GAS

BOILER MODEL

(PAPERPORT)

Kidd

VERY HIGH EFFICIENCY
BOILERS

INSTALLATION COMMISSIONING
SERVICING
and
OPERATING
MANUAL

NATURAL GAS
INSTALLER - PLEASE NOTE

THIS MANUAL MUST BE READ IN CONJUNCTION WITH THE RELEVANT (CITB) GAS SAFETY HANDBOOKS WHICH THOSE QUALIFIED TO CEN1, DFDA1, CODNCO1, ICAE1 AND CIGA1 STANDARDS WILL HAVE BEEN ASSESSED ON.

DO NOT ATTEMPT TO MOVE OR OPERATE THE BOILER BEFORE READING THIS MANUAL

CE

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This manual must be left with the user

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1.4 Flue Dimensions

The flue outlet at the top of the boiler is suitable for the following diameter flue pipes:

MODEL 1 and 2	127mm (5") dia.
MODEL 260 and 3B	152mm (6") dia.
MODEL 650	203mm (8") dia.
MODEL 4	254mm (10") dia.

The diameter of the main body of the flue will depend on various factors, including chimney height.
UNDER NO CIRCUMSTANCES CAN THE FLUE DIAMETER BE REDUCED TO LESS THAN THAT OF THE SPIGOT.

IMPORTANT. As a general rule, the height of the chimney should not exceed 10.6m (35ft) from the boiler room floor, (not the top of the boiler).
See Section 6 for further details on flue systems and chimney linings, etc.
Whenever possible, a balanced draught flue system should be installed, rather than lining a tall chimney.

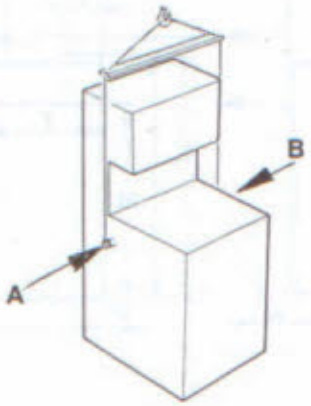
1.5 Delivery and Handling

Provision of a level base of incombustible material, capable of supporting the weight of the boiler and accessories, is the responsibility of the installer or user. **Archie Kidd (Thermal) Ltd.**, will be pleased to advise on this matter.

It is strongly recommended that the movement of the boiler after delivery is supervised by a Kidd trained and approved technician.
In any event these instructions MUST be carefully read and followed, failure to do so may result in a damaged and inefficient boiler, and possible invalidation of the warranty.

1. Do not apply any handling forces whatsoever to the BOILER CASING.
2. Do not stand on the BOILER CASING LID, or climb on the ECONOMISER
3. Do not tip the boiler and support or lift the boiler by the economiser.
4. Always move the boiler:
   i, By rollers under the baseplate
   ii, By sling, via mild steel lifting handles screwed into the flow connection outlets A & B

BOILER SLING



For Model 3, 650 and 4 Boilers, a special hoist is available.
Prices and supply of the above items are available from **Archie Kidd (Thermal) Ltd.**.

If necessary an on-site boiler dismantle and re-assembly service is available from **Archie Kidd (Thermal) Ltd.** at an extra charge.
This service is strongly recommended.
If any unauthorized dismantling and re-assembly work is carried out, the boiler warranty will be invalidated.
Don't allow removed panels to fall, move them well clear of the working area.
THE INTEGRITY OF THE CASING IS VITAL TO THE

1.7 Working Pressures

Each of our six models is designed to withstand a test pressure of 80 P.S.I. (5.50 Bars). Each individual boiler is routinely tested for a minimum of 12 hours normally at 50P.S.I. (3.25 Bars). RECOMMENDED WORKING PRESSURE should not exceed 30 P.S.I.(2 Bars) It is essential to inform **Archie Kidd (Thermal) Ltd** if there are any special requirements so that the boiler can be tested accordingly prior to despatch.
In cases where we are asked to approve the use of PRESSURISED SYSTEMS (i.e. water mains fed as opposed to open vented) it is emphasised that great care must be taken when filling the boiler and heating system not to exceed the working pressure as it is not unknown for water mains pressure to be higher than 100 P.S.I.!
WARNING: Excessive and destructive pressures can result if a boiler is heated up from cold against a closed valve situation and we cannot accept responsibility for damage in such cases.

SAFETY VALVE
A Safety Valve must be fitted in accordance with BS 6644. Models 260, 3B, 650, and 4 are fitted at the works with a safety valve pre-set to 2.5 bar (36 p.s.i.) If a safety valve of a higher test release pressure than 2.5 bar is to be fitted, it is essential that permission in writing is obtained from **Archie Kidd (Thermal) Ltd.**, prior to firing the boiler.
Your application must contain full particulars of the installation.

1.8 Water Connections

ANTI CORROSION.
Before fitting a new boiler, the existing heating and primary circuits MUST be flushed through very thoroughly with a proprietary cleansing and flushing agent such as FERNOX I.C. 20 (2%-5% by volume). Available from most builders merchants.
Also note that prior to the new boiler and heating system being commissioned, a CORROSION PROOFER must be added to the water in circulation (via the cold feed tank in the case of an open vented system) such as Fernox M.B.1 (approximately 5% by volume).
For ease of installation, flow and return connections are provided on either side of the boiler.
MODELS 1 and 2 are 1" BSPf
MODELS 260 and 3B are 1¼ BSPf
MODELS 650 and 4 are 2" BSPf
(Increase pipework to 2½" BSP or larger at the boiler).
Flow and return connections should be used on one side of the boiler only.
NOTE. Connections to the economiser are 'Returns' only.
Refer to Section 2.3 for instructions on correct pipework connections and basic layouts.

1.9 Water Circulation

The minimum flow rates in the following table mus be maintained during the boiler time clock 'ON period. The boiler is designed for fully-pumpec systems.
Under no circumstances must the burner be allowec to flame if the circulating pump is not operating.
It may be necessary to fit a 'flow switch' in series with the pump and burner to shut the burner off immediately in the event of no water flow.
Refer to flow rate tables overleaf.
It is recommended by **Archie Kidd (Thermal) Ltd.**, that the circulating pump is built in (where possible) to the boiler casing, at works, complete with isolating valves for maintenance purposes.
Refer to the table overleaf to identify the model of pump relative to boiler.

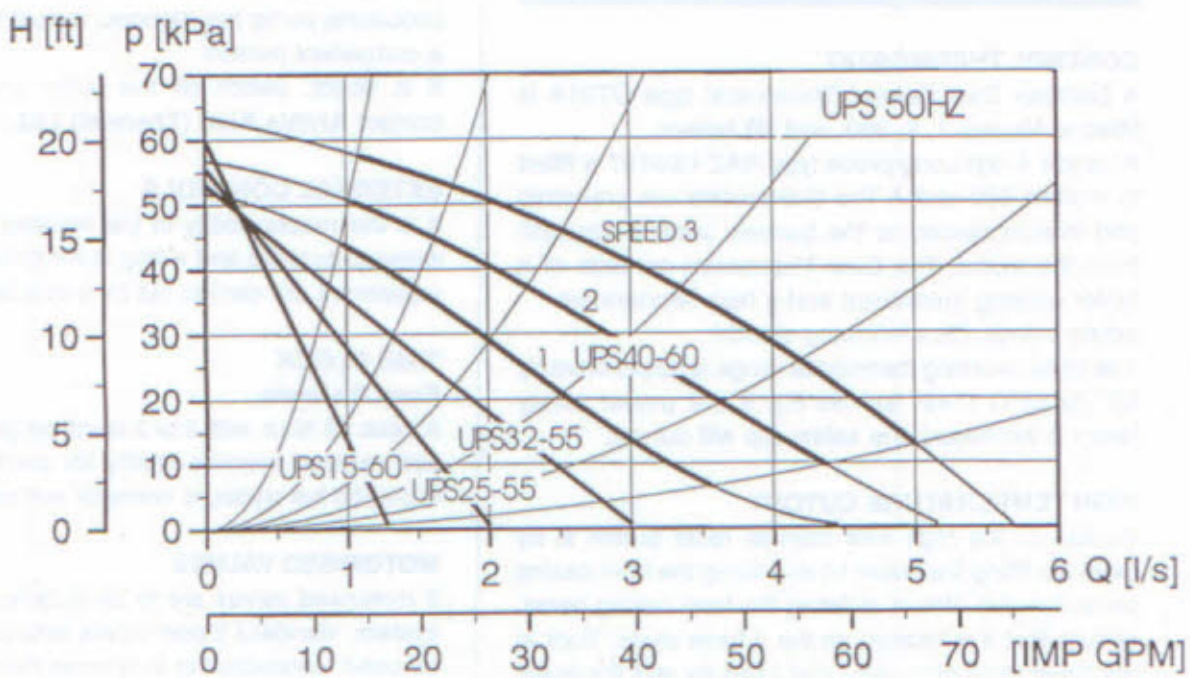
1.10 Condensate Drain

Condensate will be produced by the economiser whenever the return water of the system is below about 55°C (The dew point of the combustion products).
A conventional chimney or chimney lining system will produce condensate more frequently due to the exceptionally low final flue gas temperature, about 100°C, hence the requirement to line the flue with special alloy tubular pipework sections with upward facing sockets and a chimney condensate drain, all available from **Archie Kidd (Thermal) Ltd.**.
Natural Gas/Oil condensate is mildly acidic with a pH value of about 4. Corrosion resistant materials must be used in the construction of the condensate drain. Standard PVC pipe is suitable for this purpose and should be connected to the reinforced plastic drainpipes fitted to the economiser and chimney drains.
The condensate drain(s) may be led directly into the normal drainage system. The pipes should be installed with an adequate slope, (say 30° below the horizontal) and consideration should be given to frost protection. Products of combustion should not be allowed to enter the building. This may be achieved by fitting a 'U' trap at the drain outlet. An open connection to the drain is required after the 'U' trap. Provision must be made for regular flushing of any sulphur and fly ash deposits.

1.11 Flow Rate and Pressure Tables

MINIMUM FLOW RATES		
BOILER MODEL	MINIMUM FLOW RATE FOR TEMPERATURE DIFFERENTIAL OF 14°C (25°F)	
	Gallons/Minute	Litres/Second
1	6	0.46
2	10.67	0.81
260	17.34	1.32
3B	24	1.82
650	43.34	3.29
4	83.34	6.32

BOILER MODEL	1	2	260	3B	650	4
BOILER MODEL	GRUNDFOS UPS 15.60	GRUNDFOS UPS 25.55	GRUNDFOS UPS 32.55	GRUNDFOS UPS 40.60	DETAILS ON APPLICATION	DETAILS ON APPLICATION



1.14 Gas Supply and Wiring Access

A suitable size hole must be drilled for the gas supply pipe in whichever side of the boiler casing is convenient.

Access holes for the electrical supply wiring are provided in the casing, to the rear of the left hand side panel. When access is made through these holes, keep cables close to the inside of the outer casing and away from the boiler chamber itself. Alternatively, an access hole is located towards the front of the right hand side panel.

When any service hole is made in the boiler casing, it is most important that any disturbance to the insulation is made good by plugging with fibreglass and, where necessary, with a rubber grommet.

The smallest airgap will affect the integrity of the boiler insulation, and thus performance, particularly where a balanced draught flue system is installed.

GAS SUPPLY

IMPORTANT: THE CORRECT GAS SUPPLY IS THE RESPONSIBILITY OF THE INSTALLER.

A static pressure of at least 8.3" wg is required at the first test nipple on the burner.

An "operating" pressure at the first test nipple not less than 8" wg with all other appliances in the building fully on is required, otherwise the burner may not function properly. If these pressures and the following gas rates are not met, our Technician will be obliged to switch off **the boiler and isolate**. RETURN VISITS IF NECESSARY WILL BE FULLY CHARGEABLE.

An emergency control (lever pattern) shut off gas valve must be fitted in the gas supply pipe, outside the boiler casing, in an accessible position adjacent to the boiler itself, and suitably labelled.

GAS RATE REQUIRED			
MODEL	Cubic feet/min	Cubic metres/min	Cubic metres/2 mins
1	1.76	0.05	0.10
2	3.11	0.088	0.176
260	5.07	0.15	0.30
3B	6.99	0.197	0.394
650	12.69	0.36	0.72
4	24.43	0.69	1.38

Gas Supply Line to be Sized Accordingly

GUIDE SIZES*	
MODEL	BSP (right up to the burner connection)
1	Not less than ¾"
2	Not less than 1"
260	Not less than 1¼"
3B	Not less than 1½"
650	Not less than 2"
4	Not less than 2½"

** These sizes are for 'guide' purposes only. Much depends on the distance from the gas meter, the number of bends in the gas supply line, etc. To avoid trouble, keep the number of bends (swept bends cause less resistance) to an **absolute minimum**.*

Pipe Sizing Tables:

Up to 28mm

B.S. 6891 : 1988

B.S.I. Tel. No: (0181) 996 9000

The Stationery Office: Tel. No: (0171) 873 9090

28mm – 100mm

Institute Gas Engineers: I.G.E./UP/2

Tel. No: (0171) 636 6603

TABLE 2

MINIMUM AIR VENT FREE AREA FOR OPEN FLUED BOILERS IN COMPARTMENTS		
VENT POSITION	COMPARTMENT VENTILATED	
	To Room or Internal Space and Communicate to Outside Air	Direct to Outside Air
High Level	9cm²/kW (2in²/ 5000 BTUs) of maximum rated input.	4.5 cm²/kW (1in²/ 5000 BTUs) of maximum rated input.
Low Level	18cm²/ kW (4in²/ 5000 BTUs) of maximum rated input.	9cm²/kW (2in²/ 5000 BTUs) of maximum rated input.

TABLE 3

MINIMUM AIR VENT FREE AREA FOR OPEN FLUED BOILERS IN ROOMS OR INTERNAL SPACES		
VENT POSITION	ROOM OR INTERNAL SPACE VENTILATED	
	To Adjacent Room or Internal Space and Communicate to Outside Air	Direct to Outside Air
High Level or Low Level	4.5cm² for every kW exceeding 7kW of maximum rated input (1in² for every 5000 BTUs exceeding 25,000 BTUs of maximum rated input.)	4.5 cm² for every kW exceeding 7kW of maximum rated input (1in² for every 5000 BTUs exceeding 25,000 BTUs of maximum rated input.)

MAXIMUM RATED INPUTS		
KIDD VHE BOILER MODEL	kW	BTU
1	29	98,948
2	50	170,600
260	82	279,784
3B	113	385,556
650	203	692,636
4	391	1,334,092

IMPORTANT

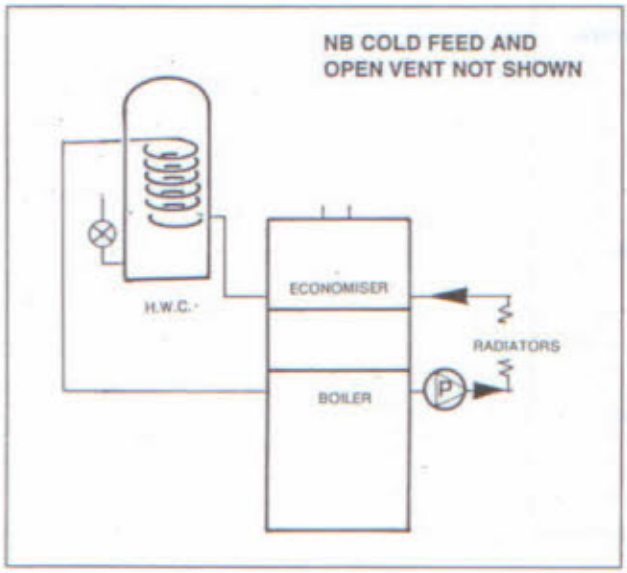
Open flued boilers **MUST NOT** be installed in garages

2.3 Water Connections

Use one flow and one return connection on one side of the boiler only. Use 2 BSP plugs provided to plug unused tappings.

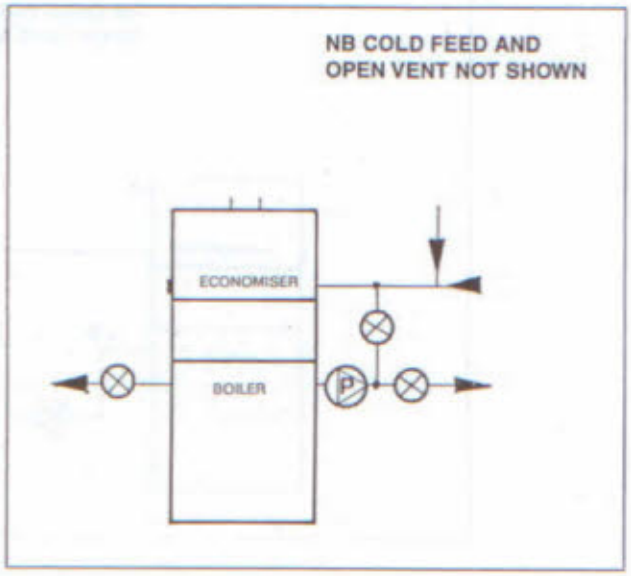
TYPICAL RIGHTS AND WRONGS

Incorrect



SYSTEM SHOULD BE FULLY-PUMPED.
GRAVITY CIRCULATION THROUGH THE H.W.C. WILL BE SLOW. WHEN PUMP RUNS REVERSE CIRCULATION WILL TAKE PLACE.
ALSO WATER WILL FLOW FROM ONE CONNECTION STRAIGHT ACROSS TO THE OTHER, BY-PASSING ECONOMISER AND BOILER.

Also Incorrect!

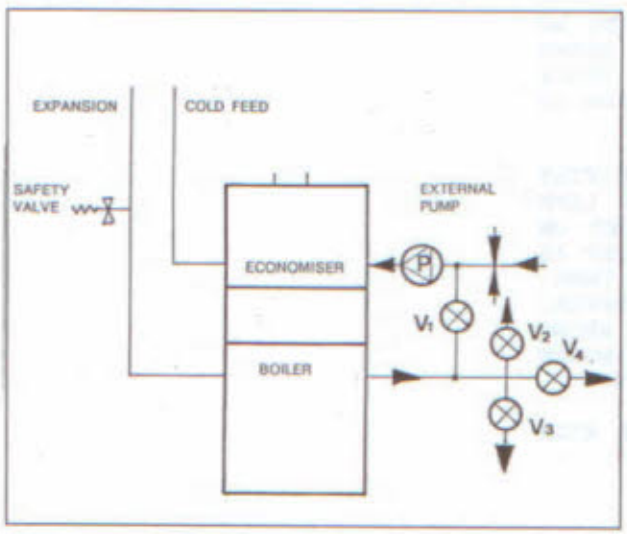


THE TEMPTATION TO CORRECT THIS LAYOUT BY FITTING AN ADDITIONAL PUMP SHOULD BE AVOIDED.

GATE VALVE ⊗

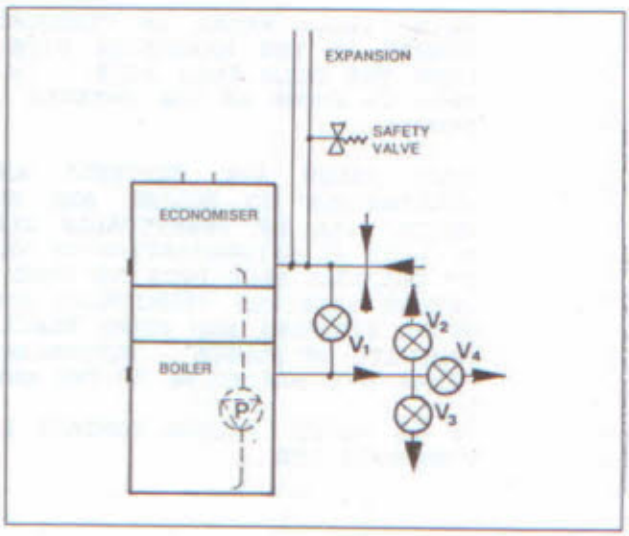
PUMP Ⓟ

Correct



CIRCULATING PUMP FITTED ON RETURN CONNECTION. BY-PASS CIRCUIT INCORPORATING GATE VALVE V1 FITTED TO PROTECT PUMP WHICH SHOULD RUN CONTINUOUSLY THROUGHOUT PROGRAMME. SEE NOTES CONCERNING MINIMUM

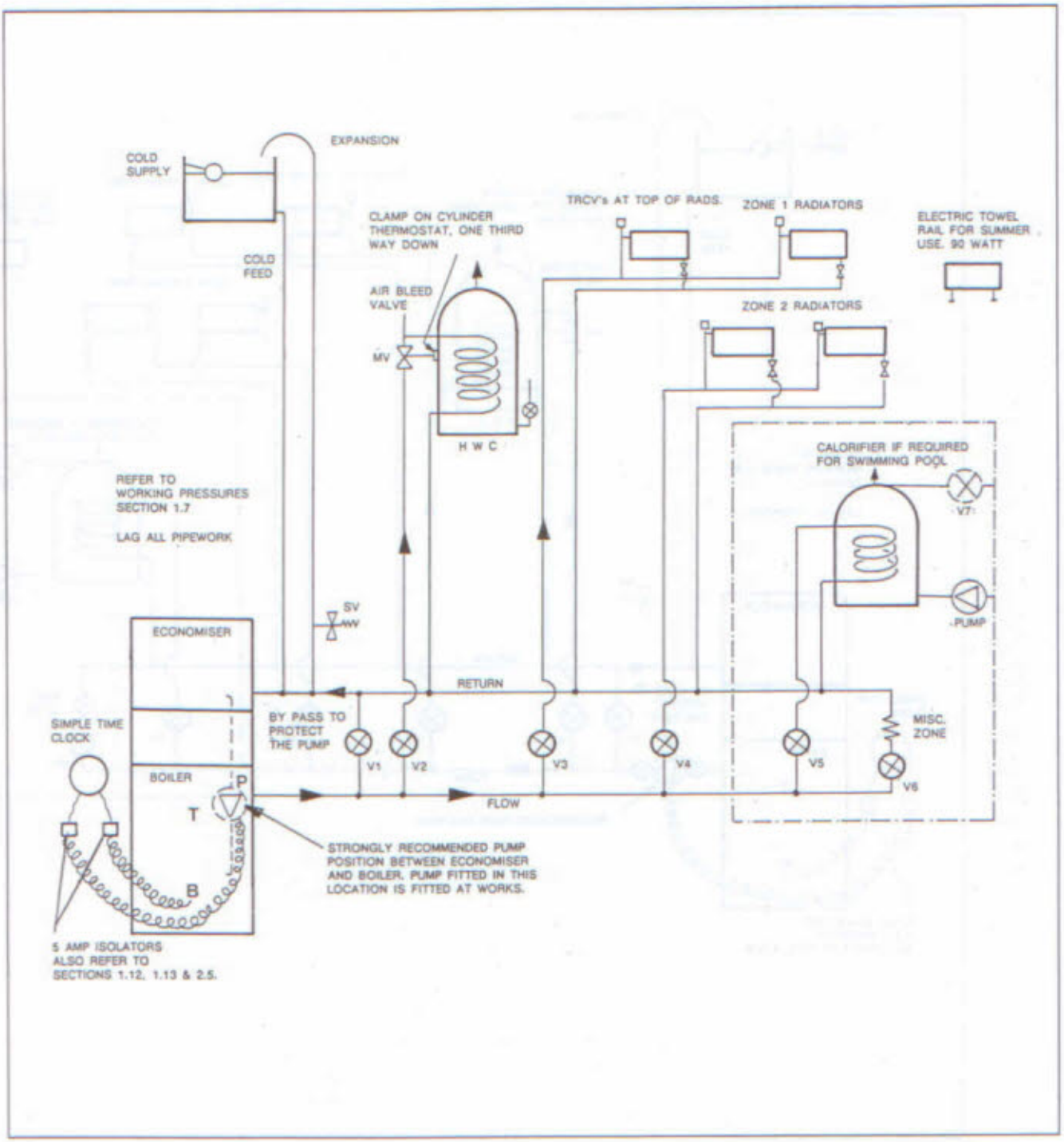
Strongly Recommended



CIRCULATING PUMP FITTED INSIDE CASING, BETWEEN ECONOMISER AND BOILER MAIN INLET. FLOW SPLIT INTO 3 ZONES. EACH ZONE FITTED WITH GATE VALVE FOR ISOLATING AND BALANCING CIRCUITS. REFER TO SEPARATE BASIC HEATING

2.3 Schematic Basic Heating Layout

(INTERNAL PUMP) – STRONGLY RECOMMENDED



V1	BY-PASS VALVE, JUST CRACK OPEN.
V2	DOMESTIC HOT WATER, (OPEN 1½ TURNS).
V3	ZONE 1 HEATING CIRCUIT.
V4	ZONE 2 HEATING CIRCUIT.
V5	SWIMMING POOL CALORIFIER.
V6	MISCELLANEOUS ZONE.
S.V.	SAFETY VALVE.
M.V.	MOTORISED VALVE.
T	THERMOSTAT
B	BURNER.
P	PUMP ALREADY PLUMBED IN

NOTE:

⊗ MANUAL GATE VALVES, ESSENTIAL FOR BALANCING CIRCUITS.

NOTE:

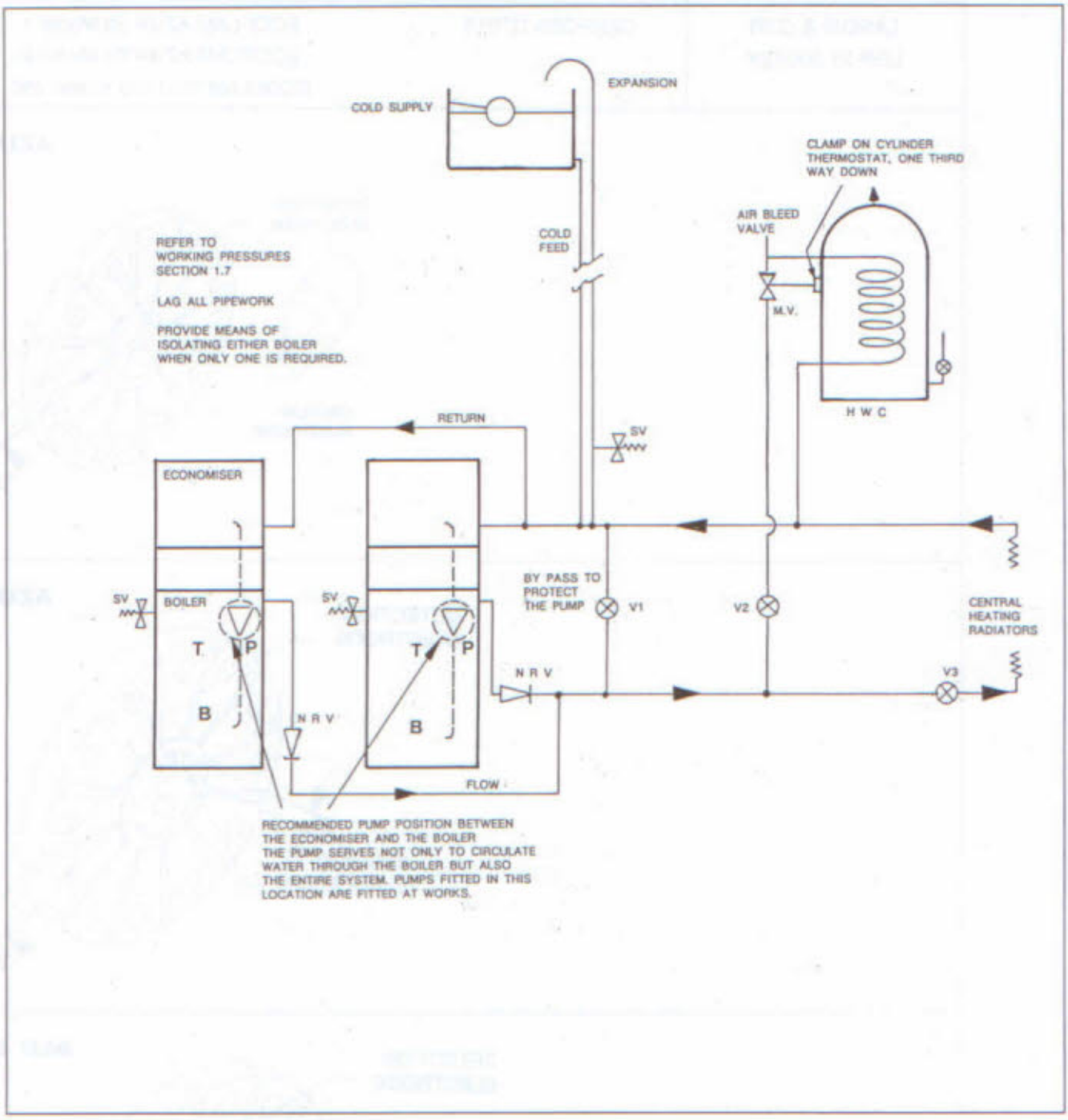
WHEN HEATING THE SWIMMING POOL. RETURN TEMPERATURE TO BOILER MUST NOT BE LESS THAN 52°C,

FLOW TEMPERATURE CAN BE AS HIGH AS 82°C.

ADJUST **V7** ACCORDINGLY.

2.3 Schematic Basic Heating Layout

BOILERS OPERATING IN PARALLEL WITH INTERNAL PUMPS
STRONGLY RECOMMENDED



V1 BY-PASS VALVE, JUST CRACK OPEN.
V2 HOT WATER CIRCUIT OPEN, (OPEN 1½ TURNS).
V3 CENTRAL HEATING CIRCUITS.
S.V. SAFETY VALVE.
N.R.V. NON RETURN VALVE.
M.V. MOTORISED VALVE.
T THERMOSTAT
B BURNER.
P PUMP, ALREADY PLUMBED IN

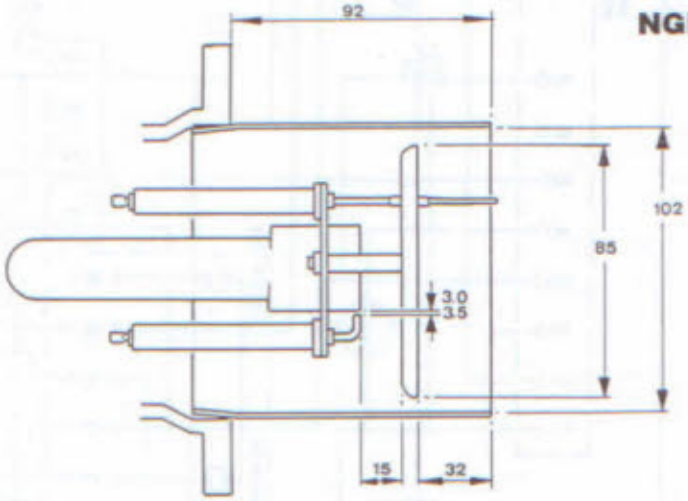
NOTE:
⊗ MANUAL GATE VALVES, ESSENTIAL FOR BALANCING CIRCUITS.

2.4 Burner Head Electrode Settings

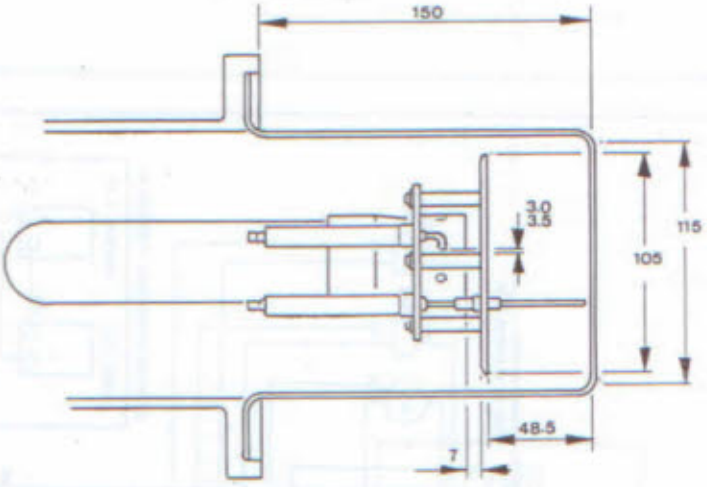
MODELS 3B, 650, 4 – GAS FIRED

CONTROL BOX	THERMOSTAT	BURNER
SATRONIC MM1 810 MOD 43	DANFOSS DT01A	NU-WAY NGN 5 (on/off) Model 3B
	LANDIS & GYR RAZ 13/3137	NU-WAY NGN 8 (on/off) Model 650 NU-WAY NGN 13 (on/off) Model 4

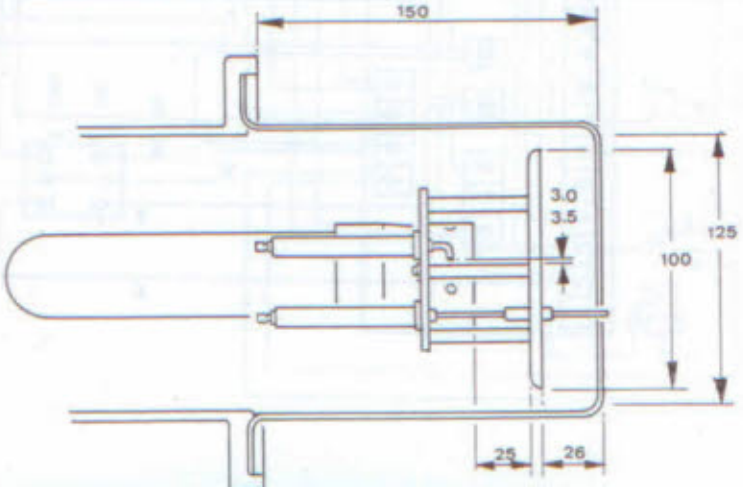
NGN 5



NGN 8



NGN 13

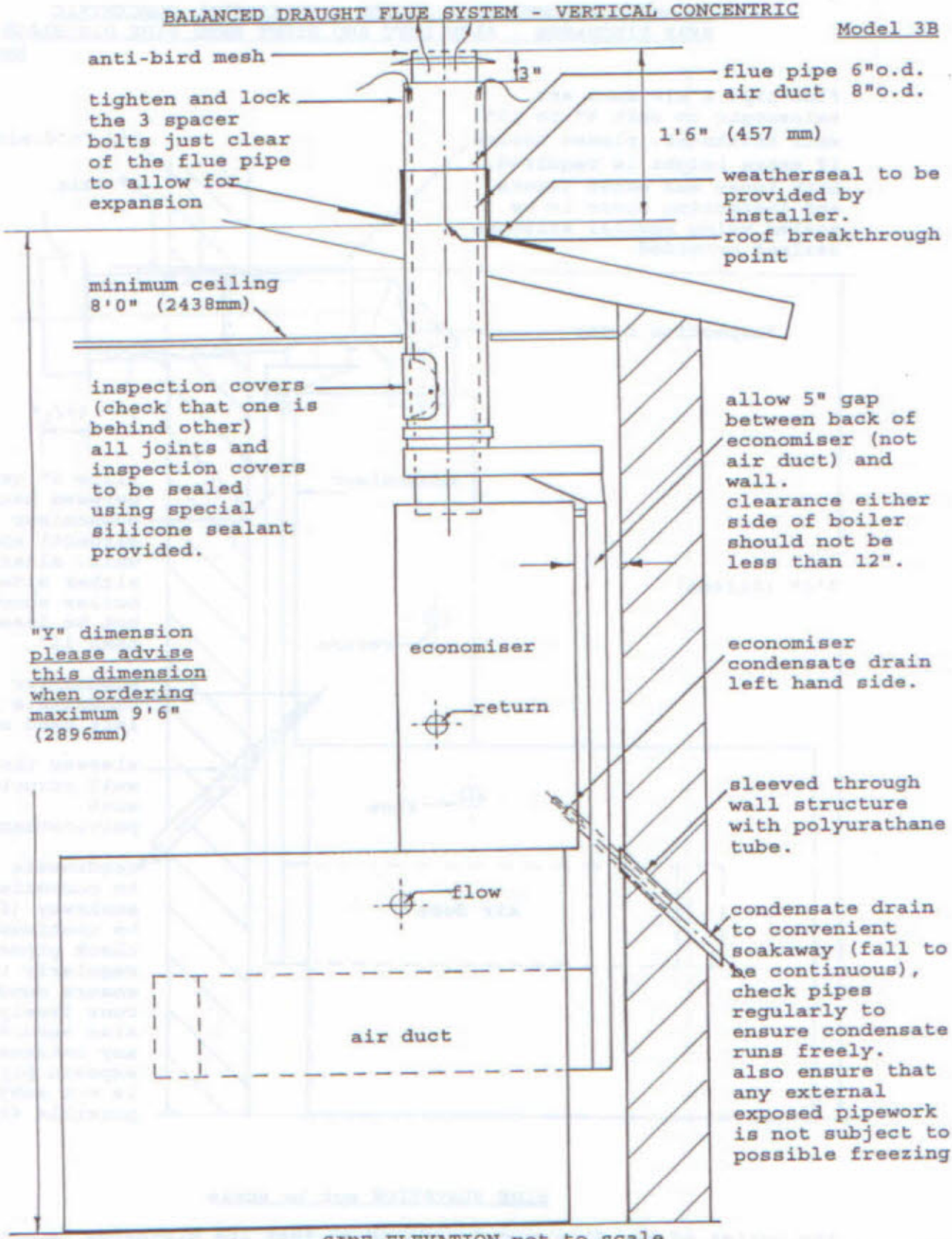


PERFORMANCE AND GENERAL DATA, NATURAL GAS (G20) CATEGORY I2H

BOILER MODEL		1	2	260	3B	650	4
Heat Output	kW (kBtu/hr)	27.2 (92.8)	46.9 (160)	76.9 (262.4)	106 (361.7)	190.4 (650)	366.8 (1¼ Million)
Heat Input	kW (kBtu/hr)	29 (98.9)	50 (170.6)	82 (279.8)	113 (385.5)	203 (692.6)	391 (1.33 Million)
Gas Rate	m³/m (ft³/m)	0.05(1.76)	0.088(3.11)	0.15(5.07)	0.197(6.99)	0.36(12.69)	0.69(24.43)
Idling Loss (Boiler at Full Temperature.) † This figure assumes exposure to icy environmental conditions over 24 hours with only a roof for protection. In a sheltered boilerhouse this figure would be less.	NB.	Tests carried out at boiler flow temperature of 80°C (176°F). At a "normal" flow temperature of 65°C (150°F) thermal efficiency and outputs will be significantly higher.					
		350 Watts †	460 Watts †	430 Watts at 53°F ambient	415 Watts at 53°F ambient	430 Watts at 53°F ambient	415 Watts at 60°F ambient
Minimum Static Head	m (ft)	4 (13)					
Maximum Static Head	m (ft)	45.7 (150)					
Electrical Supply		220/240 Volts 50Hz Single Phase (Fused at 5A)					
Power Consumption (Burner fan motor, single phase)		75 Watts	75 Watts	75 Watts	75 Watts	250 Watts	250 Watts
Minimum Gas Static Supply Pressure	m/bar (in. w.g.)	20.68 (8.3" w.g.) at first test point on burner					
Burner Operating Pressure	m/bar (in. w.g.)	20 (8" w.g.) with all other gas appliances on the premises fully on.					
Flue Branch Internal dimensions N.B. Use only special alloy tubular chimney work, available from *Archie Kidd (Thermal) Ltd.*	mm (in)	130 (5⅛)	130 (5⅛)	156 (6⅛)	156 (6⅛)	216 (8¼)	261 (10¼)
Normal Hydraulic Test Pressure	bar (psi)	3.41 bar (50lbs/square inch. Up to 75lbs/square inch is available)					
Boiler Weight – empty	kg (lb)	161 (355)	233 (513)	327 (720)	430 (946)	665 (1,463)	1000 (2,200)
Boiler Weight – full of water	kg (lb)	225 (495)	315 (693)	498 (1,096)	623 (1,371)	938 (2,064)	1,436 (3,160)
Water Content	litres (gal)	64 (14)	82 (18)	171 (37⅝)	193 (42½)	273 (60⅛)	436 (96)
Water Connections	(in. BSP)	1" BSPF 2 Flow and 2 Return		1¼" BSPF 2 Flow and 2 Return		2" BSPF 2 Flow and 2 Return	

BALANCED DRAUGHT FLUE SYSTEM - VERTICAL CONCENTRIC

Model 3B

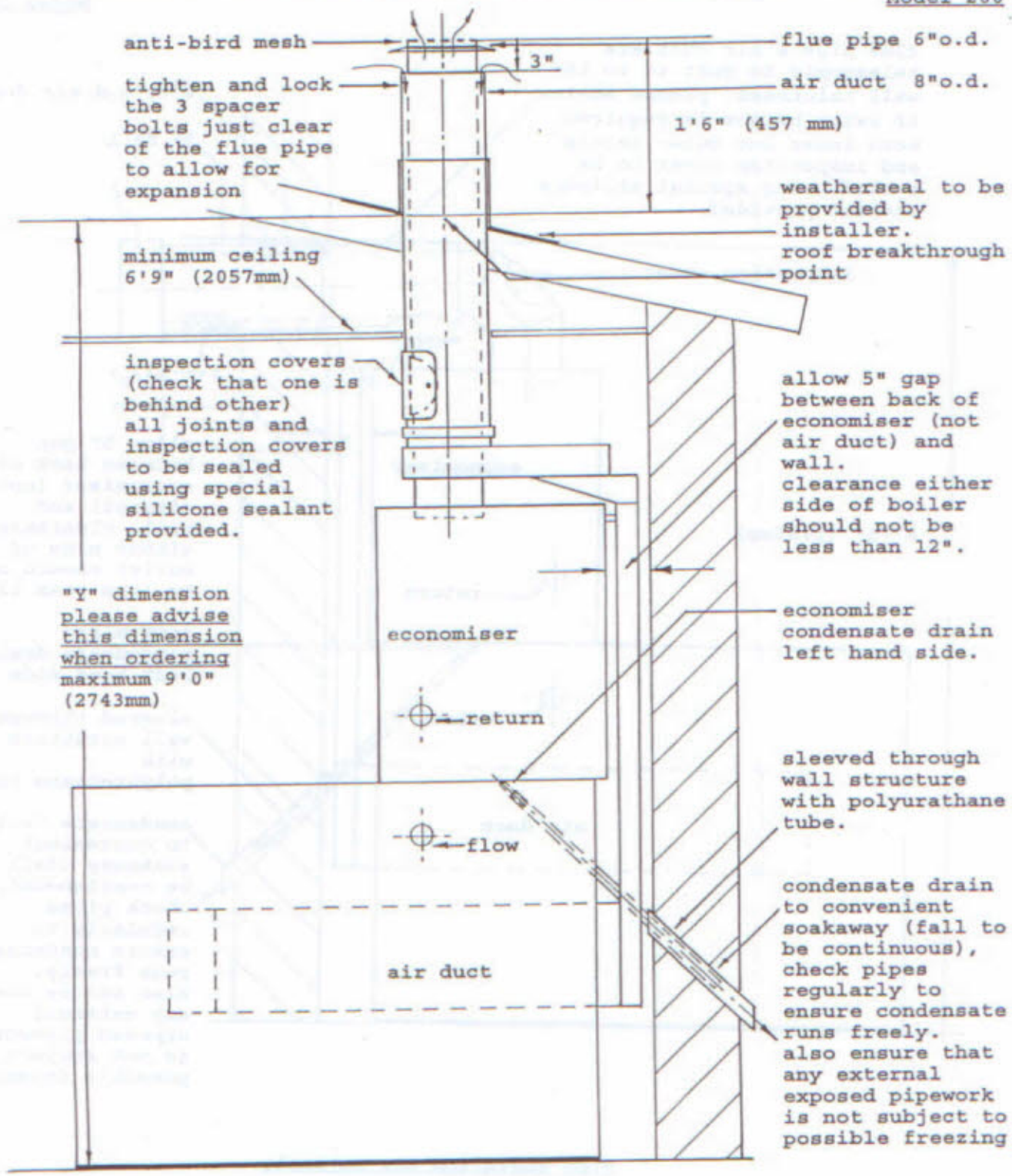


SIDE ELEVATION not to scale

The outlet of the flue must be placed so that its discharge cannot enter any opening in a building in concentrations which would be prejudicial to health or a nuisance. NB: If in doubt, submit a certified building drawing showing boiler in position, wall dimensions, soffit board and guttering positions etc. to Archie Kidd (Thermal) Ltd.

BALANCED DRAUGHT FLUE SYSTEM - VERTICAL CONCENTRIC

Model 260

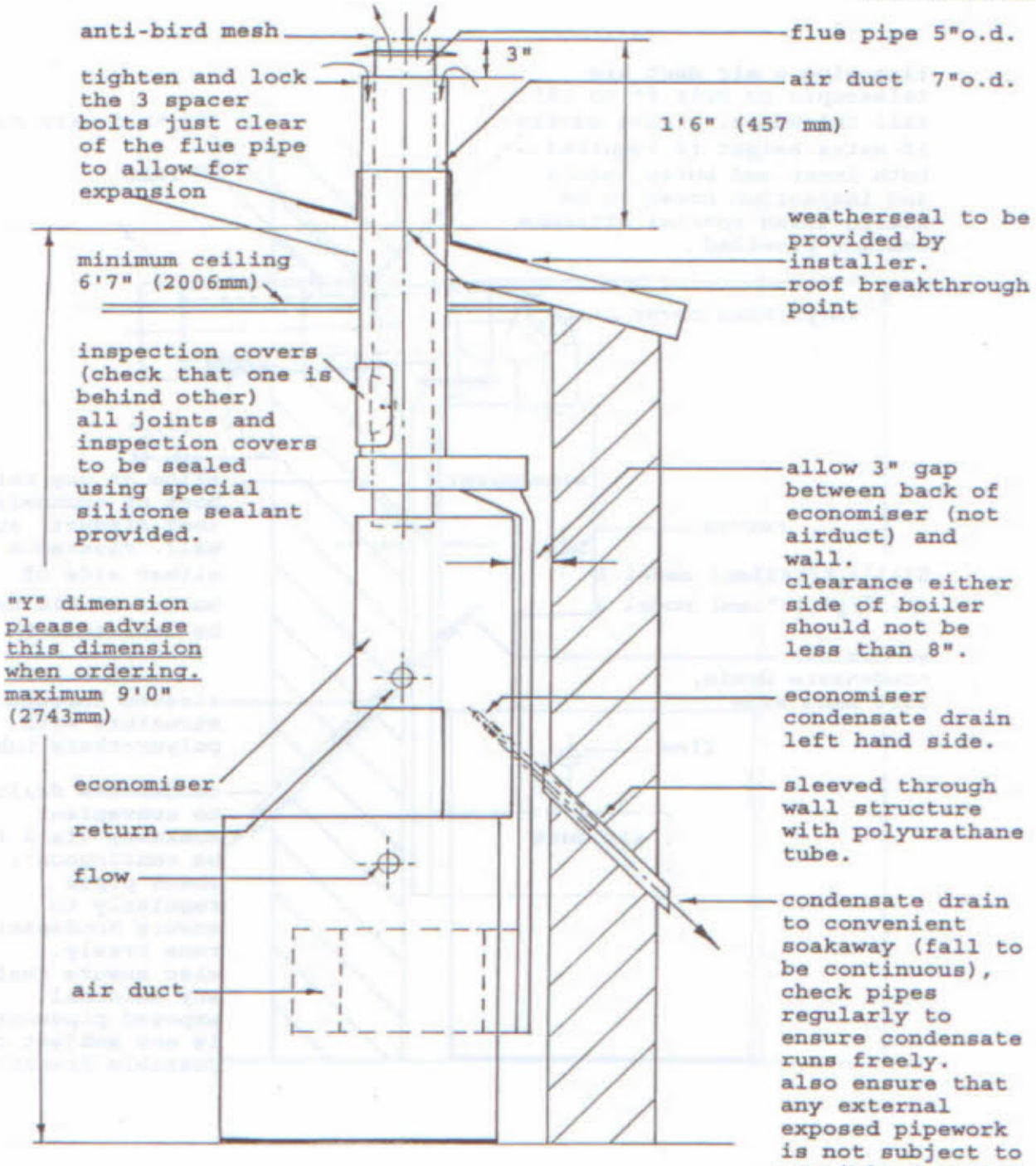


SIDE ELEVATION not to scale

The outlet of the flue must be placed so that its discharge cannot enter any opening in a building in concentrations which would be prejudicial to health or a nuisance.
NB: If in doubt, submit a certified building drawing showing boiler in position, wall dimensions, soffit board and guttering positions etc. to Archie Kidd (Thermal) Ltd.

BALANCED DRAUGHT FLUE SYSTEM - VERTICAL CONCENTRIC

Models 1 & 2



SIDE ELEVATION not to scale

The outlet of the flue must be placed so that its discharge cannot enter any opening in a building in concentrations which would be prejudicial to health or a nuisance.

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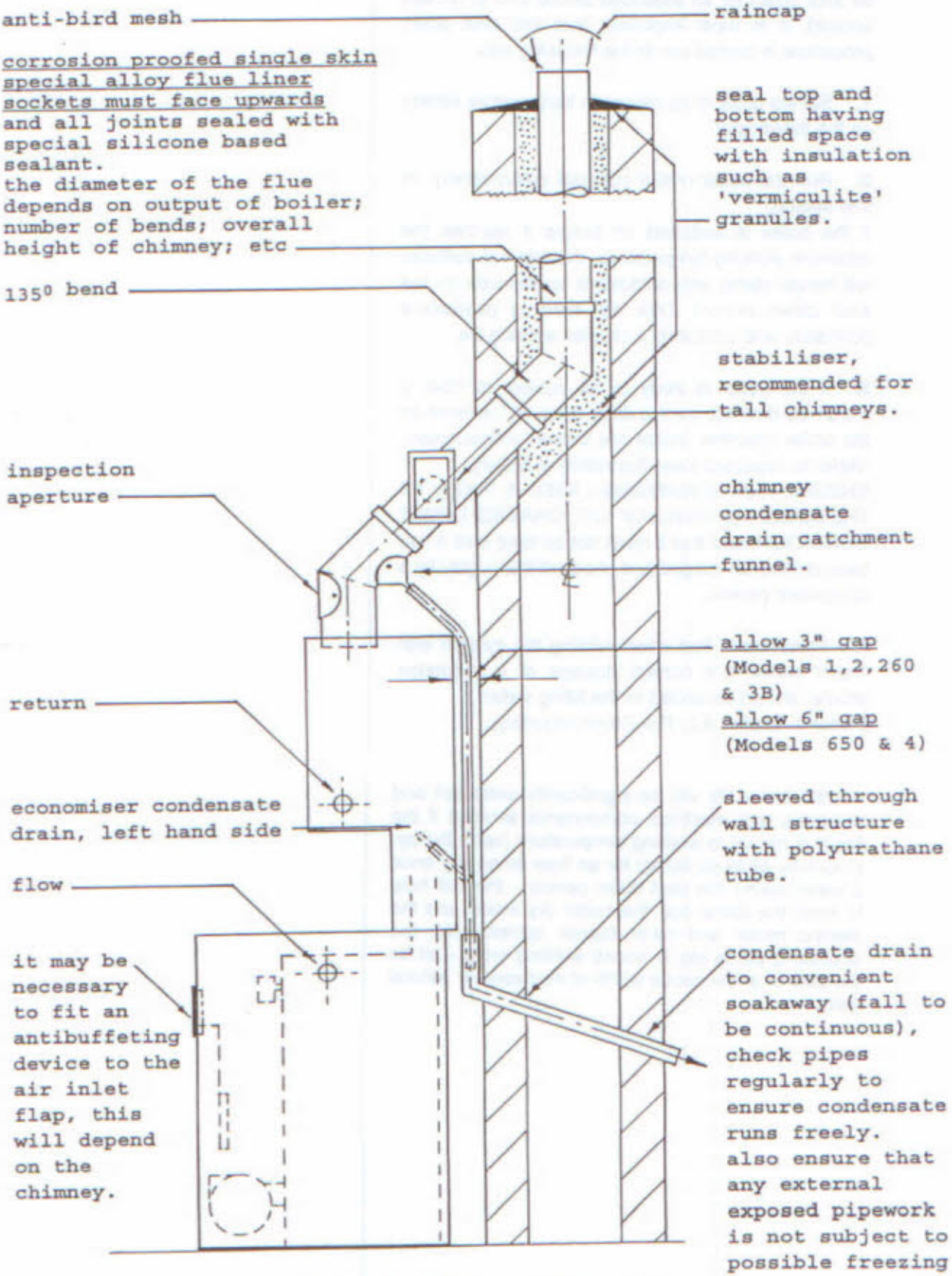
CONVENTIONAL CHIMNEY/LINING SYSTEM



SIDE ELEVATION not to scale

N B It will almost certainly be necessary to bleed air from the economiser several times during the first week or so of operation. (Use a standard radiator air bleed key). This should be done with the burner and circulating pump switched off, otherwise air may be drawn into the system.
On Models 260, 3B, 650 and 4 there is also an air bleed cock on the front of the boiler itself. (Inside the casing). A small spanner will be required to release air from this air cock.

GAS SUPPLY

Check that there is an adequate supply of gas to the burner. Check the position of the gas emergency shut off valve, and that you know how to use it.
Set the boiler thermostat to the required temperature. The control knob is easily accessible by lifting the boiler lid and tilting the front casing panel forward. See Section 1.13 Controls.
The temperature range is 65°C to 85°C (150°F to 185°F). In most cases a setting between 65°C and 70°C will be quite hot enough, except in the very coldest weather. If under normal weather conditions, the heat output is insufficient at the advised setting, set the thermostat control knob up a degree or two.

HIGH TEMPERATURE CUTOUT

The boiler thermostat is fitted with a safety device which will stop the burner should the boiler temperature reach 90°C (194°F), or 97°C (206°F) on models 650 or 4.
If this safety device is activated, refer to Section 1.13, Controls. and/or contact **Archie Kidd (Thermal) Ltd.**.

READY TO FIRE

Ensure that the heating controls, room thermostat, cylinder thermostat, and control time clock are all 'calling for heat'.
Switch on the mains isolating switch.
The water circulating pump will operate, followed by the burner motor and fan. After a short interval, the burner ignition will activate, and the burner will fire.
If the burner does not fire up immediately, the burner control box may go into 'lock out', i.e. depicted by the plastic button on the control box glowing orange-red. (Refer to exploded view illustration of the boiler).
If the boiler has been left unused for a period of time (e.g. seasonal shutdown) it may be that the gas supply has not been purged through sufficiently. Leave the boiler for a minute or so, then gently press the reset button (glowing orange/red on the control box).
The burner should now fire up satisfactorily.
IMPORTANT If the control box repeatedly (say 2 or 3 times) goes to lockout for no apparent reason, please refer to fault finding chart in the burner manual, or immediately contact **Archie Kidd (Thermal) Ltd.**, service department.

ROUTINE CHECKS

The user should periodically lift the boiler casing lid, remove the front casing panel and generally check the condition of the burner and associated wiring,

Carefully refit the casing front panel onto its 2 base location studs, tilt the panel back into position and tuck in the boiler insulation slab. Carefully refit the boiler casing lid.

ANTI CORROSION

The water content of the system should be periodically checked by the client/users plumber using a Concentration Test Meter/Hydrometer to ensure that the concentration of water additives, Corrosion Proofer etc., is correct. See Pre-commissioning Section.

CONDENSATE

Condensate will be produced by the economiser whenever the temperature of the return water from the system is below about 55°C (the dew point of the combustion products).
A chimney or chimney liner will produce condensate more frequently due to exceptionally low final flue gas temperature, about 100°C, hence the requirement for the chimney or chimney liner to be constructed with special alloy tubular pipework sections with upward facing sockets and a chimney condensate catchment piece and drain.
Gas condensate is mildly acidic with a pH value of about 4. Corrosion resistant materials MUST be used in the construction of the condensate drain. Standard P.V.C. pipe is suitable for this purpose and should be connected to the reinforced plastic drainpipe(s) fitted to the economiser tray outlet and, where fitted, to the chimney drain catchment piece.
The condensate drain(s) may be led directly into the normal drainage system. The pipes should be installed with an adequate slope (say 30° below the horizontal) and consideration should be given to frost protection.
NOTE: The products of combustion must not be allowed to enter the building.

CONDENSATE DRAINS

The Condensate drains are an essential feature of Kidd boilers, since a very high efficiency cannot be achieved in any other way.
There is a drain from the base of the economiser tray. Approximately 4ft. of translucent plastic pipe was supplied with the boiler, one end of the pipe is secured to the tray outlet pipe. The drain pipe must fall continuously, without kinks or swamps to its final outlet.
If a conventional chimney or chimney liner is installed, a condensate collection drain funnel will be fitted, together with a length of translucent plastic pipe. This pipe must be installed as described above.
The average amount of condensate which forms is very small, usually less than a ½ litre a day. It can therefore be disposed of into a small external soakaway, or a securely positioned 5 or 10 litre plastic container or any convenient drain.
Should the boiler be started from stone cold, or in very cold weather, there may be an initial drainage of a litre or so, but this is not likely to be a common occurrence.
Blow up the translucent pipe(s) occasionally to make sure that it is clear, and ensure that the drain pipe

5. OPERATING INSTRUCTIONS

SOME NOTES ON ENERGY SAVING

HOW TO GET BEST RESULTS FROM A KIDD BOILER

* Adjust the boiler thermostat according to the weather.
  65°C - Normal running - hot water and central heating.
  70/75°C - Late autumn through to say early spring.
  85°C - As necessary - i.e. when it's really cold outside.
  Set the thermostat down as often as outside conditions allow - consistent with reasonable comfort inside. Considerable savings will accrue if you do.
  Keep the boiler regularly maintained and serviced - at least once every 12 months.

* Switch the boiler off as often as possible!

* Learn to turn radiators down or off altogether rather than open windows. No one can afford wastefully to heat the parish.

* Have the boiler time clock positioned in your kitchen or where it is really convenient to adjust it (several times a day) without having to make route marches.

* Assuming that your heating system has been subdivided into heating zones, get into the habit of turning off unused spaces of the house - apart from an occasional airing.

* **TIME CLOCKS**. Be sure to master thoroughly the time clock particularly if it is of the computerised-hightech - tiny digits-type. You might be astonished by the number of top professional people who rely on their teenage children to alter it for them or not at all. Heating bills are bound to increase unless careful thermal management is routinely undertaken.

* **FROST STATS.** We invariably find them pre-set by the electrician (one who rarely asks and is usually never seen again - most don't even leave their names) to 5°C (approx 40°F), which means the boiler and heating system come on triggered by the slightest chill in the atmosphere - in summer too!

* **DOMESTIC HOT WATER.** In summer switch off the central heating circuit(s); set the boiler thermostat up to 85°C; adjust the hot water cylinder thermostat (which should be near the top of the cylinder) to say 70°C and programme the time clock to bring the boiler and circulating pump on for twenty five minutes only - two or three times a day if necessary. With a fully-pumped system the rate of recovery of hot water will be swift and the heating bills astonishingly low.

* **TCRVs** = Thermostatically Controlled Radiator Valves - actually room thermostats. Have them fitted at the **TOP** of each radiator where they respond better to room temperature; are easier to reach; are less prone to damage, etc. Families can usually be relied upon to turn up the temperature - it's up to whomsoever pays the bills to keep a managerial eye on it all. You may find young people are less difficult to train in energy management nowadays - the future outcome of the environment could affect them more than us.

* Appendix A - Pages 18 to 20 of Mr Archie Kidd's Paper to the I.Mech.E (Western Branch) is worthy of careful study! Further copy available on request.

* Use as little oil or gas as possible consistent with keeping those rooms in use, comfortable. In 2006 the UK will lose its self-sufficiency in oil and gas for the first time in almost 40 years. A sobering thought!

M.A. KIDD.
February 2006.

9. Remove the boiler lid retaining nut(s) and washer(s). (It is advisable to apply some penetrating oil to the threads a few minutes before doing this). Lift off the lid, clean off the underside, inspect the fibreglass webbing and refix it if necessary using special sealant, or remove the old webbing and renew.
Remove the boiler baffle (Models 1 & 2) retaining nut, lift out the baffle, and clean off.
The firetube swirlers protrude from the end of each firetube. Hold the end of a swirler with a pair of pliers and gently pull it out of the tube. Inspect it for damage. After prolonged use, the lower end of the swirler may start to show signs of burning away. Replace as necessary.
To clean the boiler firetubes, gently pull out and push in the swirler several times, making sure that the swirler is finally pushed fully home.
Repeat the above procedure with each swirler and tube in turn.
NOTE that the rear swirlers are articulated (On Models 260, 3B and 650) for easy removal, make sure that these are replaced in the rear tubes.
Clean off the top of the boiler chamber.
Refit the baffle where applicable, and boiler lid. It is advisable to add a small bead of special sealant to the top two corners where the chamber lid meets the economiser flange, prior to refitting.
For future service work, it is advisable to put a small amount of engineering copper grease onto the threaded fixing stud(s), prior to refitting the baffle/lid and nut(s).

10. Replace the economiser fibreglass insulation slabs and refit the economiser front panel with the self tapping screws.

BURNER

11. Clean out and vacuum as far as is practicable the inside of the casing and burner area, before starting work on the burner itself.
Isolate the gas supply pipework at the emergency control gas valve. This should be located close to the boiler, just outside the casing. Disconnect the gas supply pipework at the burner gas train.
Loosen the burner mounting bolts, withdraw the burner and carefully set to one side.
Remove the low level chamber trivet cover. (Refer to exploded view illustration of boiler). Inspect the sealing gasket, renew as necessary.
Vacuum out any ash deposit from the burner chamber. Refit the trivet cover and gasket, and ensure a tight seal with the bracket.

12. Carefully vacuum out around the burner head, and dust out thoroughly with a small, dry clean paintbrush.
Check the condition and position of the burner ignition electrode, and the ionisation probe. See illustration, section 2.4.
Generally vacuum and clean off the burner with a

13. Refit the burner to the boiler, (do not overtighten burner bolts). Reconnect the gas supply pipework, turn on the emergency control gas valve. Again with the use of a manometer 'U' gauge, carry out a tightness test.

14. Check all wiring circuits for continuity against the burner and the boiler thermostat wiring diagrams.

15. Bleed air from the economiser, using the manual air bleed cock, on the right hand side of the economiser.
NOTE: Boiler models 1, 2, 260, 3B, 650, and 4 are fitted with an additional air bleed cock at the top of the boiler front. Models 650 and 4 have a further air bleed cock at the top left hand side of the economiser.
Check that all air has been bled by this means.

16. BEFORE firing the burner, check the functioning of the water circulating pump. Isolate the burner by means of its master switch.
Set all remote controls to ON, i.e. room and cylinder thermostats, and time clock. Switch on the water circulating pump to check correct running. If in doubt, use a long handled screwdriver as a stethoscope.

Set the boiler thermostat to 65°C (150°F)

17. With **all controls** set to the ON position, i.e., room and cylinder thermostats and time clock, switch on the burner and water circulating pump.
The burner will fire up.
Using a Kane-May or similar approved combustion test equipment, take all combustion test readings through the combustion test hole provided in the flue duct between the boiler furnace and the economiser.
Check the gas meter reading, recording same.
IMPORTANT: All other gas appliances served by the same meter must be isolated to provide accurate readings.
Check the gas flow rate through the burner and adjust the gas flow throughput as appropriate to the burner. Refer to section 1.14 'Gas Supply'.
With a manometer 'U' gauge, check and record the burner gas 'operating pressure', and the burner 'head pressure'.
Allow the boiler to reach a reasonable working temperature, adjusting the burner head setting (where applicable) and the burner air intake to achieve a low CO (ppm) reading.

NEVER leave a burner producing a high CO reading.

IMPORTANT, AVOID OVERFIRING.

Refit the boiler furnace top insulation slab, the boiler front cover panel and the boiler casing lid.
Where a conventional chimney or lining system is in use, it is most important to ensure that the combustion

setting) and check that there are no signs of water 'pumping over' or 'backfeed' into the cold feed or expansion tank.
Once this test has been successfully carried out, return the water circulating pump to No.1 or the lowest setting. Set the boiler thermostat to 65°C (150°F)

f. With **all controls** set to the ON position i.e. room and cylinder thermostats and time clock, switch on the burner and water circulating pump.
Burner will fire up.

g. Using a Kane-May or similar approved combustion test equipment, take all combustion test readings through the combustion test hole provided in the flue duct between the boiler chamber and the economiser.
Check the gas meter reading, recording same.
IMPORTANT: All other gas appliances served by the same meter must be isolated to provide accurate readings.
Check the gas flow rate through the burner and adjust the burner gas flow throughput as appropriate to the burner.
Refer to section 1.14, 'Gas Supply'.
With a manometer 'U' gauge, check and record the burner gas 'operating pressure', and the burner 'head pressure'.
Allow the boiler to reach a reasonable working temperature, adjusting the burner head setting (where applicable) and the burner air intake to achieve a low CO (ppm) reading. ✳
Initial readings must be carefully monitored, these may be slightly distorted at first by the 'oils' and 'fats' on the new boiler metalwork being burnt off.
NEVER leave a burner producing a high CO reading. ✳

IMPORTANT, AVOID OVERFIRING.

Refit the boiler furnace top insulation slab, the boiler front cover panel and the boiler casing lid.
Where a conventional chimney or lining system is in use, it is most important to ensure that the combustion air intake flap moves freely and is perfectly balanced.
Continue to check the combustion test readings, noting that it may be necessary to make some minor adjustments to the burner head and air intake, to allow for the fact that the boiler lid and front casing have been fitted, enclosing the burner.

Allow the boiler to reach 65°C (150°F) working temperature. Set the boiler thermostat up 5°C.

Once the burner has refired on its own merit, recheck all the combustion test readings, ensuring that the boiler lid and front casing are correctly fitted, and that, where applicable the boiler room door is shut, i.e. that the boiler is operating under normal conditions.

In the case of a conventional chimney or chimney lining, a chimney flue suction reading must be taken, using the combustion test hole.
Check for adequate suction on the flue, it should be within 0.04" to 0.08" wg. (1 to 2mm wg.) A chimney stabiliser should be fitted if the draught is more than 0.10" w.g. (2½mm wg.)

h. Check tightness of all settings, and switch off the boiler. Bleed the economiser again, (with the circulating pump switched off).
Refit the combustion test hole bolt.

Complete 3 copies of the official **Archie Kidd (Thermal) Ltd.** commissioning report sheet.
Return ONE copy the **Archie Kidd (Thermal) Ltd.**, Service Department.
Give ONE copy to the user.
Retain ONE copy for your service records.

Before leaving the site, refer the user to the **OPERATING INSTRUCTIONS** section of this manual.
Discuss any queries that may arise, run through the firing up procedure again as necessary.

✳ The CO/CO^2 Ratio should not exceed 0.000 .

NB The CITB standards allow up to 0.02 !

4.3 Commissioning

Before commencing commissioning procedure, the following points should be checked visually by the commissioning technician.

1,a. All water connections are correctly made and as the recommended Kidd basic pipework layout. (Refer to sections 1.8 and 2.3).
Check that the system is full of water and check with the installer that an inhibitor of the correct consistency and dilution has been added.

b. Check with the installer that all gate and isolating valves are fully open, but set the main bypass valve (refer to basic pipework layout), approximately 1 turn open, as a starting point to commissioning procedure.

c. Before proceeding, check that there is no smell of gas present. With the use of a manometer 'U' gauge, carry out a tightness test on the gas supply pipework, between the emergency control gas valve and the burner. If the test is sound, note the 'static' or 'standing' gas pressure and record it on an **Archie Kidd (Thermal) Ltd.** official commissioning report sheet, and proceed with commissioning. This recorded gas pressure should not be less than 8.3" w.g.
IF THE TIGHTNESS TEST FAILS, safely isolate the gas supply, attach official CORGI warning labels to the appliance, and report the failure immediately to the installer for rectification.
DO NOT proceed until further tightness test has been taken and recorded as sound and safe.
Check visually that the gas supply pipe is of adequate size. Refer to section 1.14 'Gas Supply' and to the Pre-Commissioning Section of this manual.

d. Electrical supply correctly made to the gas burner and water circulating pump.
THIS APPLIANCE MUST BE EARTHED.
Correct 5 amp fused isolating switches must be fitted.
NOTE: The appliance must be wired so that the water circulating pump cannot be switched off without switching off the burner.

e. IMPORTANT, Ensure that condensate drain pipe(s) connections are made and fall continuously to soakaway or drain, without kinks or swamps. See illustrations, section 6.
Check that any external exposed drain pipes will not be subject to possible freezing up.

FLUE AND CHIMNEY WORK

2,a. Ensure that all flue systems have been installed in accordance with illustrations shown in this manual, or to specific instructions from **Archie Kidd (Thermal) Ltd.** In the case of Balanced Draught systems, it is important to ensure that the discharge terminal is correctly located in accordance with **Archie Kidd (Thermal) Ltd.**, instructions. (See section 2.2)
It is essential that the special sealant provided by **Archie Kidd (Thermal) Ltd.** is used.
WHEN THE ABOVE POINTS, TOGETHER WITH THE PRE-COMMISSIONING INSTRUCTIONS have been followed through, proceed with the next stage of commissioning.

b. For **Conventional Chimney Work,** or **Chimney Lining Systems**, remove the chimney cleaning access cover, directly above the boiler top. Check for debris in the chimney pipework, and any that might have fallen onto the economiser water sections. (Clean out as necessary).
Using the special silicon based sealant, apply a continuous bead to the inner edge of the access cover, carefully locate the screw fixing holes and refit the cover, tightening just enough to squeeze out an even bead of sealant all round the cover edge.
Check that the main chimney connection is correctly made, to the boiler, and sealed with the special sealant.

c. For a **Vertical Concentric Balanced Draught Flue system**, remove the outer (air duct) inspection cover, and the inner, (flue duct) inspection cover. Check for debris that may have dropped down onto the economiser water sections. (Clean out as necessary). Check that both ducts are firmly seated into their respective sockets, and sealed with the special sealant.
If the duct is not sealed, carefully lift the inner duct upwards.
With the duct held in the elevated position, apply a good bead of special sealant to the inner edge of the flue socket. Carefully lower the flue duct down into the sealant and socket, ensuring that the inner inspection cover is correctly aligned with the outer inspection cover. As the sealant extrudes out, remove any excess with a clean rag to make a smooth, even joint.
Using the special sealant, apply a small continuous bead to the inner edge of the inspection cover, carefully locate the screw fixing holes and refit the cover, tightening just enough to squeeze out an even bead of sealant all around the cover edge. If the outer duct has not been sealed, follow instructions given for the inner duct above, then reseal the outer cover in the same way.
Check that the main flue connection is correctly made to the boiler, and sealed with the special sealant.

d. For a **Horizontal Concentric Balanced Draught Flue system**, remove the inspection cover, directly above the top of the boiler. Check for debris that may have dropped down onto the economiser water sections. (Clean out as necessary).
Using the special silicon based sealant, apply a small continuous bead to the inner edge of the inspection

4.2 Pre-Commissioning

ANTI CORROSION

Before fitting a new boiler, the existing heating and primary hot water circuits MUST be flushed through very thoroughly with a proprietary cleansing and flushing agent such as FERNOX I.C.20 (2%-5% by volume). Available from most builders merchants.

Also note that prior to the new boiler and heating system being commissioned, a CORROSION PROOFER must be added to the water in circulation (via the cold feed tank in the case of an open vented system) such as Fernox M.B.1 (approximately 5% by volume).

FIRING THE BOILER

UNDER NO CIRCUMSTANCES MUST THE BOILER BE FIRED UNTIL OUR SERVICE ENGINEER ARRIVES TO COMMISSION IT.

FIRING THE BOILER BEFORE THE CORRECT COMMISSIONING PROCEDURE HAS BEEN CARRIED OUT WILL INVALIDATE THE WARRANTY, AND ABSOLVE ARCHIE KIDD (THERMAL) LTD. FROM ANY DAMAGE CAUSED.

Inform **Archie Kidd (Thermal) Ltd.**, when the boiler is ready for commissioning.

Gas fired boilers must be commissioned by a CORGI registered technician approved by **Archie Kidd (Thermal) Ltd.** using recognised test equipment.

The importance of having a Very High Efficiency boiler properly commissioned cannot be over emphasised. Failure to do so may leave the boiler operating at considerably less than its maximum designed efficiency, increase running costs and lead to ongoing technical problems.

Because of variation of site conditions, the burner must be commissioned on site.

Before Commissioning, the installer must check through the following list:

1. After testing Live and Neutral, the power to the boiler must be switched OFF.
2. Completely fill the boiler and pipework system with water.
3. Bleed air from the top of the economiser via air bleed cock. (All Models top right hand side).

NOTE: On Models 650 and 4 there is an additional air bleed cock on the top left hand side of the economiser, also on 260, 3B, 650 and 4 Models, there is an air bleed on the front of the boiler chamber itself. These must also be checked.

4. If a conventional Kidd chimney or chimney liner is installed, it must have sockets facing upwards and a cleaning aperture must be provided just above the economiser. The chimney or liner must fit fully down inside the flue ring at the top of the economiser.

All joints must be properly sealed against leakage of saturated flue gases.

A SPECIAL SILICON BASED SEALANT must be used: this is supplied with the chimney work. Additional tubes of sealant can be obtained from **Archie Kidd (Thermal) Ltd.**.

DO NOT use firebrick cement.

If a Kidd Horizontal or Vertical Concentric Balanced flue system has been installed, it is important that both the inner duct (flue), and the outer duct (air) are sealed again using the SPECIAL SILICON BASED SEALANT provided.

5. It is important that the boiler (as opposed to the outer casing), is perfectly level. Use a spirit level on the boiler lid, and check front to back and side to side.
6. Condensate Drain Pipe(s) must fall continuously to soakaway, without kinks or swamps, and cleated as necessary to supporting walls. Entry into soakaway must be made secure, with provision for cleaning.

Care must be taken when connecting to an external soakaway or drain, to ensure that any external exposed pipework is encased with waterproof lagging to prevent possible freezing.

7. Purge the gas supply pipework up to the burner gas train.

NOTE: This should be carried out in accordance with CORGI requirements with the emphasis on safety and ventilation of rooms.

Check that the gas supply pipework is in a good and sound condition. Carry out a gas soundness test. This test must be carried out, whether the gas supply is new or existing, in accordance with CORGI requirements.

Check that the correct gas pressure is being delivered to the burner, refer to section 1.14, 'Gas Supply'. The gas pressure should not be less than 8.3" w.g.

Check that the correct size gas supply pipework has been installed, refer to section 1.14, 'Gas Supply'.

Check that the gas supply emergency control gas valve (lever pattern) has been fitted correctly. Refer to the installation section of this manual.

8. All ventilation requirements have been met and all in accordance with CORGI recommendations.

9. A Questionnaire is included in the delivery documents. This must be completed in full by the installer and returned to **Archie Kidd (Thermal) Ltd.**, prior to a Kidd technician attending the site to commission the boiler.

cover, carefully locate the screw fixing holes and refit the cover, tightening just enough to squeeze out an even bead all around the cover edge.
Check that the flue connection is correctly made to the boiler, and sealed with special sealant.
Remove the external balanced draught flue terminal (taking care not to lose the small brass bolts and nuts) and check that the inner duct has been sealed with the special sealant. (the telescopic section). If it hasn't been sealed, apply a bead of sealant to the edge of the inner duct and finish off cleanly. Refit the balanced draught flue terminal. (Bird mesh uppermost).

3. Carefully lift the boiler casing lid and remove, together with the insulation slab and casing front cover.

4. Remove the combustion test bolt (centre throat of the economiser, see exploded view illustration of boiler for bolt location). Remove the small self tapping fixing screws and carefully remove the economiser front panel, together with respective fibreglass slabs from the economiser front, undertray and throat.

5. Screw in the 2 small jackbolts on the economiser inspection cover, to prise the cover away from the front of the economiser. Run a sharp knife around the inspection cover edge seal and remove the cover. Clean off existing black sealant from the cover and cover surround, using a sharp wood chisel or similar, and unscrew the jackbolts to their original position.

6. Wash out the inside of the economiser condensate tray with clean fresh water. Inspect the tray seals for water leaks, and ensure that the condensate drain runs freely.

7. Reseal the economiser inner inspection cover with a good sized continuous bead of black special silicone adhesive sealant, applied to the inner edge of the cover. Refit it to the economiser by pressing it firmly into place.
THIS SEAL IS MOST IMPORTANT
particularly on a balanced draught flue system. If the seal is faulty, saturated flue gases will quickly condense inside the casing and cause serious corrosion inside the panels etc.

8. Remove the brass holding down nut(s) and steel washer(s) from the boiler lid. Remove the lid and check that the fibreglass webbing sealing strips are intact. Where fitted, remove the boiler baffle holding down nut(s), and lift out the baffle. Check the boiler chamber tube swirlers. Refit the baffle and steel chamber lid.
NOTE: It would assist future service work if a small amount of engineering copper grease was put onto the threaded fixing studs, prior to refitting baffle or lid nuts.

9. Replace the economiser fibreglass insulation slabs, and refit the economiser front panel with the self tapping screws.

10. Place spirit level on the steel boiler lid, (NOT THE CASING), and check levels front to back and side to side.
Advise the installer of any discrepancy, which must be rectified before firing the boiler.

11. Isolate the gas supply pipework at the emergency control gas valve, installed outside the boiler casing.
Disconnect the gas supply pipework at the burner gas train.
Remove the burner retaining bolts, carefully withdraw the burner and set to one side. Check that the low level chamber trivet cover and sealing gasket are well fitted and secure using the bracket strap.
Refer to exploded view illustration of boiler, for trivet location.

FIRING THE BURNER

12. Refer to Burner Manufacturers operating manual and **Archie Kidd (Thermal) Ltd.** burner check sheet. Check through the following points in conjunction with the manual and check sheet.

a. Check position of ignition electrode and ionisation probe for correct positioning.
See illustration, Section 2.4, burner head and electrode settings.

b. Check tightness of burner to boiler mounting flange and gasket and refit the burner to the boiler.
Reconnect the gas supply pipework.
Turn on the emergency control gas valve.
Again with the use of a manometer 'U' gauge, carry out a gas tightness test.

c. Check wiring circuits for continuity against the burner and boiler thermostat wiring diagrams.

d. Bleed air from the economiser using the manual air bleed cock on the right hand side of the economiser.
NOTE: Boiler models 260, 3B, 650 and 4 are fitted with an additional air bleed cock at the top of the boiler. Models 650 and 4 have an additional cock at the top left hand side of the economiser.
Check that all air has been bled by this means.

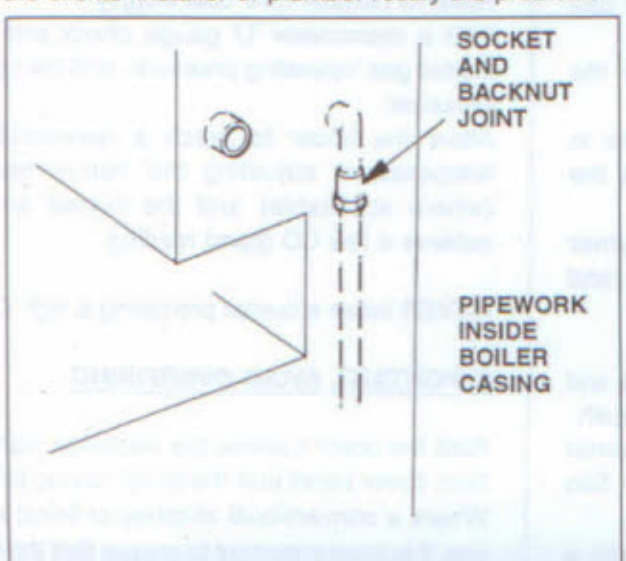
e. BEFORE firing the burner, check the functioning of the water circulating pump by isolating the burner by means of its master switch. Open the shortest heating circuit, (usually the primary circuit to the domestic hot water cylinder).
Set controls to ON, i.e. cylinder thermostat, and time clock. Switch on the water circulating pump to check correct running.
If in doubt use a long handled screwdriver as a stethoscope.
If the system is of an open vented design, turn the water circulating pump to the No.3 setting (highest

4.4 Servicing

1,a. Carefully lift the boiler casing lid clear of the boiler and place to one side. Lift out the insulation slab, and remove the casing front cover.

b. Before proceeding, check that there is no smell of gas present.
With the use of a manometer 'U' gauge, carry out a tightness test on the gas supply pipework, between the emergency control gas valve and the burner. If the test is sound, note the 'static' or 'standing' gas pressure and record it on an Archie Kidd (Thermal) Ltd., official service report sheet, and proceed with the service. This recorded gas pressure should not be less than 8.3" w.g.
IF THE TIGHTNESS TEST FAILS safely isolate the gas supply, attach official CORGI warning labels to the appliance and report the failure to the owner or client, so that arrangements can be made for the leak to be repaired.
DO NOT proceed until the gas leak has been rectified, and a further tightness test has been taken and recorded as sound and safe.

2. Remove the combustion test bolt. (centre throat of the economiser, refer to boiler exploded view illustration for bolt location).
Remove the small self tapping screws and remove the economiser front panel, together with the fibreglass insulation slabs from the economiser front, undertray and throat.
Visually inspect the main economiser to boiler interconnecting water pipework joint (socket and back nut) and confirm condition of same on the official test report sheet. See note 18. If the joint is leaking or showing signs of deterioration, the client must be advised and shown the problem. If it cannot be rectified immediately, and needs further attention, advise the client of the situation and recommend that the clients' installer or plumber rectify the problem.



3. The economiser inner inspection cover is sealed, and must be prised away from the economiser body by turning the two jacking bolts. It may be necessary to run a sharp knife around the inspection cover edge and economiser to break the seal. Clean off the old hardened sealant from the cover and opening surround with a sharp wood chisel or similar, and unscrew the jackbolts to their original position.

4. Any accumulation of ash deposit will be visible inside the opening. This should be vacuumed out, and the tray seals inspected for deterioration. Tray seals in good condition are shiny black, degraded seals will be grey, or burnt away altogether.
Make good with black special silicone sealant, available from **Archie Kidd (Thermal) Ltd.**.

5. Before re-assembling economiser etc, remove the flue access cover. Clean off any old hardened sealant from the cover and the flue itself. Check the flue for cleanliness, vacuum out any debris.
Periodically, as necessary, wash the chimney clean, using hot water. Pour the hot water gently into the chimney from the highest access point, until all deposits of sulphur and fly ash have been dissolved and washed away through the condensate drain.
IMPORTANT before attempting to wash out the chimney, the condensate tray drain must be clear and free running.

Reseal the flue access cover by applying a continuous bead of black special silicone sealant all round the inside edge of the cover, and refitting to the flue with 2 self tapping screws. Tighten just enough to squeeze out an even bead all round the cover edge.

6. Using hot water, and a long spouted watering can, wash out the economiser tray to soften any adhering sulphur or ash deposits. Ensure that the flow of hot water drains freely through the tray condensate drain, and when it runs clear and clean, inspect the underside of the tray for any leakage through the seals.

7. Apply a good sized bead of black special silicone sealant around the inner edge of the economiser inspection cover, making sure that the jackbolts are screwed fully out.
Refit the cover to the economiser by pressing it firmly into place.
THIS SEAL IS MOST IMPORTANT,
particularly on a balanced draught flue system. If the seal is faulty, saturated flue gases will quickly condense inside the casing, and cause serious corrosion inside the panels etc..

8. Check the silicone sealant at the flue to economiser joint, renew sealant as necessary.

Continue to check the combustion test readings, noting that it may be necessary to make some minor adjustments to the burner head and air intake, to allow for the fact that the boiler lid and front casing have been fitted, enclosing the burner.
Check all readings against those taken when the burner was originally commissioned, or those on the previous service report.
Allow the boiler to reach 65°C (150°F) working temperature, set the boiler thermostat up 5°C.

Once the burner has refired on its own merit, recheck all the combustion test readings, ensuring that the boiler lid and front casing are correctly fitted, and that, where applicable, the boiler room door is shut, i.e. that the boiler is operating under normal conditions.

In the case of a conventional chimney or lining system, a chimney flue suction reading must be taken, at the combustion test hole, using a manometer.
Check for adequate suction on the flue, it should be within 0.04" to 0.08" w.g. (1 to 2 mm w.g.)
A chimney stabiliser should be fitted if the draught is more than 0.10" w.g. (2½mm w.g.)

Check the tightness of all settings, and switch off the boiler. Bleed the economiser again. (With the circulating pump switched off).

Refit the hexagonal test bolt to the test hole.

18. Complete 2 copies of an official **Archie Kidd (Thermal) Ltd.** service report sheet.
Send ONE copy to **Archie Kidd (Thermal) Ltd.** Service Department.
Give ONE copy to the client/user.

19. Leave all controls in 'as found' position, or as instructed by the client/user.

5.1 Operating Instructions

THE MODEL NUMBER OF THE BOILER IS ON THE FRONT COVER OF THIS MANUAL.

IT IS MOST IMPORTANT THAT THIS SECTION OF THE MANUAL IS READ AND FULLY UNDERSTOOD BY THE HOUSEHOLDER/USER BEFORE ANY ATTEMPT IS MADE TO FIRE THE BOILER.
REFER TO THE BOILER EXPLODED VIEW ILLUSTRATION SECTION 4.1 WHEN READING THIS SECTION OF THE MANUAL.

Preliminary firing will have been carried out by the commissioning technician, please ask the installer about any aspect of the functioning of the boiler and installation you are unsure of, or contact **Archie Kidd (Thermal) Ltd.**, with any queries if the commissioning technician is not available.

The Boiler and Burner are fully automatic in operation, and require little attention other than setting of the boiler thermostat, and any other controls which may form part of the heating system. Your boiler should be serviced at no longer than 12 month intervals.

IMPORTANT.
If you smell gas, turn off the gas supply IMMEDIATELY at the emergency lever type control valve adjacent to the boiler. If necessary, turn the gas off at the meter. DO NOT SMOKE, USE NAKED FLAMES OR OPERATE ELECTRIC SWITCHES, ON OR OFF.
Open doors and windows to disperse the gas and contact your heating engineer, (preferably the installer) immediately, and your local gas board.

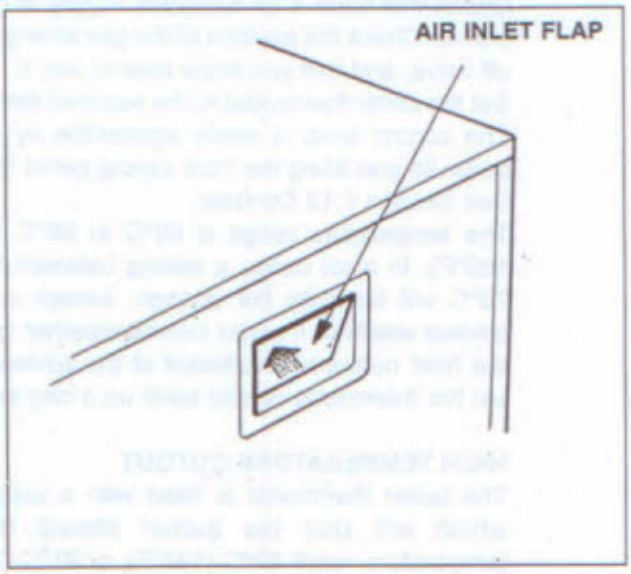
In order that the boiler is maintained at its designed performance output, it is essential that it is serviced by a qualified, **Archie Kidd (Thermal) Ltd.**, approved technician.
Our service department will be pleased to arrange a service contract (normally on an annual basis).
Please contact **Archie Kidd (Thermal) Ltd.**, on 01380 828123, or 828490 for full details of service contracts and charges.

NOTE
During a routine service, in addition to the boiler itself, IT IS MOST IMPORTANT THAT THE ECONOMISER IS CLEANED OUT AND INSPECTED AT THE SAME TIME.

When the boiler is in use, if the system water temperature is low, or the ambient air temperature is cool or cold, the discharged flue gases will appear as a fine mist or vapour. This is a normal function of the boiler.

VENTILATION
Air grilles will have been fitted where necessary by the installer. Under no circumstances must these air grilles be covered or blocked in any way, as this will have a very serious, and possibly hazardous effect on the burner operation and boiler efficiency.

WARNING
Except for balanced draught flue boilers, which draw air for combustion in through the air duct provided in the flue system, at no time must the air inlet flap in the boiler casing be blocked in any way. Also check that the air inlet flap can pivot freely and easily at all times.



DO NOT STORE FLAMMABLE MATERIALS OR LIQUIDS ON OR NEAR THE BOILER.

BOILER CASING
The integrity of the casing has an important effect on the overall efficiency of the boiler. When the Front or Lid is removed for access to the boiler controls, they MUST be replaced carefully and correctly before firing. If any boiler panels, or the internal insulation material, are accidentally damaged, they MUST be replaced immediately. (Don't wait until the next service visit).

FIRING THE BOILER
Check that the electricity supply to the burner has a 5 amp fuse fitted at the isolator adjacent to the boiler, and that this isolator and the control time clock are in the OFF position.

Check that the boiler and heating systems are full of water, and that all gate valves are fully open, (except for the bypass valve which will have been preset when the boiler was commissioned).
Initially the economiser may still be partially filled with air, (which could prevent circulation), this air must be released by means of the air bleed valve(s). There is an air bleed valve at the top right hand side of the economiser. On Models 650 and 4 there is an additional air bleed valve on the top left hand side of the economiser. (Refer to exploded view illustration of the boiler).

5.2 Seasonal Use

WARNING

If the boiler is used seasonally, to heat a swimming pool, community buildings etc., and thus is likely to be shut down for an extended period and to remain unused, it is most important that the shut down procedure is carried out in the following way.

1. Set the boiler to its minimum temperature setting on the thermostat.

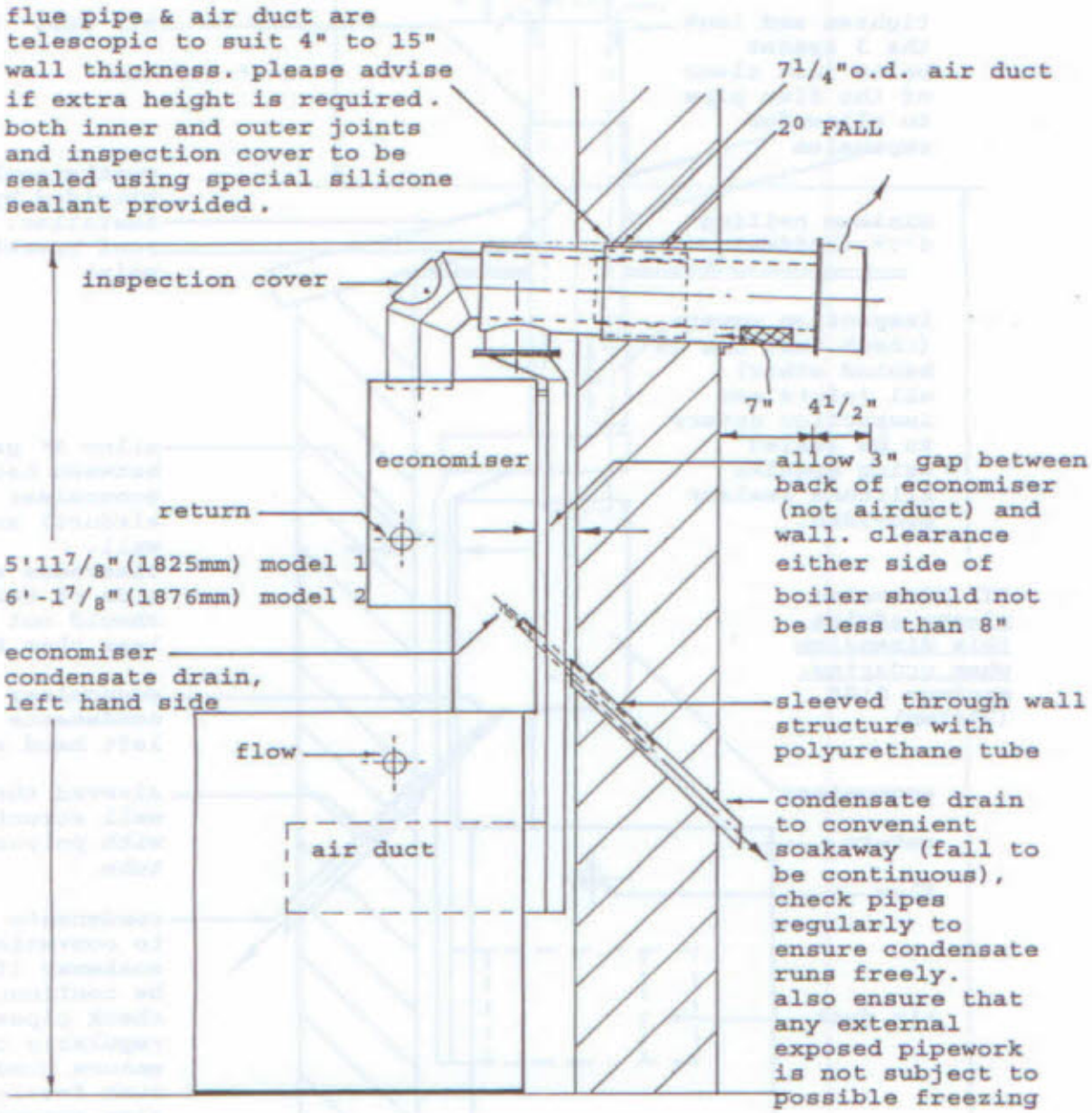
2. Run the boiler until it cuts out automatically on that setting.
If the boiler is switched off before it reaches the minimum working temperature, the internal surfaces will remain damp with acidulated condensate for the shut down period. This will lead to premature corrosion, and ultimately a shorter working life.

3. If the boiler is likely to be subject to frost, it MUST be drained, via the drain cock, at low level on the boiler chamber inside the burner compartment. (Refer to exploded view illustration of boiler).
ENSURE THAT A WARNING LABEL IS FIXED TO THE BOILER ADVISING OF THE 'DRAINED DOWN' CONDITION, and that it must not be fired until it has been refilled, air purged and checked thoroughly by a competent person.

4. Please note that when refilling the system with 'fresh' water, the correct dosage of a corrosion proofer should be added to the filling water.
(Refer to section 4.2, Pre-Commissioning).

5. **NB** Boiler life will be significantly extended and problems with electrical components avoided if the boiler is run up to working temperature (open the by-pass fully while so doing) for an hour or so say once a week during the shut down period – this will help to keep the damp out; the boiler dry inside and the electric motor and other burner components, the circulating pump etc. in sound working order – all for the cost of a few pence worth of kerosene or natural gas.

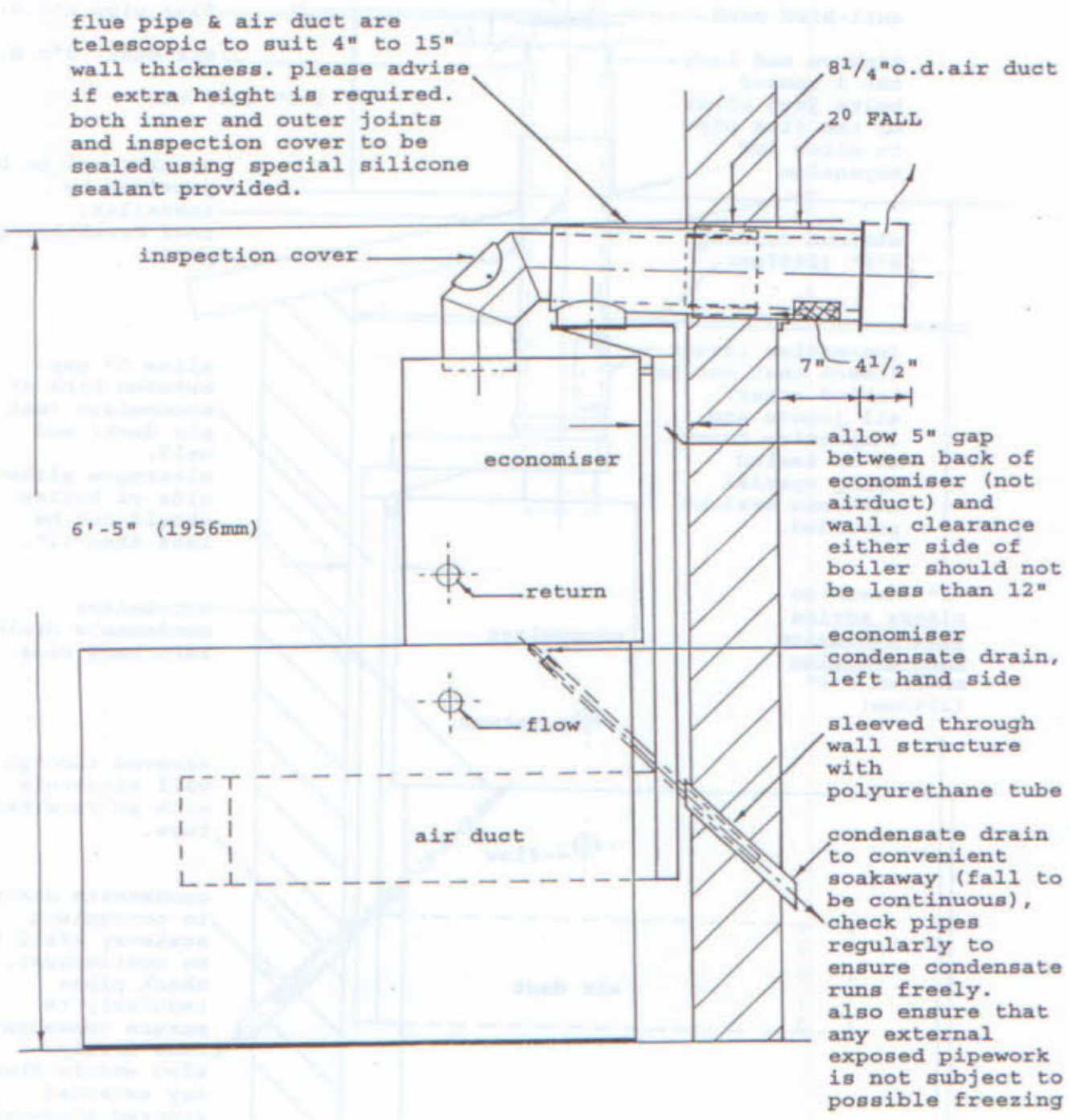
BALANCED DRAUGHT FLUE SYSTEM - HORIZONTAL CONCENTRIC
REAR DISCHARGE - ALSO LEFT AND RIGHT HAND SIDE DISCHARGE
Models 1 & 2



SIDE ELEVATION not to scale

The outlet of the flue must be placed so that its discharge cannot enter any opening in a building in concentrations which would be prejudicial to health or a nuisance. NB: If in doubt, submit a certified building drawing showing boiler in position, wall dimensions, soffit board and guttering positions etc. to Archie Kidd (Thermal) Ltd.

BALANCED DRAUGHT FLUE SYSTEM - HORIZONTAL CONCENTRIC
REAR DISCHARGE - ALSO LEFT AND RIGHT HAND SIDE DISCHARGE
Model 260

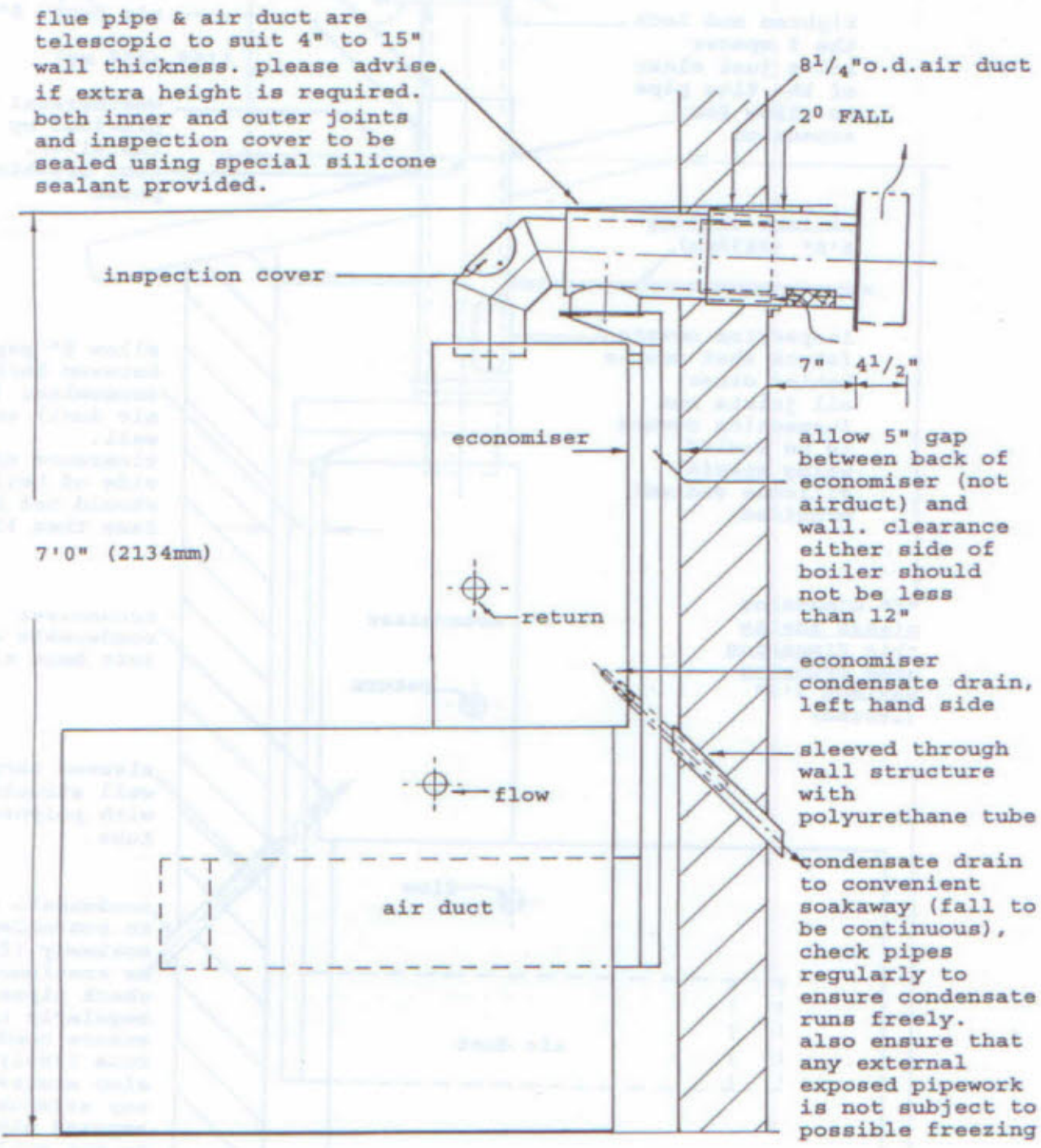


SIDE ELEVATION not to scale

The outlet of the flue must be placed so that its discharge cannot enter any opening in a building in concentrations which would be prejudicial to health or a nuisance. NB: If in doubt, submit a certified building drawing showing boiler in position, wall dimensions, soffit board and guttering positions etc. to Archie Kidd (Thermal) Ltd.

BALANCED DRAUGHT FLUE SYSTEM - HORIZONTAL CONCENTRIC
REAR DISCHARGE - ALSO LEFT AND RIGHT HAND SIDE DISCHARGE

Model 3B

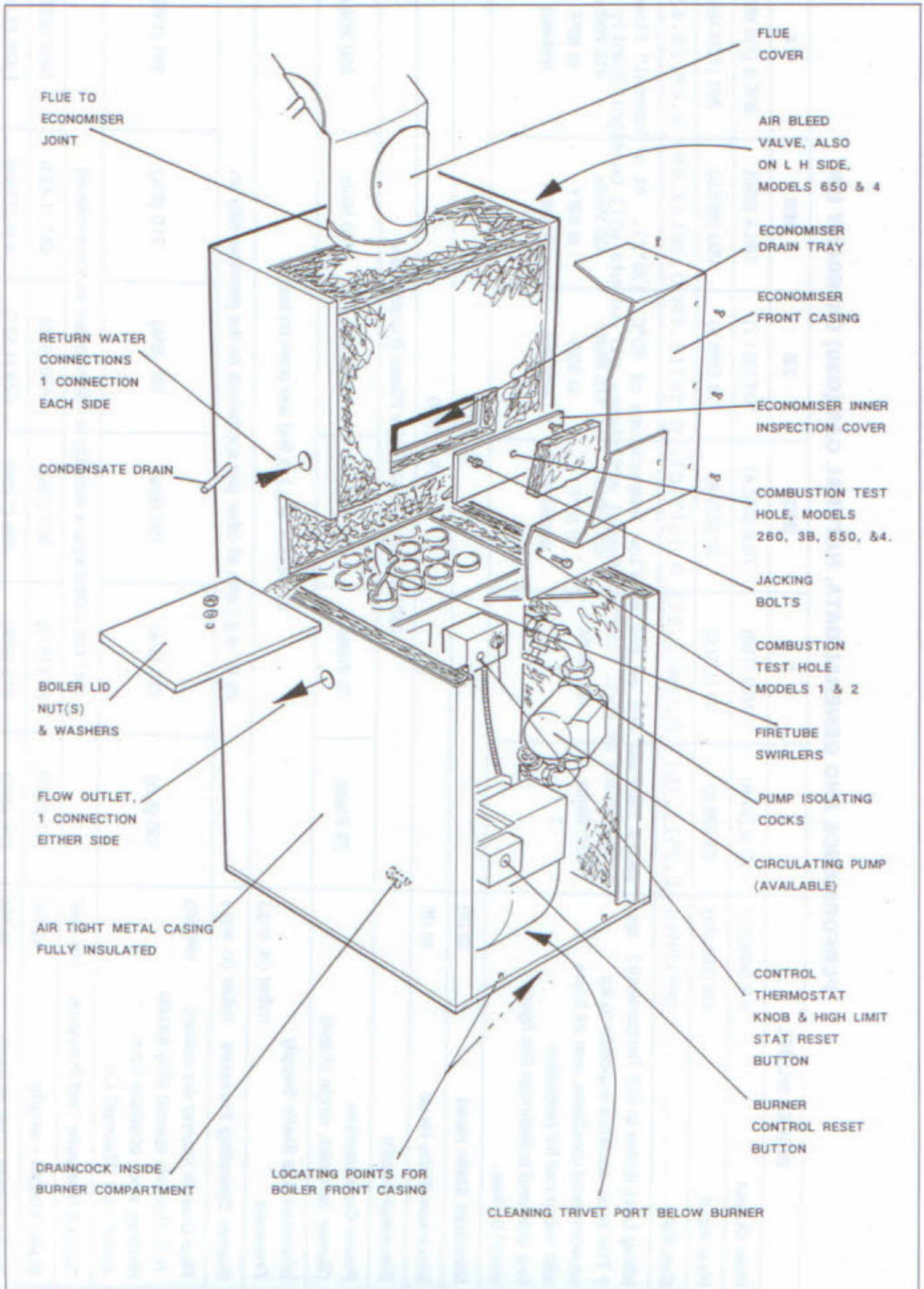


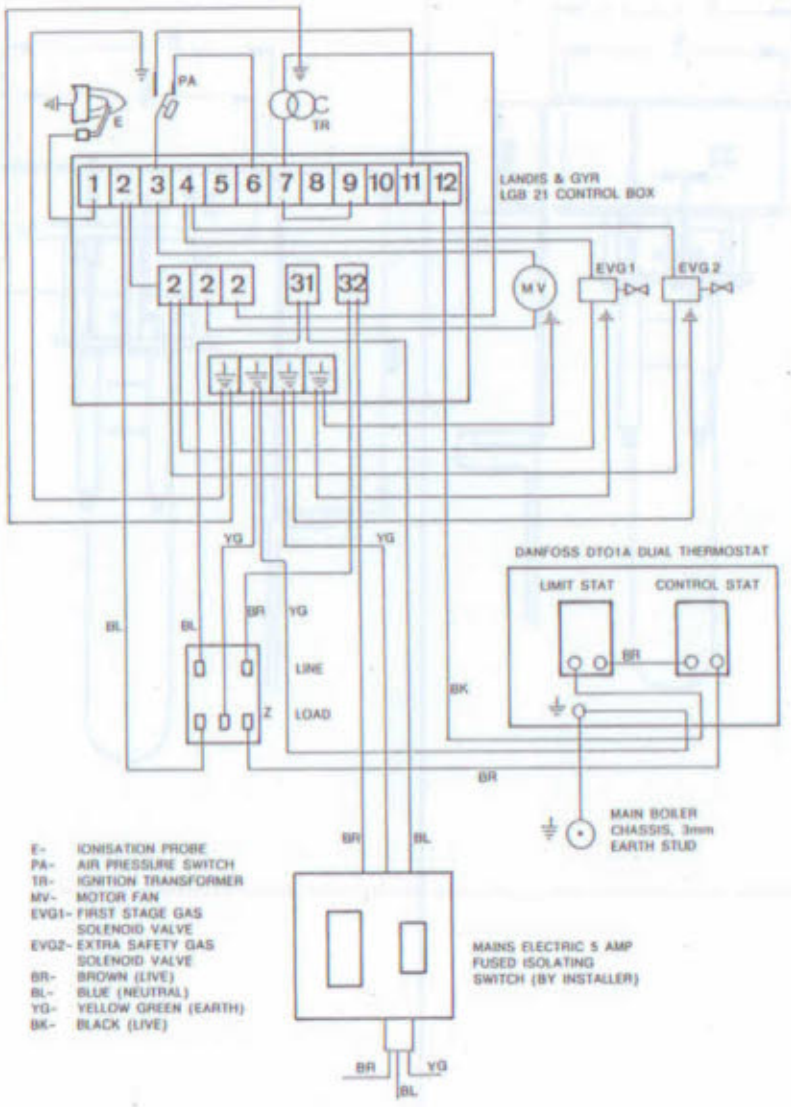
SIDE ELEVATION not to scale

The outlet of the flue must be placed so that its discharge cannot enter any opening in a building in concentrations which would be prejudicial to health or a nuisance. NB: If in doubt, submit a certified building drawing showing boiler in position, wall dimensions, soffit board and guttering positions etc. to Archie Kidd (Thermal) Ltd.

4.1 Exploded View of Boiler

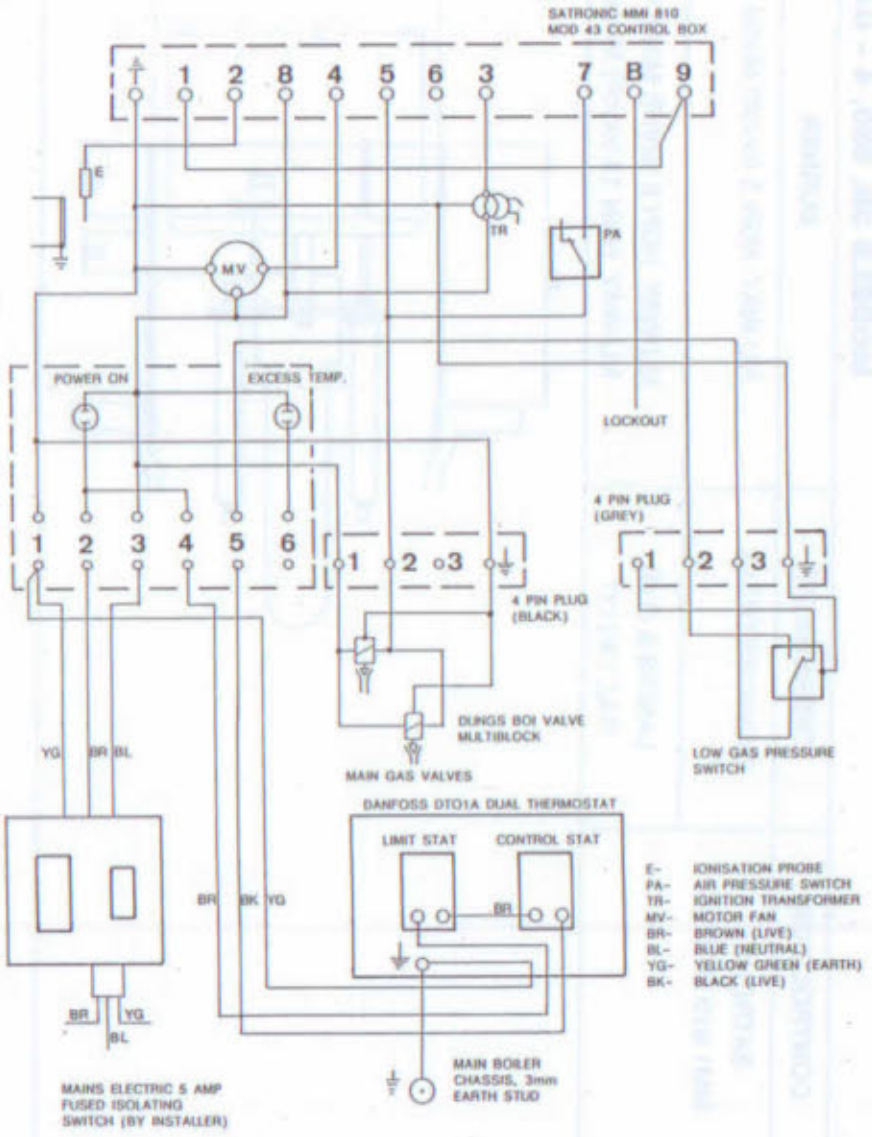
THIS ILLUSTRATION IS OF A TYPICAL KIDD BOILER ONLY, ACTUAL INSTALLATIONS MAY DIFFER FROM THIS, BUT ANNOTATIONS TO VARIOUS ITEMS ARE UNCHANGED





Landis & Gyr LGB 21 Control Box
with Ecoflam Azur 30, Azur 60
and Blu 120 Gas Burners

MODELS 1, 2, 260



Satronic MM1 810 Mod 43 Control Box
with Nu-Way NGN 5, NGN 8 and
NGN 13 Burners

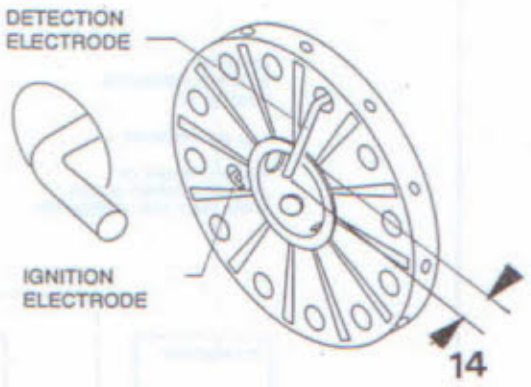
MODELS 3B, 650 AND 4

2.4 Burner Head Electrode Settings

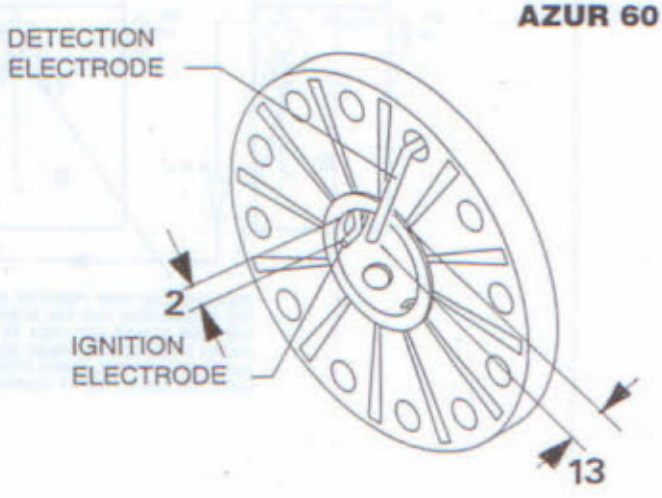
MODELS 1, 2, 260 – GAS FIRED

CONTROL BOX	THERMOSTAT	BURNER
LANDIS & GYR LGB 21 330A2Y	DANFOSS DT01A	ECOFLAM AZUR 30 Model 1 ECOFLAM AZUR 60 Model 2 ECOFLAM BLU 120 Model 260

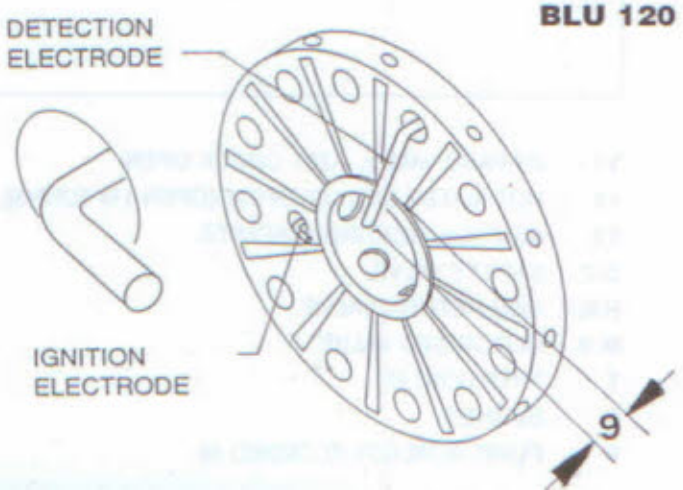
AZUR 30



AZUR 60

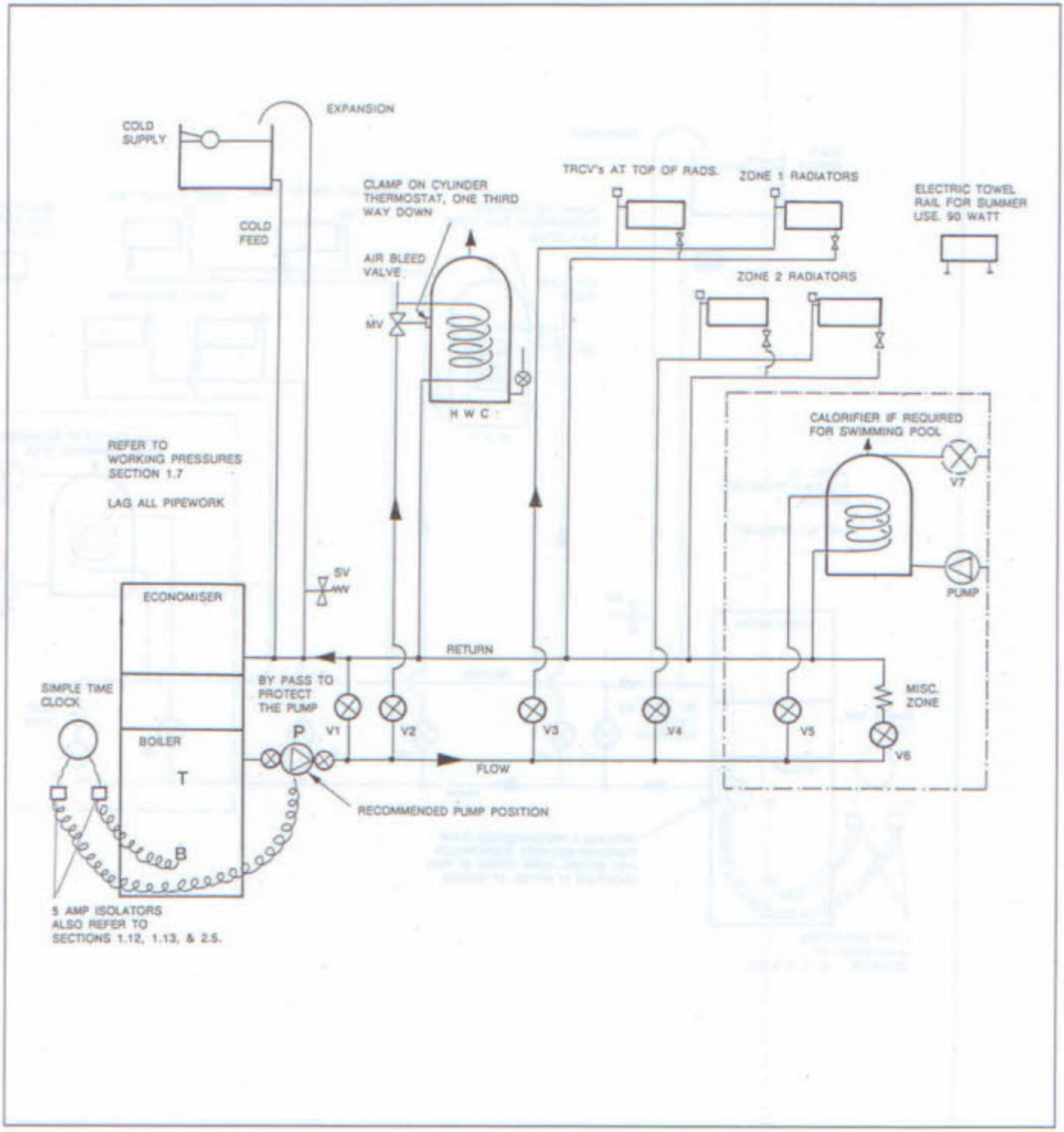


BLU 120



2.3 Schematic Basic Heating Layout

(EXTERNAL PUMP) – RECOMMENDED



V1	BY-PASS VALVE, JUST CRACK OPEN.
V2	DOMESTIC HOT WATER, (OPEN 1½ TURNS).
V3	ZONE 1 HEATING CIRCUIT.
V4	ZONE 2 HEATING CIRCUIT.
V5	SWIMMING POOL CALORIFIER.
V6	MISCELLANEOUS ZONE.
S.V.	SAFETY VALVE.
M.V.	MOTORISED VALVE.
T	THERMOSTAT
B	BURNER.

NOTE:

⊗ MANUAL GATE VALVES, ESSENTIAL FOR BALANCING CIRCUITS.

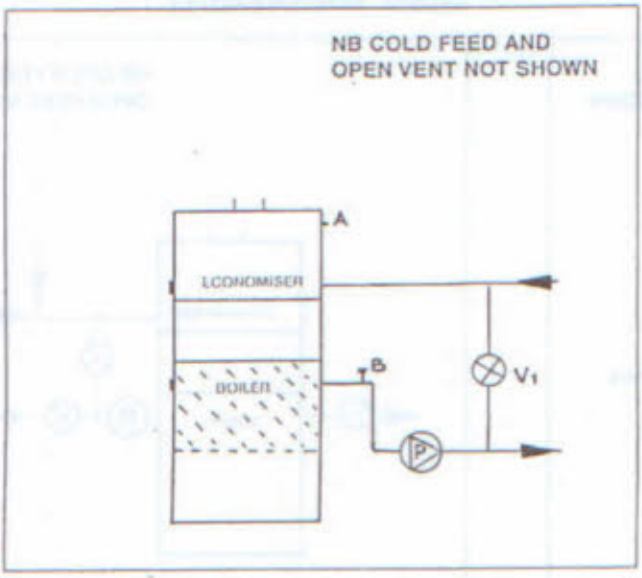
NOTE:

WHEN HEATING THE SWIMMING POOL. RETURN TEMPERATURE TO BOILER MUST NOT BE LESS THAN 52°C.

FLOW TEMPERATURE CAN BE AS HIGH AS 82°C. ADJUST **V7** ACCORDINGLY.

2.3 Water Connections

Also Incorrect!



ECONOMISER MANUAL AIR BLEED COCK FITTED AT "A".

BEWARE THE SECTION SHOWN SHADED WILL REMAIN FULL OF AIR UNLESS AN AIR BLEED COCK IS FITTED AT "B" HIGHEST POINT.

N.B. MODELS 1 & 2 DO NOT HAVE AN AIR BLEED COCK FITTED TO THE BOILER ITSELF.

**

WARNING FOR ALL INSTALLATIONS

PUMPING UP OVER, THE RESULT OF BAD PLUMBING

NEVER ALLOW WATER IN CIRCULATION TO BE PUMPED UP THE EXPANSION PIPE AND DRAWN DOWN THE COLD FEED PIPE - IN THE TRADE THIS IS KNOWN AS THE DREADED "PUMPING UP OVER"!

SUCH CASES ARE ENTIRELY AND SWIFTLY DELETERIOUS TO BOILER AND SYSTEM LIFE WHICH WILL BE DRASTICALLY CURTAILED ON ACCOUNT OF OXYGENISATION OF THE WATER AS IT CASCADES BACK INTO THE COLD FEED TANK. OXYGEN COMBINES CHEMICALLY WITH COPPER/ METAL PIPEWORK AND FORMS BLACK AND BROWN DEPOSITS OF SLUDGE - EQUIVALENT IN HUMAN TERMS TO A HARDENING OF THE ARTERIES!

IF IN DOUBT, PLEASE CONTACT **ARCHIE KIDD (THERMAL) LTD**

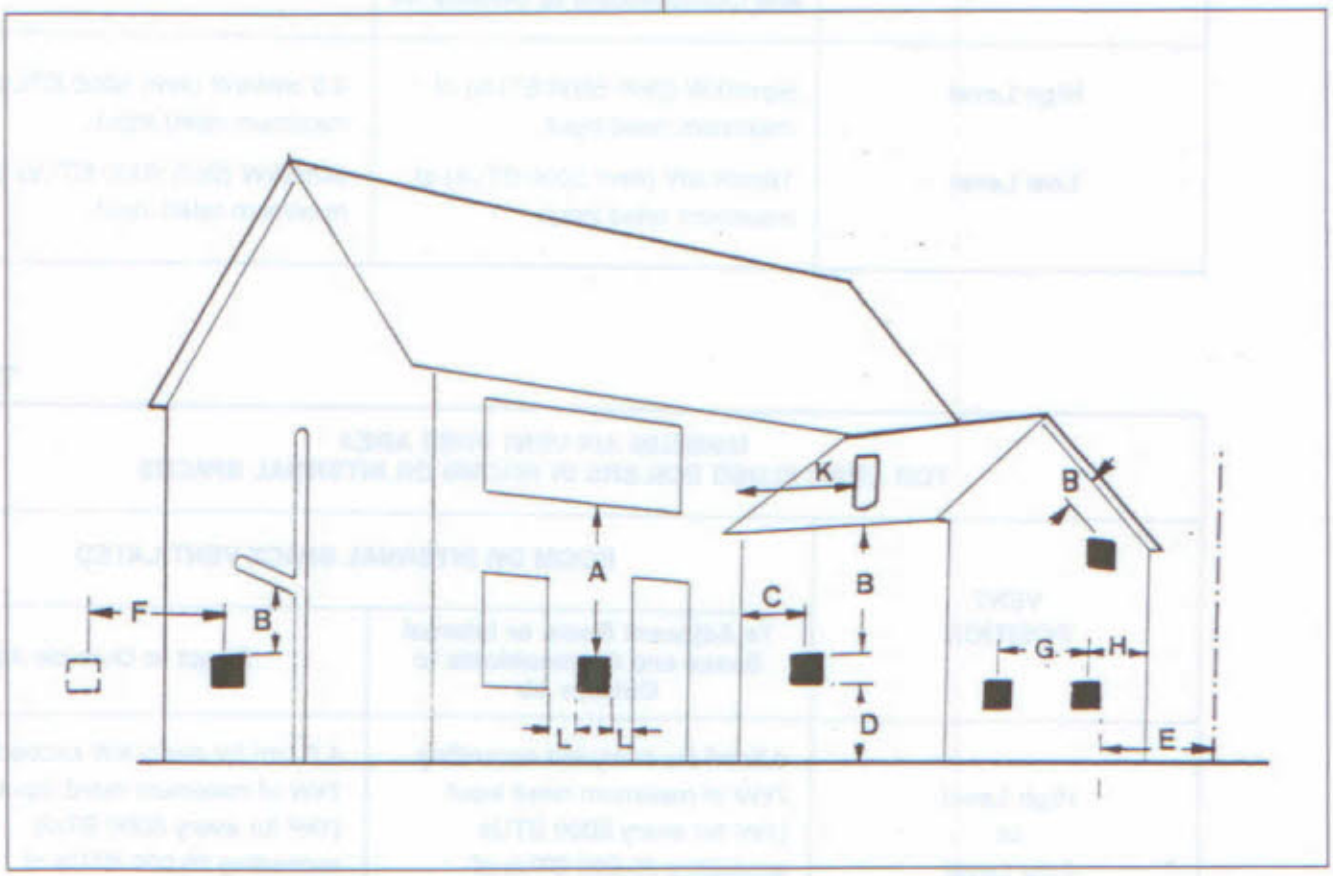
** April 1999. All models now have a manual air bleed cock fitted to the boiler itself.

2.2 Flue Terminal Positions

Archie Kidd (Thermal) Ltd. will be pleased to advise on the siting of any flue terminal.
The terminal should not be positioned within a carport or similar structure.

The outlet of the flue must be placed so that its discharge cannot enter any opening in a building in a concentration that would be prejudicial to health or cause a nuisance.

N.B. IF IN DOUBT submit a certified building drawing, showing boiler in position, wall dimensions, soffit board and guttering positions etc.,
When fitting flues and air ductwork, seal ALL joints with special sealant provided.
Refer to section 4.2, Pre-Commissioning.
When fitting a horizontal concentric flue, level the boiler and ensure that the flue pipe falls 2° to the outside.



DIMENSION TABLE RELATIVE TO FLUE TERMINAL POSITIONS SHOWN

REF	DESCRIPTION	DISTANCE IN MM
A	Directly below an opening, air brick or window	Not recommended
B	Below a gutter, eaves or sanitary pipework	600 (2' 0")
C	From any Internal corner	900 (3' 0")
D	Above ground	600 (2' 0")
E	From a surface facing the terminal	2000 (6' 7")
F	From a terminal facing a terminal	2000 (6' 7")
G	Horizontally between two terminals on the same wall	1200 (4' 0")
H	From any external corner	900 (3' 0")
K	Vertical flue from wall, (pitched or flat roof)	Contact **Archie Kidd (Thermal) Ltd.** for further advice.
L	Horizontally from any opening; airbrick, window or door	1200 (4' 0")

2.1 Ventilation

AIR SUPPLY REQUIREMENTS

A steady and uninterruptible air supply must be supplied to the boiler.

If a Kidd Concentric Horizontal or Vertical balanced flue is used, this air supply is duct directed via the flue system from outside straight to the burner.

If a conventional chimney or chimney liner is used, the air supply must be brought in from outside permanent ventilation grilles. The final route for combustion air to the burner is through an air inlet flap on the boiler casing front panel.

THIS AIR INTAKE FLAP ON THE FRONT PANEL OF THE BOILER MUST BE FREE TO MOVE, AND NEVER BE OBSTRUCTED AT ANY TIME.

A room sealed, (balanced draft flue) boiler does not require an air vent in a room or internal space in which it is installed.

A compartment (room within a room of 5 cu. metres or less) in which a room sealed boiler is installed will require, for the purposes of keeping the compartment cool, air vents at both high and low levels.

Refer to Table 1.

Open flued boilers installed in compartments require air vents for combustion and cooling requirements.

Refer to Table 2.

An open flued boiler installed in a room or internal space also requires an air vent for combustion and cooling.

Refer to Table 3.

NOTE. In all cases where rooms or compartments are ventilated to adjacent rooms or internal spaces, these must also be fitted with a permanent vent of at least the required size.

If the boiler room has an extractor fan, or any other appliance using some kind of fan system, (cooker hoods, fan heaters etc.) checks must be made to ensure that this does not affect the performance of the boiler. With the fan(s) on, and the boiler running, combustion tests must be carried out by a Kidd Commissioning Technician, i.e.,CO^2 (oil), smoke, O^2 (gas) etc., and flue draught on conventional chimneys.

When a boiler is situated in a basement or similar area and the correct volume of air can normally only enter at high level, providing that the boiler is not in a compartment or a room of 5 m^3 or less, airflow regulations can be met.

(Refer to tables).

If in doubt contact **Archie Kidd (Thermal) Ltd.**

If the boiler room contains more than one appliance, flued and/or flueless, the total air venting requirements should be the largest of the following:

1. The total flueless space heating appliance requirement.

2. The total open flued space heating appliance requirement.

3. The largest individual requirement of any other type of appliance.

Refer to current Building Regulations, CORGI/ACOP (Gas) recommendations, and any statutory local requirements.

TABLE 1

MINIMUM AIR VENT FREE AREA FOR ROOM SEALED BOILERS IN COMPARTMENTS		
VENT POSITION	**COMPARTMENT VENTILATED**	
	To Room or Internal Space	**Direct to Outside Air**
High Level	9cm^2/kW (2in^2/ 5000 BTUs) of maximum rated input.	4.5 cm^2/kW (1in^2/ 5000 BTUs) of maximum rated input.
Low Level	9cm^2/ kW (2in^2/ 5000 BTUs) of maximum rated input.	4.5cm^2/kW (1in^2/ 5000 BTUs) of maximum rated input.

1.12 Mains Supply

Burners and (where fitted) water circulating pumps, are 240V Single Phase, 50Hz (Fused 5 amp).

THE APPLIANCE AND EQUIPMENT MUST BE EARTHED.

The electrical installation must allow the appliance(s) to be isolated from the mains supply. Electrical isolators must be installed adjacent to the boiler, easily accessible, and in clear view.

A 5 amp fused 3 pin plug and unswitched shuttered socket (to BS 1363) or double pole 5 amp fused isolator must be made available for the exclusive supply of the burner.

An additional plug and socket, or fused isolator, must be made available for the water circulating pump.

The mains supply cable pre-wired to the burner is 3 core cable, 0.75mm² round, heat resistant (85°C to BS 6141/1981).

All electrical wiring must be carried out by a qualified electrician, in accordance with current I.E.E. Regulations and any Local Regulations that may apply. Refer to wiring diagrams, Section 2.5.

1.13 Controls

CONTROL THERMOSTAT

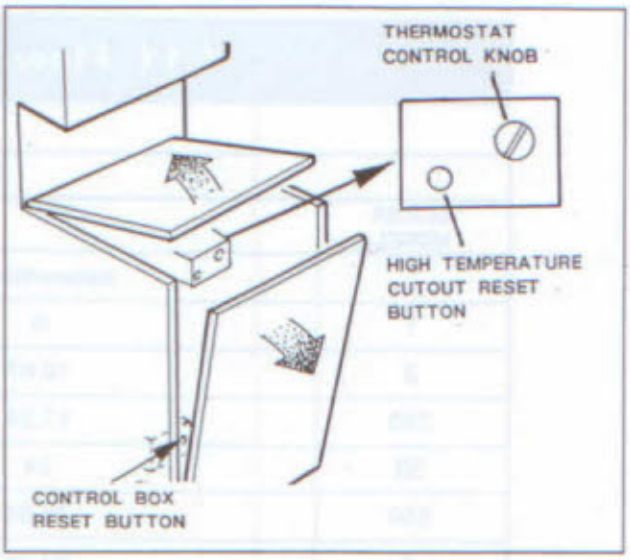
A Danfoss Dual Control Thermostat type DT01A is fitted to Models 1, 2, 260, and 3B boilers.

A Landis & Gyr Long probe type RAZ 13/3137 is fitted to models 650 and 4 The thermostats are pre-wired and interconnected to the burners prior to dispatch from the works. The Dual Thermostat consists of a boiler working thermostat and a high temperature safety cutout. (See following sketch).

The boiler working thermostat range is approximately 65° to 85°C (149° to 185°F.). If the preset safety factor is exceeded, the safety trip will cut out.

HIGH TEMPERATURE CUTOUT

Access to the high limit manual reset button is by carefully lifting the boiler lid and tilting the front casing panel forward. When re-fitting the front casing panel, ensure that it is located on the 2 base studs. Tuck in the boiler insulation slab, and carefully refit the boiler casing lid.



NOTE. In the event of a safety trip cutout, the boiler high limit cannot be reset until the water temperature has dropped by at least 15°C.

If a Danfoss DT01A thermostat is fitted, the 'red' high limit reset button can be found by removing the black plastic cover piece on the face of the thermostat. If a Landis & Gyr RAZ 13/3137 thermostat is fitted, the high limit reset button is the small 'green' button on view.

PLEASE NOTE. If the high limit safety trip has cut out, it is most important to find out why it has done so, before pressing the reset button. If there is a serious problem, e.g. No water in the boiler, or that the circulating pump has stopped, it must be dealt with by a competent person.

If in doubt, switch off the boiler immediately, and contact **Archie Kidd (Thermal) Ltd.**.

EXTERNAL CONTROLS

It is the responsibility of the installer to ensure that external controls and wiring to the boiler and ancillary equipment are carried out by a qualified electrician.

TIME CLOCK

Keep it simple.

A basic 24 hour, with 2 or 3 on/off programme settings, with manual override facility for central heating and domestic hot water, is normally sufficient.

MOTORISED VALVES

If motorised valves are to be installed in the heating system, standard 2 port valves with actuators should be used, connected to a cylinder thermostat, a room thermostat, or a simple illuminated electric light switch. All motorised valves must be accessible for servicing.

PRESSURISED SYSTEMS

Further Notes

Sizing the **EXPANSION VESSEL** is something to be extremely careful about and expert technical advice should be sought.

You will be on reasonably safe ground if you allow for an increase in the volume of water in circulation due to expansion caused by a rise in temperature from 0°C to 100°C of 4%.

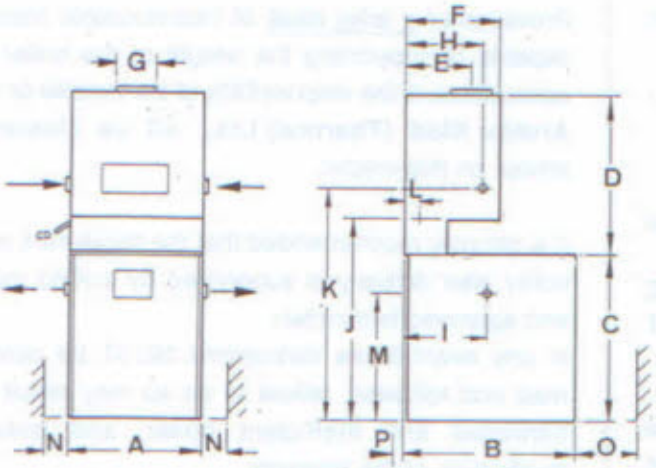
Measure the volume of water in the system carefully - drain down into a suitably calibrated bucket to do this - the water capacity of the various Kidd boiler models is listed in Section 3.1 - and at the same time measure the static head from the boiler room floor to the very top of the system.

A qualified technician at the local builders merchant should be able adequately to size the expansion vessel for you. If in doubt, please contact Archie Kidd (Thermal) Ltd.

The pressure on the heating system (when it has settled down, all the dissolved oxygen bled and so on) should hardly fluctuate at all. A variation of about 0.2 bar (3 psi) from cold to working temperature is about right.

NB There is no merit whatsoever in operating a heating system at a greater water pressure than would be normal if it was open vented - in the case of an average domestic installation, about 1 bar (14½ psi).

1.6 Boiler Dimensions



MODEL 1 BOILER

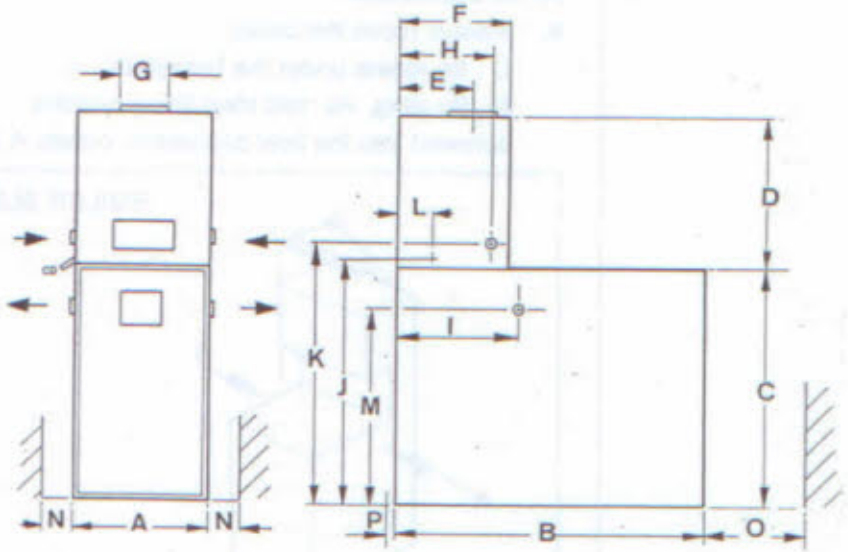
A	460 mm
B	673 mm
C	838 mm
D	705 mm
E	232 mm
F	333 mm
G	130 mm I.D.
H	260 mm
I	248 mm
J	1068 mm
K	1200 mm
L	45 mm
M	724 mm
N	203 mm min.
O	458 mm min.
P	76 mm min.

MODEL 2 BOILER

A	559 mm
B	721 mm
C	884 mm
D	705 mm
E	232 mm
F	333 mm
G	130 mm I.D.
H	260 mm
I	248 mm
J	1099 mm
K	1241 mm
L	45 mm
M	768 mm
N	203 mm min.
O	458 mm min.
P	76 mm min.

MODEL 260 BOILER

A	584 mm
B	1245 mm
C	960 mm
D	679 mm
E	360 mm
F	525 mm
G	156 mm I.D.
H	428 mm
I	423 mm
J	920 mm
K	1135 mm
L	280 mm
M	836 mm
N	305 mm min.
O	610 mm min.
P	76 mm min. (Chimney or Chimney Lining)
P	127mm min. (Vertical or Horizontal balanced draught).

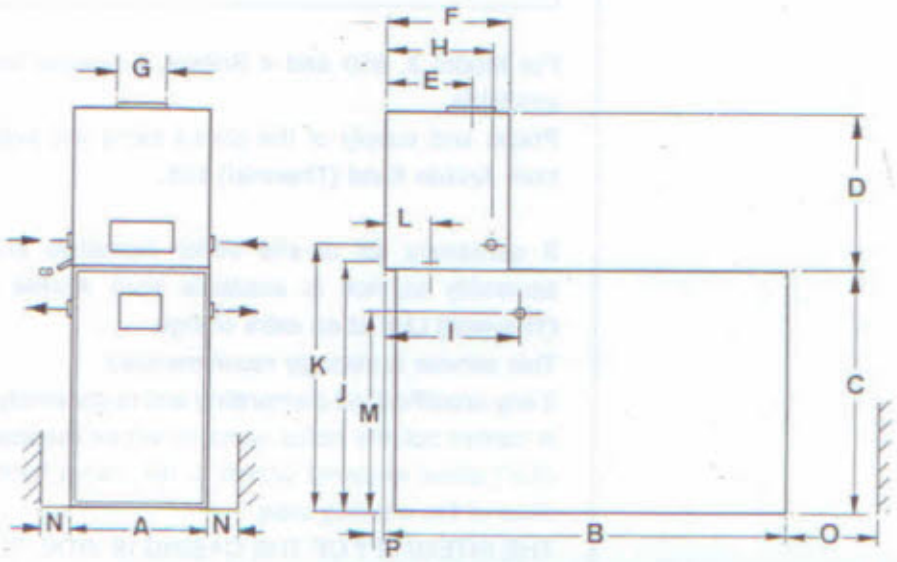


MODEL 3B BOILER

A	610 mm
B	1296 mm
C	1108 mm
D	729 mm
E	292 mm
F	419 mm
G	156 mm I.D.
H	330 mm
I	514 mm
J	1078 mm
K	1259 mm
L	190 mm
M	914 mm
N	305 mm min.
O	610 mm min.
P	76 mm min. (chimney or chimney lining)
P	127 mm min. (vertical or horizontal balanced draught).

MODEL 650 BOILER

A	734 mm
B	1722 mm
C	1109 mm
D	686 mm
E	384 mm
F	540 mm
G	216 mm I.D.
H	437 mm
I	400 mm
J	1070 mm
K	1278 mm
L	325 mm
M	947 mm
N	458 mm min.
O	914 mm min.
P	152 mm min.



MODEL 4 BOILER

A	737 mm
B	2152 mm
C	1270 mm
D	837 mm
E	501 mm
F	710 mm
G	261 mm I.D.
H	562 mm
I	711 mm
J	1366 mm
K	1516 mm
L	143 mm
M	1082 mm
N	458 mm min.
O	914 mm min.
P	152 mm

1.1 Consumer Protection

Our products are designed to meet the highest safety requirements when properly installed and used. All boilers are thoroughly tested and examined before despatch.
Any modification to the Boiler or its ancillary equipment, carried out without the approval, in writing, of **Archie Kidd (Thermal) Ltd.**, will invalidate the warranty and could affect your statutory rights.

1.2 Health and Safety

The Boiler and its ancillary equipment may contain some of the material given in the list below.
It is the Users/Installers responsibility to ensure that the correct protective clothing is worn when handling these materials, and to contain them with regard to safety, prevention of injury and general health.

Glues and Sealants:
Handle with care, use gloves and face mask.

Mineral Wool, Glassfibre yarn:
May be irritating to skin and harmful if inhaled. Use gloves, face mask and eye protection. After handling wash all exposed skin thoroughly. If disposing of any waste, damp down before moving it, then wrap securely before final disposal.

Gas:
If any gas leak is suspected, the gas supply MUST be shut off immediately. The boiler room/area must be ventilated, no naked flames or smoking must be allowed in the vicinity, and no electrical appliances must be switched on or off.

1.3 Site Requirements

Regulations
Current building regulations, I.E.E. Wiring Regulations and local Water Company regulations must be followed, together with current British Standard codes of practice:
BS 5410 Installation of Oil Fired Appliances for Space Heating and Hot Water Supply.
BS 5449 Central Heating for Domestic Purposes.
Building Regulations for England and Wales, Part J Heat Producing Appliances.
Gas Safety, (Installation and Use regulations, 1994).
BS 5258 Part 1 1986. Specification for Central Heating Boilers and Circulation.
Building Standards Scotland, Part F Heat Producing Appliances, storage of liquid and gaseous fuels.
Building Standards, Northern Ireland, Heat Producing Appliances.

Kidd boilers are fitted with Pressure Jet oil burners or Forced Draught gas burners, together with high integrity insulation on the inside of the boiler casing to keep radiated heat loss and sound levels to an absolute minimum. However, the boiler is designed for installation in a specific boiler room area,

not conventional living quarters, (i.e. kitchen etc.) If the proposed boiler installation is likely to be acoustically difficult, refer to **Archie Kidd (Thermal) Ltd.**, for advice.
The boiler location must allow adequate provision for a Kidd balanced flue system, Horizontal, or Vertical, or Kidd chimney work. An adequate air supply must be considered, together with the necessary space for pipework connections and maintenance access.
Refer to relevant outline dimension drawing. (Section 1.6).

DRY EMPTY WEIGHTS:

Model 1	161kg,	(355lbs)
Model 2	233kg	(513lbs)
Model 260	327kg	(720lbs)
Model 3B	430kg	(946lbs)
Model 650	818kg	(1800lbs)
Model 4	1000kg	(2200lbs)

WARNING

This boiler must be installed and maintained by a person technically qualified to do so.
Incorrect fitting of the boiler itself or any components or electrical wiring may lead to serious injury, loss of life, and subsequent legal liability.

Full Maintenance contracts are available from

Archie Kidd (Thermal) Ltd.,

POULSHOT, DEVIZES, Wiltshire,

SN10 1RT.

Telephone Devizes **(01380) 828490/828123**

Facsimile **(01380) 828186**

24 hour answering service – **(01380) 828123**

SAFETY NOTICE

In the interests of safety
this boiler must be isolated
from the mains electricity supply
during cleaning and maintenance, or
prolonged shutdown periods.