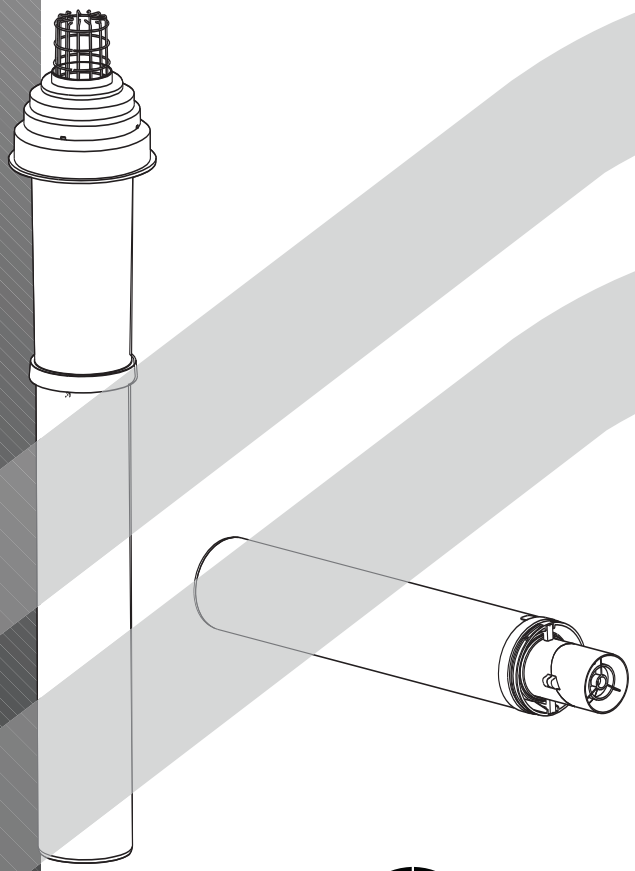
GREENSTAR OILFIT

CONVENTIONAL FLUE & ROOM SEALED FLUE

For use with the following Greenstar oil fired appliances:
Greenstar Utility 18/25
Greenstar Danesmoor 18/25
Greenstar Heatslave 12/18, 18/25, 25/32
Greenstar Camray Kitchen 12/18, 18/25, 25/32
Greenstar Camray Utility & System 12/18, 18/25, 25/32



Greenstar™ Oilfit

GB

WORCESTER
Bosch Group

INSTRUCTION MANUAL
FLUE DUCT KIT INSTALLATION

8 716 106 261b (01/07)

CONTACT INFORMATION

WORCESTER, BOSCH GROUP

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LITERATURE:	01905 752556
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WEBSITE:	www.worcester-bosch.co.uk

FLUE TERMINAL GUARDS:
WORCESTER, BOSCH GROUP
Part Number: 7 716 190 050

CONVENTIONAL FLUE MANUFACTURERS:
INTERACTIVE (Flue Systems) Ltd., 01908 569887
Selkirk Manufacturing Ltd. (SF Ltd), 01271 326633

OIL FIRING TECHNICAL ASSOCIATION:
OFTEC: 0845 6585080
www.oftec.org

INSTALLATION & SERVICING INSTRUCTIONS

PLEASE READ THESE INSTRUCTIONS CAREFULLY BEFORE STARTING INSTALLATION.

THESE INSTRUCTIONS ARE APPLICABLE TO THE WORCESTER APPLIANCE MODEL(S) STATED ON THE FRONT COVER OF THIS MANUAL ONLY AND MUST NOT BE USED WITH ANY OTHER MAKE OR MODEL OF APPLIANCE.

THE INSTRUCTIONS APPLY IN THE UK ONLY AND MUST BE FOLLOWED EXCEPT FOR ANY STATUTORY OBLIGATION.

THIS APPLIANCE MUST BE INSTALLED BY A COMPETENT PERSON. FAILURE TO INSTALL CORRECTLY COULD LEAD TO PROSECUTION.

IF YOU ARE IN **ANY DOUBT** CONTACT THE WORCESTER TECHNICAL HELPLINE.

DISTANCE LEARNING AND TRAINING COURSES ARE AVAILABLE FROM WORCESTER, BOSCG GROUP.

PLEASE LEAVE THESE INSTRUCTIONS WITH THE USER OR WITH THE APPLIANCE AFTER INSTALLATION OR SERVICING.

ABBREVIATIONS USED IN THIS MANUAL:

Ø	Diameter
CF	Conventional flue
RS	Room sealed flue
SEDBUK	Seasonal Efficiency of Domestic Boilers in the United Kingdom
OFTEC	Oil Firing Technical Association for the Petroleum Industry

CONTENTS

SAFETY PRECAUTIONS

OIL SMELLS, LEAKS OR FUMES FROM THE APPLIANCE:

- Extinguish any naked flames.
- Open windows and doors.
- Isolate the electrical supply.
- Isolate the fuel supply to the boiler.
- Rectify fault.

HEALTH & SAFETY:

The appliance contains no asbestos and no substances have been used in the construction process that contravene the COSHH Regulations (Control of Substances Hazardous to Health Regulations 1988). Where applicable, the CE mark indicates compliance with relative EU Directives.

COMBUSTIBLE AND CORROSIVE MATERIALS:

Do not store or use any combustible materials (paper, thinners, paints etc.) inside or within the vicinity of the appliance.
The combustion air must be kept clear of chemically aggressive substances which can corrode the appliance and invalidate any warranty.

FITTING & MODIFICATIONS:

Fitting the appliance and any controls to the appliance may only be carried out by a competent engineer in accordance with these instructions and the relevant Installation Regulations.
Flue systems must not be modified in any way other than as described in the fitting instructions. Any misuse or unauthorised modifications to the appliance, flue or associated components and systems could invalidate the warranty. The manufacturer accepts no liability arising from any such actions, excluding statutory rights.

SERVICING:

Advise the user to have the system regularly serviced by a competent, qualified engineer (such as OFTEC registered personnel) using approved spares, to help maintain the economy, safety and reliability of the appliance.

INSTALLATION REGULATIONS

Failure to install appliances correctly could lead to prosecution.

COMPLYING WITH THE BUILDING REGULATIONS:

The boiler and flue form part of the controlled services for the building. It is law that all controlled services for buildings must comply with building regulations. You must be able to satisfy your Local Authority Building Control Body (LABC) that the work carried out concerning the installation and commissioning of the heating appliances has been carried out to a satisfactory standard.

OFTEC operate a competent persons scheme and registered installers are able to certify that their work complies with building regulations. Under the scheme;

1. OFTEC must be informed about every installation.
1. OFTEC will issue a building regulations compliance certificate to the householder and will notify the LABC.

OFTEC provide controlled document forms CD10 and CD11 for use during installation and commissioning resectively.

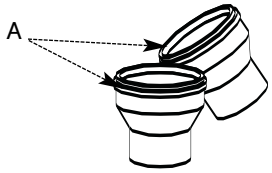
Other organisations operate self-certification schemes e.g. NAPIT and BESCA Ltd. and it may be possible for installers who are members of these organisations to self certify their work.

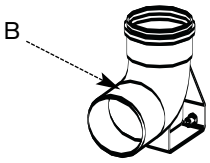
Alternatively you must submit a building control notice to the LABC before installing any boiler. The LABC will then arrange regular inspection visits during the work to ensure that the installation complies with the regulations.

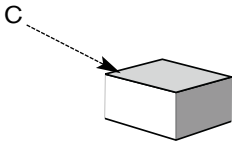
The appliance must be installed by a competent person. The person installing the appliance should be aware of the Health and Safety at Work Act and take appropriate action to ensure that the regulations are adhered to. In order to give optimum efficiency and trouble free operation the appliance must be commissioned by a qualified OFTEC engineer.

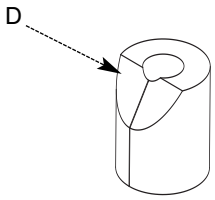
The compliance with a British Standard does not, in itself, confer immunity from legal obligations. In particular the installation of this appliance must be in accordance with the relevant requirements of the following British Standards and regulations in respect of the safe installation of equipment.
BS 5410: part 1: Code of practice for Oil Fired Boilers.
The Building Regulations Part J and L1 England and Wales; Part F and Part J Section III Scotland; Part L and Part F Northern Ireland.
Local water company bye-laws.
The Control of Pollution (Oil) Regulations.
OFTEC Standards.
Where no specific instruction is given, reference should be made to the relevant codes of practice.

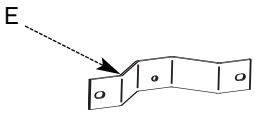
CONVENTIONAL VERTICAL FLUE COMPONENTS











CF VERTICAL FLUE KIT:

Part Number: 7 716 190 036 including:

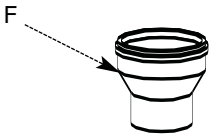
A ADAPTOR 80mmØ to 100mmØ
ADAPTOR 80mmØ to 103mmØ

B ELBOW

C BOLT AND SOLVENT-FREE GREASE SACHET

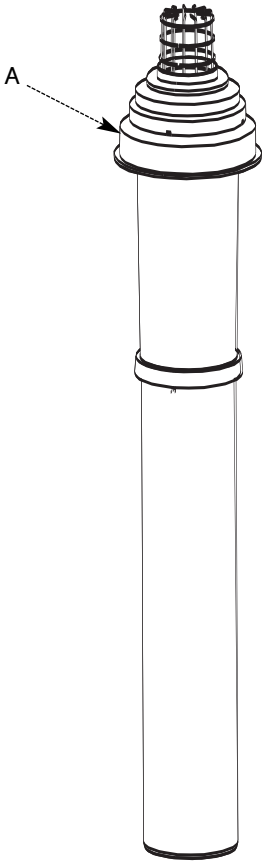
D AIR INLET SILENCER (CAMRAY ONLY)

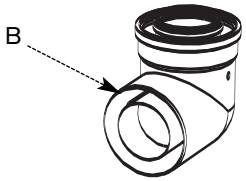
E SUPPORT BRACKET

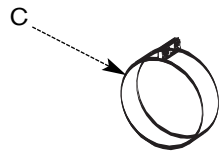


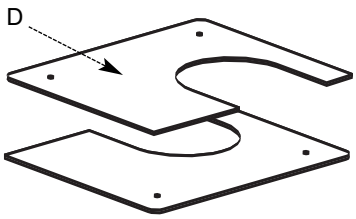
CF VERTICAL ADDITIONAL PART FOR 130mm FLUE

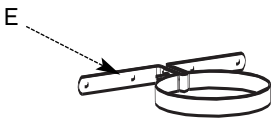
F 100 to 130mmØ ADAPTOR (COMPLETE WITH SOVENT FREE GREASE) 7 716 190 065

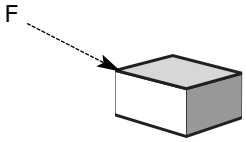












ROOM SEALED VERTICAL FLUE COMPONENTS

80/125mmØ RS VERTICAL FLUE KIT:

Part Number: 7 716 190 032 including:

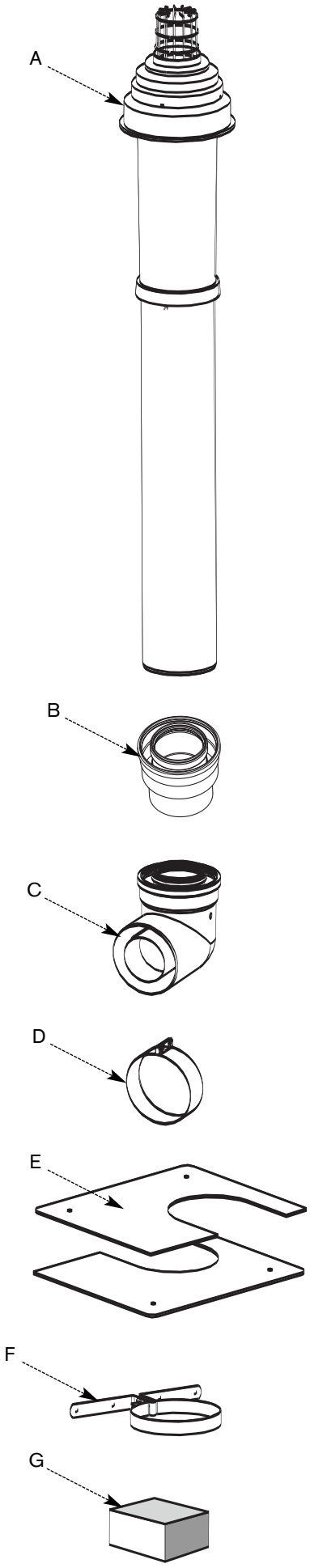
A TERMINAL ASSEMBLY
B ELBOW
C CLAMP BRACKET
D FIRE STOP PLATE WITH SCREWS, WASHERS AND WALL PLUGS
E PIPE CLAMP WITH SCREWS, WASHERS AND WALL PLUGS
F DRILL PACK CONTAINING 3.3mm HSS JOBBER DRILL AND SOLVENT-FREE GREASE SACHET

ROOM SEALED VERTICAL FLUE COMPONENTS

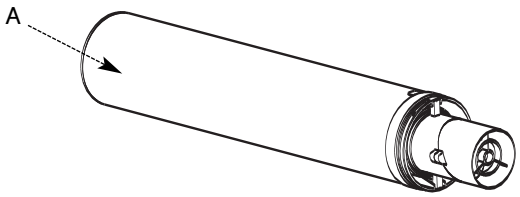
100/150mmØ RS VERTICAL FLUE KIT:

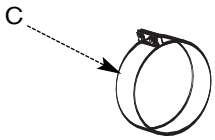
Part Number: 7 716 190 059 including:

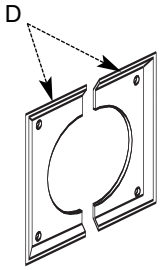
A TERMINAL ASSEMBLY
B INLINE 80/125 TO 100/150mmØ ADAPTOR
C ELBOW (80/125mmØ)
D CLAMP BRACKET
E FIRE STOP PLATE WITH SCREWS, WASHERS AND WALL PLUGS
F PIPE CLAMP WITH SCREWS, WASHERS AND WALL PLUGS
G DRILL PACK CONTAINING 3.3mm HSS JOBBER DRILL AND SOLVENT-FREE GREASE SACHET

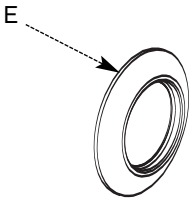


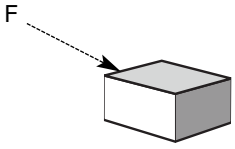
ROOM SEALED HORIZONTAL FLUE COMPONENTS











80/125mmØ RS HORIZONTAL FLUE KIT:

Part Number: 7 716 190 031 including:

A TERMINAL ASSEMBLY

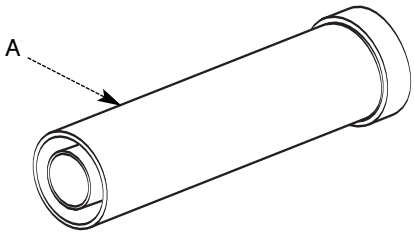
C CLAMP BRACKET

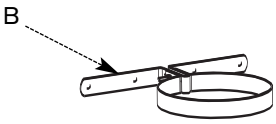
D WALL PLATES WITH SCREWS, WASHERS AND WALL PLUGS

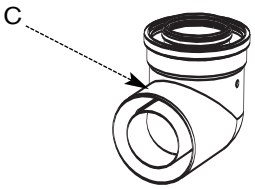
E WALL SEAL

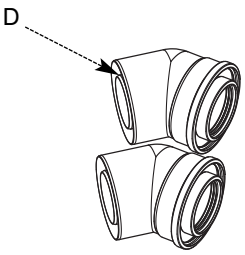
F DRILL PACK CONTAINING 3.3mm HSS JOBBER DRILL AND SOLVENT-FREE GREASE SACHET

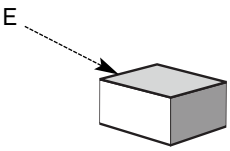
ROOM SEALED FLUE EXTENSION COMPONENTS











80/125mmØ RS FLUE EXTENSION:

Part Number: 7 716 190 033 including:

A EXTENSION TUBE

B PIPE CLAMP WITH SCREWS, WASHERS AND WALL PLUGS

E SOLVENT FREE GREASE PACK, CONTAINING 2 No. 8 SCREWS & GREASE SACHET

80/125mmØ RS 90° ELBOW:

Part Number: 7 716 190 034 including:

C 90° SWEPT ELBOW

E SOLVENT FREE GREASE PACK, CONTAINING 2 No. 8 SCREWS & GREASE SACHET

80/125mmØ RS 45° ELBOW:

Part Number: 7 716 190 035 including:

D 45° ELBOW x2

E SOLVENT FREE GREASE PACK, CONTAINING 2 No. 8 SCREWS & GREASE SACHET

100/150mmØ RS FLUE EXTENSION:

Part Number: 7 716 190 045 including:

A EXTENSION TUBE

B PIPE CLAMP WITH SCREWS, WASHERS AND WALL PLUGS

E SOLVENT FREE GREASE PACK, CONTAINING 2 No. 8 SCREWS & GREASE SACHET

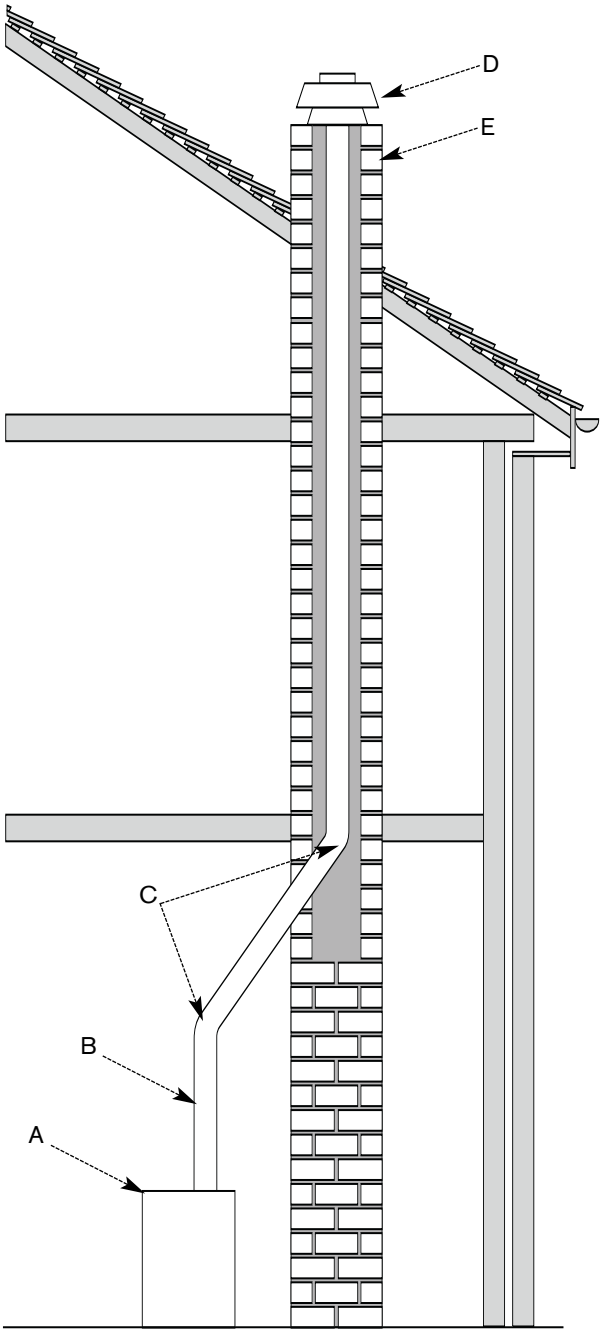
100/150mmØ RS 45° ELBOW:

Part Number: 7 716 190 047 including:

D 45° ELBOW x2

E SOLVENT FREE GREASE PACK, CONTAINING 2 No. 8 SCREWS & GREASE SACHET

CONVENTIONAL FLUE



A - Boiler
B - Flue
C - Max. 2 bends at 135°
D - Anti down-draught terminal
E - Chimney

- Open (conventional) flued appliances must not be installed in a bedroom, bathroom or bedsitting room.
- The flue system must be in accordance with BS 5410 : Part 1 and the current Building Regulations.
- The flue must be constructed of a material suitable for the use of condensing combustion products.
- External flue systems must be of the insulated type.
- Brick and masonry chimneys must be lined with a suitablle non-combustable material and properly jointed to withstand the effects of the working temperature (minimum rating of material 120°C) of the appliance and any condensate which may form.
- All flue joints must be sealed to prevent the leakage of condensate and combustion products.
- Ensure that joints are made so that the condensate runs away and is not collected within the joint.

NOTE: The flue can be increased in size from the boiler take off point providing the joint if correctly sealed. Never reduce the flue diameter from the boiler take off point.

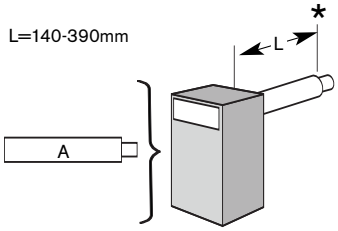
CF SIZING:
12/18 and 18/25 = 100/103mmØ (Dependent on external diameter of flue system used)
25/32 = 130mmØ

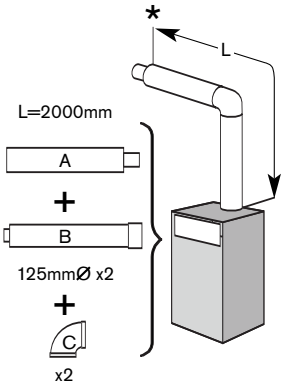
Because the flue operates at a lower temperature on a condensing boiler compared to that of a conventional appliance, the flue draught will be lower. Typically the draught will be between 0.5mmwg and 4.5mmwg, measured with the flue warm but the burner not firing. The actual figure will vary depending on weather conditions, flue height and position.

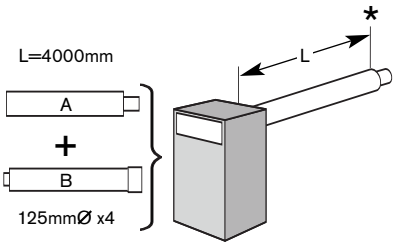
- The flue should be vertical and contain as few bends as possible, a maximum of two 135° bends should be used.
- The flue outlet must be extended beyond the eaves of the building and where possible above the apex.
- Fit a suitable anti down draught terminal where down draughts are expected.

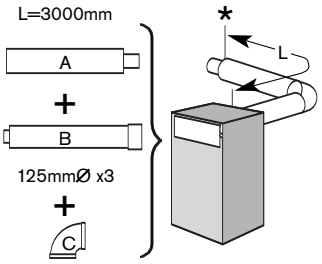
Manufacturers of conventional flue systems suitable for this appliance are listed under 'Contact Information' on the back cover.

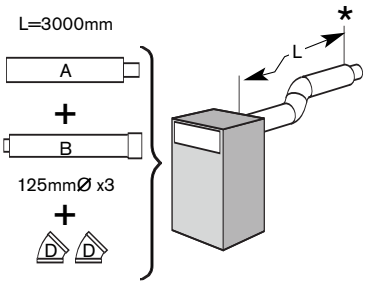
HORIZONTAL TERMINAL OPTIONS:

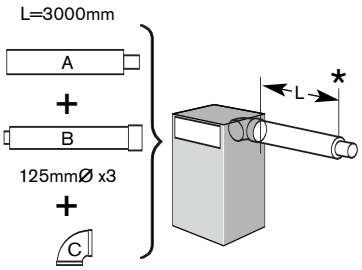


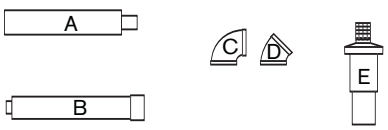












A - Horizontal terminal
B - Straight flue extension
C - Flue bend 90°
D - Flue bend 45°
E - Vertical Terminal Kit (incl. 90° elbow)

ROOM SEALED FLUE OPTIONS

The diagrams (opposite) show the components used and the maximum flue length (L) for each flue configuration.

- To achieve the maximum flue legth (L), a flue section will have to be reduced in legth.
- Only the flue terminal or straight flue extensions can be reduced in length by cutting.
- The flue terminal end can be fitted from the inside or outside of the building.

IMPORTANT:
All horizontal sections must rise away from the boiler by 52mm per metre (3°) to allow the condensate to drain back to the boiler.

Calculating the flue length:
Measure the total flue length required, noting that the maximum straight flue length including the terminal is:

Appliance	Model	Maximum flue length (L) (mm)		Flue diameter (mm)
		Horizontal terminal	Vertical terminal	
Greenstar Danesmoor Kitchen	12/18, 18/25 & 25/32	4000*	6000**	80/125
Greenstar Danesmoor Utility	12/18, 18/25 & 25/32	4000*	6000**	80/125
Greenstar Heatslave	12/18, 18/25 & 25/32	4000*	6000**	80/125
Greenstar Camray Kitchen	12/18 & 18/25	4000*	8000**	80/125
	25/32	4000*	-	80/125
		-	8000**	100/150
Greenstar Camray Utility	12/18 & 18/25	4000*	8000**	80/125
	25/32	4000*	-	80/125
		-	8000**	100/150
Greenstar Camray System	12/18 & 18/25	4000*	8000**	80/125
	25/32	4000*	-	80/125
		-	8000**	100/150

*from the boiler casing, (exclude the 120mm of terminal extending beyond the building).
**from the boiler casing (the vertical kit elbow is ignored when calculating the flue length)

Then reduce the total straight flue length for each extra flue bend by:
1000mm for each 90°
500mm for each 45°

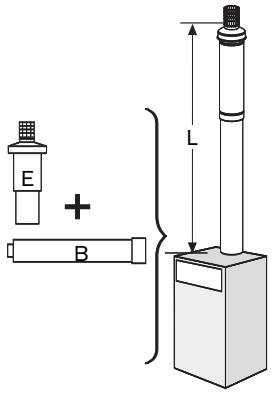
Flue Extension Lengths:
Horizontal & Vertical 1000mm overall length.
Effective length when engaged into sockets within the flue run is 950mm

Flue Terminal Lengths:
Horizontal 80/125mmØ: 720mm
Vertical 80/125mmØ: 1080mm + cage
Vertical 100/150mmØ: 1290mm + cage

*** to outside wall.**

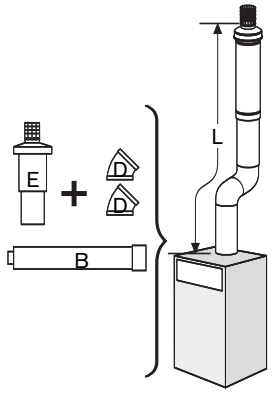
VERTICAL TERMINAL OPTIONS:

80/125mmØ



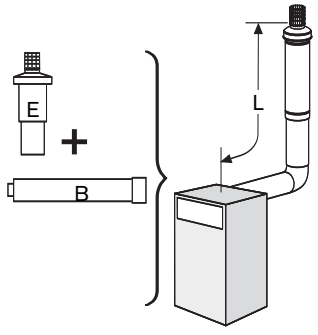
Danesmoor & Heatslave
L = 6000mm (E + Bx6)

Camray 12/18 & 18/25
L = 8000mm (E + Bx8)



Danesmoor & Heatslave
L = 5000mm (E + D + Bx4)

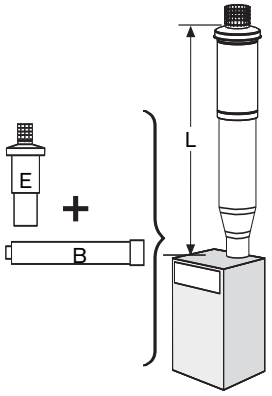
Camray 12/18 & 18/25
L = 7000mm (E + D + Bx7)



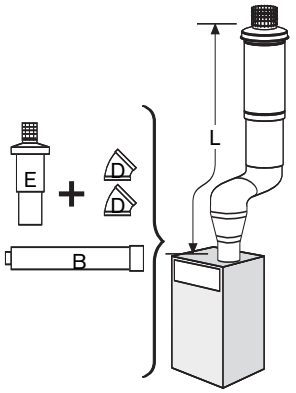
Danesmoor & Heatslave
L = 5000mm (E + Bx5)

Camray 12/18 & 18/25
L = 7000mm (E + Bx7)

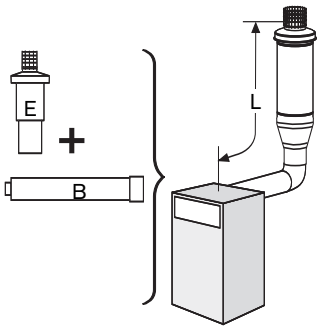
Camray 25/32 100/150mmØ



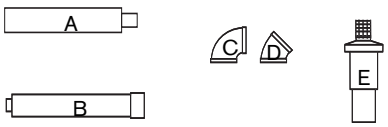
Camray 25/32
L = 8000mm (E + Bx8)



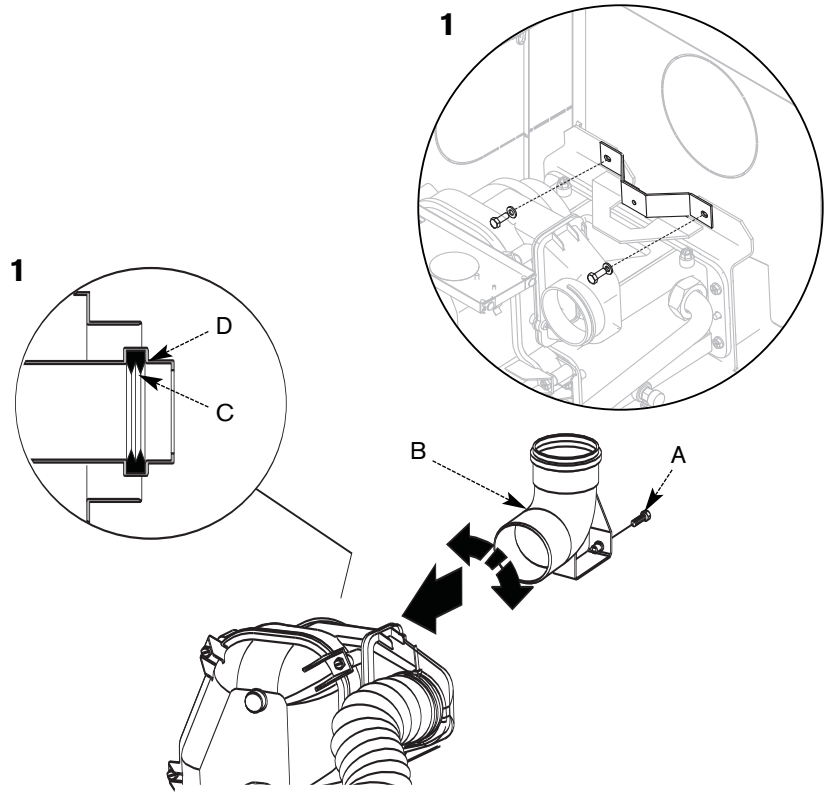
Camray 25/32
L = 7000mm (E + D + Bx7)



Camray 25/32
L = 7000mm (E + Bx7)



A - Horizontal terminal
B - Straight flue extension
C - Flue bend 90°
D - Flue bend 45°
E - Vertical Terminal Kit (incl. 90° elbow)



NOTE: To ease assembly of the components, grease the seals lightly with the solvent free grease supplied. Check all the seals are seated properly in the grooves provided and are in good condition.

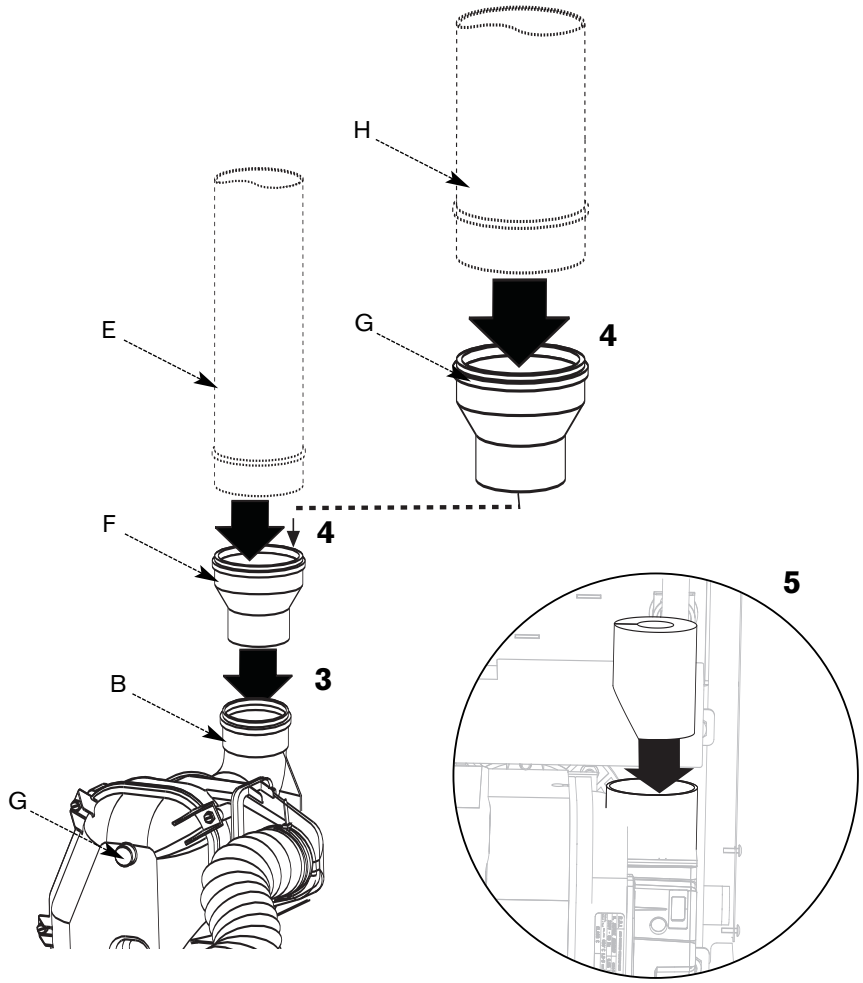
All flue joints must be sealed to prevent leakage of condensate and flue products.

1 ▶ Check seal (C) is located in the groove of the flue outlet (D).
▶ Fit the spacer bracket to the rear of the heat exchanger with the bolts supplied. (M5 for Heatslave/Danesmoor, M6 for Camray).

2 ▶ Slide flue elbow (B) rotated at 45° into position in the manifold, then rotate back to vertical.
▶ Secure using bolt (A) provided.

3 ▶ Select the correct adaptor (F) to suit the flue diameter (100mmØ or 103mmØ adaptors supplied) **Incorrect matching of the adaptor to the flue diameter could result in the escape of flue gases.**
▶ Push fit the vertical flue adaptor (F) into flue elbow (B) ensuring a good seal.

IMPORTANT:
The boiler is not designed to take the weight of the flue system, this must be supported externally to the boiler



4 ▶ For Camray 25/32 models fit the 100mm adaptor (F) then the 100/130mm adaptor (G) not supplied (part number: 7 716 190 065).
▶ Fit proprietory flue (E or H), not supplied, according to the manufacturers instructions.
▶ Connect to adaptor (F).

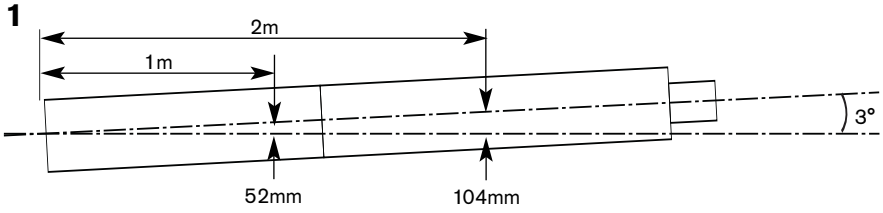
5 ▶ For the Camray appliances remove the air inlet duct from the burner and fit the air inlet silencer into the burner air inlet. Refit the air inlet duct to the burner air inlet.

6 ▶ Because the flue operates at a lower temperature on a condensing boiler compared to that of a conventional appliance, the flue draught will be lower. Typically the draught will be between 0.5mmwg and 4.5mmwg, measured with the flue warm but the burner not firing. The actual figure will vary depending on weather conditions, flue height and position.
E - 100/103mmØ flue
H - 130mmØ flue (Camray 25/32)

IMPORTANT:
Any exposed CF flue pipe must be rigid stainless steel

ROOM SEALED FLUE
MEASURING & CUTTING

1



1 ▸ **All horizontal flue sections must rise at 52mm for each metre away from the boiler to ensure that condensate flows back into the boiler for safe discharge via the condensate waste pipe.**

Measuring the flue:

2 ▸ Measure the flue length (L) required from the flue opening outside the building (H) to the outer boiler casing (E) at the required flue outlet position (A, B, C or D).

▸ Add dimension shown for the terminal projecting outside the building (H), 120mm for a horizontal terminal or 600mm for a vertical terminal.

▸ Add dimension 'X' to the flue length, as shown for flue outlet A, B, C or D in the table opposite (to allow the flue to fit to the outlet/elbow inside the boiler casing).

Reducing the terminal length:

▸ Mark length required from the end of the terminal flue outlet and cut square, taking care not to distort the tubes.

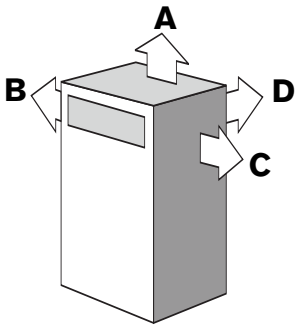
▸ Remove any burrs and chamfer the outer edges of the tubes to assist ease of connection and prevent seal damage.

Reducing extended flue tube length:
Only cut *straight extension* tubes

3 ▸ Mark flue extension (K) to measure and cut both inner and outer tubes square (at the opposite end to the seal) taking care not to distort the tubes.

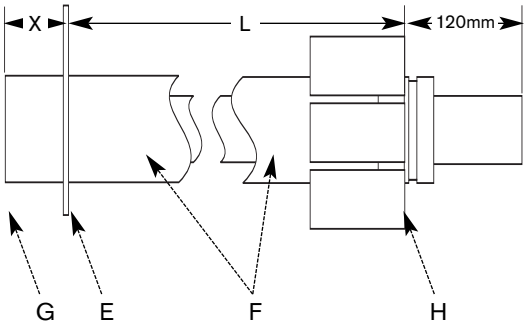
▸ Remove any burrs and chamfer the outer edges of the tubes to assist ease of connection and prevent seal damage.

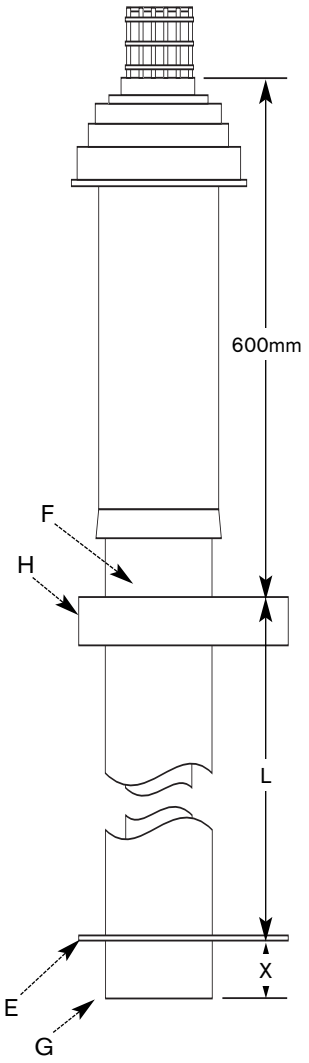
2



FLUE OUTLET	LENGTH **X** (mm)		
	DANESMOOR	HEATSLAVE	CAMRAY
A	40	40	30
B	100	250	100
C	100	100	100
D	210	210	270

E - Boiler outer casing
F - Outer flue tube
G - Outlet/elbow connection
H - Outside wall/roof
L - Measured flue length





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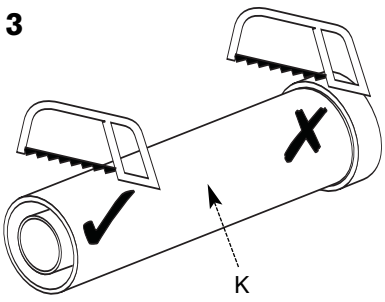
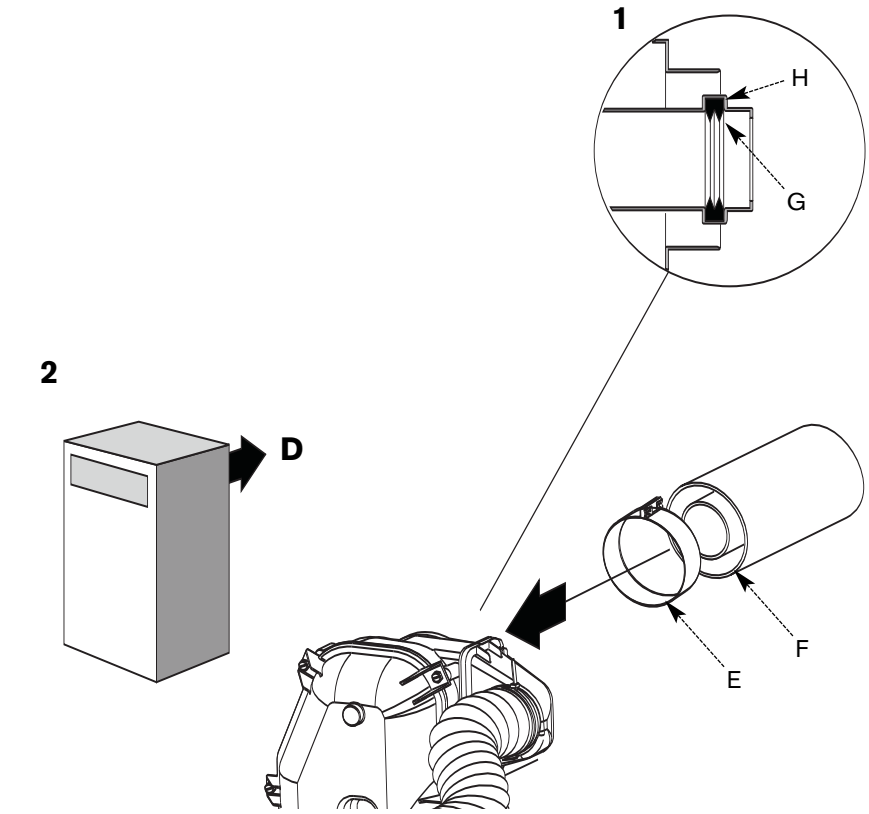




NOTE: to ease assembly of the flue components, grease seals lightly with the solvent free grease supplied. Check all the seals are sealed properly in the grooves provided and are in good condition.

- All flue joints must be sealed to prevent leakage of condensate and flue products.

1 ▶ Check seal (G) is located in the groove of the boiler flue outlet (H).

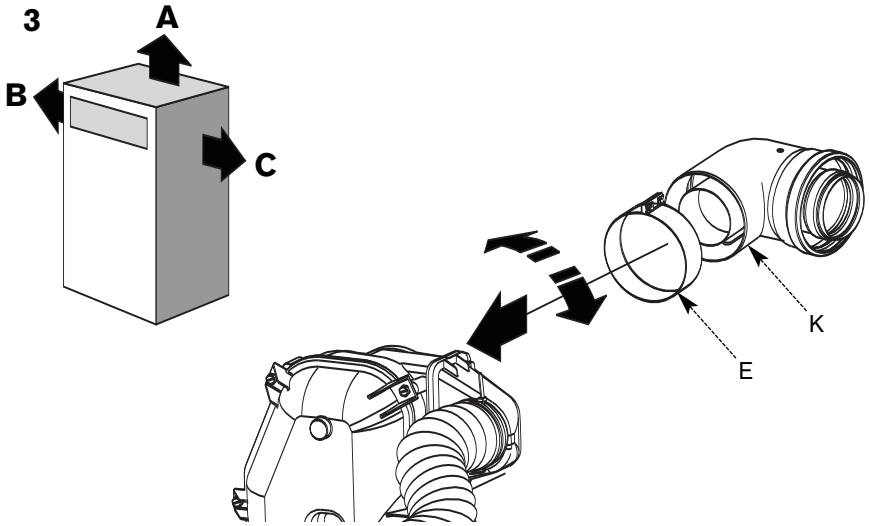
IMPORTANT:
The boiler is not designed to take the weight of the flue system, this must be supported externally to the boiler

2 Rear outlet 'D':

- Where applicable, loosely fix support bracket/s to support the flue weight.
- Slide flue clamp (E) onto the flue tube (F).
- Push-fit the flue (F) into the boiler flue outlet ensuring a good fit to seal (G).
- Secure flue (F) to boiler outlet with clamp (E).
- Secure flue support bracket/s, where used.

3 Outlets 'A', 'B' and 'C':

- Slide flue clamp (E) over the flue elbow (K).
- Push-fit the flue elbow (K) into the boiler flue outlet ensuring a good fit to seal (G).
- Rotate flue elbow (K) to outlet position A, B or C.
- Secure flue elbow (K) to boiler outlet with clamp (E).
- Check the seals are located properly in the grooves of flue elbow (K).



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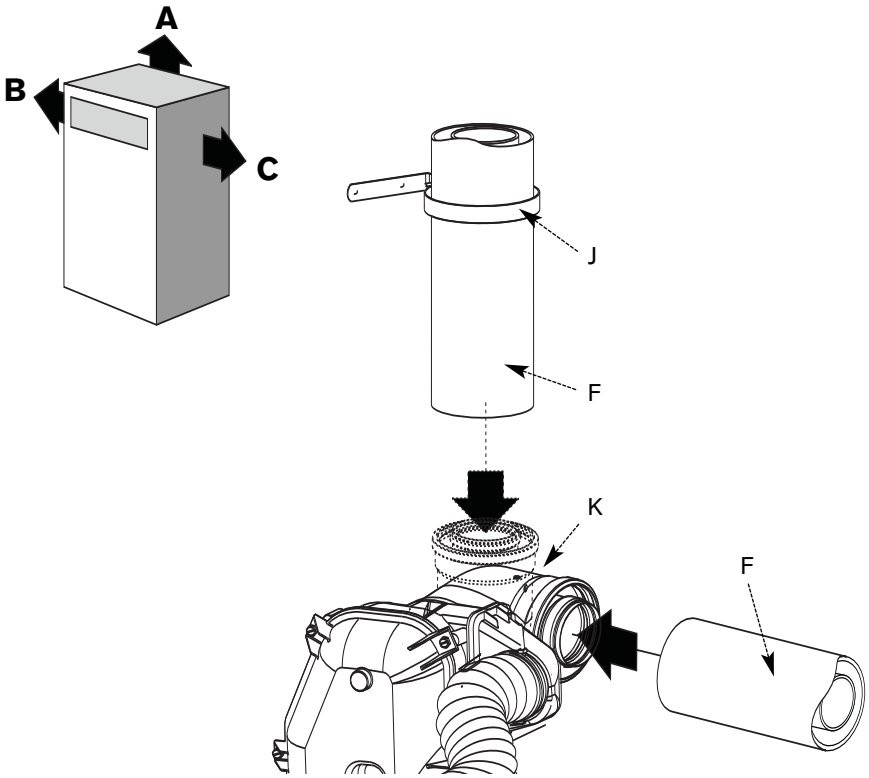


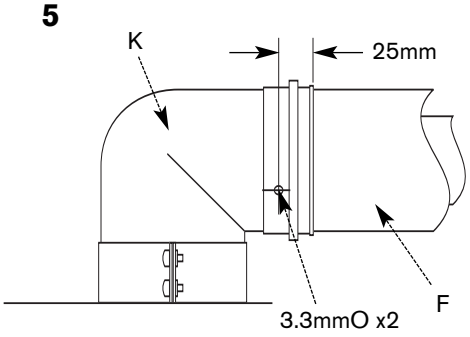
4 ▶ Where applicable, loosely fix support bracket/s (J) to support the weight.
▶ Push-fit flue (F) into elbow (K).

NOTE: Camray 25/32 models using a vertical terminal, the 80/125 to 100/150mmØ vertical adaptor MUST be fitted vertically at the lowest point of the vertical section of the flue. Failure to fit the adaptor vertically will cause the condensate pool within the flue and will adversely affect the flue's performance.

▶ Secure flue support bracket/s (J), where used.

5 ▶ Drill two holes with the drill provided (180° apart if possible) through the outer flue elbow (K) into the outer flue tube (F) taking care NOT to drill the inner flue tube and secure with screws supplied.

5



ROOM SEALED FLUE TERMINAL & EXTENSIONS

NOTE: to ease assembly of the flue components, grease seals lightly with the solvent free grease supplied. Check all the seals are sealed properly in the grooves provided and are in good condition.

- All flue joints must be sealed to prevent leakage of condensate and flue products.

1 ▶ Push fit all extensions, bends and terminal together and secure support clamps (G) with screws provided.

2 Vertical terminal only:

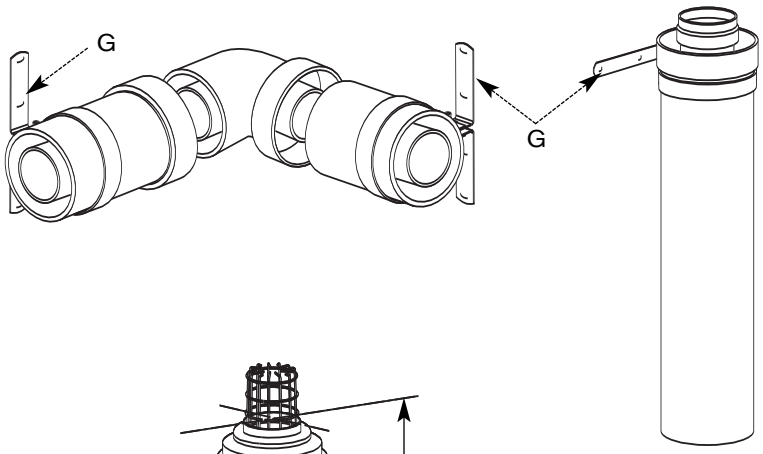
- Fit flue terminal (A) through the flue opening in the roof to extend beyond the roof by the distance shown.
- Fit flashing (X not supplied) to weatherproof terminal exit to roof.
- Secure fire stop plates (B) to ceiling with screws provided.

3 Horizontal terminal only:

- Fit terminal (C) through the flue opening in the wall (F) to the outside of the building by the distance shown.
- Secure inner wall plates (D) with screws provided.
- Fit outer wall seal (E) as shown.

4 ▶ Drill two holes with the drill provided (180° apart if possible) through the outer flue tube (L) on each flue joint taking care NOT to drill the inner flue tube and secure with screws provided.

1



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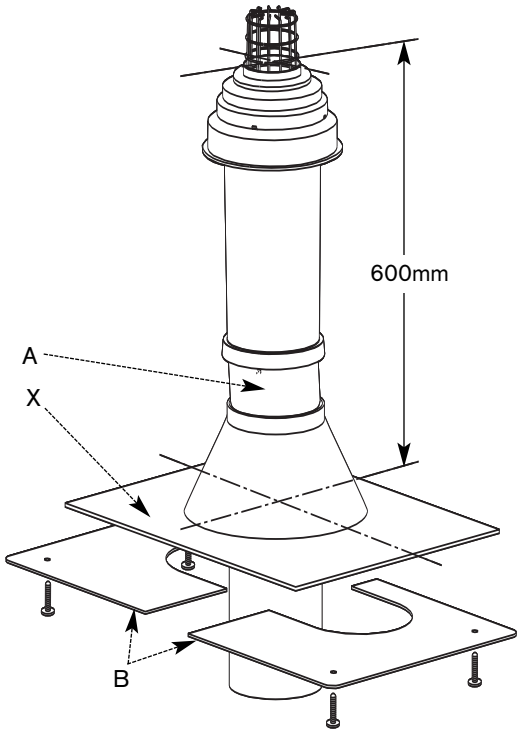

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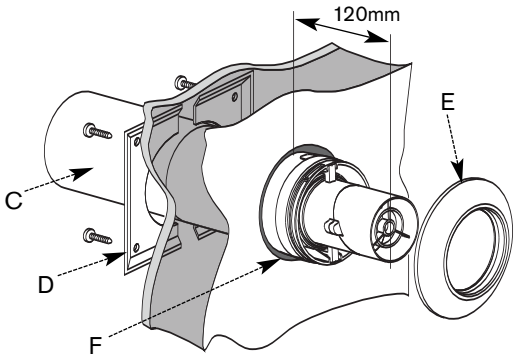

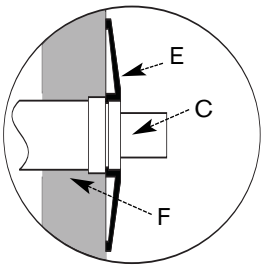

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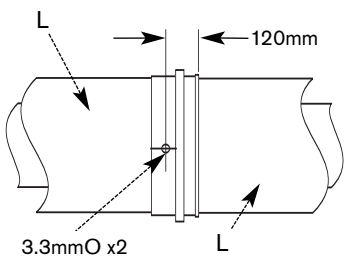

INSTRUCTION MANUAL
FLUE DUCT KIT INSTALLATION

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