

SERVICE INSTRUCTIONS

Gas Fireplace & Gas Log Fire

TM036

VERMONT

Revision: A

Published: January 08



**LHEC30
RFSDV34**

Contents

Safety Warning	3
Introduction	3
Model Identification	3
Specifications	4
Fluing	5
Wiring Diagrams	6
Components and Their Function	7
Gas Valve Features	8
Operation	9
Lighting Instructions	12
Remote Controller Operation	12
Recognition Signal	12
On (Manual) Mode	13
Auto Mode	13
Off Mode	14
Other Functions	14
Preventative Maintenance	15
Common Faults	16
Fault Finding	17
Checking Inlet Gas Pressure	17
Checking Burner Gas Pressure	17
Adjusting the Pilot Flame	18
Adjusting the Ignition Plug Gap	18
Gas Valve Safety Shutdown Test	18
Fault Indication	18
Error Code 3	19
Error Code 8	19
Fault Diagnosis Sequence (General Fault Finding Chart)	20
Fault Finding Chart 1	21
Fault Finding Chart 2	22
Fault Finding Chart 2.1 & 2.2	23
Fault Finding Chart 3	24
Fault Finding Chart 4	26
Fault Finding Chart 5	27
Fault Finding Chart 5.1 & 5.2	28
Fault Finding Chart 6	29
Fault Finding Chart 6.1 & 6.2	32
Fault Finding Chart 6.3	33
Electrical Insulation Testing	33
Fault Finding Chart 7	34
Fault Finding Chart 8	35
Component Replacement Procedures – LHEC30	35
Component Replacement Procedures – RFSDV34	41
Exploded View 1 – LHEC30	47
Exploded View 2 – RFSDV34	49
Gas Type Conversions	51
Warranty	52
Document Revision History	53

Safety Warning

The purpose of this service manual is to provide sufficient information to allow a person with the skills as required by the Regulatory Authorities to carry out effective repairs to a Vermont Gas Fireplace or Gas Log Fire in the minimum of time.

Safety precautions or areas where extra care should be observed when conducting tests outlined in this service manual are indicated by print in ***bold italics*** and/or a warning symbol. Take care to observe the recommended procedure.



Certain diagnostic procedures outlined in these Service Instructions require “live” testing to be conducted. Personal Protective Clothing (PPE) shall be worn and an RCD shall be installed between the power point and 3-pin cord of the log fire to reduce the risk of electric shock.



If the supply cord is damaged, it must be replaced by the manufacturer or its service agent or a similarly qualified person in order to avoid a hazard.

Introduction

The information provided in these instructions is based on the Gas Fireplace or Gas Log Fire being installed in accordance with the Installation Instructions provided with each log fire.

Should you require further technical advice on a Rheem Vermont Gas Fireplace or Gas Log Fire, contact your nearest Rheem Service Department where genuine replacement parts are also available.

Model Identification

The identification numbers are located on the log fire rating plate. LHEC30 rating plate is located on slide out tray behind front lower access louvre. RFSDV32 rating plate is located on inside face of right hand side panel.

Each log fire is supplied with a remote controller as standard.

LHEC30 Inbuilt Gas Fireplace	NG	Propane
Black surround, top & bottom louvres	LHEC30RFN	LHEC30RFP
3 piece stainless steel surround, black top & black bottom louvres	LHEC30RFN-3PSS	LHEC30RFP-3PSS
4 piece stainless steel surround, black top & black bottom louvres	LHEC30RFN-4PSS	LHEC30RFP-4PSS

RFSDV34 Freestanding Gas Log Fire*	NG	Propane
Black surround, top & bottom louvres	RSFDV34RFN	RSFDV34RFP

* Includes a draught diverter with integral ‘blocked flue safety switch’ which must be installed and wired by a licensed technician. Refer to ‘Wiring Diagrams’ on page 6 for more information.

Specifications

Specification	LHEC30	RFSDV34
Power supply	240 VAC 50Hz	
Electrical connection	10A 3 pin plug	
Gas input – NG	32 MJ/hr	
Gas input – P	32 MJ/hr	
Output	6.3 kW	
Heating Capacity (cool climate)	69m ²	
Colour	Charcoal grey	
Heating type	Convection/Radiant	
Circuit resistance (overall A - N)	27.1 ohms	
Fan resistance	12 ohms	
Gas valve gas connection	3/8"NPT	
Gas valve resistance (A – N)	13 Mega-ohms (using multimeter – do not megger)	
Transformer resistances	Primary 27 ohms / Secondary 13.3 ohms	
Transformer voltages	Primary 240 VAC / Secondary 115 VAC	
Thermopile 1 voltage (generated)	500mVDC	
Thermopile 2 voltage (generated)	280mVDC	
Pilot flame adjustment level	10 – 13mm vertically high	
Ignition plug gap	3mm	
Heater external dimensions (mm)	H 555 W 760 D 430	H 810 W 660 D 495
Weight	44kg	77kg
Minimum flue length	3.7m	3m
Maximum flue length	10.7m	12m
Blocked flue switch cut out temp	132°C	218°C
Installation method	Inbuilt	Freestanding
Remote controller	Included as standard	

Gas Pressures	LHEC30	RFSDV34
Min gas inlet pressure - NG	1.1 kPa	
Min gas inlet pressure - Propane	2.75 kPa	
Max gas inlet pressure - NG	3.5 kPa	
Max gas inlet pressure - Propane	3.5 kPa	
Burner gas pressure - NG	0.87 kPa	
Burner gas pressure - Propane	2.5 kPa	

Minimum Clearances (mm)	LHEC30	RFSDV34
Back	N/A	0
Sides	N/A	305
Floor	N/A	0
Top	N/A	915
Corner	N/A	0
Mantle height	610 above upper louvre	N/A
Mantle maximum depth	200	N/A

Fluing

To comply with the requirements of **AS5601** the LHEC30 gas fireplace and RFSDV34 gas log fire must be flued.

The LHEC30 is certified for a minimum flue length of 3.7 m and a maximum flue length of 10.7m whilst the RFSDV34 is certified for a minimum flue length of 3m and a maximum flue length of 12m.

The LHEC30 may be installed in and vented through any solid fuel fireplace that has a minimum opening of 730x535x395mm and has been constructed and installed in accordance with state or local building codes and is constructed of non-combustible materials, however any flue damper or blockage must be removed from the chimney prior to installation of the log fire.

AS5601 clause 5.13.5 states that a flue shall not be located in, or through, lift wells, clothes chutes, rubbish chutes, air ducts or ventilating ducts.

AS5601 clause 5.13.5.5 states that the clearance between a flue and any electrical wiring or fitting, telephone cable or communication wiring shall not be less than 75mm where the flue or log fire includes a draught diverter.

AS5601 clause 5.13.5.7 states that the clearance between a certified twin wall (twin skin) metal flue and a combustible surface shall be at least 10mm.

AS5601 clause 5.13.5.8 states that the clearance between a single wall metal flue and a combustible surface shall be at least 25mm (For these log fires this pertains to the single skin section of flue that extends through the roof space).

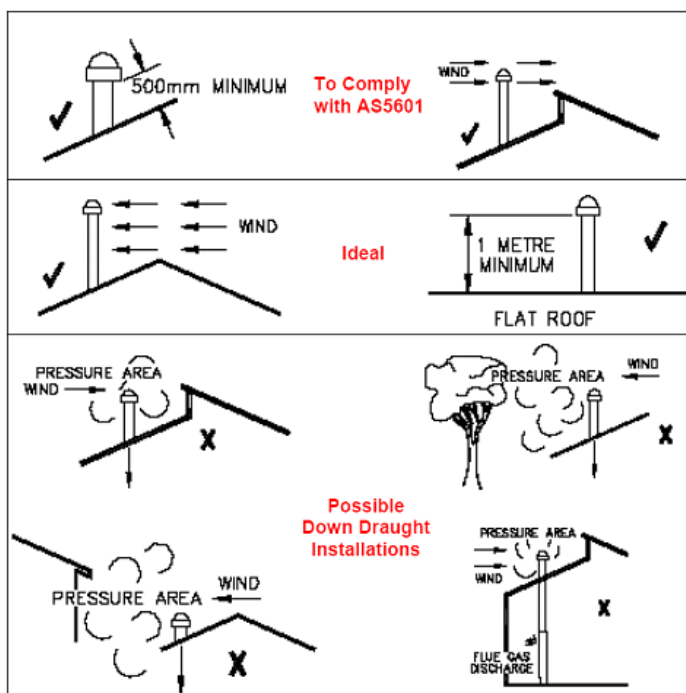
AS5601 clause 5.13.6.1 states that the termination point of a flue shall be located in relation to neighbouring structures that wind from any direction will not be likely to create downdraught in the flue or chimney.

AS5601 clause 5.13.6.2 states that where a flue is to terminate above:

(a) a roof, the end of the flue shall be at least 500mm from the nearest part of the roof;

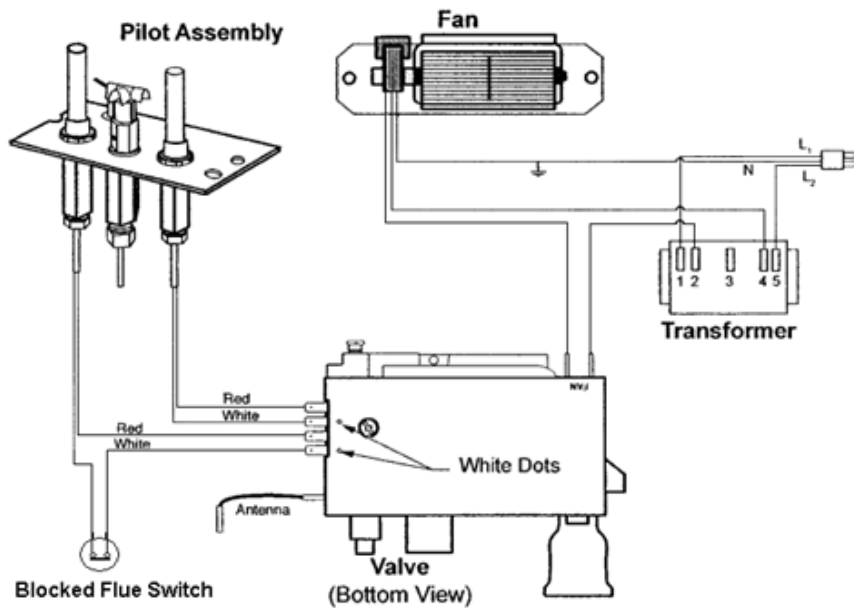
(b) a trafficable roof designed for personal or public use, the end of the flue shall be at least 2m above the roof level. This dimension is to be increased where necessary so that a minimum distance of 500mm is maintained above any surrounding parapet; or

(c) a chimney, the end of the flue shall be at least 200mm from the nearest part of the chimney.

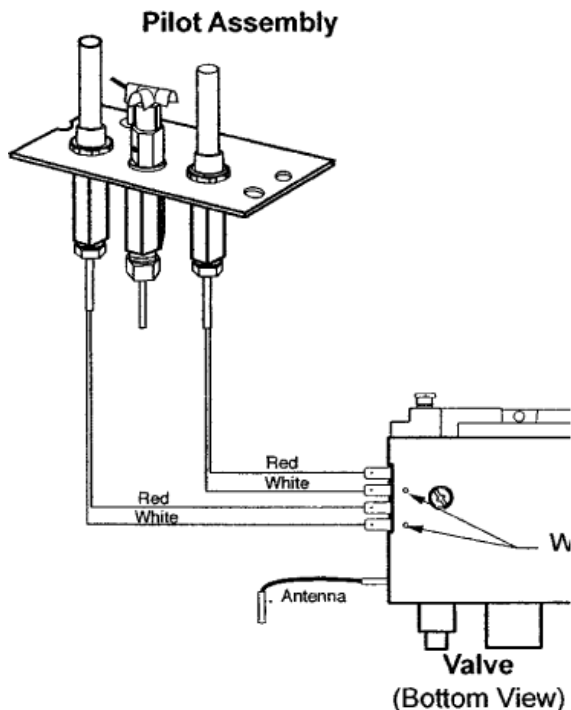


Wiring Diagrams

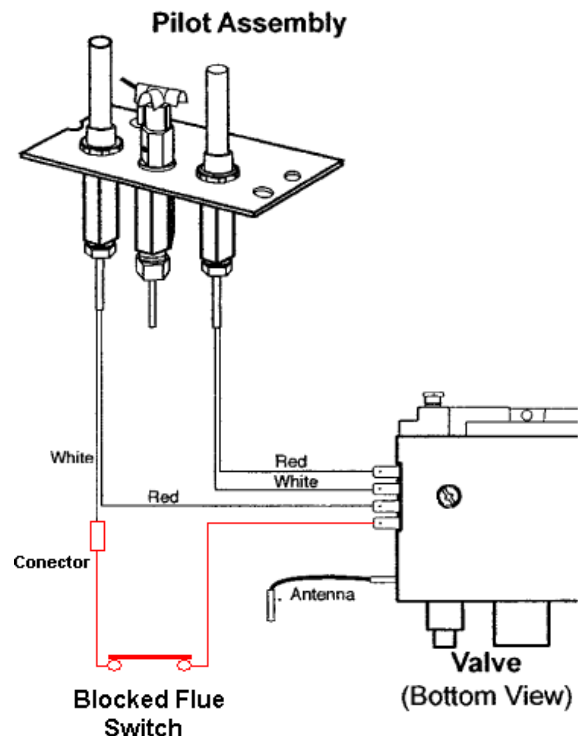
Wiring Diagram – LHEC30 & RFSDV34



When installing the RFSDV34 the draught hood adapter (draught diverter) supplied with the log fire *MUST* be installed. The draught diverter has an inbuilt 'blocked flue safety switch' which *MUST* be wired in series with thermopile circuit 1 by the installing technician. The log fire must not be operated unless the draught diverter is installed and the blocked flue switch wired as per the installation instructions & wiring diagram shown below.



RFSDV34 wiring diagram as supplied and before draught diverter installation.



RFSDV34 wiring diagram after draught diverter installation & wiring (blocked flue switch and flue switch wiring shown in red).

Components and Their Function

Transformer

The transformer converts the incoming supply voltage from 240 VAC to 115VAC.

Fan

The fan moves air from outside the log fire through the back of the heater and out through the front louvre via an air flow chamber. The air flow chamber is separated from the combustion chamber and is heated by conduction. The heated air is then circulated by the fan (convection heating). Fan speed may be controlled by the remote controller via the gas valve which varies the voltage supply to the fan motor thus controlling the fan speed.

Secondary Flue

The secondary flue draws combustion gasses from the combustion chamber and vents these gasses to atmosphere. Flue draw is created by an increase in temperature within the flue due to the hot combustion gasses rising up the flue which simultaneously draws clean air into the combustion chamber via the air intake louvres.

Blocked flue switch

A blocked flue switch is located in the flue section of each log fire. The blocked flue switch is temperature sensitive and provides a safety shutdown function in the event of a blocked flue by open circuiting the thermopile circuit and shutting down the gas valve. The blocked flue switch comes pre-wired on the LHEC30 but is supplied separately for the RFSDV34 and **must** be installed and wired at time of installation (refer to wiring diagrams on page 6).

The blocked flue switch on the LHEC340 will automatically reset (close) when sufficiently cool (<132°C) however the blocked flue switch on the RFSDV34 is a manual reset type and has a pin which is pushed to reset the switch. The reset switch can only be reset if the switch temperature is less than 218°C.

Pilot assembly

The pilot assembly is comprised of the pilot, ignition (spark) plug and two thermopiles. Each component of the pilot assembly is detailed under its own separate heading.

Pilot

The pilot delivers gas from the gas valve which is then ignited by a spark from the ignition plug. The burner is ignited by cross lighting from the pilot. The pilot is a 'permanent pilot' type. This means that the pilot is manually lit and remains on regardless of the burner operation. The pilot can only be extinguished under normal operating conditions when the log fire is manually turned off (pilotstat knob manually rotated to the 'off' position).

Ignition Plug

The ignition plug ignites the pilot gas by supplying a spark (high voltage) which arcs from the ignition plug to the hood of the pilot (earth potential). The high voltage is generated by the piezo igniter.

Thermopile

A thermopile is a group of thermocouples encased in a metal housing. The thermocouple generates a voltage when heat is applied and the sum of the generated voltage is utilised to electromagnetically hold open the pilot and burner gas valves; thus providing a safety shut off in case of pilot flame failure. Each log fire has two thermopiles.

Burner Manifold

The burner manifold directs gas from the gas valve to the front and rear burner injectors. The burner manifold has an aeration shutter which controls the air gas ratio for delivery to the injectors. The aeration shutter is preset and the position remains the same for both gas types.

Injectors

Both log fires have three injectors (pilot, burner front and burner rear). The pilot injector delivers gas to the pilot whilst the burner injectors deliver gas from the burner manifold to the burner for combustion. Injector size is dependent upon gas type (refer to 'Gas Type Conversion Procedure' on page 51 for more information).

Burner

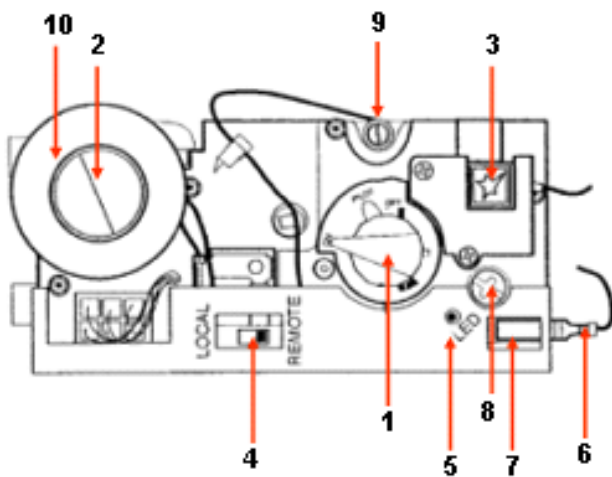
The burner is where combustion occurs. The gas valve supplies gas to the burner manifold which in turn supplies gas to the burner via a front and rear injector. The gas is then injected into the burner and ignited by cross lighting from the pilot flame.

Gas valve

A Honeywell RV8310D gas valve is utilised for burner control and provides manual piezo ignition, flame modulation, flame monitoring and LED indication. It also allows for remote control of temperature, fan and flame appearance via a hand held remote control unit. The gas valve is available in NG or Propane and is gas type convertible (refer to 'Gas Type Conversion Procedure' on page 51 for more information).

Gas Valve Features

1. **Pilotstat knob:** The pilotstat knob is used to light and turn the log fire on and off (refer to 'Lighting Instructions' on page 12 for more information).



2. **Modulating motor:** The modulating motor drives the gas valve open or closed in seven stages ranging from 0 – 6, with 0 being fully closed and 6 being fully open.

3. **Piezo Igniter:** When pushed, the piezo igniter creates a high voltage which is sent to the ignition plug. The high voltage is created when a spring loaded striker is manually activated striking an internal crystal. The high voltage jumps (arcs) across the ignition plug gap trying to find a path to earth and ignites the gas flowing through the pilot injector.

4. **Local/Remote switch:** This switch is set on 'Local' when lighting the log fire. After lighting the log fire and turning the pilotstat knob to 'on' it may be left on 'Local' or switched to 'Remote'. If left on 'Local' the gas valve will operate on full flame (gas valve fully open) and full fan speed with only the fan speed able to be adjusted by the remote controller. If set on 'Remote' the remote controller can be used to adjust the flame height (gas valve modulation) and fan speed.

5. **LED:** The LED will flash to indicate gas valve and/or remote control operation and will also indicate a thermopile or gas valve fault.

6. **Antenna:** The antenna receives transmissions from the remote control. The antenna should hang in free air away from grounded (earthed) metal.
7. **Gas type plug:** There are two gas type plugs available, one for NG and one for Propane. This plug determines the gas type the gas valve operates on (refer to 'Gas Type Conversion Procedure' on page 51 for more information).
8. **Pilot adjustment screw:** This screw is utilised to adjust the pilot flame height by altering the gas pressure to the pilot. Remove the outer screw cap and turn the internal screw clockwise to decrease the pilot flame and anti-clockwise to increase the pilot flame. It should be noted that the pilot gas pressure is the only gas pressure that can be adjusted at the log fire.
9. **Inlet gas test point:** The inlet gas pressure can be measured at this point using a manometer. The test point screw is captive and cannot be removed. To connect a manometer, unscrew the test point screw several turns in an anti-clockwise direction and attach a ¼" ID manometer hose with the screw in place. Note: The inlet gas pressure cannot be adjusted at the log fire.
10. **Burner gas test point:** The burner gas pressure can be measured at this point using a manometer. This test point screw is also captive and should be connected to with a manometer as per the inlet gas test point. (This test point is located behind the modulating motor and cannot be seen in the diagram on page 8). Note: The burner gas pressure is fixed and cannot be adjusted.

Operation

The LHEC30 and RFSDV34 utilise the same gas valve, pilot assembly, fan assembly, igniter, transformer and remote control to provide radiant/convection heating. Although aesthetically the log fires are quite different, operation is identical.

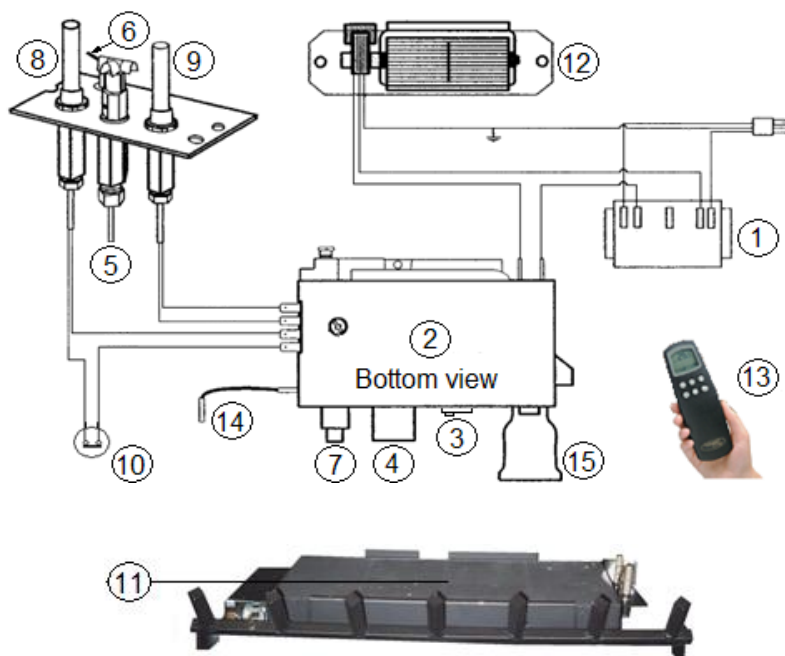
Sequence of Operation

Refer to 'Sequence of Operation Component Diagram' on page 10 to view components shown in brackets e.g. **(1)**.

1. The incoming 240VAV power supply is converted by the transformer **(1)** to 115VAC.
2. The gas valve **(2)** LOCAL/REMOTE selector switch **(3)** is manually set on 'LOCAL' and the pilotstat knob **(4)** is manually turned to the 'PILOT' position and depressed; allowing gas entry via an internal pilot valve to the pilot **(5)**.
3. Ignition is provided by a spark which is generated at the ignition (spark) plug **(6)** by manually pressing the piezo igniter **(7)**.
4. The gas passing through the pilot **(5)** is ignited by the ignition spark and the resulting flame impinges on thermopile 1 **(8)** and thermopile 2 **(9)** which both generate a voltage after a period of several seconds (hot start) to one minute (cold start).
5. If the blocked flue switch **(10)** is closed, the resulting voltage generated by thermopile 1 **(8)** and thermopile 2 **(9)** will create an electromagnetic field in the gas valves **(2)** internal pilot valve solenoid which holds the internal pilot valve open after the pilotstat knob **(4)** is released.

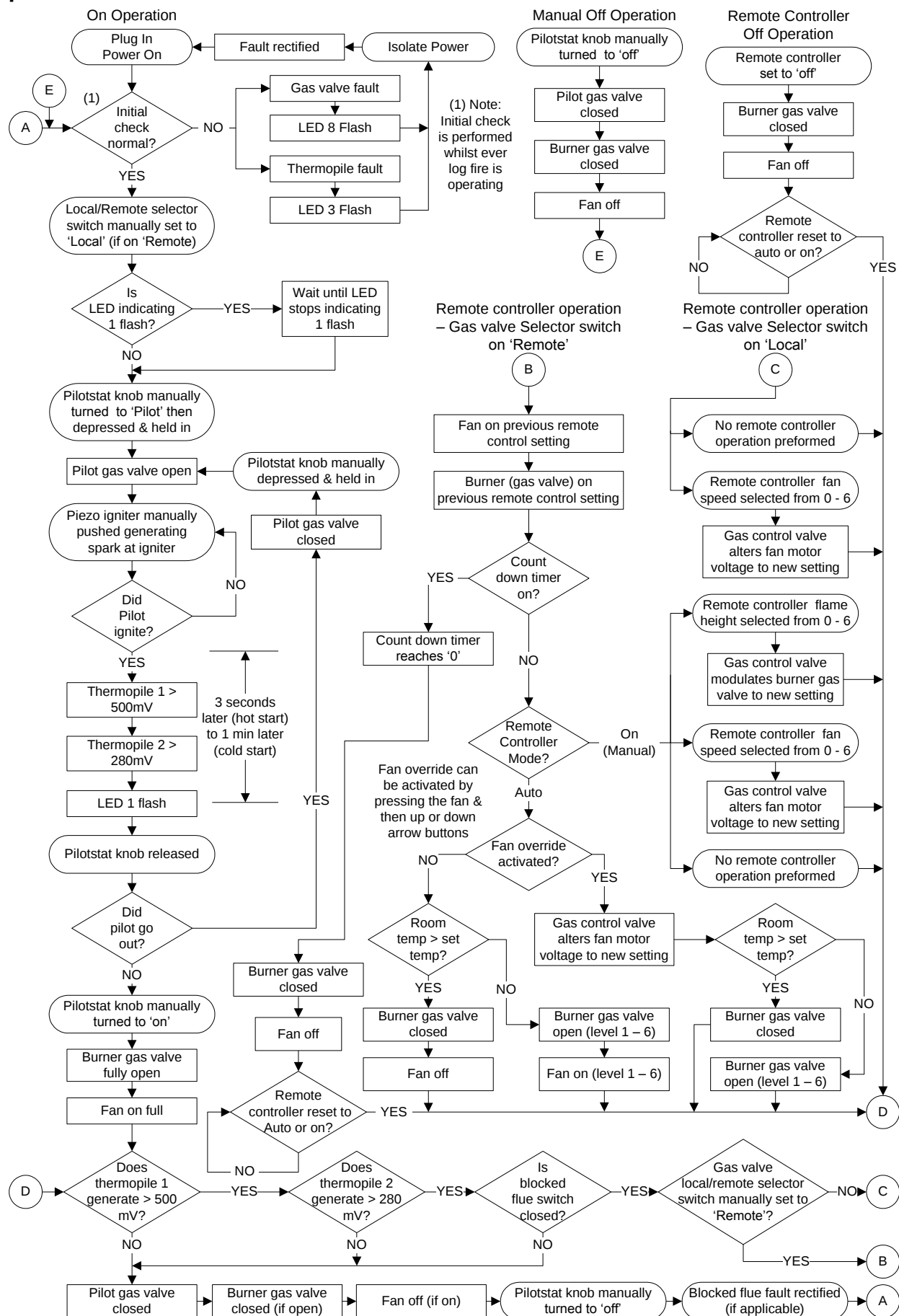
6. After successful ignition the pilotstat knob **(4)** is then manually turned to the 'ON' position allowing gas entry via the gas valves **(2)** internal main valve to the burner **(11)**. The burner **(11)** and fan **(12)** will now operate on full flame and full speed and both the internal pilot valve solenoid and internal main valve solenoid are held open by the voltage generated by thermopile 1 **(8)** and thermopile 2 **(9)**, provided the blocked flue switch **(10)** remains closed.
7. After successful ignition and operation in 'LOCAL' mode, the LOCAL/REMOTE selector switch **(3)** may be set on 'REMOTE' allowing burner flame and fan speed to be adjusted manually or automatically by the remote controller **(13)**. The gas valve **(2)** has an antenna **(14)** which receives the remote controller's **(13)** signals.
8. The gas valve **(2)** modulating motor **(15)** responds to the remote controller **(13)** signal by opening or closing in seven stages of modulation (0 = off & 6 = full flame) regulating the gas supply to the burner **(11)**. Likewise the gas valve **(2)** will vary the voltage output to the fan motor **(12)** controlling the fan speed in response to the remote controller **(13)** signal. Refer to 'Remote Controller Operation' on page 12 for information on operating the remote controller.
9. The pilot and burner will turn off if any of the following circumstances occur:
 - The pilotstat knob **(3)** is manually rotated to the 'OFF' position.
 - Thermopile 1 **(8)** generates less than 500mVDC.
 - Thermopile 2 **(9)** generates less than 280mVDC.
 - The blocked flue switch **(10)** open circuits. This will occur at a temperature of 132°C for the LHEC30 and 218°C for the RFSDV34.

Sequence of operation Component Diagram



- | | |
|----|------------------------------|
| 1 | Transformer |
| 2 | Gas Valve |
| 3 | Local/Remote Selector Switch |
| 4 | Pilotstat Knob |
| 5 | Pilot Light |
| 6 | Ignition Plug |
| 7 | Piezo Igniter |
| 8 | Thermopile 1 |
| 9 | Thermopile 2 |
| 10 | Blocked Flue Switch |
| 11 | Burner |
| 12 | Fan |
| 13 | Remote Controller |
| 14 | Antenna |
| 15 | Modulating Motor |

Operational Flow Chart



Lighting Instructions

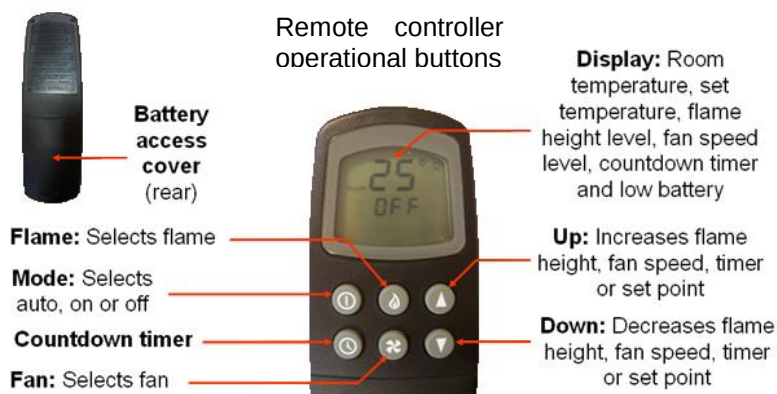
1. Ensure the LOCAL/REMOTE selector switch on the gas valve is set on LOCAL.
2. Remove the log fire glass door.
3. Turn the pilotstat knob to the PILOT position, push the pilotstat knob down and hold it in the depressed position. The pilot valve is now open and will allow gas to flow to the pilot.
4. Push and release the piezo igniter until the pilot flame is established. When lit, continue to hold the pilotstat knob in the depressed position until the gas valve LED flashes (this will take from several seconds (hot start) to one minute (cold start)). When the LED is flashing the thermopile is generating sufficient voltage to hold the gas valve open and the pilotstat knob can then be released. If the pilot goes out repeat steps 3 to 4 until lit.
5. Replace the glass door.
6. Turn the pilotstat knob to the ON position. The burner will now light on full flame and the fan will operate on full speed.
7. For remote control operation turn the LOCAL/REMOTE selector switch to the REMOTE position.
8. To turn the log fire OFF push in the pilotstat knob slightly and rotate to the OFF position.

It should be noted that the pilotstat knob cannot be turned from the OFF to PILOT position whilst the gas valve LED is flashing. This is a safety device which may occur if the log fire has been switched off after or during operation and is due to the thermopiles generating a voltage from residual heat. When the thermopiles cool (approx 30 seconds) the pilotstat knob may be operated as normal.

Remote Controller Operation

Both log fires are supplied with and can be operated by a remote controller which is powered by three AAA batteries.

The remote controller will not turn the pilot or gas valve ON or OFF however it can control the burner flame height and fan speed manually or automatically.



Recognition Signal

Upon initial use of the remote controller a recognition signal operation is required to be performed between the gas valve and the remote controller.

To perform this procedure switch the LOCAL/REMOTE selector switch on the gas valve to the REMOTE position and press the fan or flame button on the remote controller within 30 seconds. The LED on the gas valve will flash once indicating the signal has been received. The gas valve has now been programmed to the remote controller frequency and may be operated manually (ON mode) or automatically (AUTO mode) by the remote controller.

Note: The LOCAL/REMOTE selector switch on the gas valve **must** be in the REMOTE position for the remote controller to operate the log fire (except fan speed).

On (Manual) Mode

Press and release the 'Mode' button until 'On' is displayed on the controller.

After a two second delay the burner and fan will turn on and operate on the previously used settings. The information shown on the diagram opposite will be displayed on the remote controller display.



To adjust the main burner flame level press and release the flame button. The flame icon will be displayed along with the current flame level setting. The flame level setting can then be adjusted from 0 to 6 in increments of 1 by pressing and releasing the up or down arrow buttons. If the flame level is set on '0' the burner will turn off however the pilot will remain lit.

After a two second delay from the operation of any button the controller will accept the new setting and revert to the previous display. The flame level will then change to the new setting.

Likewise, to adjust the fan speed press and release the fan button. The fan icon will be displayed along with the current fan speed setting. The fan speed setting can then be adjusted from 0 to 6 in increments of 1 by pressing and releasing the up or down arrow buttons. If the fan level is set on '0' the fan will turn off.

After a two second delay from the operation of any button the controller will accept the new setting and revert to the previous display. The fan level will then change to the new setting.

Auto Mode

Press and release the 'mode' button until 'Auto' is displayed.

After a two second delay the information shown on the diagram opposite will be displayed on the remote controller display.



If the room temperature is higher than the set point temperature the burner and fan will not turn on (or will turn off if already on). The flame and fan levels will both indicate '0' (off) and will not operate however the gas valve and pilot will remain on.

To adjust the set point temperature press and release an up or down arrow button. The set point temperature will then be displayed.

The set point temperature can then be adjusted in increments of 0.5 degrees by pressing and releasing the up or down arrow buttons.

After a two second delay from the operation of any button the controller will accept the new setting and revert to the previous display.

If the set point temperature is now higher than the room temperature the optimum flame and fan levels will automatically be selected to reach or maintain the set point temperature. These levels (of modulation) will depend upon the differential between the set point temperature and the room temperature i.e. larger differential = higher flame and fan levels.

For example: If there is a differential of 2.5 degrees the controller may automatically determined that a flame height of 6 and a fan speed of 6 is required. When the room temperature has reached the set point temperature the controller may then automatically determine that a flame height of 1 and fan speed of 1 is required to maintain this temperature.

Fan Override: It should be noted that when in auto mode the fan speed will be the same as, and will automatically rise and fall with the flame speed. If a lower or higher fan speed is desired, the fan speed can be overridden by pressing and releasing the fan button and then adjusting the fan speed manually using the up or down arrow buttons as previously explained.

If the fan speed has been overridden in this manner 'Auto' will be displayed next to the flame icon and 'Manual' will be displayed next to the fan icon.

To revert to the auto fan setting, cycle through to 'Auto' by pressing and releasing the mode button until 'Auto' appears for the second time ('Auto' will first appear when the mode button is pressed and released however you must cycle past this until 'Auto' appears again).

Off Mode

Press and release the 'mode' button until 'OFF' is displayed. After a two second delay from the operation of any button the burner and fan will turn off and room temperature and 'OFF' will be displayed on the controller.

Other Functions

Temperature Unit of Measurement: The temperature unit of measurement can be changed from °C to °F and vice versa. To do this press and hold down the up and down arrow buttons simultaneously until the display value changes (approximately three seconds). This function may be performed whilst the remote controller is in any mode.

Countdown Timer: A countdown timer is available and can be activated when the remote control is in the 'ON' (Manual) or 'AUTO' mode. The countdown timer can be set from 10 minutes to 2 hours and will turn the burner and fan off when it reaches zero.

To activate the countdown timer first ensure the remote is in 'ON' or 'AUTO' mode then press and release the timer button.

The timer time can then be adjusted up or down in ten minute increments by pushing and releasing the up or down arrow buttons. After a 2 second delay the time will be accepted. The display will then revert to the relevant setting (ON or AUTO) and the timer time will be displayed along with the usual information.

When the countdown timer reaches zero the burner and fan will turn off and the remote control will revert from 'ON' or 'AUTO' mode to 'OFF' mode.

The countdown timer can be cancelled at any time after activation by pressing and releasing the countdown timer button until --:-- is shown on the display. After a two second delay the display will revert to the previously used setting and the delay timer will be cancelled.

Preventative Maintenance

It is suggested for peak performance that the log fire be serviced annually. Servicing is to be performed by qualified persons.

1. Remove log set and larva rocks.
2. Clean the glass panel(s) with a non-ammonia based household cleaner and warm water (gas fireplace glass cleaner is recommended for use as a cleaning agent). Check the glass and gasket for cracks or damage and replace the glass frame assembly and/or gasket if necessary.



Only glass and gaskets approved by Raypak Australia may be used for replacement. The use of substitute glass and/or gaskets will void all warranties.



Under no circumstances is the log fire to be operated without the front glass or with a broken glass panel or gasket. Replacement of the glass including the gasket is to be performed by a licensed and qualified person.

3. ***Isolate power*** and check all electrical connections for signs of overheating due to poor connection.
4. Check the 3 pin plug and lead for damage and replace if necessary.
5. Clean the fan by blowing out with compressed air, vacuuming or by brushing with a soft bristled brush.
6. Check the burner and clean if necessary by blowing out with compressed air, vacuuming or by brushing with a soft bristled brush. Replace the burner if any cracks are evident in the burner ceramic tiles.
7. Check the ignition plug gap and reset to 3mm if required (refer to 'Adjusting the Ignition Plug Gap' on page 18).
8. Check the inlet gas pressure at the log fire and advise the customer if not within specification (refer to 'Checking Inlet Gas Pressure' on page 17).
9. Check the burner gas pressure (refer to 'Checking Burner Gas Pressure' on page 17). Note: The burner gas pressure is preset and cannot be adjusted. If the inlet gas pressure is correct and the burner gas pressure is not within specification the gas valve will require replacement.
10. Check the pilot flame and adjust if necessary (refer to 'Adjusting the Pilot Flame' on page 18).
11. Check the pilot and burner flames to ensure flame is not lifting off and/or spluttering. Clean pilot injector and burner front and rear injectors if required. Flame lift off can also be indicative of a cracked burner ceramic tile(s).
12. Check flue for blockage or build-up of foreign material and clean if necessary.
13. Check air passages for blockage or build up of foreign material and clean if necessary.
14. Reposition log set and larva rocks. Replace any logs if broken.
15. Replace remote controller batteries and check remote controller operation.
16. Perform a gas valve safety shut down test (refer to page 18).

Common Faults

When a complaint is lodged about the performance of a gas fireplace or gas log fire there are a number of causes that should be checked and eliminated. In an attempt to pinpoint the most likely cause it is important to discuss with the customer their reasons for the complaint, the duration of the problem, any change in circumstances or usage and recent weather conditions. This information in conjunction with the following listed common complaints will assist you in locating the most likely cause.

Condensate Forms on the Glass Panel

Condensate forming on the inside of the glass panel during start up is normal. Condensation is caused by the air inside the combustion chamber heating to the dew point of the moisture in the air causing it condensate and collect on the glass surface. The condensate will evaporate from the glass as the temperature inside the combustion chamber increases past the dew point temperature.

Creaking and/or Cracking Noises

It is normal for heating appliances fabricated from steel to give off some expansion and/or contraction noises during the start-up or cool down cycle.

Log Fire Produces an Odour

It is not unusual for a Raypak Vermont gas fireplace or gas log fire to produce some odour the first time it is operated. This is due to the burn-off of residual oils utilised during the manufacturing process. These odours should disappear after approximately 10 hours of operating time.

For this reason it is recommended that when the log fire is operated for the first time it is operated for at least 10 hours on high with the fan in the OFF position. Ensure all windows are open during this initial firing period to provide adequate ventilation.

Odours could also be caused by the following:

1. A partially blocked flue. Check the flue and clear or clean if necessary.
2. A build up of lint or dust. This may be especially obvious if the log fire has not been operated for some time. Clean the log fire if necessary.
3. Foreign material being placed in the log fire. The log fire is suitable only for the approved gas type as indicated on the rating label. No other combustible material such as wood, paper or coal is to be used, nor is any other gas type to be used. Note: This does not preclude the use of a different gas type provided a gas conversion has been performed by a suitably qualified person in conjunction with the gas type conversion procedure shown on page 51.

Fan does not operate

If the three pin plug is not plugged in or there is no power available at the power point the log fire can still be lit and the burner will operate on high flame, however the fan will not operate. If the fan is not operating, check to ensure that the 3 pin plug is plugged in, the power point is switched on and that there is power available at the power point.

Fan Speed or Flame Height Cannot be Adjusted by Remote Controller

If the fan speed and flame height cannot be adjusted by the remote controller check the following:

1. Ensure the three pin plug is plugged in and power is available at the power point. Without power the log fire can still be lit and the burner will operate on high flame, however the fan will not operate and flame height cannot be adjusted utilising the remote controller.
2. Ensure the gas valves receiving antenna is connected, is hanging in free air and is not touching any metallic part of the log fire.
3. Ensure the remote controller's batteries are not low. Replace batteries if necessary.
4. Re-teach the gas valve the remote controller frequency. Refer to 'Remote Controller Operation' on page 12 for information on performing this procedure.

If the four items shown above have been checked and eliminated and the fan is operating however the remote controller will still not control the fan speed or flame height, the gas valve may require replacement. Refer to fault finding chart 7 on page 34 for a more thorough fault finding analysis before replacing the gas valve.

Fault Finding

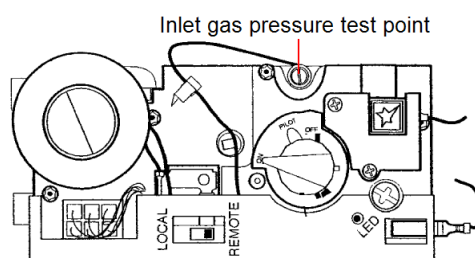
Test Equipment

A list of test equipment which will assist in conducting diagnostic procedures is provided below. This equipment is available from Rheem Service Spare Parts Department.

Description	Part Number
Fine probe adapter kit	WH0020082
Probe to alligator clip kit	WH0020084

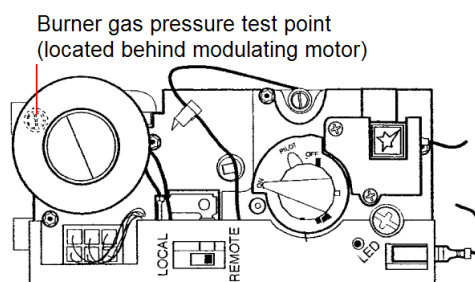
Checking Inlet Gas Pressure

The inlet gas pressure can be measured at the inlet gas pressure test point on the gas valve using a manometer. The test point screw is captive and cannot be removed. To connect a manometer, unscrew the test point screw several turns in an anti-clockwise direction and attach a ¼" ID manometer hose with the test point screw in place. Refer to the specifications table on page 4 for indicative inlet gas pressures. Note: The inlet gas pressure cannot be adjusted at the log fire.



Checking Burner Gas Pressure

The burner gas pressure can be measured at the burner gas pressure test point on the gas valve using a manometer. The test point screw is captive and cannot be removed. To connect a manometer, unscrew the test point screw several turns in an anti-clockwise direction and attach the manometer hose with the test point screw in place. Refer to the specifications table on page 4 for indicative burner gas pressures. Note: The burner gas pressure is fixed and cannot be adjusted.

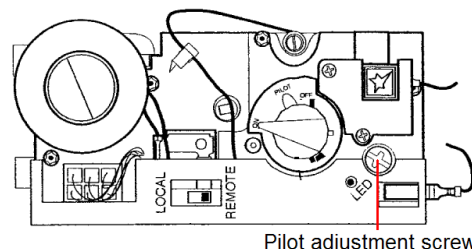
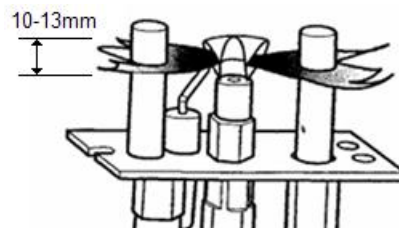


Adjusting the Pilot Flame

When lit, the pilot should produce a flame 10 – 13mm vertically high that impinges evenly across both thermopiles.

The pilot flame can be adjusted by rotating the pilot adjustment screw on the gas valve which will alter the gas pressure to the pilot. Unscrew and remove the outer cap and turn the internal screw clockwise to decrease the pilot flame or anti-clockwise to increase the pilot flame.

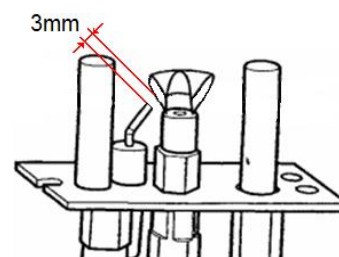
If the pilot flame cannot be adjusted, is uneven or splutters, the gas supply and pressure should be checked as should the pilot injector to ensure it is clean and not blocked with foreign matter.



Pilot adjustment screw

Adjusting the Ignition Plug Gap

The ignition plug gap should be set at 3mm. This gap is measured between the ignition plug probe and the closest point on the hood of the pilot. The ignition plug gap can be adjusted by gently bending the ignition plug probe the required direction with a pair of long nose pliers. Be careful not to crack or break the ceramic body of the ignition plug whilst adjusting.



Gas Valve Safety Shutdown Test

The gas valve safety shutdown test should be performed whenever the gas valve is replaced, adjusted or gas type converted.

To perform the gas valve safety shut down test follow the procedure outlined below.

1. Light the log fire by following steps 1 – 6 of the lighting instructions on page 12.
2. Rotate pilotstat knob to the pilot position. The main burner should extinguish however the pilot should remain lit.
3. Extinguish pilot flame by isolating the gas supply to the log fire.
4. When the pilot flame extinguishes, immediately restore the gas supply to the log fire. Gas flow to the pilot should cease within 30 seconds from pilot outage (gas valve safety shut off activated).
5. Relight log fire and operate through one complete cycle to ensure all controls operate correctly including remote controller operations.

Fault Indication

Both log fires utilise a simple form of fault indication which is provided by the gas valve LED. As mentioned previously the gas valve will blink when lighting the pilot and once after every command from the remote control, these are not fault indications.

It should be noted that failure codes may occur anytime after the pilot has been lit and in the event of multiple failure codes the first failure code will be followed by a three second delay then the second failure code will be displayed.

Error Code 3

Error code 3 is a thermopile related fault and is indicated by three 0.5 second flashes separated by a 30 second off period between each series of flashes. If this fault occurs check the following:

1. Disconnect power and ensure all thermopile spade connectors are pushed on firmly and are making contact. Check blocked flue switch to ensure it is not open circuit. Restore power. If error code 3 is still displayed move on to step 2.
2. Disconnect power and switch the front two thermopile wires with the back two thermopile wires ensuring that the white leads are connected to the spade terminal with the 'white dot' next to it (refer to wiring diagram on page 6). Restore power; if error code 3 is still displayed replace both thermopiles.

Note: This procedure can be performed by following fault finding chart 2.1 on page 23.

Error Code 8

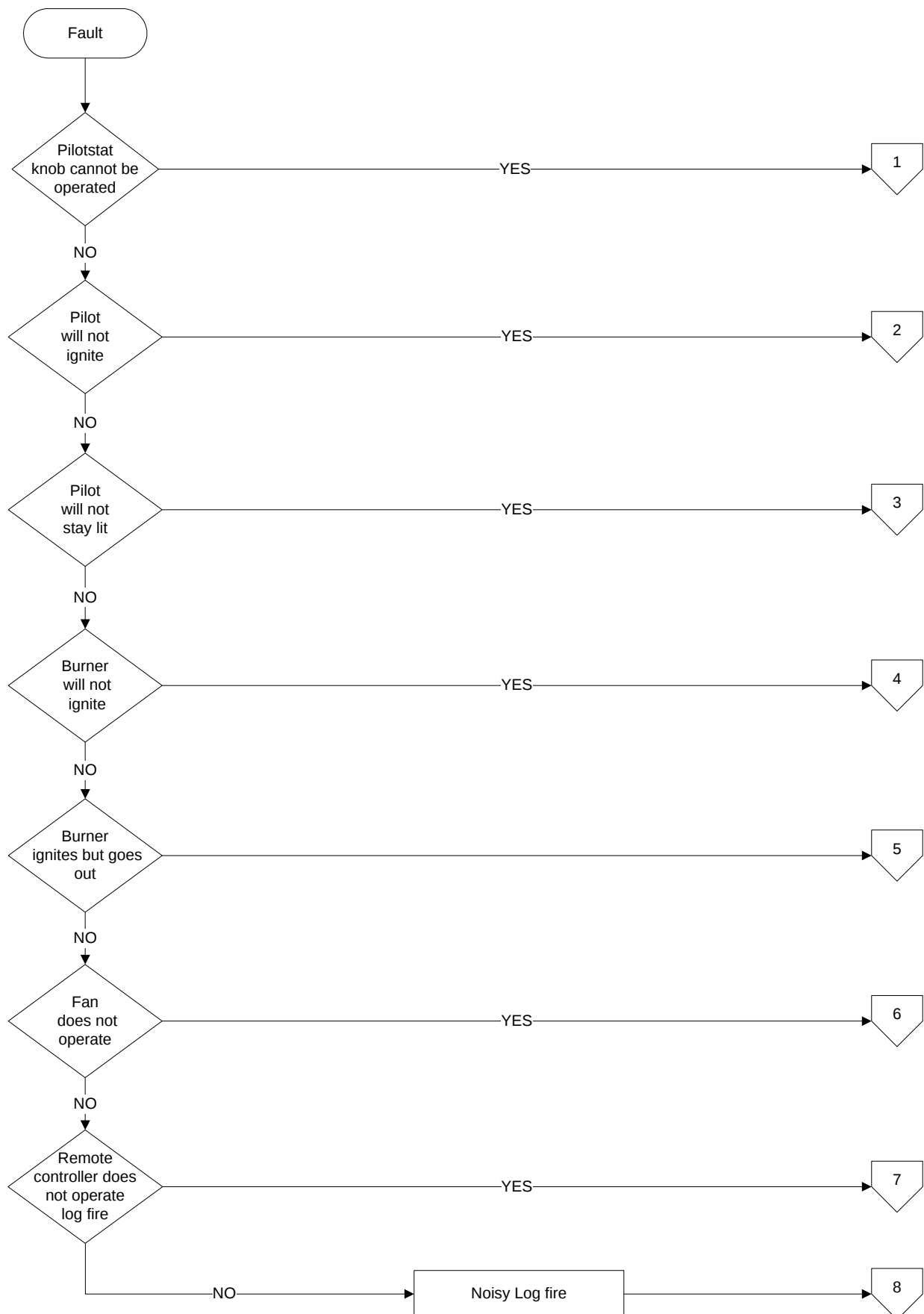
Error code 8 is a gas valve related fault and is indicated by eight 0.5 second flashes separated by a 30 second off period between each series of flashes. If this fault occurs check the following:

1. Ensure the gas valve receiving antenna is firmly connected, hanging in free air and is not touching any metal (earth).
2. Confirm that the gas valve is not in REMOTE mode. If the gas valve is in remote mode and is indicating error code 8 the gas valve is defective and will need to be replaced. If the gas valve is in LOCAL mode and is indicating error code 8 go to step 3.
3. Switch the gas valve local/remote switch to REMOTE and re-teach the valve the remote control signal (refer to 'Recognition Signal' on page 12). The error code should clear itself after approximately 1 ½ minutes and then return to normal operation; if error code 8 is still displayed replace the gas valve.

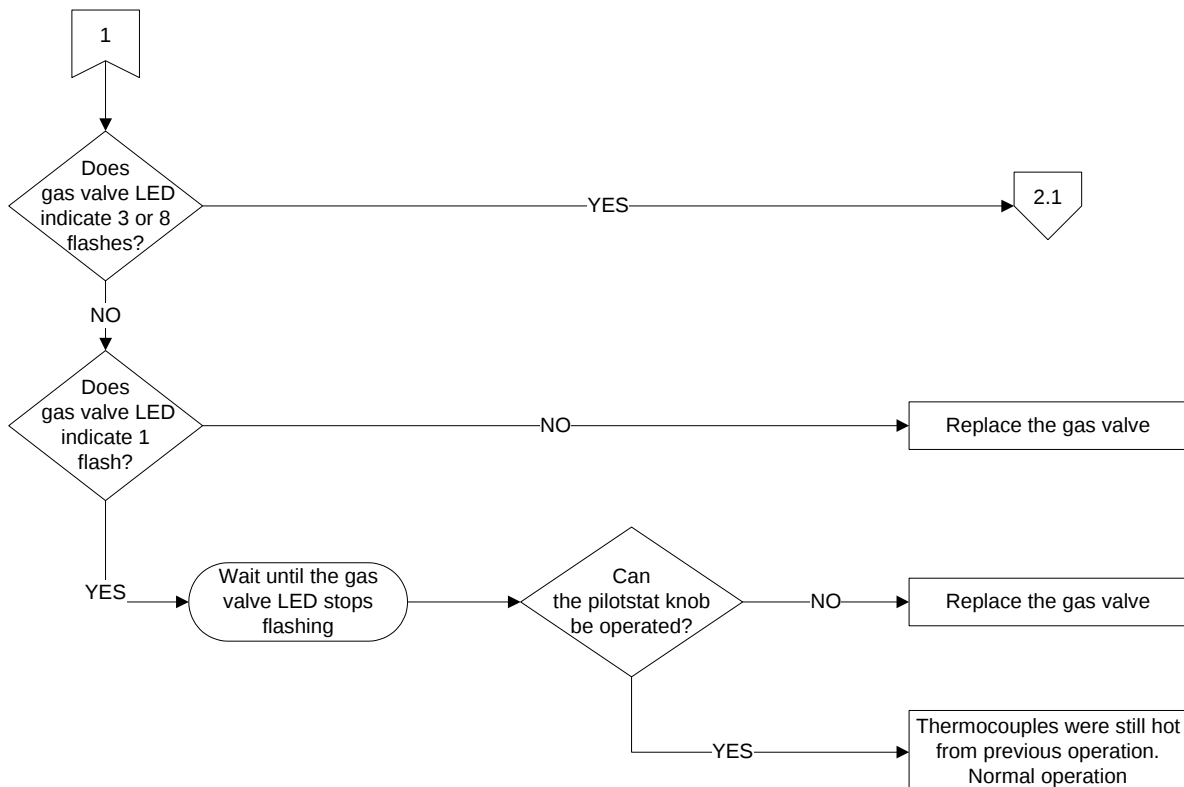
Note: This procedure can be performed by following fault finding chart 2.1 on page 23.

Fault Diagnosis Sequence (General Fault Finding Chart)

General Fault Finding Chart



Fault Finding Chart 1



Fault Finding Test 1

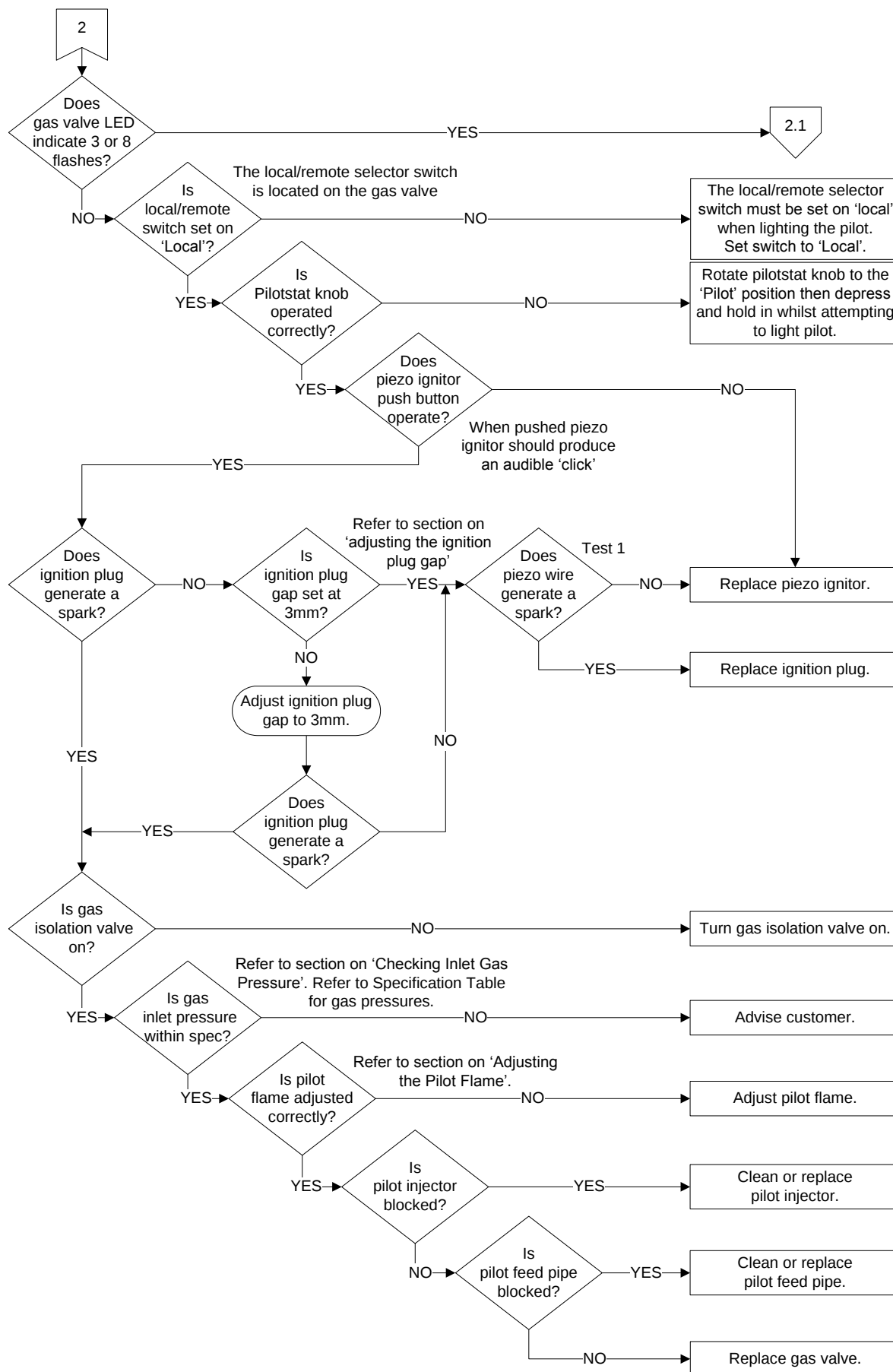
Test 1

The diagram shows a cross-section of a log fire frame with various components like the gas valve, pilotstat knob, and thermocouples. A wire is shown being tested against the metal frame. A starburst symbol indicates a spark being generated between the wire tip and the frame.

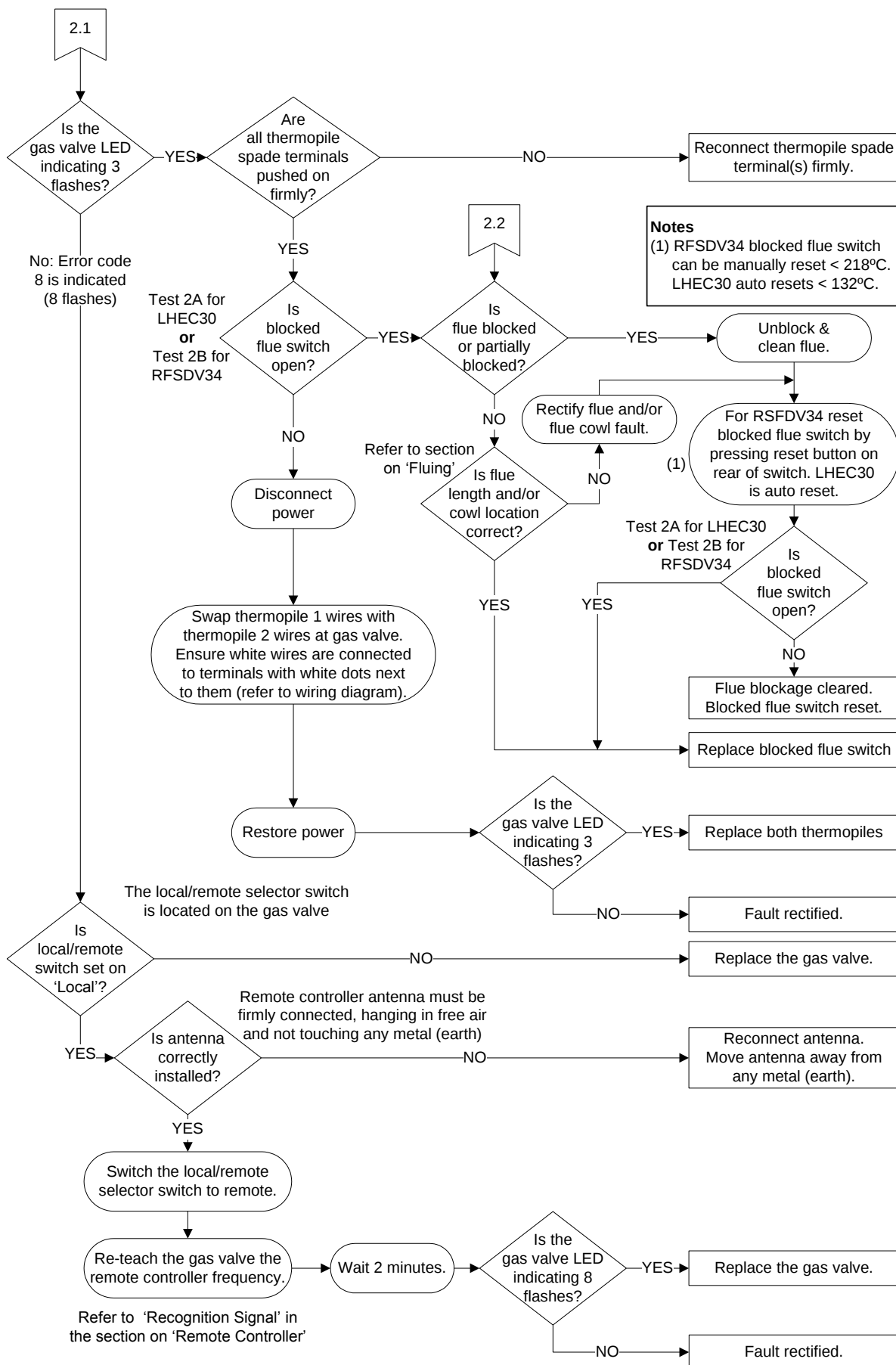
**Warning - Ensure power is isolated before conducting this test.**

1. Cut ignition plug wire 100mm before electrical joining connector and strip end to expose conductor.
2. Hold tip of exposed conductor 2 – 3mm away from any unpainted metal part of log fire frame (earth).
3. Push and release piezo igniter. A spark should be generated between tip of exposed conductor and metal frame every time the piezo igniter push button is operated.
4. Rejoin wire with an insulated electrical connector when testing is complete.

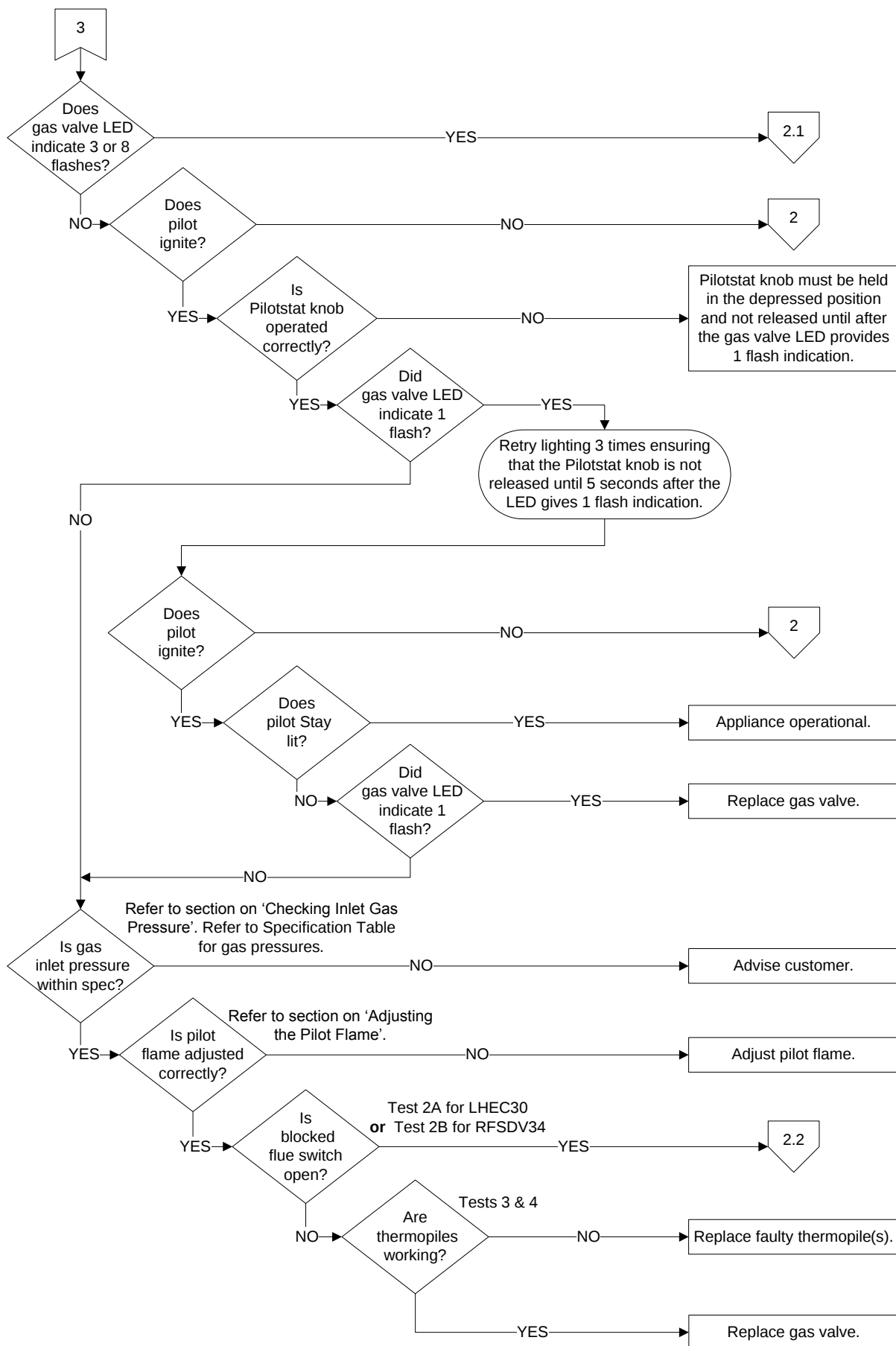
Fault Finding Chart 2



Fault Finding Chart 2.1 & 2.2

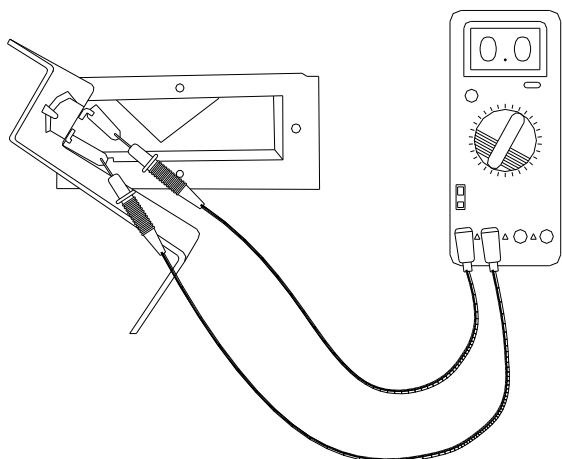


Fault Finding Chart 3



Fault Finding Tests 2A – 4

Test 2A – LHEC30

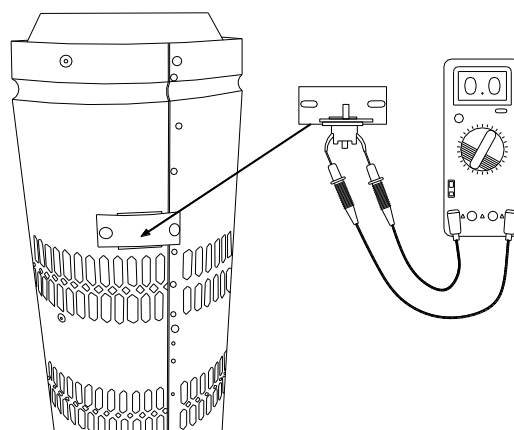


Warning – Log fire may be hot. Ensure log fire has sufficiently cooled before conducting this test.

Disconnect wiring from blocked flue switch. Using a multimeter on the ohms scale, measure between the two terminals of the blocked flue switch.

The reading should be approximately 0 ohms.

Test 2B – RFSDV34

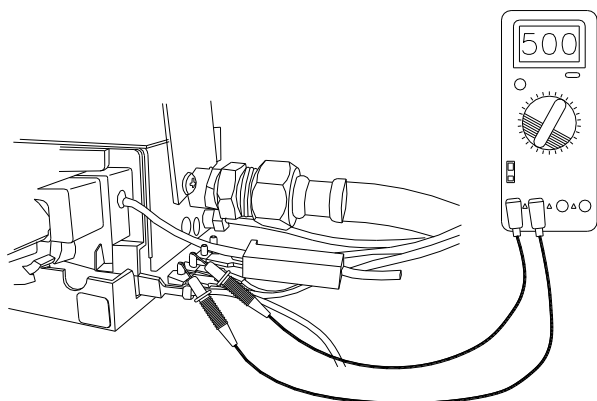


Warning – Log fire and flue may be hot. Ensure log fire has sufficiently cooled before conducting this test.

Disconnect wiring from blocked flue switch. Using a multimeter on the ohms scale, measure between the two terminals of the blocked flue switch.

The reading should be approximately 0 ohms.

Test 3

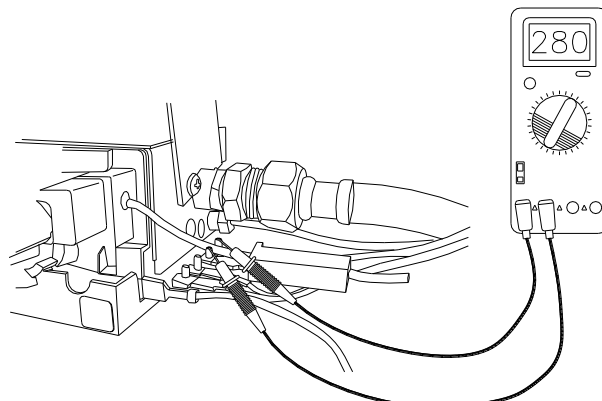


Warning – ‘Live’ equipment wear Personal Protective Equipment when conducting this test.

Using a multimeter on the DC millivolt (mV) scale, measure between the first and second thermocouple wires at the gas valve (looking from the front of gas valve).

Normal voltage is approx 500 millivolts DC.

Test 4

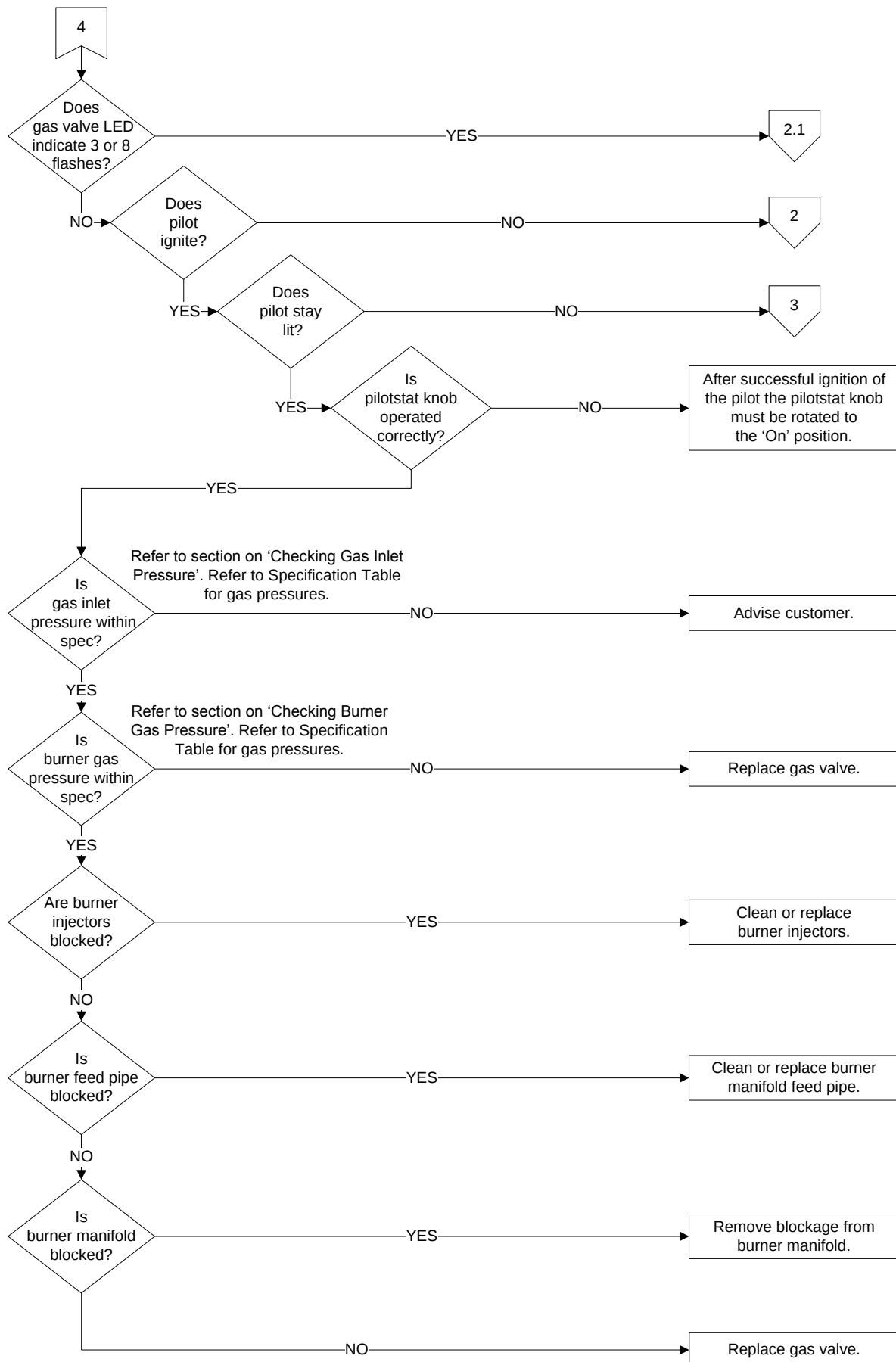


Warning – ‘Live’ equipment wear Personal Protective Equipment when conducting this test.

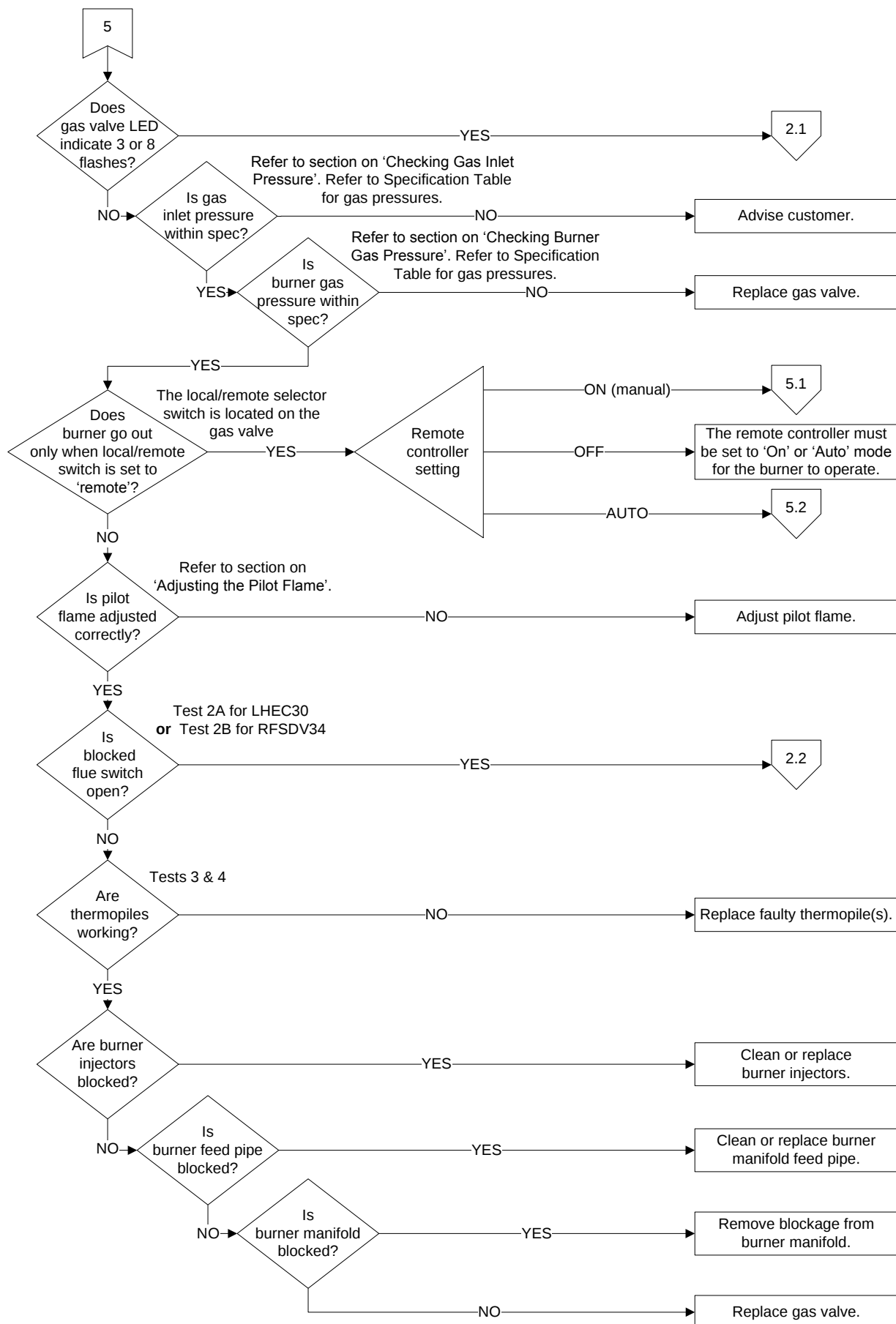
Using a multimeter on the DC millivolt (mV) scale, measure between the third and fourth thermocouple wires at the gas valve (looking from the front of gas valve).

Normal voltage is approx 280 millivolts DC.

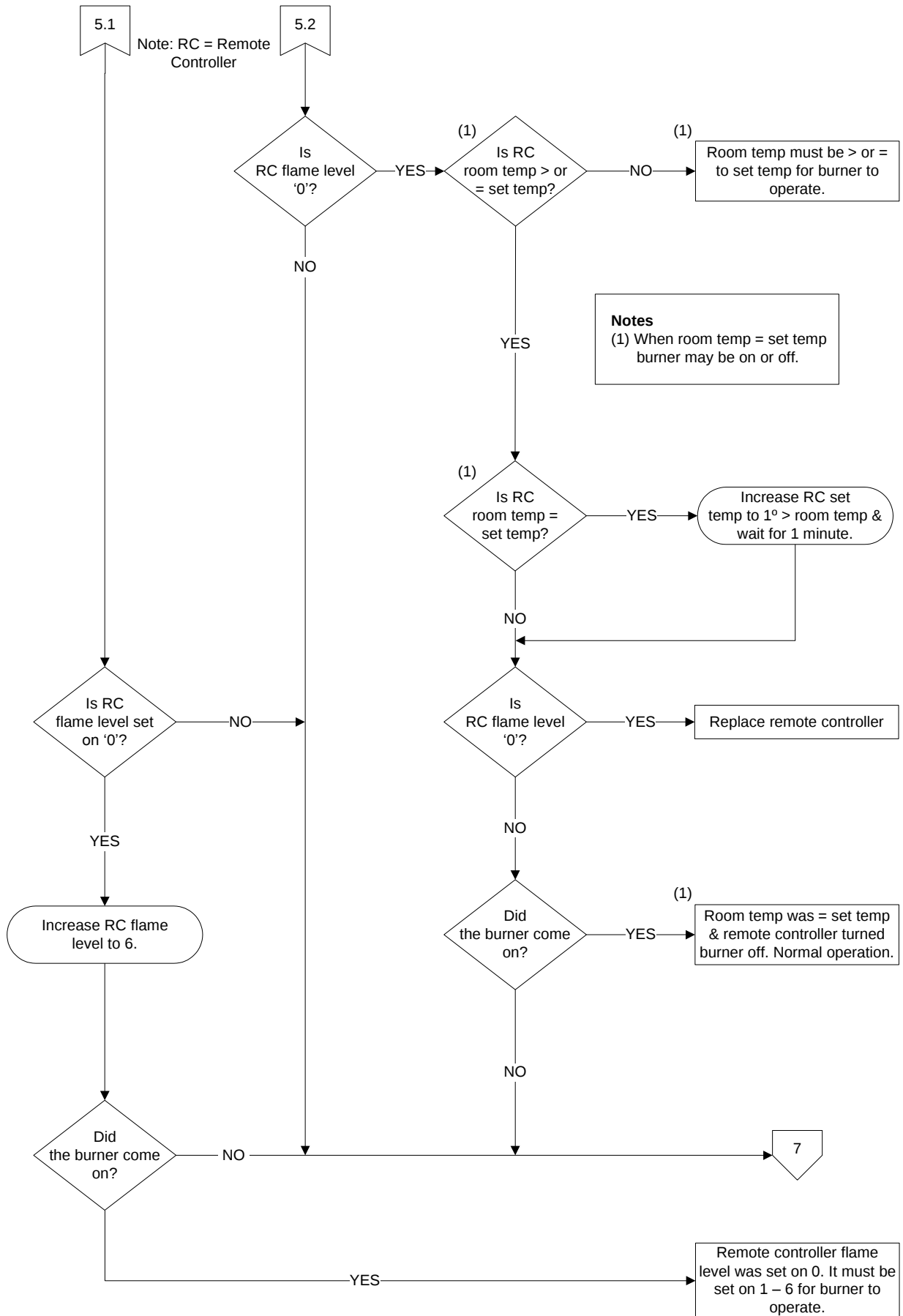
Fault Finding Chart 4



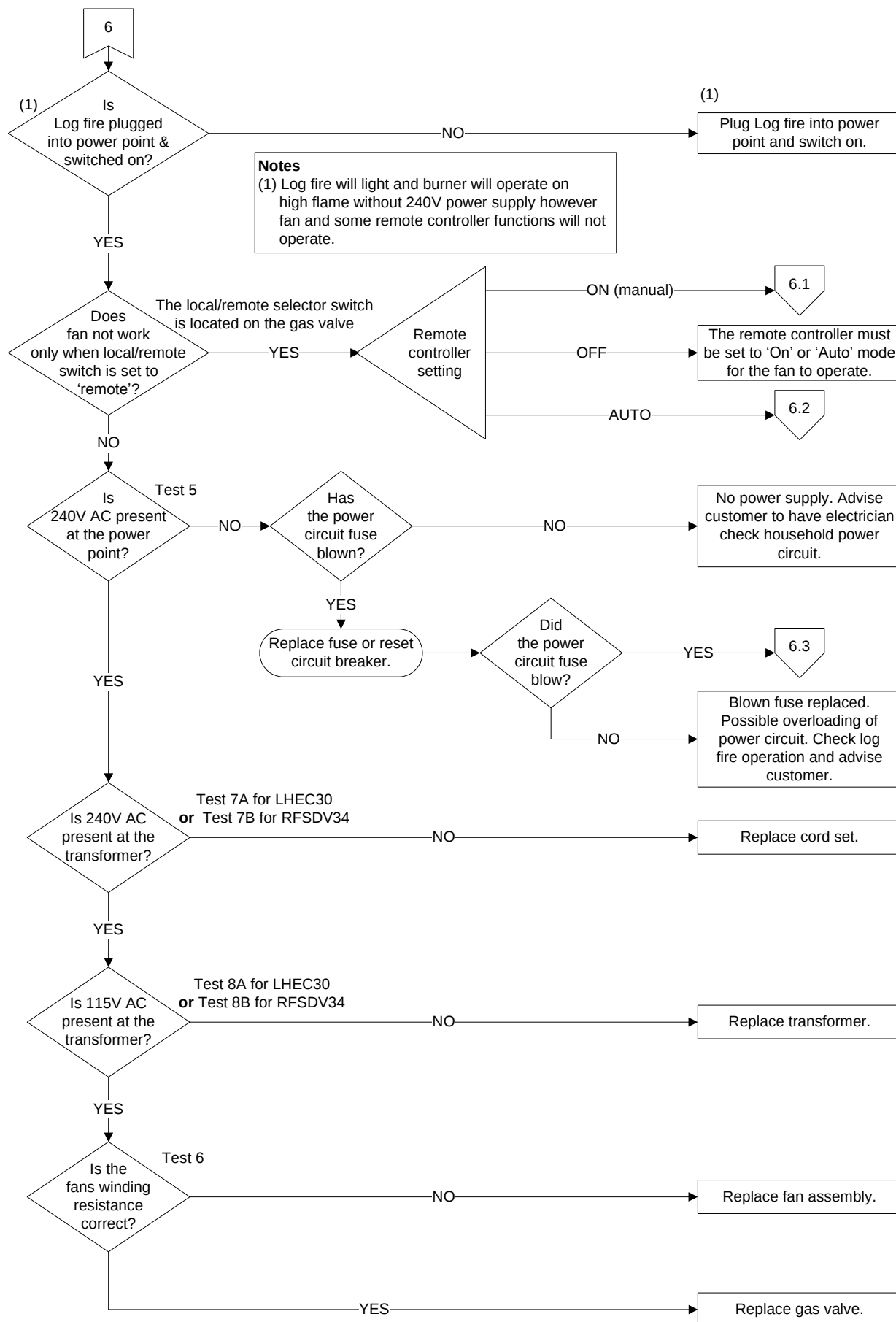
Fault Finding Chart 5



Fault Finding Chart 5.1 & 5.2

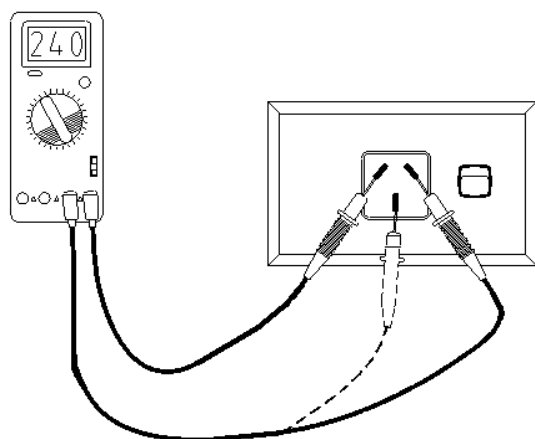


Fault Finding Chart 6



Fault Finding Tests 5 – 6

Test 5

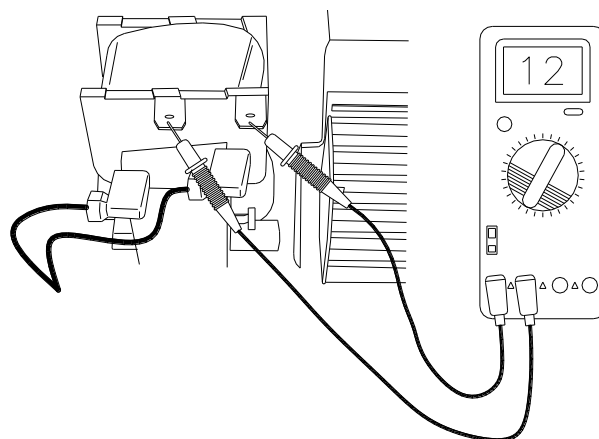


Warning – ‘Live’ equipment wear Personal Protective Equipment when conducting this test.

Ensure power point is switched on and using a multimeter on the AC voltage scale, measure between the 3 pin sockets on the power point. The following results should be obtained:

Active to Neutral – 240 Volts AC.
Active to Earth – 240 Volts AC.
Neutral to Earth – 0 Volts.

Test 6



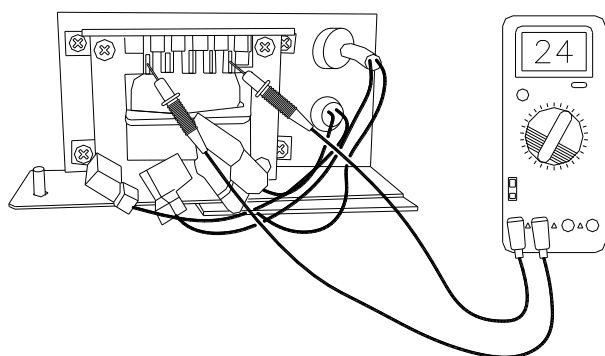
Warning - Ensure power is isolated before conducting this test.

Mark and disconnect wiring from the fan and using a multimeter on the ohms scale, measure between the two fan terminals.

The reading should be approximately 12 ohms

Fault Finding Tests 7A – 8B

Test 7A – LHEC30

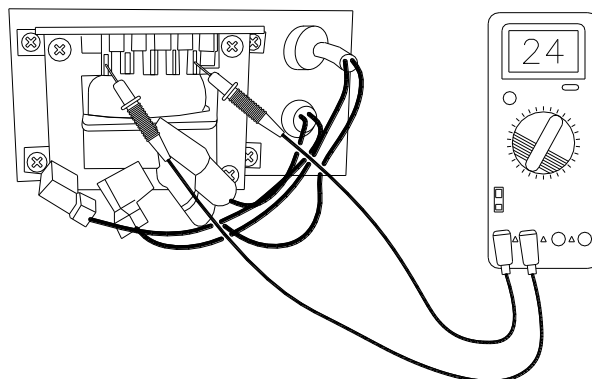


Warning - Ensure power is isolated before conducting this test.

Mark and disconnect wiring from the transformer and using a multimeter on the ohms scale, measure between terminals 1 and 5 of the transformer (transformers primary winding).

The reading should be approximately 27 ohms.

Test 7B – RFSDV34

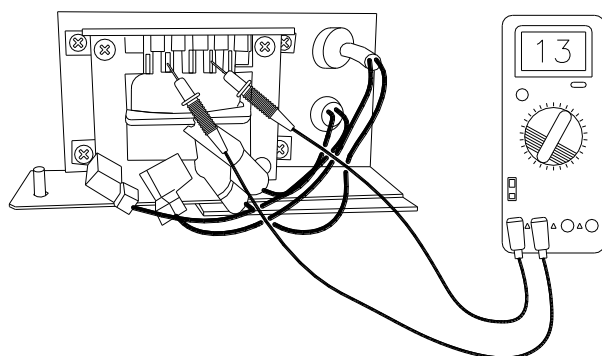


Warning - Ensure power is isolated before conducting this test.

Mark and disconnect wiring from the transformer and using a multimeter on the ohms scale, measure between terminals 1 and 5 of the transformer (transformers primary winding).

The reading should be approximately 27 ohms.

Test 8A – LHEC30

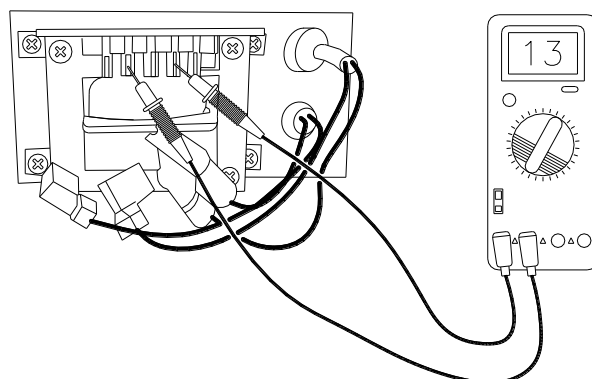


Warning - Ensure power is isolated before conducting this test.

Mark and disconnect wiring from the transformer and using a multimeter on the ohms scale, measure between terminals 2 and 4 of the transformer (transformers secondary winding).

The reading should be approximately 13 ohms.

Test 8B – RFSDV34

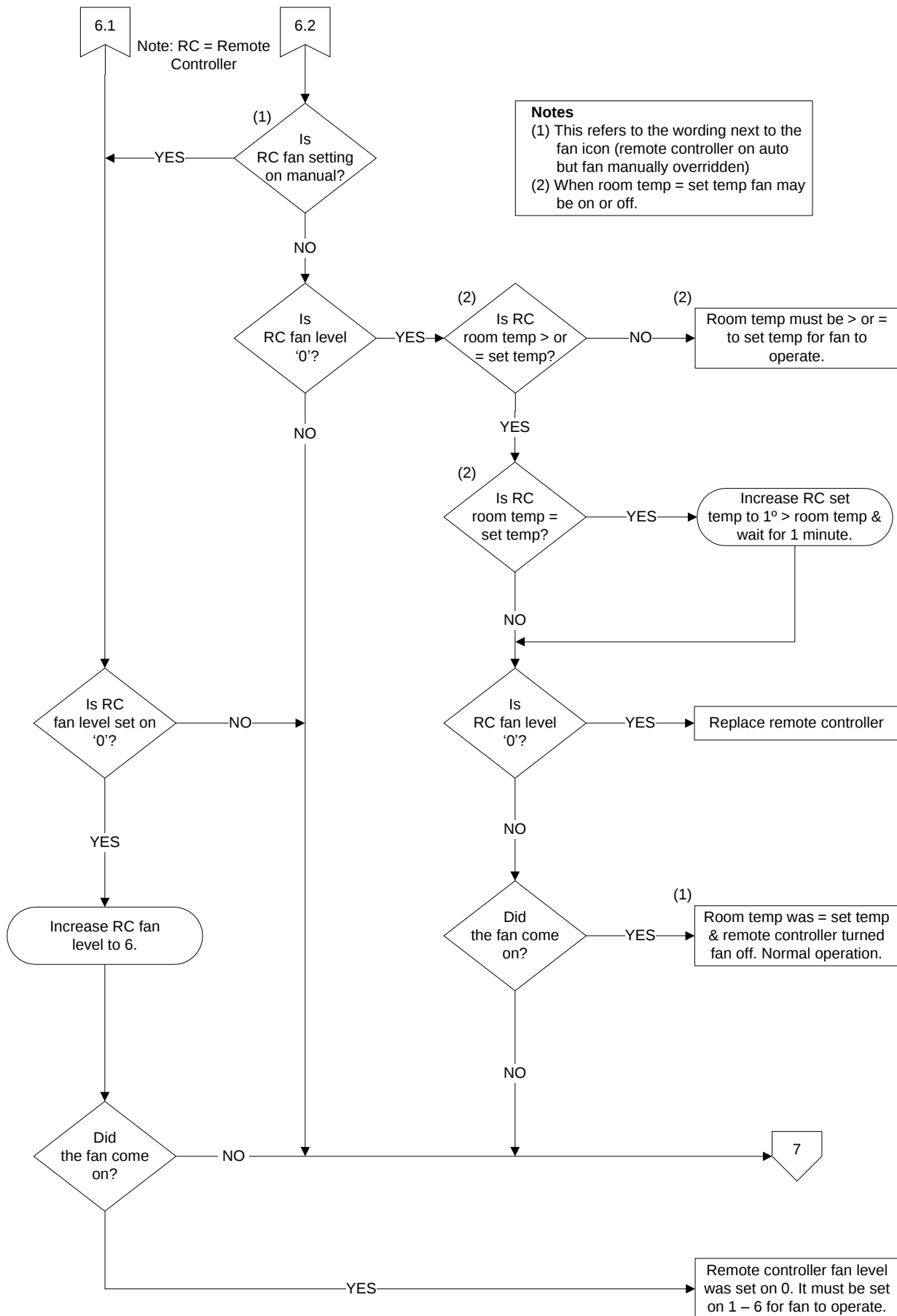


Warning - Ensure power is isolated before conducting this test.

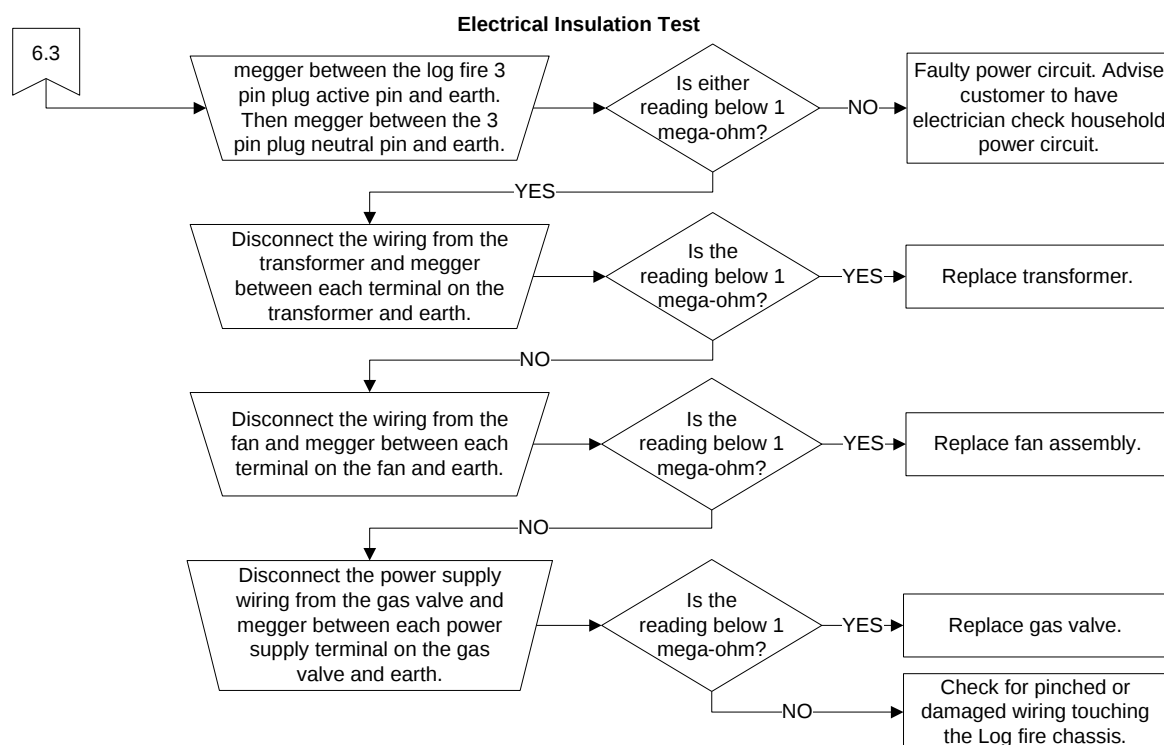
Mark and disconnect wiring from the transformer and using a multimeter on the ohms scale, measure between terminals 2 and 4 of the transformer (transformers secondary winding).

The reading should be approximately 13 ohms.

Fault Finding Chart 6.1 & 6.2



Fault Finding Chart 6.3



Electrical Insulation Testing

There are three basic test procedures that should be carried out when the operation and function of a Vermont gas fireplace or gas log fires electrical system is in doubt.

Procedure 1: Insulation resistance of the water heater Neutral Circuit. (Reading not to be below 1 Mega ohm).

1. **Isolate power to the log fire by switching off power point and unplugging the 3 pin plug from the power point.**
2. Connect megger leads to the Neutral and Earth pins of the log fire 3 pin plug.
3. Operate megger. A reading above 1 Mega ohm should be obtained.
4. If a reading below 1 Mega ohm is indicated, all component parts will need to be individually tested to locate the fault. Refer to Fault Finding Chart 6.3 above.

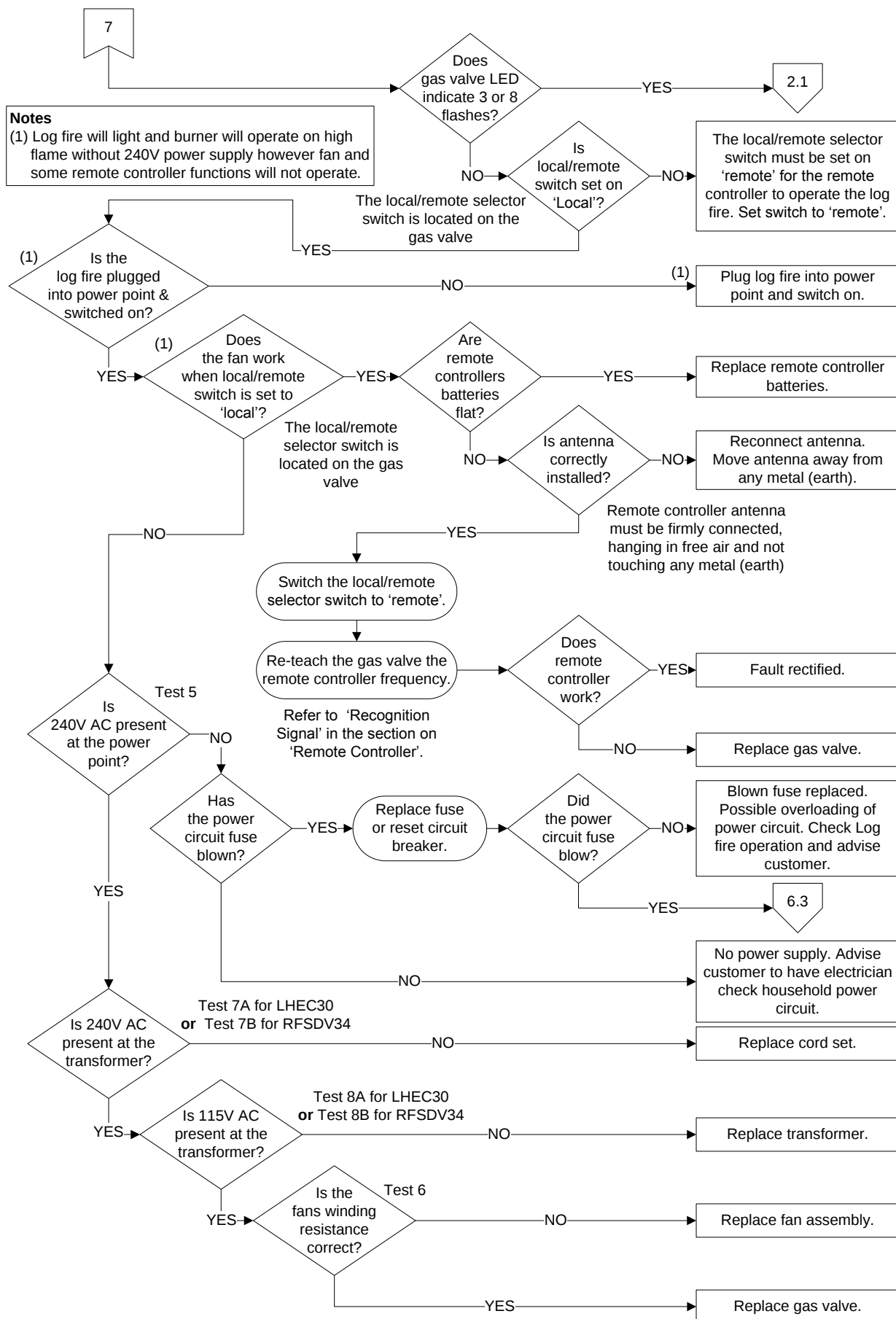
Procedure 2: Insulation resistance of the log fire Active Circuit (reading not to be below 1 mega-ohm).

5. Connect megger leads to the Active and Earth pins of the log fire 3 pin plug.
6. Operate megger. A reading above 1 Mega ohm should be obtained.
7. If a reading below 1 Mega ohm is indicated, all component parts will need to be individually tested to locate the fault. Refer to Fault Finding Chart 6.3 above.

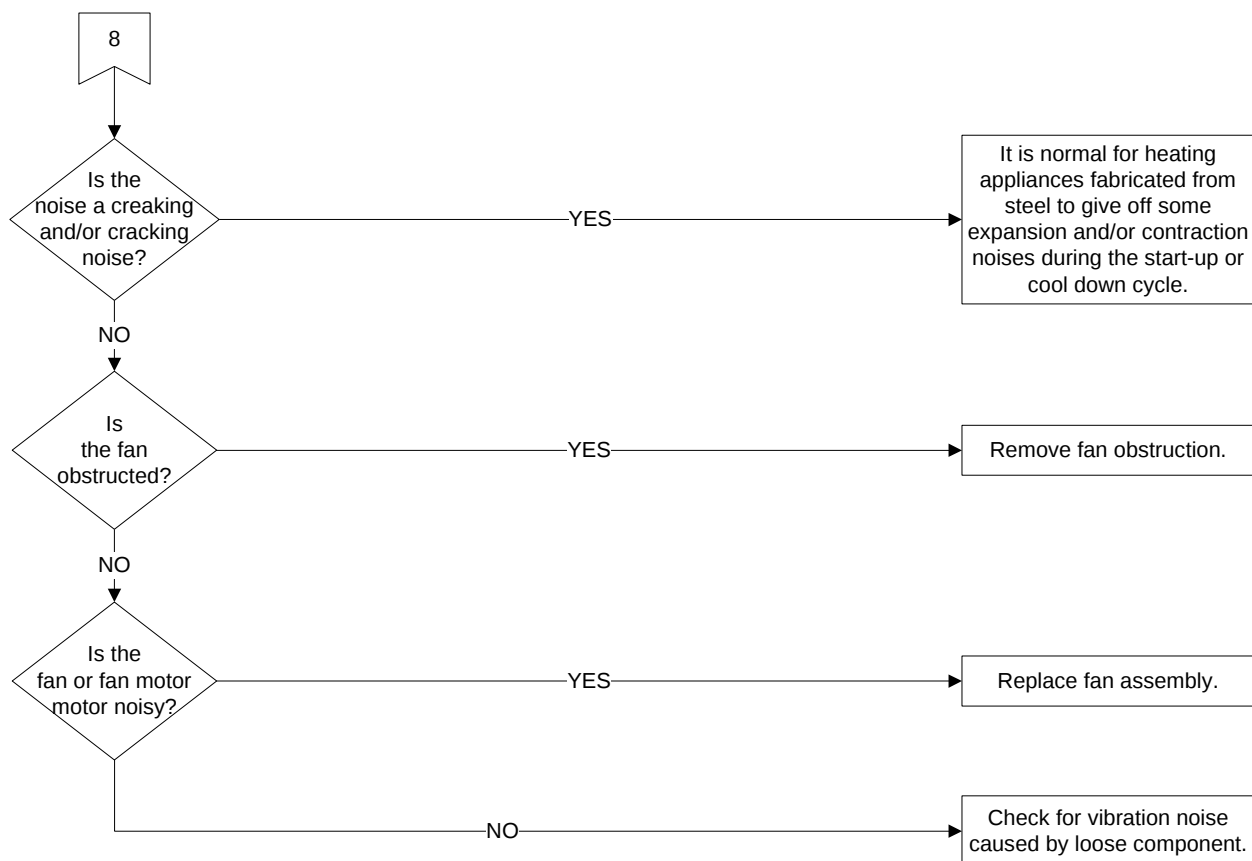
Procedure 3: To check "Continuity" of the log fire electrical circuit.

8. Set megger to resistance scale or multimeter to x1 resistance scale.
9. Measure between the Active and Neutral pins of the log fire 3 pin plug. The resistance should be approximately 27.1 ohms. If a reading outside this resistance value is obtained all electrical component parts will need to be individually tested to locate the fault. Refer to Specifications table on page 4 for indicative resistance values of components.
10. Reinsert 3 pin plug into power point and switch power point on. **Note: If continuing with any diagnostic procedures do not perform this step.**

Fault Finding Chart 7



Fault Finding Chart 8



Component Replacement Procedures – LHEC30

Removing the Glass Frame Assembly – LHCE30 (Procedure 1)



Only glass and gaskets approved by Raypak Australia may be used for replacement. The use of substitute glass and/or gaskets will void all warranties.



Under no circumstances is the log fire to be operated without the glass frame assembly or with a broken glass panel or gasket. Replacement of the glass including the gasket is to be performed by a licensed and qualified person.



If the log fire has been recently operated the glass frame assembly will be extremely hot. A serious and significant burn hazard exists. Ensure the log fire has sufficiently cooled before attempting to remove the front glass frame assembly.

1. **Turn pilotstat knob to the 'OFF' position.**
2. Open the hinged front lower louvre located below glass frame then lift up and remove lower louvre.
3. Remove two glass frame retaining screws located on bottom corners of glass frame assembly then lift bottom of glass frame assembly out slightly and up to remove.
4. Complete reassembly in reverse order of above.

Log Assembly – LHEC30 (Procedure 2)

1. Remove front glass assembly (refer to procedure 1).
2. Remove logs and larva rock from burner.

Reassemble as follows:

3. Place rear centre log KR24 on rear log bracket. Locate the two holes in bottom of log over the centre two bracket studs.
4. Place left log KR22 on rear log bracket. Locate the two holes in bottom of log over the left two bracket studs.
5. Place right log KR23 on rear log bracket. Locate the two holes in bottom of log over the right two bracket studs.
6. Place left front log KR25. Position notch in lower right hand side of log against second grate from left. The top left hand edge of log KR25 rests in notch on log KR22.
7. Place right front log KR26. Position notch in centre of Y part of log against third grate from right. The top edge of log KR26 rests in notch on log KR23.
8. Place larva rock on top of burner in the two vacant spaces between logs.

Sheet Metal Base Assembly– LHEC30 (Procedure 3)



Wear Personal Protective Equipment when conducting step 3 of this procedure to reduce the risk of electric shock. Refer to Rheem Safety Procedure on electrical testing.

1. ***Isolate power and gas supplies to the log fire*** and open front lower access louvre.
2. Remove two nuts retaining transformer cover and lift out transformer cover.
3. ***Confirm with a multi-meter between Active and Neutral, then Active and Earth, then Neutral and Earth terminals of the transformer that voltage is not present.***
4. Remove glass frame assembly (refer to procedure 1).
5. Remove log assembly and larva rock from burner (reverse procedure 2).
6. Remove screw retaining front right hand ember rack bracket to sheet metal base and remove ember rack by withdrawing from left hand bracket.
7. Remove three screws retaining gas valve access cover to sheet metal base and remove gas valve access cover.
8. Disconnect gas supply line at gas valve.
9. Remove four screws retaining burner sheet metal base assembly to side brackets. Two screws are located on each side of sheet metal base assembly.
10. Lift up and remove burner sheet metal base assembly. The burner, pilot assembly and gas valve will come away with the sheet metal base assembly. The power supply, blocked flue switch wiring and fan wiring will need to be disconnected at the gas valve to enable the sheet metal base assembly to be completely removed.
11. Complete reassembly in reverse order of above. Use thread tape when reconnecting gas supply line to the gas valve.
12. Test for gas leaks at all unions using soapy water solution.

Pilot Assembly – LHEC30 (Procedure 4)

1. Remove sheet metal base assembly (refer to procedure 3).
2. Mark and disconnect thermopile wiring at gas valve. **Note: Mark wiring to ensure thermopiles are reconnected in their original location.**
3. Disconnect ignition plug wiring by unplugging at electrical joining connector.
4. Unscrew pilot feed pipe nut at gas valve and remove pilot feed pipe from gas valve.
5. Remove screw retaining pilot heat shield to bracket and remove pilot heat shield.
6. Complete reassembly in reverse order of above.
7. Test for gas leaks at all unions using soapy water solution.

Ignition Plug – LHEC30 (Procedure 5)

1. Remove pilot assembly (refer to procedure 4).
2. Remove screw retaining ignition plug to pilot assembly and remove ignition plug from pilot assembly.
3. Complete reassembly in reverse order of above.
4. Set ignition plug gap at 3mm (refer to 'Adjusting the Ignition Plug Gap' on page 18).
5. Test for gas leaks at all unions using soapy water solution.

Thermopile – LHEC30 (Procedure 6)

1. Remove pilot assembly (refer to procedure 4).
2. Unscrew nut from beneath thermopile ensuring thermopile wiring does not turn with nut and withdraw thermopile from pilot assembly.
3. Complete reassembly in reverse order of above.
4. Test for gas leaks at all unions using soapy water solution.

Pilot Injector – LHEC30 (Procedure 7)

1. **Isolate power and gas supplies to the log fire.**
2. Remove front glass assembly (refer to procedure 1).
3. Remove log assembly and larva rock from burner (reverse procedure 2).
4. Unscrew and remove top section of pilot light (section above bracket) from pilot assembly.
5. Remove injector from top section of pilot light.
6. Complete reassembly in reverse order of above.
7. Test for gas leaks at all unions using soapy water solution.

Pilot Feed Pipe – LHEC30 (Procedure 8)

1. Remove pilot assembly (refer to procedure 4).
2. Unscrew pilot feed pipe nut at pilot light and remove pilot feed pipe from gas valve.
3. Complete reassembly in reverse order of above.
4. Test for gas leaks at all unions using soapy water solution.

Burner – LHEC30 (Procedure 9)

1. ***Isolate power and gas supplies to the log fire.***
2. Remove front glass assembly (refer to procedure 1).
3. Remove log assembly and larva rock from burner (reverse procedure 2).
4. Remove two screws retaining log bracket to log fire rear and remove log bracket.
5. Remove screw retaining burner manifold cover and remove burner manifold cover.
6. Remove two screws retaining burner hold down brackets to burner base.
7. Remove screw retaining pilot heat shield to pilot assembly and remove pilot heat shield.
8. Withdraw burner by lifting burner up at right hand side to clear pilot assembly and then sliding towards pilot assembly. Note: burner injectors may catch on burner hindering withdrawal and necessitating some jiggling of burner to remove.
9. Complete reassembly in reverse order of above.
10. Test for gas leaks at all unions using soapy water solution.

Burner Injectors – LHEC30 (Procedure 10)

1. Remove burner (refer to procedure 9).
2. Unscrew and remove front and/or rear burner injector(s).
3. Complete reassembly in reverse order of above using gas sealing paste on burner injector threads.

Burner Feed Pipe – LHEC30 (Procedure 11)

1. Remove the sheet metal base (refer to procedure 3).
2. Unscrew burner feed pipe nut at gas valve and remove burner feed pipe from gas valve.
3. Unscrew burner feed pipe nut at burner manifold and remove burner feed pipe from burner manifold.
4. Complete reassembly in reverse order of above.
5. Test for gas leaks at all unions using soapy water solution.

Burner Manifold – LHEC30 (Procedure 12)

1. Remove burner (refer to procedure 3).
2. Remove screw retaining burner manifold bracket to log fire base.
3. Unscrew nut retaining burner feed pipe to burner manifold and remove burner manifold.
4. Unscrew and remove front and/or rear burner injector(s).
5. Unscrew and remove burner manifold to burner feed pipe adapter.
6. Complete reassembly in reverse order of above using gas sealing paste on burner injector threads and burner manifold to burner feed pipe adapter.

Gas Valve – LHEC30 (Procedure 13)

1. Remove the sheet metal base (refer to procedure 3).
2. Mark and disconnect all gas valve wiring. **Note: Mark wiring to ensure thermopiles and components are reconnected in their original location.**
3. Disconnect ignition plug wiring by unplugging at electrical joining connector.
4. Unscrew pilot feed pipe nut at gas valve and remove pilot feed pipe from gas valve.
5. Unscrew burner feed pipe nut at gas valve elbow and remove burner feed pipe from gas valve.
6. Remove four screws retaining gas valve to gas valve supporting bracket and remove gas valve.
7. Unscrew and remove burner feed pipe elbow from gas valve.
8. Complete reassembly in reverse order of above using thread tape on gas valve elbow and check for gas leaks using soapy water solution.
9. Operate log fire and perform the gas valve safety shutdown test procedure (refer to page 18).
10. Operate log fire and perform remote controller recognition procedure (refer to 'Recognition Signal' on page 12).

Gas Valve Receiving Antenna – LHEC30 (Procedure 14)



Wear Personal Protective Equipment when conducting step 3 of this procedure to reduce the risk of electric shock. Refer to Rheem Safety Procedure on electrical testing.

1. ***Isolate power and gas supplies to the log fire*** and open front lower access louvre.
2. Remove two nuts retaining transformer cover and lift out transformer cover.
3. ***Confirm with a multi-meter between Active and Neutral, then Active and Earth, then Neutral and Earth terminals of the transformer that voltage is not present.***
4. Disconnect antenna spade terminal from gas valve and remove antenna.
5. Complete reassembly in reverse order of above.
6. Operate log fire and check remote controller operation. If remote controller does not operate perform the remote controller recognition procedure (refer to 'Recognition Signal' on page 12).

Transformer – LHEC30 (Procedure 15)



Wear Personal Protective Equipment when conducting step 3 of this procedure to reduce the risk of electric shock. Refer to Rheem Safety Procedure on electrical testing.

1. ***Isolate power and gas supplies to the log fire*** and open front lower access louvre.
2. Remove two nuts retaining transformer cover and lift out transformer cover.
3. ***Confirm with a multi-meter between Active and Neutral, then Active and Earth, then Neutral and Earth terminals of the transformer that voltage is not present.***
4. Mark and disconnect wiring from transformer.
5. Remove four screws retaining transformer to transformer supporting bracket and withdraw transformer through front of log fire louvre opening.
6. Complete reassembly in reverse order of above.

Fan Assembly – LHEC30 (Procedure 16)



Wear Personal Protective Equipment when conducting step 3 of this procedure to reduce the risk of electric shock. Refer to Rheem Safety Procedure on electrical testing.

1. ***Isolate power and gas supplies to the log fire*** and open front lower access louvre.
2. Remove two nuts retaining transformer cover and lift out transformer cover.
3. ***Confirm with a multi-meter between Active and Neutral, then Active and Earth, then Neutral and Earth terminals of the transformer that voltage is not present.***
4. Remove glass frame assembly (refer to procedure 1).
5. Remove log assembly and larva rock from burner (reverse procedure 2).
6. Remove two screws retaining log bracket to log fire rear and remove log bracket.
7. Remove four screws retaining fan cover to rear of log fire and remove fan cover.
8. Disconnect fan wiring from fan motor.
9. Remove two nuts retaining fan assembly to rear of log fire. Note: Nuts are on studs welded to rear of log fire.
10. Remove earth wire from left hand stud and lift out fan assembly.
11. Complete reassembly in reverse order of above.

Blocked Flue Switch – LHEC30 (Procedure 17)

1. Remove front glass assembly (refer to procedure 1).
2. Remove five screws retaining flue baffle to inside top of fireplace and remove baffle.
3. Remove four screws retaining blocked flue switch access cover and remove cover and gasket.
4. Remove screw retaining blocked flue switch bracket and withdraw bracket and blocked flue switch through opening.
5. Disconnect the wiring from the blocked flue switch and remove blocked flue switch. Note: If the blocked flue switch bracket retaining screw is dropped inside the log fire, the fan motor cover will need to be removed and the screw recovered. ***Do not leave this screw inside the log fire as it may get caught in the fan causing fan seizure and subsequent fan motor burn out.*** Also ensure the blocked flue switch wiring does not fall inside the access hole or the fan motor cover will have to be removed to recover the wiring.

Cord Set – LHEC30 (Procedure 18)

1. Remove transformer (refer to procedure 15).
2. Mark and disconnect cord set wiring to the transformer.
3. Remove earth stud nut and remove cord set earth wire from earth stud.
4. Cut and remove cable tie retaining cord set compression gland.
5. Withdraw compression gland and cord set wiring through aperture in transformer supporting bracket.
6. Remove compression gland from cord set wiring.
7. Complete reassembly in reverse order of above replacing cut cable tie.

Component Replacement Procedures – RFSDV34

Removing the Glass Frame Assembly – RFSDV34 (Procedure 19)



Only glass and gaskets approved by Raypak Australia may be used for replacement. The use of substitute glass and/or gaskets will void all warranties.



Under no circumstances is the log fire to be operated without the glass frame assembly or with a broken glass panel or gasket. Replacement of the glass including the gasket is to be performed by a licensed and qualified person.



If the log fire has been recently operated the glass frame assembly will be extremely hot. A serious and significant burn hazard exists. Ensure the log fire has sufficiently cooled before attempting to remove the front glass frame assembly.

1. **Turn pilotstat knob to the 'OFF' position.**
2. Open left and right hand side panels of the log fire.
3. Unclip two retaining clamps located behind each side panel and lift clear of slots in glass frame assembly.
4. Lift glass frame assembly forward to remove. Glass panels, glass frame and air louvre will come out as one piece. Note: Seals may cause glass frame to stick slightly.
5. Complete reassembly in reverse order of above.

Log Assembly – RFSDV34 (Procedure 20)

1. Remove front glass assembly (refer to procedure 19).
2. Remove logs and larva rock from burner.

Reassemble as follows:

3. Place rear log KR10 firmly on rear log bracket behind bracket tabs ensuring log is horizontal and centred.
4. Place front log KR7 behind the front serrated deflector ensuring log is horizontal and centred.
5. Place centre left log KR8 on top of burner left side. Locate the two holes on bottom of log onto the two studs located on burner ensuring log tapers towards centre of burner.
6. Place centre right log KR9 on top of burner right side. Locate the two holes on bottom of log onto the two studs located on burner ensuring log tapers towards centre of burner.
7. Place larva rock on top of burner in the vacant space between the front log and two centre logs.
8. Place top left log KR11 on to locator studs on centre left and rear logs so as log KR11 lies across centre left and rear logs from front to back.
9. Place top right log KR12 on to locator studs on centre right and rear logs so as log KR12 lies across centre right and rear logs from front to back.

Front Lower Access Panel – RFSDV34 (Procedure 21)

1. Open lower front access cover by pulling forward from top.
2. Remove two retaining screws holding lower access panel in place.
3. Pull top of lower access panel forward to clear gas valve knobs then lift out.
4. Complete reassembly in reverse order of above.

Pilot Assembly – RFSDV34 (Procedure 22)



Wear Personal Protective Equipment when conducting step 2 of this procedure to reduce the risk of electric shock. Refer to Rheem Safety Procedure on electrical testing.

1. ***Isolate power and gas supplies to the log fire*** and remove front lower access panel (refer to procedure 21).
2. ***Confirm with a multi-meter between Active and Neutral, then Active and Earth, then Neutral and Earth terminals of the transformer that voltage is not present.***
3. Remove glass frame assembly (refer to procedure 19).
4. Remove log assembly and larva rock from burner (reverse procedure 20).
5. Mark and disconnect thermopile wiring at gas valve. ***Note: Mark wiring to ensure thermopiles are reconnected in their original location.***
6. Disconnect ignition plug wiring by unplugging at electrical joining connector.
7. Unscrew pilot feed pipe nut at gas valve and remove pilot feed pipe from gas valve.
8. Remove heat resistant sealing compound from underneath pilot assembly.
9. Remove screw retaining pilot heat shield to bracket and remove pilot heat shield.
10. Remove screw retaining lower sheet metal pilot aperture cover to log fire base and remove lower sheet metal pilot aperture cover (the screw is located under the log fire base below the pilot assembly).
11. Withdraw pilot assembly, pilot feed pipe and pilot wiring out through aperture in log fire base being careful not to damage pilot feedpipe or wiring.
12. Complete reassembly in reverse order of above ensuring pilot assembly aperture in log fire base is sealed with heat resistant sealing compound (part number 890591).
13. Test for gas leaks at all unions using soapy water solution.

Ignition Plug – RFSDV34 (Procedure 23)

1. Remove pilot assembly (refer to procedure 22).
2. Remove screw retaining ignition plug to pilot assembly and remove ignition plug from pilot assembly.
3. Complete reassembly in reverse order of above.
4. Set ignition plug gap at 3mm (refer to 'Adjusting the Ignition Plug Gap' on page 18).
5. Test for gas leaks at all unions using soapy water solution.

Thermopile – RFSDV34 (Procedure 24)

1. Remove pilot assembly (refer to procedure 22).
2. Unscrew nut from beneath thermopile ensuring thermopile wiring does not turn with nut and withdraw thermopile from pilot assembly.
3. Complete reassembly in reverse order of above.
4. Test for gas leaks at all unions using soapy water solution.

Pilot Injector – RFSDV34 (Procedure 25)

1. ***Isolate power and gas supplies to the log fire.***
2. Remove glass frame assembly (refer to procedure 19).
3. Remove log assembly and larva rock from burner (reverse procedure 20).
4. Unscrew and remove top section of pilot light (section above bracket) from pilot assembly.
5. Remove injector from top section of pilot light.
6. Complete reassembly in reverse order of above.
7. Test for gas leaks at all unions using soapy water solution.

Pilot Feed Pipe – RFSDV34 (Procedure 26)

1. Remove pilot assembly (refer to procedure 22).
2. Unscrew pilot feed pipe nut at pilot light and remove pilot feed pipe from gas valve.
3. Complete reassembly in reverse order of above.

Burner – RFSDV34 (Procedure 27)

1. ***Isolate power and gas supplies to the log fire.***
2. Remove glass frame assembly (refer to procedure 19).
3. Remove log assembly and larva rock from burner (reverse procedure 20).
4. Remove two screws retaining log ember grill to log fire base and remove log ember grill.
5. Remove two screws retaining burner hold down brackets to burner base brackets.
6. Remove screw retaining pilot heat shield to pilot assembly and remove pilot heat shield.
7. Withdraw burner by lifting burner up at right hand side to clear pilot assembly and then sliding towards pilot assembly. Note: burner injectors may catch on burner hindering withdrawal and necessitating some jiggling of burner to remove.
8. Complete reassembly in reverse order of above.
9. Test for gas leaks at all unions using soapy water solution.

Burner Injectors – RFSDV34 (Procedure 28)

1. Remove burner (refer to procedure 27).
2. Unscrew and remove front and/or rear burner injector(s).
3. Complete reassembly in reverse order of above using gas sealing paste on burner injector threads.

Burner Feed Pipe – RFSDV34 (Procedure 29)

1. Remove the burner (refer to procedure 27).
2. Unscrew burner feed pipe nut at gas valve and remove burner feed pipe from gas valve.
3. Remove heat resistant sealing compound from burner feed pipe aperture in log fire base.
4. Remove retaining screw holding burner manifold bracket to log fire base and withdraw burner manifold and burner feed pipe through aperture in log fire base.
5. Unscrew burner feed pipe nut at burner manifold and remove burner feed pipe from burner manifold.
6. Complete reassembly in reverse order of above ensuring burner feed pipe aperture in log fire base is sealed with heat resistant sealing compound (part number 890591).
7. Test for gas leaks at all unions using soapy water solution.

Burner Manifold – RFSDV34 (Procedure 30)

1. Remove burner feed pipe (refer to procedure 29).
2. Unscrew and remove front and/or rear burner injector(s).
3. Unscrew and remove burner manifold to burner feed pipe adapter.
4. Complete reassembly in reverse order of above using gas sealing paste on burner injector threads and burner manifold to burner feed pipe adapter.
5. Test for gas leaks at all unions using soapy water solution.

Gas Valve – RFSDV34 (Procedure 31)



Wear Personal Protective Equipment when conducting step 2 of this procedure to reduce the risk of electric shock. Refer to Rheem Safety Procedure on electrical testing.

1. ***Isolate power and gas supplies to the log fire*** and remove front lower access panel (refer to procedure 21).
2. ***Confirm with a multi-meter between Active and Neutral, then Active and Earth, then Neutral and Earth terminals of the transformer that voltage is not present.***
3. Remove glass frame assembly (refer to procedure 1).
4. Remove log assembly and larva rock from burner (reverse procedure 20).
5. Mark and disconnect all gas valve wiring. ***Note: Mark wiring to ensure thermopiles and components are reconnected in their original location.***
6. Disconnect ignition plug wiring by unplugging at electrical joining connector.
7. Unscrew pilot feed pipe nut at gas valve and remove pilot feed pipe from gas valve.
8. Unscrew burner feed pipe nut at gas valve and remove burner feed pipe from gas valve.
9. Remove two screws retaining gas valve supporting bracket to log fire base and remove gas valve.
10. Remove four screws retaining gas valve supporting bracket to gas valve.
11. Complete reassembly in reverse order of above.
12. Test for gas leaks at all unions using soapy water solution.
13. Operate log fire and perform the gas valve safety shutdown test procedure (refer to page 18).
14. Operate log fire and perform remote controller recognition procedure (refer to 'Recognition Signal' on page 12).

Gas Valve Receiving Antenna – RFSDV34 (Procedure 32)



Wear Personal Protective Equipment when conducting step 2 of this procedure to reduce the risk of electric shock. Refer to Rheem Safety Procedure on electrical testing.

1. ***Isolate power and gas supplies to the log fire*** and remove front lower access panel (refer to procedure 21).
2. ***Confirm with a multi-meter between Active and Neutral, then Active and Earth, then Neutral and Earth terminals of the transformer that voltage is not present.***
3. Disconnect antenna spade terminal from gas valve and remove antenna.
4. Complete reassembly in reverse order of above.
5. Operate log fire and check remote controller operation. If remote controller does not operate perform the remote controller recognition procedure (refer to 'Recognition Signal' on page 12).

Transformer – RFSDV34 (Procedure 33)



Wear Personal Protective Equipment when conducting step 2 of this procedure to reduce the risk of electric shock. Refer to Rheem Safety Procedure on electrical testing.

1. ***Isolate power and gas supplies to log fire*** and remove front lower access panel (refer to procedure 21).
2. ***Confirm with a multi-meter between Active and Neutral, then Active and Earth, then Neutral and Earth terminals of the transformer that voltage is not present.***
3. Remove two screws retaining transformer supporting bracket to log fire base and withdraw transformer and supporting bracket through front or rear of log fire.
4. Mark and disconnect wiring from transformer.
5. Remove four screws retaining transformer to transformer supporting bracket and remove transformer from supporting bracket.
6. Complete reassembly in reverse order of above.

Fan Assembly – RFSDV34 (Procedure 34)



Wear Personal Protective Equipment when conducting step 2 of this procedure to reduce the risk of electric shock. Refer to Rheem Safety Procedure on electrical testing.

1. ***Isolate power and gas supplies to the log fire*** and remove front lower access panel (refer to procedure 21).
2. ***Confirm with a multi-meter between Active and Neutral, then Active and Earth, then Neutral and Earth terminals of the transformer that voltage is not present.***
3. Remove two nuts retaining fan assembly to rear of log fire. Note: Nuts are on studs welded to rear of log fire.
4. Remove earth wire from left hand stud and lift fan assembly clear of studs. Fan assembly may be withdrawn through front or rear of log fire.
5. Disconnect fan wiring from fan motor.
6. Complete reassembly in reverse order of above.

Blocked Flue Switch – RFSDV34 (Procedure 35)



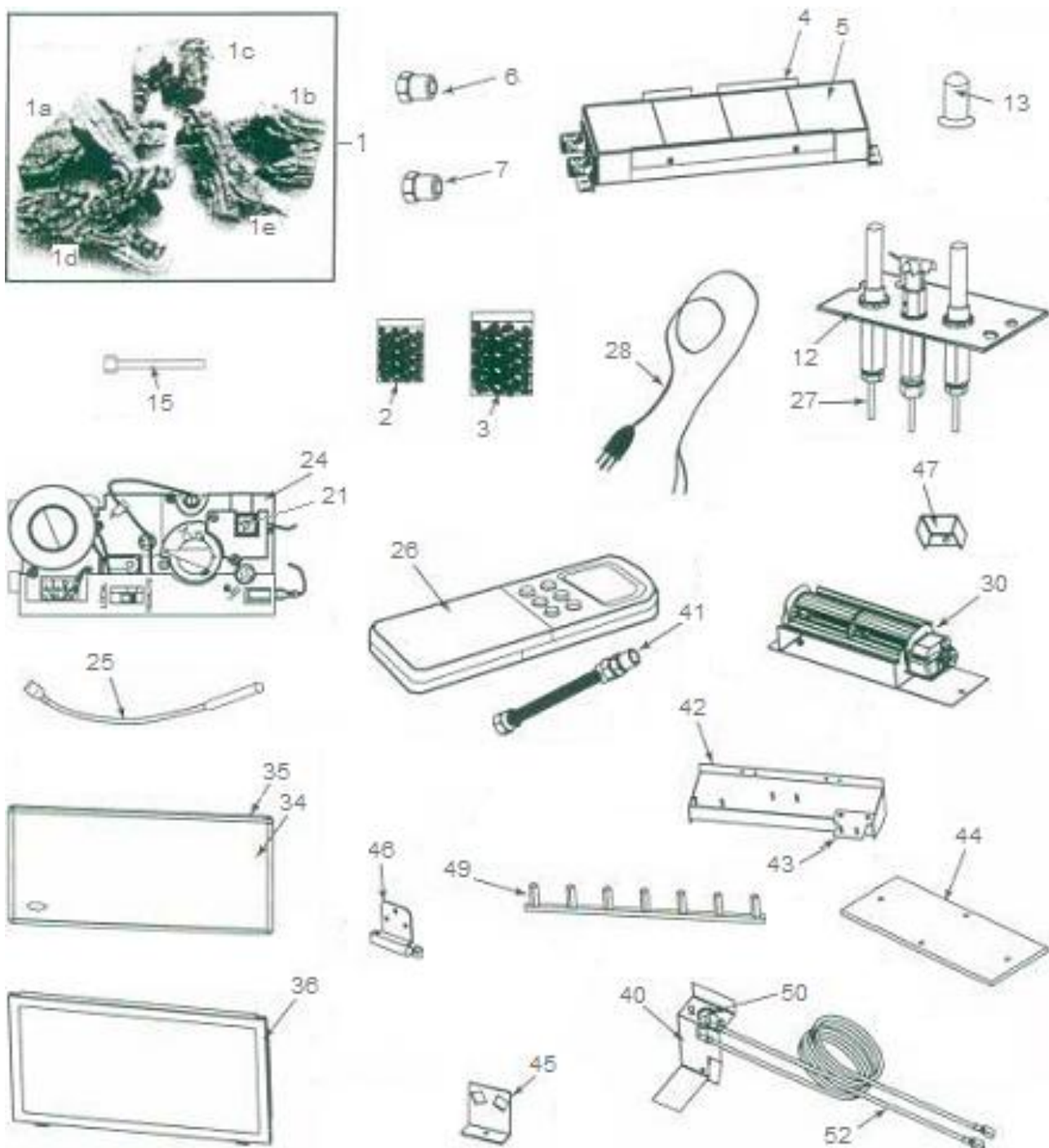
If the log fire has been recently operated the flue will be extremely hot. A serious and significant burn hazard exists. Ensure the log fire is not operating and that the flue has sufficiently cooled before attempting to remove the blocked flue switch.

1. Remove two screws retaining blocked flue switch cover to draught diverter and withdraw blocked flue switch cover and blocked flue switch from draught diverter.
2. Disconnect wiring to the blocked flue switch.
3. Complete reassembly in reverse order of above.

Cord Set – RFSDV34 (Procedure 36)

1. Remove transformer (refer to procedure 33).
2. Mark and disconnect cord set wiring to the transformer.
3. Remove earth stud nut and remove cord set earth wire from earth stud.
4. Cut and remove cable tie retaining cord set compression gland.
5. Withdraw compression gland and cord set wiring through aperture in transformer supporting bracket.
6. Remove compression gland from cord set wiring.
7. Complete reassembly in reverse order of above replacing cut cable tie.

Exploded View 1 – LHEC30

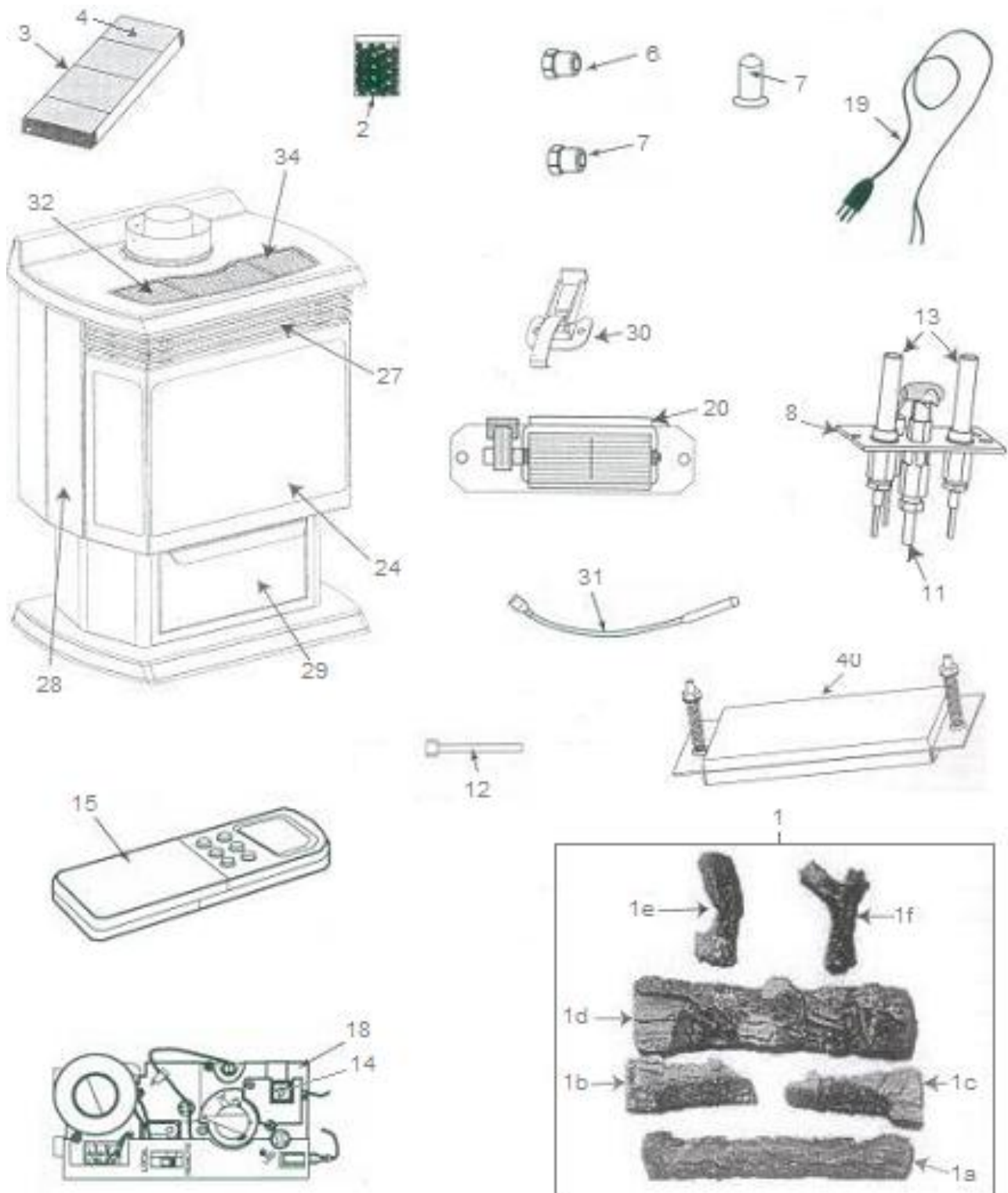


Replacement Parts List – LHEC30 (Exploded View 1)

Item	Description	LHEC30
1	Log Set Complete	10004866
1a	Log Rear Left	KR22
1b	Log Rear Right	KR23
1c	Log Rear Centre	KR24
1d	Log Front Left	KR25
1e	Log Front Right	KR26
2	Larva Rock Burner Package A	57697
3	Larva Rock Burner Package B	10001454
4	Burner Assembly (includes ceramic tiles)	10004972
5	Ceramic Tile - Burner (single)	57803
6	Injector Burner Front - NG	57672
	Injector Burner Front - Propane	54831
7	Injector Burner Rear - NG	50998
	Injector Burner Rear - Propane	54833
12	Pilot Assembly - NG	20002266
	Pilot Assembly - Propane	20002268
13	Injector Pilot - NG	20000908
	Injector Pilot - Propane	20000907
15	Manifold Tubing - Burner (includes fittings, requires bending)	57318
21	Piezo Igniter (includes cable)	20000062
24	Gas Valve Honeywell RV8310D - NG	20003719
	Gas Valve Honeywell RV8310D - Propane	20003720
25	Antenna – Gas Valve	20003561
26	Remote Controller	20002047
27	Thermopile	20002400
28	Cord Set	20002541
30	Fan Assembly (includes fan, fan motor & bracket)	54103
34	Window Glass (includes gasket)	10004989
35	Window Gasket	57317
36	Window Glass Frame	10004873
40	Bracket - Blocked Flue Switch	10004980
41	Flexible Connector – Gas Inlet	10005098
42	Bracket - Rear Log Assembly	10005489
43	Bracket - Log Support Assembly	10004885
44	Access Cover & Gasket - Blocked Flue Switch	10005007
45	Bracket - Grate	10003479
46	Hinges - Front Lower Louvre (1 pair)	52356
47	Pilot Heat Shield	10000248
49	Grate Assembly	10004967
50	Blocked Flue Switch	51866
52	Wiring Harness - Blocked Flue Switch	10005073
Not Shown	Transformer 240V/115V	10008760
	Gas Conversion Kit - NG to Propane	10005890
	Gas Conversion Kit - Propane to NG	10005891
	Zero Clearance Kit (for new installations)	HEZC
	Surround with Mantle (raw ready to paint)	*MAJ700

* For Sheraton brown finish order MAJ7014SB or for faded mahogany order MAJ7014FM.

Exploded View 2 – RFSDV34



Replacement Parts List – RFSDV34 (Exploded View 2)

Item	Description	RFSDV34
1	Log Set Complete	100001763
1a	Log Ember Bed	KR7
1b	Log Front Left	KR8
1c	Log Front Right	KR9
1d	Log Rear	KR10
1e	Log Top Left	KR11
1f	Log Top Right	KR12
2	Larva Rock Burner Package A	57897
3	Burner Assembly (includes ceramic tiles)	10001272
4	Ceramic Tile - Burner (single)	57803
5	Injector Burner Rear - NG	50998
	Injector Burner Rear - Propane	54833
6	Injector Burner Front - NG	57672
	Injector Burner Front - Propane	54831
7	Injector Pilot - NG	20000908
	Injector Pilot - Propane	20000907
8	Pilot Assembly - NG	20002266
	Pilot Assembly - Propane	20002268
11	Pilot Tube With Fittings	10003297
12	Manifold Tubing - Burner (includes fittings, requires bending)	57318
13	Thermopile	20002400
14	Piezo Igniter (includes cable)	20000062
15	Remote Controller	20002047
18	Gas Valve Honeywell RV8310D - NG	20003719
	Gas Valve Honeywell RV8310D - Propane	20003720
19	Cord Set	20002541
20	Fan Assembly (includes fan, fan motor & bracket)	54103
24	Window Frame Assembly (includes glass)	10001917
27	Front Louvre Assembly	10001370
28	Cabinet Side Door (left or right)	10001792
29	Control Door Assembly	10001790
30	Clamp – Control Door Assembly	10000949
31	Antenna – Gas Valve	20003561
32	Top Grill Panel	10001791
34	Mesh Screen	10001749
40	Burner Tray Relief Plate (includes gasket)	10004192
Not Shown	Transformer 240V/115V	10008760
	Manifold Assembly	10000824
	Relief Plate (includes gasket)	10002862
	Window Glass (includes gasket)	10001916
	Window Glass Gasket	10001983
	Draught Diverter	N/A
	Blocked Flue Switch – Draught Diverter	51866
	Heat resistant sealing compound	890591

Gas Type Conversions

Both the LHEC30 and RFSDV34 are gas type convertible between Natural and Propane gas. The gas type conversion procedure is identical for both log fires as are the gas type conversion kits.

Gas Type Conversion Kits

Convert to gas type	NG	Propane
Gas conversion kit part number	10005891	10005890
Kit components	Gas valve conversion kit Pilot injector Front burner injector Rear burner injector Instruction sheet	

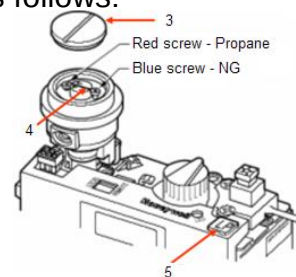
To convert the gas type of a log fire the gas valve needs to be converted and all three injectors replaced (pilot injector and burner front and rear injectors). An adhesive gas type label is to be filled out by the technician performing the gas conversion and attached to the log fire rating plate.

Gas Type Conversion Procedure

Converting the Gas Valve

Both gas valve conversion kits are comprised of a fuel conversion plug and a gas type label. The gas valve can be converted in position and is converted as follows:

1. **Isolate the power and gas supply to the log fire.** The power supply can be isolated by switching off the power point and removing the log fire 3 pin plug from the power point.
2. Open the hinged front lower louvre (LHEC30) or remove the front lower access panel (RFSDV34 – refer to component replacement procedure 21 on page 41). This will provide access to the gas valve.
3. Remove the modulating motor cover (3) by unscrewing in an anti-clockwise direction. This will expose the gas type selector switch.
4. Using a flat bladed screwdriver rotate the gas type selector switch (4) until the arrows point to the desired selection. Red screw for Propane and blue screw for NG.
5. Remove the existing fuel plug (5) and replace it with the new fuel plug. Red plug for Propane and blue plug for NG.
6. Fill out the gas conversion label and adhere it to the log fire rating plate.



Injectors

To complete the gas type conversion the pilot injector will need to be replaced, as will the burner front and rear injectors.

7. Remove and replace the front and rear burner injectors with injectors suitable for the new gas type (for LHEC30 refer to procedure 10 on page 38 and for RFSDV34 refer to procedure 28 on page 43).
8. Remove and replace the pilot injector with an injector suitable for the new gas type (for LHEC30 refer to procedure 7 on page 37 and for RFSDV34 refer to procedure 25 on page 43).
9. Restore power and gas supplies.
10. Test for gas leaks at all unions using soapy water solution.
11. Perform the gas valve safety shut down test procedure (refer to page 18).

Warranty

Raypak Majestic LHEC30 Gas Fireplace & RFSDV34 Gas Log Fire Warranty (Australia only)

*Rheem Australia will:

- a) Repair or, if necessary replace any Raypak LHEC30 Gas Fireplace or RFSDV34 Gas Log Fire, or
- b) Replace any component (or, if necessary, arrange the installation of a LHEC30 Raypak Gas Fireplace or RFSDV34 Gas Log Fire, which falls within the Warranty Periods specified in the installation and operating instructions, in accordance with the subject table, conditions and exclusions.

Installation	Models	Period	Component
Gas Fireplace Insert	LHEC30RFN LHEC30RFP	Year 1	All components including Labour.
Freestanding Gas Log Fire	RFSDV34RFN RFSDV34RFP		
Gas Fireplace Insert	LHEC30RFN LHEC30RFP	Year 2	All components excluding labour
Freestanding Gas Log Fire	RFSDV34RFN RFSDV34RFP		
Gas Fireplace Insert	LHEC30RFN LHEC30RFP	Years 3-10 (pro-rata) From year 4 reducing 15% per year	Fire Box excluding labour
Freestanding Gas Log Fire	RFSDV34RFN RFSDV34RFP		

WARRANTY CONDITIONS

1. This warranty is applicable only to the LHEC30RFN and LHEC30RFP Gas Log Fireplaces and RFSDV34RFN and RFSDV34RFP Gas Log Fires manufactured from August 2005.
2. The gas fireplace or gas log fire must be installed in accordance with the Raypak installation instructions supplied with the log fire and in accordance with all relevant statutory and local requirements of the state in which the log fire is installed.
3. The Gas Fireplace or Gas Log Fire must be correctly commissioned by a licensed and authorised person and the installation certified by the relevant Gas Authority of the State in which the log fire is installed.
4. Where a failed component or log fire is replaced under warranty, the balance of the original warranty period will remain effective. The replaced part or log fire does not carry a new warranty.
5. Where the gas fireplace or gas log fire is installed outside the boundaries of the metropolitan area as defined by Rheem or further than 25km from a regional Rheem branch office, or an accredited service agent, the cost of transport, insurance and travelling costs between the nearest Rheem accredited Service Agent's premises and the installed site shall be the owners responsibility.
6. The warranty only applies to the gas fireplace or gas log fire and original or genuine (company) component replacement parts and therefore does not cover any plumbing or electrical parts supplied by the installer and not an integral part of the log fire.

Notes:

* Rheem Australia Pty Ltd provides warranty service and spare parts on behalf of Raypak.

Rheem reserves the right to transfer fully functional components from the defective gas fireplace or gas log fire to the replacement log fire if required.

In addition to this warranty, the Trade Practices Act 1974 and similar laws in each state and territory provide the owner under certain circumstances with certain minimum statutory rights in relation to your Raypak gas fireplace or gas log fire. This warranty must be read subject to that legislation and nothing in this warranty has the effect of excluding, restricting those rights.

NOTE: Every care has been taken to ensure accuracy in preparation of this publication. No liability can be accepted for any consequences which may arise as a result of its application.

Rheem Australia Pty Ltd

ABN 21 098 823 511

Document Revision History

Title: Vermont Log Fire Service Instructions	Document N°: TM036
--	--------------------

Revision	Details of change	D.O.I.
A	Service Manual Issued for Gas Fireplace & Gas Log Fire	01/08