLY SEAL FLUE SYSTEM COULD ALLOW CARBON MONOXIDE LEAKAGE RESULTING IN INJURY OR DEATH.

BEFORE LEAVING THIS INSTALLATION, TEST APPLIANCE AS PER PROCEDURES IN INSTALLATION INSTRUCTIONS AND DATA PLATE.

NOTES