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Agamatic Oil-fired Boiler Model P60 (1976-1996)

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AGAMATIC Oil Fired BOILER

MODEL P60

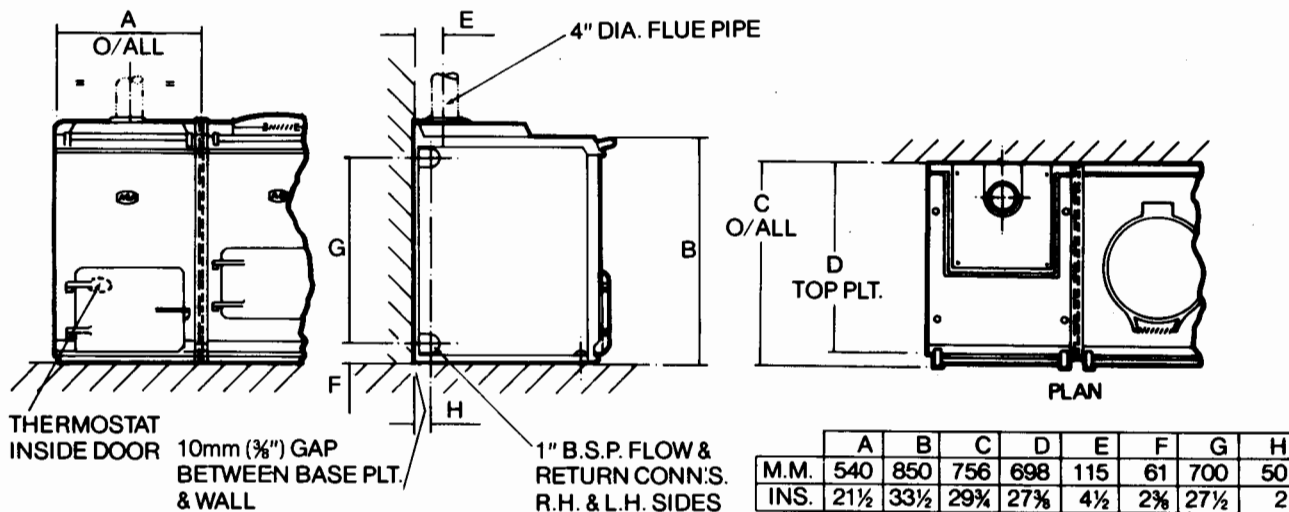
Installation Instructions

The Agamatic P.60 is a pressure jet oil boiler, burning commercial kerosene 28 secs. and is suitable for medium sized domestic installations heating radiators, domestic hot water or both combined. It may be used on open vented fully pumped systems or pressurised sealed systems up to a maximum operating pressure of 2.0 bars (30 psi) i.e. 21 metres (69 ft.) static head.

Technical Information

Heat Output	Kw	Btu/h
Heat Input	17.6	60,000
Water F&R connections	22.8	78,000
L.H. or R.H. side	1" BSP	1" BSP
Electrical Supply	240V 50Hz fused at 5 amps	
Fuel line connection	1/4" B.S.P. FM	
Flue size	102mm-4" Dia.	
Boiler thermostat range	54° to 88°C-130° to 190°F	
Overheat thermostat	93°C-200°F cut-out thermal reset	
Burner nozzle size	0.60 US GAL 80H	
Oil pump operating pressure	6.8 bars 100 psi	

FIG 1. GENERAL DIMENSIONS



Performance

The heating requirements of the system must be within the output of the boiler and as a guide, the maximum size of system this appliance should serve is:

Heating only:— 35m² (375 sq. ft.) of radiator surface (including unlagged pipework).
Combined heating and D.H.W.:— 180 litre (40 gall.) indirect cylinder plus 29m² (310 sq. ft.) of radiation surface including unlagged pipework.

Domestic hot water only:— 230 litre (50 gal.) to 450 litre (100 gal.) cylinder.
These examples are based on a radiation surface emission factor of 0.5 Kw/m² (160 Btu/h/ft²) and average domestic hot water requirements.
They do not include any allowance for a "working margin." In other conditions or requirements, adjustments must be made. Radiation surface represents radiators plus the surface area of unlagged pipes.

System Design

The boiler can be used with pumped indirect hot water and central heating open vent systems or with pressurised systems at a maximum operating pressure of 2.0 bars (30 psi).

The installation should be in accordance with Codes of Practice Cp.30006—Part 1 and CP.3431.307.

The circuits may be one or two pipe small bore or micro-bore.
A drain cock should be fitted at the lowest point of the system.

Cylinders

The cylinder must be of the indirect type and suitably insulated. For combined heating and D.H.W. or D.H.W. only, it is recommended that the indirect cylinder be of the rapid re-heating type such as the HERCAL 1 supplied by I.M.I. Range Ltd.

The Site

Attention is drawn to the requirements of the current Building Regulations in England and Wales, the London Building (Amendment) Act in the area of the former L.C.C., the Scottish Building Regulations, the Model Bylaws in Northern Ireland and Local Authorities.

Hearth

The hearth must be solid, level and of incombustible material.

The Flue and Chimney (See Fig. 2)

The flue pipe must be 102mm (4") dia. and fitted into the socket outlet in the boiler top followed by a caulking of the joint with soft asbestos rope or suitable compound. Flues should have as few bends as possible and where necessary, 135° bends should be fitted.

Provision should be made for sweeping suitable existing chimneys and any bends must have cleaning doors.

If the chimney is not fitted with liners, it is recommended that a 102mm (4") dia. stainless steel liners be used.

NOTE: With excessively high chimneys (greater than 9.3m-30 ft.), the diameter of the liner should be increased to the next available size.

Outside flues must be insulated or be of the twin wall type. Down draught conditions must be avoided and where possible, the flue should be extended beyond the apex of the roof and in any case should terminate at a minimum of 1 m (3 ft.) above the building eaves.

Unavoidable down draught conditions will require the fitment of a Marcone cowl or OH pot at the termination of the flue.

Air Supply

Provision must be made for the introduction of a continuous air supply into the room in which the boiler is installed.

A permanent unobstructed vent, preferably communicating directly with the outside air should be made having a maximum nett area of 322cm² (50"²) to ensure effective boiler combustion.

NOTE: If there are any additional oil fired appliances in the same room, the vent area should be increased accordingly.

Oil Supply

Attention is drawn to BS.799—Parts 1 and 3 and to any local By-laws and Regulations. A minimum storage capacity of 1100 litres (250 gallons) is recommended for the boiler, but when installed with an Aga cooker, a storage of 2700 litres (600 gallons) is recommended.

Oil Tank

The tank may be any reasonable distance from the boiler provided it is sited in such a way that the oil level cannot fall below 0.3m (1 ft.) or cannot exceed 3.7m (12 ft.) beyond the level of the burner oil pump.

NOTE: Should it not be possible to site the tank below the 3.7m recommended, a BM.30A head breaker or similar should be used between the tank and the burner.

In an excessively high siting, a series of head breakers should be used as the main head on each breaker must not exceed 3m (10 ft.).

The tank should be arranged with a slope of 1m per 24m (1/2" per foot) away from its stop valve with a sludge cock at its lower end.

FIG 2. FLUE INSTALLATION DETAILS

THE FLUE TERMINATION MUST BE A MINIMUM OF 915mm (36") ABOVE THE HIGHEST POINT OF PROTRUSION THROUGH THE ROOF

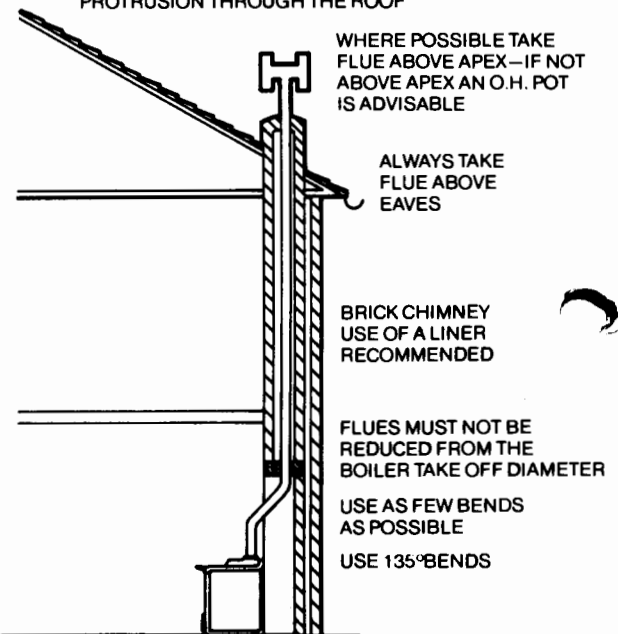
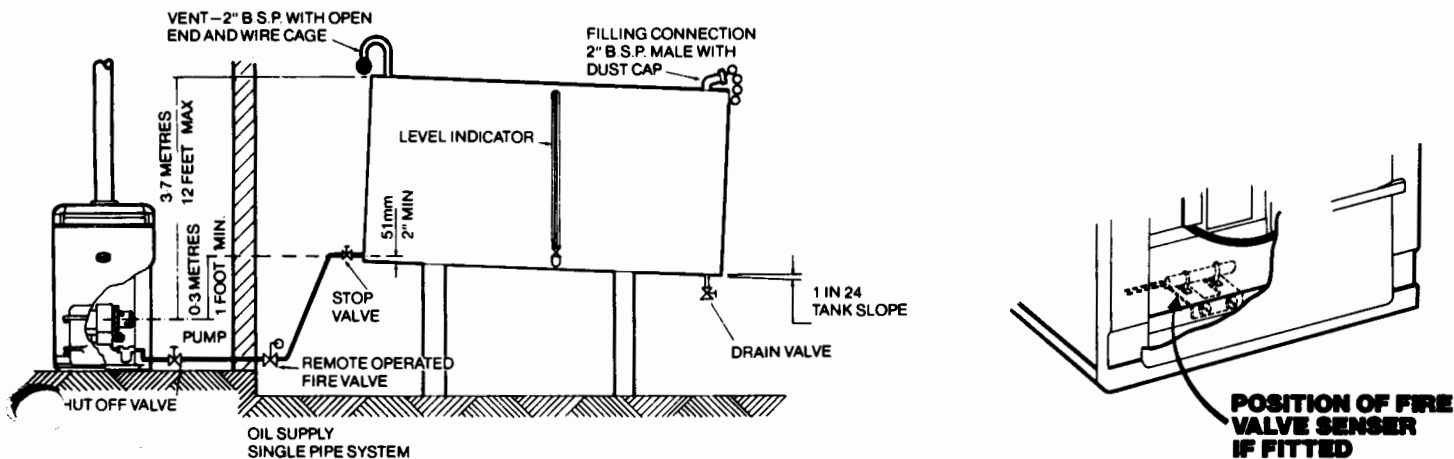


FIG 3. SINGLE PIPE OIL SUPPLY SYSTEM



Outlet and pipe line

The outlet connection should be on the side of the oil tank at the higher end and not less than 50mm (2") above the tank bottom. A screw down stop valve and fine filter should be fitted.

The fuel pipe may be in iron or copper not less than 10mm (3/8") outside diameter (12mm (1/2") outside diameter for pipe runs exceeding 21m (70 ft.)) with a continuous fall from tank to boiler or fall immediately from tank to a low point and rise continuously to boiler, and so avoid air locks.

A 1/4" B.S.P. Female thread is provided on the boiler oil filter.

NOTE: Galvanised tubes and fittings must not be used.

The Burner

The burner is delivered ready for connection for use on a single pipe gravity fed system. See Fig. 3.

Fire Valve

It is recommended that a fire valve should be fitted in accordance with BS.CP3002 Part 2.

This requires that the fire valve should be fitted as near the oil storage tank as possible, or where this is impracticable, in the room where the appliance is situated at the point where the oil line enters.

The sensing bulb or fusible link should be placed as shown in the diagram above. A suitable fire valve is manufactured by Teddington Autocontrols Ltd., Type KBB/C/150°F.

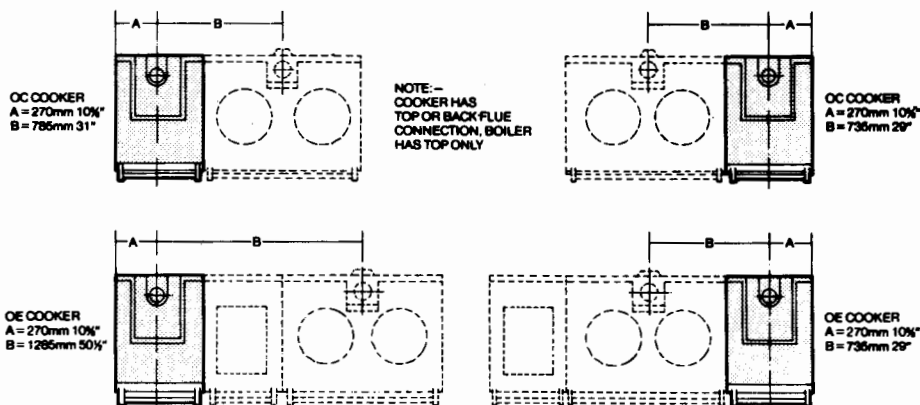
Electric supply

A 240V 50 Hz A.C. supply adequately earthed is required near to the boiler with a 5 amp fused double pole switch with neon indicator light and conform to the current I.E.E. for the Electrical Equipment of Buildings and the Local Authorities requirements.

Fuel

Commercial Grade Kerosene 2B seconds Redwood.

FIG 4. FLUE CONNECTION ARRANGEMENTS



Installation and Commissioning

The boiler will be assembled on site by the Authorised Aga Distributor and at least 300mm (12") clearance over the top of the boiler top plate is recommended for servicing access.

The installation should be carried out in accordance with the "Guide to Good Practice" issued jointly by the H.V.C.A. and I.H.V.E. After plugging, levelling and piping the boiler, the following procedure should be adopted.

1. Remove the burner from the boiler. Check that the stainless steel target wall is properly located and that the nozzle and electrodes setting are as shown in the separate Burner Leaflet.
Fit oil pressure gauge to oil pump.
2. Fit a three pin plug with a 5 amp fuse to the power supply cable and plug into a mains supply socket.
3. Turn on all fuel supply valves.
4. Disconnect the flexible hose from the boiler oil pump and run off at least 2.25 litres (½ gallon) of oil, reconnect hose.
5. Release the fuel bleed port on the burner pump, fit a length of tubing from the port into a suitable receptacle. Turn on the boiler thermostat and allow the burner to run through to lockout, wait two minutes and reset the burner control box. Repeat the procedure at least three times until a steady stream of oil, without frothing, is exhausted from the bleed port. Re-lock the bleed port and disconnect tube.
6. Adjust the air slide to about mid position and start the burner, after the pre-ignition period lasting about 15 seconds, the burner should ignite. If the control box runs to lockout wait two minutes and reset the control box. Repeat until a flame is established.
7. Run boiler for about three minutes and switch off checking that there is no after-spurting from the nozzle. If after-spurting occurs remove nozzle from the boiler, unscrew the nozzle, fill the nozzle holder with oil and re-assemble. Continue to run the boiler for three minute periods until after-spurting stops. Adjust oil pressure to remove pressure gauge and fit plug.
8. Run the boiler for at least fifteen minutes with front plate door closed and then finally set the air slide to give the following condition:
CO₂ : 10½% - 11% Smoke : Not exceeding No. 2.
9. Check the flue draught in the pipe above the boiler. The flue draught should not be less than 0.75mm (0.03") and not greater than 2.0mm (0.08") w.g. If the flue draught exceeds 2.0mm (0.08") w.g. a draught stabilizer should be introduced and adjusted to reduce the draught to within the stated limit.
FOR DETAILS OF BURNER SEE SEPARATE BURNER LEAFLET

Programming

Where programmers are used, the electrical supply cable should be fed through the boiler casing side panel. Open the front plate door, lift and remove the electrical chassis located to the front plate rear face and connect to the exposed terminal block on the chassis. The switched line for controlling the boiler from the programmer or external control system should be connected to terminal 3 and the link between 1 and 3 removed (see fig 5). If it is convenient, the live supply for the programmer or control system should be taken from the Live (L) Neutral (N) and Earth (E) terminals of the terminal block. Where a separate live supply is provided, the User of the boiler must be warned that BOTH the boiler supply and the programmer or control system supply should be switched off before examination.

Circulating Pump

On boilers fitted with a pre-wired programmer provision is made for the electrical connection of a circulating pump, the connections being N and 3 on the terminal block. The pump will then be controlled on stations 3, 4 and 5 on the programmer.

Frost Protection

For full frost protection a single pole double switch thermostat should be fitted so that both the boiler and circulating pump circuits are energised under frost conditions.

Siting the frost thermostat is important. When an internal type is used (such as the K.D.G. TA10B) it should be sited in the coldest part of the house, and set at approximately 38°F. For external types, mounting on a north facing wall and a minimum setting of 32°F is recommended.

Lockout

Flame sensing is carried out by means of a photo cell mounted in the burner body. Should the boiler fail to establish a normal firing pattern or should flame failure occur during running, absence of flame is sensed and the control box is monitored to a safe lockout condition where the boiler is shut down. Illumination of the red reset button on the control box indicates LOCKOUT. To cancel lockout, press the lockout reset button and another start sequence may then be initiated.

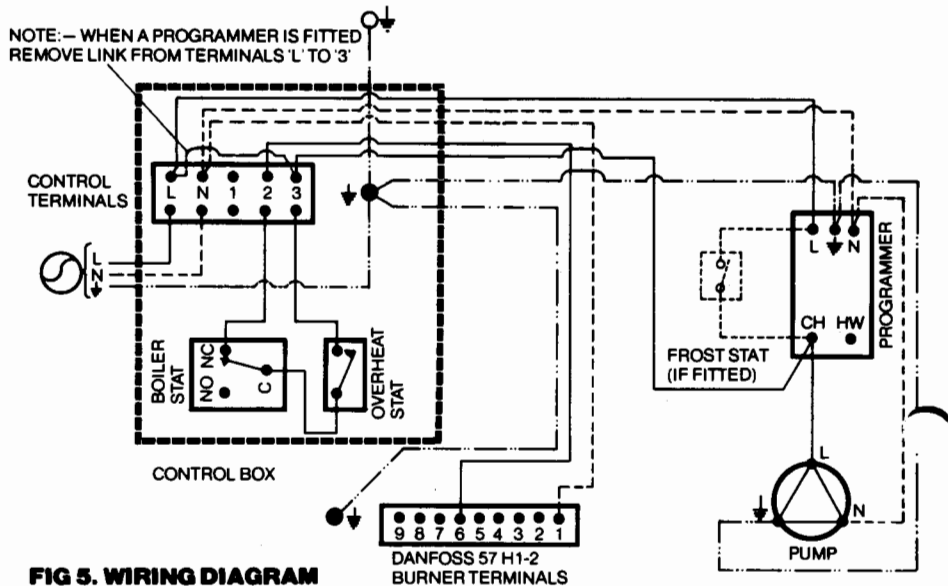


FIG 5. WIRING DIAGRAM

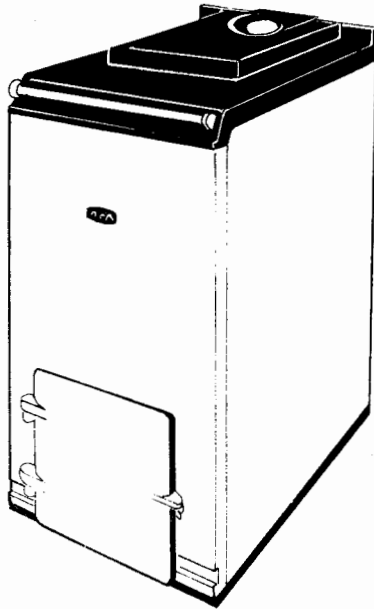
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AGA

OPERATING INSTRUCTIONS

Agamatic P.60
***Oil fired* Boiler**



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Fuel line connection	¼" B.S.P. FM	
Flue size	102mm-4" Dia.	
Boiler thermostat range	54° to 88°C-130° to 190°F	
Overheat thermostat	93°C-200°F cut-out thermal reset	
Burner nozzle size	0.60 US GAL 80H	
Oil pump operating pressure	6.8 bars 100 psi	

If a programmer or clock control is fitted to the boiler installation, consult the control instructions before lighting the boiler.

With electric power and oil fuel supply available, the boiler will operate with the following sequence.

To Light the Boiler

1. Set any time clock or programmer to ON and move any room thermostat pointer to a HIGH setting.
2. Switch ON electricity at wall socket
3. Open the front plate door and turn the boiler thermostat knob to 88°C (180°F). The burner control box will now initiate a pre-ignition period, lasting about 15 seconds starting with the combustion air fan and oil pump introducing a supply of atomised fuel into the boiler combustion chamber which will be ignited immediately. Ignition will continue for about 20 seconds after light-up and then cease with the burner functioning in a normal running condition.

Once the water in the boiler attains the boiler thermostat setting, (88°C-180°F) power is removed from the oil burner and shut down occurs until the temperature falls and the sequence is repeated or, control is passed to a fitted programmer or clock.

Lockout

A flame failure detection device is incorporated in the burner control system so that in the event of flame failure for any reason or ignition failing to give a satisfactory start, the boiler will be placed in a safe lockout condition.

This condition is indicated by the illumination of the red lockout reset button on the burner control box.

To cancel lockout, allow two minutes with boiler OFF and press the lockout reset button whereupon the boiler should then operate and commence another cycle if the system is still calling for heat.

DO NOT attempt to repeatedly restart a boiler persistently running to lockout as this condition indicates a fault which should be checked by a Service Engineer.

NOTE: Repeated attempts to restart a lockout boiler results in deposits of unburnt fuel within the burner chamber which exacerbates an existing problem resulting in premature Servicing, which together with fuel loss, increases running costs unnecessarily.

High Limit Thermostat

The boiler is fitted with a fixed temperature high limit thermal cut-out thermostat which in the event of a malfunctioning boiler control, prevents excessive water temperature and isolates the power supply from the burner temporarily.

When the temperature falls below its setting point, it automatically resets itself so that the power is restored to the burner for continued operation of the boiler.

In the event of a permanently malfunctioning boiler control thermostat, the boiler will be under the control of the high limit thermostat which will be evident by hotter radiator temperatures.

Should this occur, your Service Engineer should be consulted.

Heating Control Operation

1. For domestic hot water only, reduce any room thermostat to its minimum setting.
2. Set any programmer with time switch to desired requirements as programmer manufacturers instructions.

Maintenance

It is essential that the boiler is serviced regularly twice a year by a competent oil burner Service Engineer.

Many Companies operate a routine maintenance contract scheme and it is recommended that this type of scheme be employed.

