

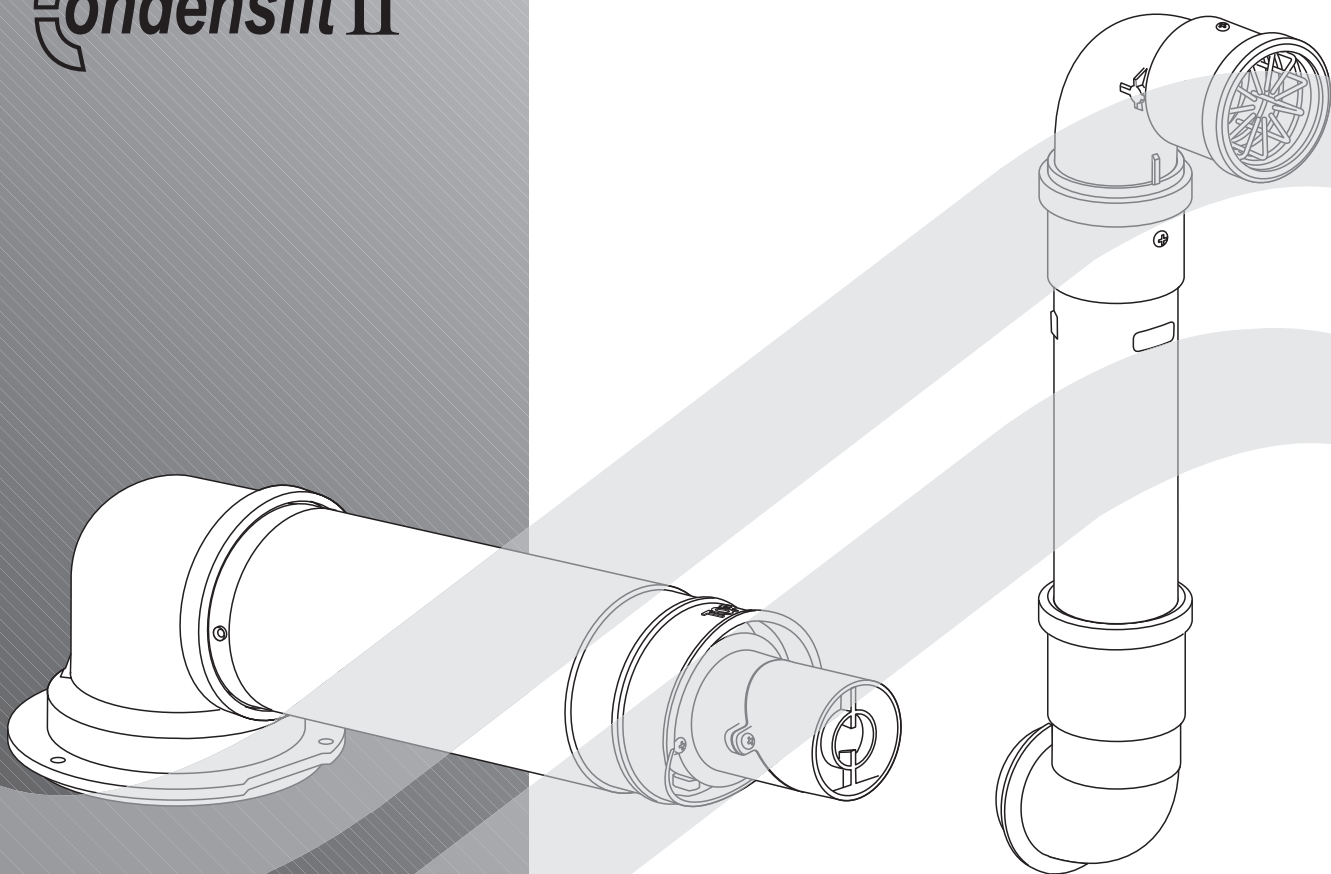
# 60/100 HORIZONTAL FLUE

**7-716-191-082** ROOM SEALED TELESCOPIC FLUE

**7-716-191-086** PLUME MANAGEMENT SYSTEM

FOR USE WITH WORCESTER APPLIANCES: Greenstar Ri series, Greenstar i Junior series, Greenstar i System series, Greenstar Si series, Greenstar CDi series.

DO NOT USE WITH ANY OTHER MODEL OF APPLIANCE.



GB/IE

## INSTRUCTION MANUAL FLUE KIT INSTALLATION



## CONTACT INFORMATION

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## INSTALLATION INSTRUCTIONS

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**PLEASE READ THESE INSTRUCTIONS CAREFULLY BEFORE STARTING INSTALLATION.**

THESE INSTRUCTIONS ARE APPLICABLE ONLY TO THE PRODUCT(S) STATED ON THE FRONT COVER OF THIS MANUAL.

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

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

IF YOU ARE IN **ANY DOUBT** CONTACT WORCESTER TECHNICAL SUPPORT.

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


**PLEASE LEAVE THESE INSTRUCTIONS WITH THE USER OR AT THE GAS METER AFTER INSTALLATION OR SERVICING.**

### ABBREVIATIONS:

∅ Diameter  
RS Room sealed flue

### SYMBOLS:

 Cutting required

 No cutting required

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SAFETY &  
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## SAFETY PRECAUTIONS

### IF YOU SMELL GAS:

- X** DON'T SMOKE OR STRIKE MATCHES.
- X** DON'T TURN ELECTRICAL SWITCHES ON OR OFF.
- ✓** DO PUT OUT NAKED FLAMES.
- ✓** DO OPEN DOORS AND WINDOWS.
- ✓** DO KEEP PEOPLE AWAY FROM THE AREA AFFECTED.
- ✓** DO TURN OFF THE CONTROL VALVE AT THE METER.
- ✓** DO CALL YOUR GAS COMPANY.

### BENCHMARK:

A Benchmark check list is provided by the manufacturer at the rear of the appliance instruction manual for the installer to complete, including their CORGI registration number, to confirm that the boiler has been installed, commissioned and serviced according to the manufacturer's instructions.

IMPORTANT: The completed Benchmark check list will be required in the event of any warranty work and may be required by the local Building Control Inspector.

### FITTING & MODIFICATIONS:

Fitting the flue system 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.

Painting of the plume management kit is not permitted.

Any misuse or unauthorised modifications to the flue or associated components could invalidate the warranty. The manufacturer accepts no liability arising from any such actions, excluding statutory rights.

- Flue terminals must be positioned to avoid combustion products entering into buildings.
- The flue must be fitted and terminated in accordance with the recommendations of BS5440 : Part 1.
- The flue must not cause an obstruction.
- Discharge from the flue outlet must not be a nuisance.
- Flue gases have a tendency to plume and in certain weather conditions a white plume of condensation will be discharged from the flue outlet which could be regarded as a nuisance.
- There should be no restriction preventing the clearance of combustion products from the terminal.
- The air inlet/outlet duct and the terminal of the boiler must not be closer than 25mm to any combustible material. Detailed recommendations on protection of combustible materials are given in BS 5440:1
- A protective terminal guard must be fitted if the terminal is 2m or less above a surface where people have access. The guard must be spaced equally (minimum 50mm) around the flue and fixed to the wall with plated screws.

### SERVICING:

The appliance and flue system should be regularly serviced by a competent, qualified engineer (such as British Gas or CORGI registered personnel) using approved spares, to help maintain the economy, safety and reliability of the appliance.

An annual visual check of the plume management kit must be observed.

The plume management kit must be visually inspected - annually.

## INSTALLATION REGULATIONS

Failure to install correctly could lead to prosecution.

The flue system and associated components must be installed only by a competent person in accordance with, and comply to, the current: Gas Safety (Installation & Use) Regulations 1998, Building Regulations, Building Standards (Scotland) (Consolidation), Building Regulations (Northern Ireland), IS 813 (Eire) and any other local requirements.

The relevant Standards should be followed, including:

BS5440:1 : Flues and ventilation for gas appliances of rated heating not exceeding 70kW (net) : Flues

BS5440:2 : Flues and ventilation for gas appliances of rated heating not exceeding 70kW (net) : Air Supply

BS6798 : Installation of gas fired boilers of rated input up to 70kW (net)

Where no specific instruction is given, reference should be made to the relevant codes of Practice.

Timber framed buildings:

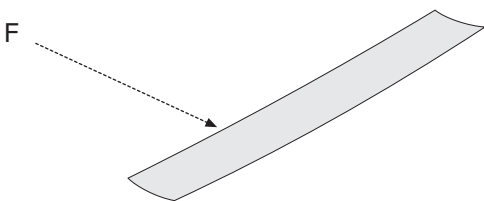
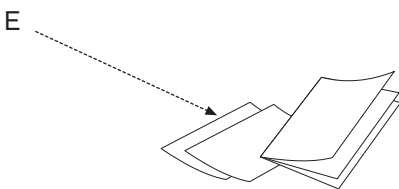
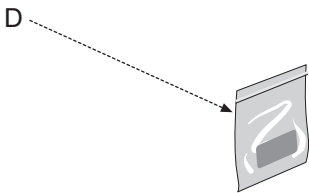
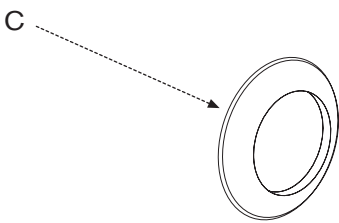
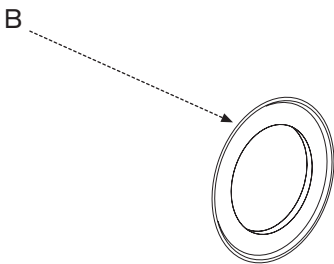
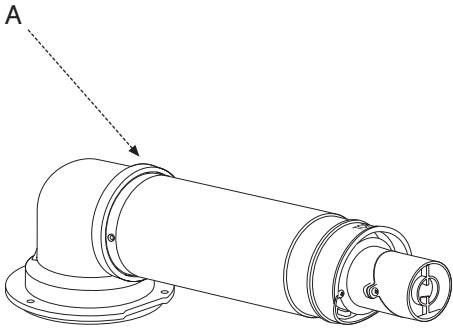
Where the flue system is to be fitted into a timber framed building the guidelines laid down in BS5440: Part 1 and IGE "Gas Installations in Timber Frame Buildings" should be adhered to.

## TELESCOPIC FLUE COMPONENTS

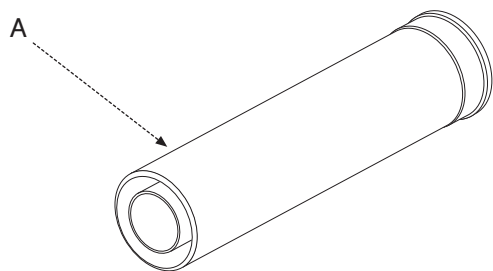
### Ø60/100mm TELESCOPIC FLUE KIT:

Part Number: 7-716-191-082 including:

- A TELESCOPIC FLUE ASSEMBLY.
- B WALL SEAL INNER.
- C WALL SEAL OUTER.
- D ACCESSORY PACK.
- E INSTALLATION INSTRUCTIONS & CHECK LIST.
- F ALUMINIUM TAPE.



## FLUE EXTENSION COMPONENTS

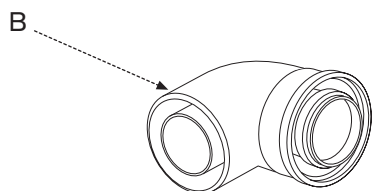


### Ø60/100mm 1000mm EXTENSION KIT:

Part Number: 7-716-191-083 including:

A EXTENSION TUBE ASSEMBLY

D GREASE PACK, CONTAINING 2 No.8  
SCREWS & GREASE SACHET

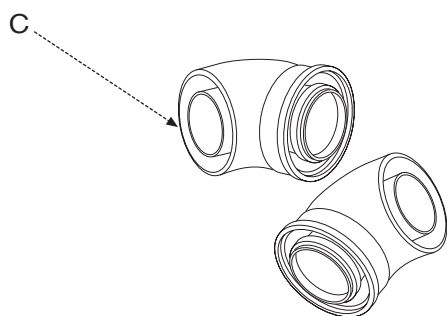


### Ø60/100mm 90° BEND:

Part Number: 7-716-191-084 including:

B 90° BEND ASSEMBLY

D GREASE PACK, CONTAINING 2 No.8  
SCREWS & GREASE SACHET

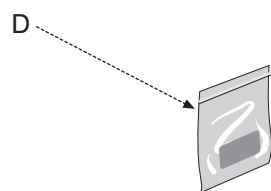


### Ø60/100mm 45° BEND:

Part Number: 7-716-191-085 including:

C 45° BEND x2

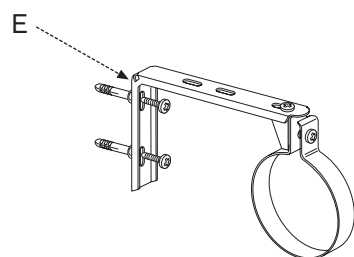
D GREASE PACK, CONTAINING 2 No.8  
SCREWS & GREASE SACHET



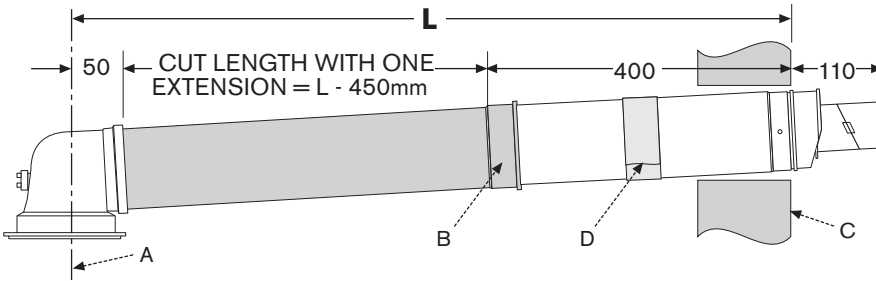
### Ø60/100mm SUPPORT BRACKET KIT:

Part Number: 7-716-191-092 including:

E WALL BRACKET, SWIVEL BRACKET, CLAMP,  
FIXING SCREWS AND WALL PLUGS



### 1 Example with one extension tube:

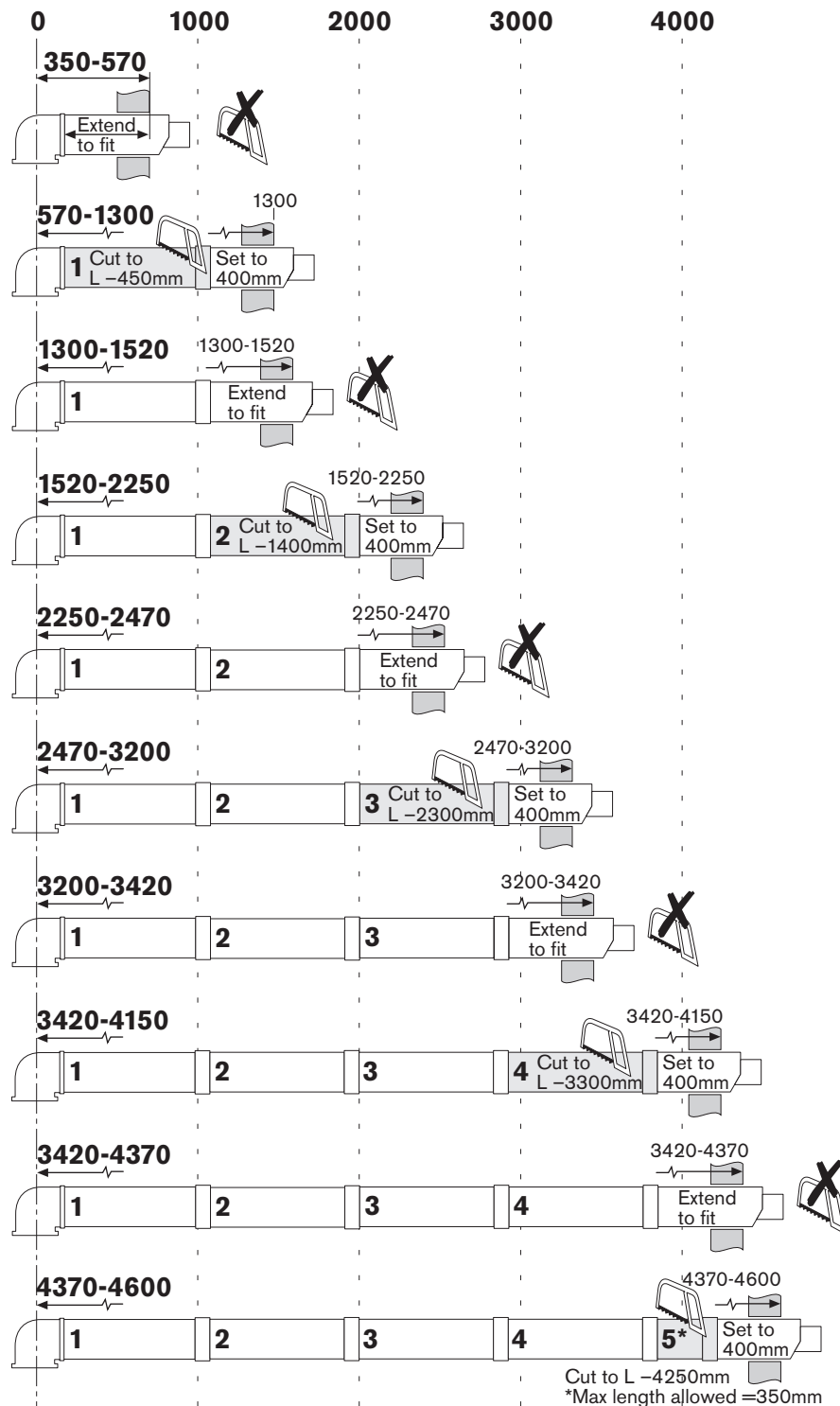


## FLUE MEASURING & CUTTING

Do not exceed the maximum straight length for a horizontal Ø60/100mm flue or a Ø60mm plume management system (if used) as stated in the relevant appliance Instruction Manual or addendum.

Cutting the flue to an exact measure is not normally required as the telescopic flue terminal allows for adjustment.

### 2 Guide only for flue cutting lengths:



- ▶ Measure the flue length (L) from the centre of the boiler flue outlet (A) along the flue route to the outside wall (C).

Note, the terminal end projects beyond the outside wall by the distance shown opposite.

A - Centre line of the boiler flue outlet.

B - Flue extension tube socket.

C - Outside wall.

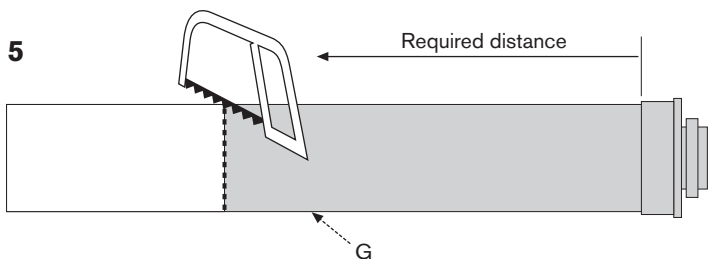
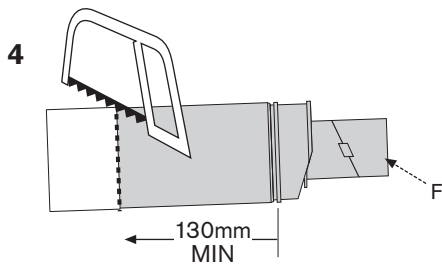
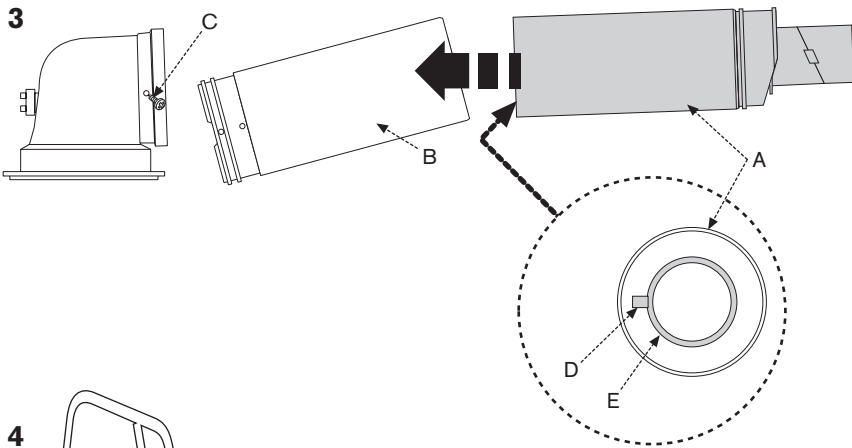
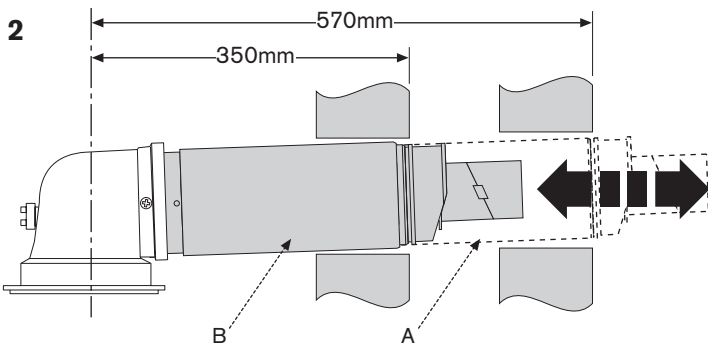
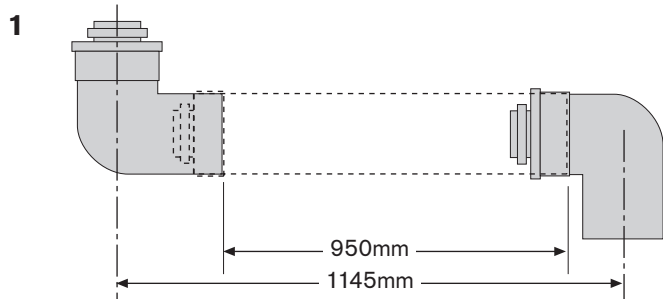
D - Aluminium tape over telescopic terminal screwed joint.

- ▶ Select the required flue length (L) and number of extension tubes from the range shown in the guide opposite.

▶ Should the flue require cutting:

- ▶ Set the telescopic flue length to 400mm.
- ▶ Screw and tape joint (D) using the aluminium tape supplied.
- ▶ Take the distance shown away from the measured flue length (L).

PRE-INSTALLATION



## FLUE MEASURING & CUTTING

### Flue bends:

- ▶ Connecting flue bends increases the effective pipe length and an allowance must be made for the different connectors. The example opposite shows dimensions for two 90° bends connected to a standard flue extension.

### Adjusting the standard terminal length:

- ▶ Extend tube (A) by withdrawing from tube (B) to achieve the flue length required, 350- 570mm.
  - ▶ Secure with screw provided and seal joint with the aluminium tape supplied.

### Reducing the standard terminal length:

- ▶ Remove securing screws (C) to detach the terminal assembly from the turret.
  - ▶ Slide terminal section (B) from the terminal assembly and discard.
  - ▶ To use terminal (A) without cutting remove the location lug (D) on the inner flue tube (E) and remove any burrs.

### To reduce the terminal length further:

- ▶ Mark the length required for the terminal (F) as shown (min. 130mm) and cut square, taking care not to damage the tubes.
  - ▶ Remove any burrs and chamfer the outer edge of the tubes to assist ease of connection and prevent seal damage.

*NOTE: The aluminium tape is not required when reducing the terminal.*

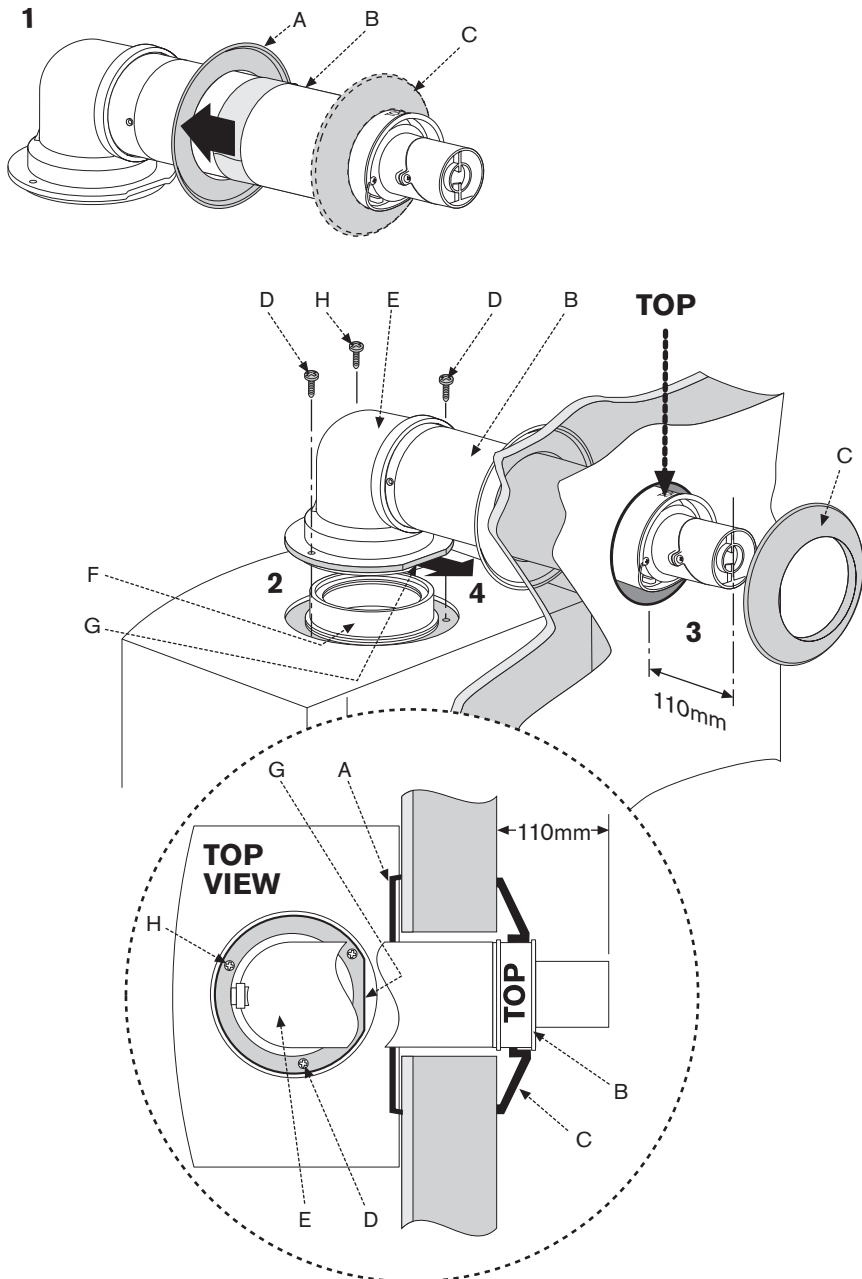
### Reducing extended flue tube length:

#### Only cut straight extension tubes

- ▶ Mark flue extension (G) to the required distance measuring from the socket end and cut square taking care not to damage the tubes.
  - ▶ Remove any burrs and chamfer the outer edge of the tubes to assist ease of connection and prevent seal damage.



## STANDARD FLUE INSTALLATION



### Installing the standard flue:

- 1 ▶ Set the flue length to the distance required, secure with screw and seal joint with the aluminium tape supplied.
  - ▶ Slide the inner wall seal (A) onto the terminal (B) as shown.
  - ▶ If fitting from inside the building; slide the outer wall seal (C) onto the terminal (B) as shown.
- 2 ▶ Remove the three screws (D, H) around the flue outlet (F) on the boiler. For CDi models see screw pack in boiler.
  - ▶ Check the boiler flue seal is correctly seated.
  - ▶ Apply silicone grease to the boiler flue seal.
- 3 ▶ Position terminal (B) through the flue opening in the wall to the outside of the building by the distance shown.

▶ **The flue terminal MUST be fitted with the 'TOP' uppermost to allow the correct fit and use of the plume management system.**

- 4 ▶ Align the flue turret (E) to the boiler flue outlet (F) with flat (G) facing to the rear of the boiler.
  - ▶ Push the flue turret (E) straight down into the boiler flue outlet (F).
  - ▶ For ease of assembly, locate screw (H) first and then fit screws (D) to secure flue turret (E).
  - ▶ If fitting from the outside of the building; slide the outer wall seal (C) onto the terminal (B) as shown.

INSTALLATION

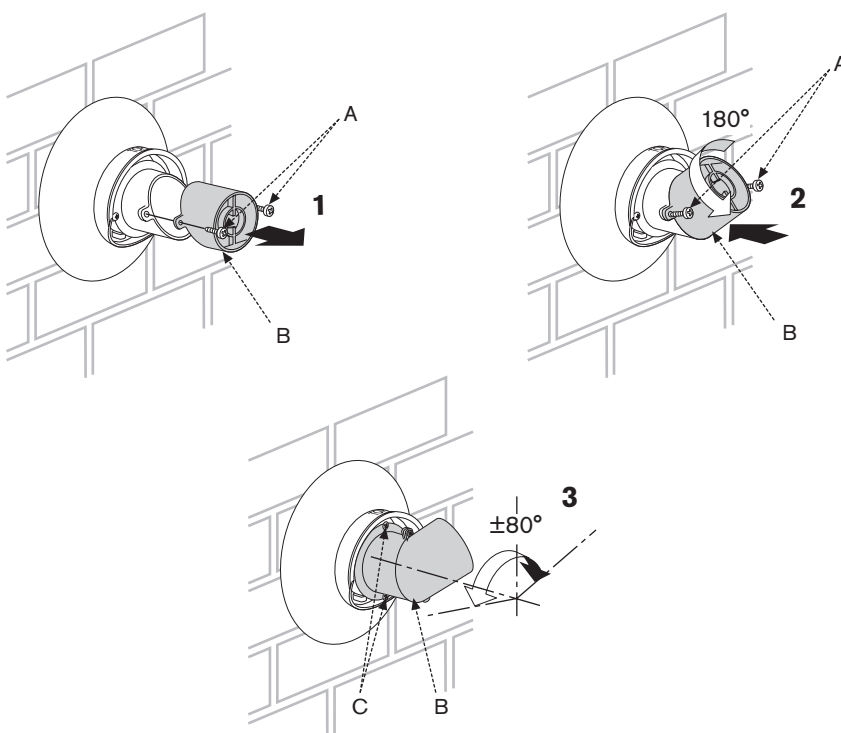
### FLUE TERMINAL PLUME MANAGEMENT:

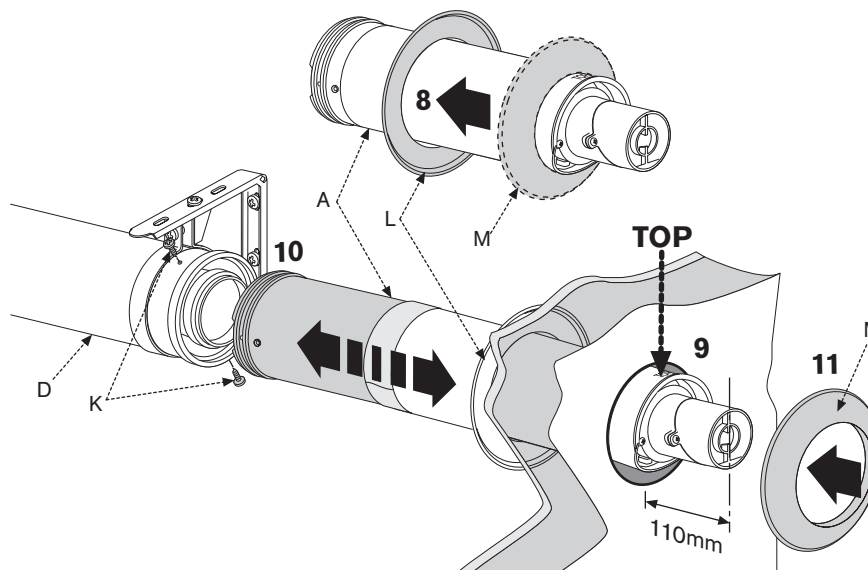
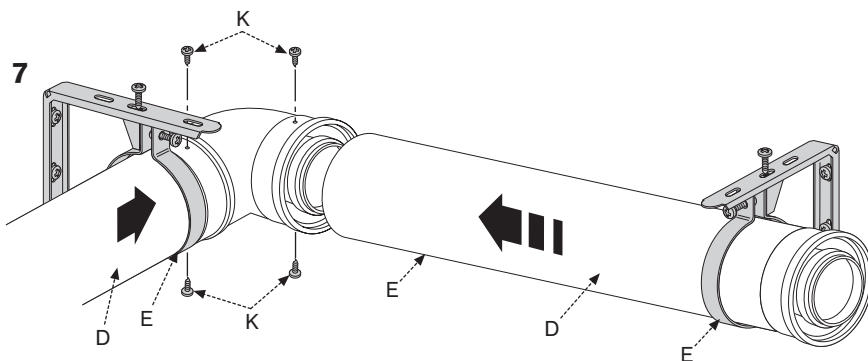
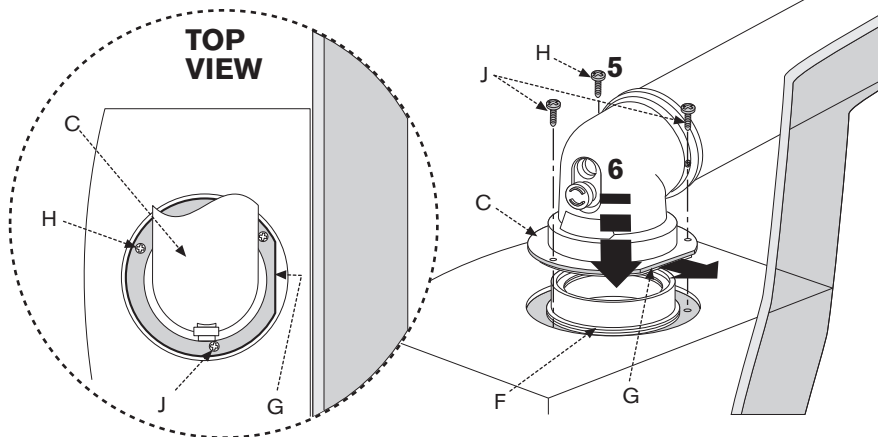
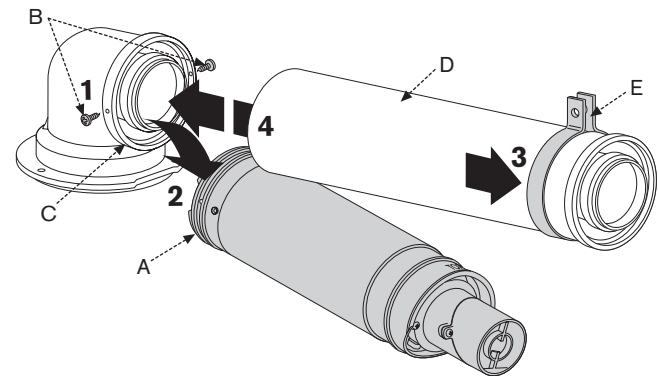
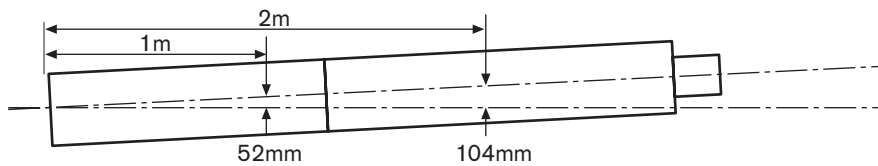
The flue discharge can be redirected allowing some plume management control, alternatively, a complete plume management system can be fitted to the flue terminal.

### Redirecting the flue discharge:

- 1 ▶ Remove screws (A) and rotate the terminal end (B) through 180°.
  - DO NOT rotate the complete flue terminal assembly.**
- 2 ▶ Refit the terminal end (B) and secure with screws (A).
- 3 ▶ Loosen screws (C) and rotate the entire outlet assembly to redirect the plume. Retighten screws (C) to secure in the required position.

*NOTE: the flue terminal outlet has built-in stops to limit rotation for horizontal fluing to allow condensate to run back into the boiler for safe disposal. Do not attempt to force beyond the limit stops.*





## EXTENDED FLUE INSTALLATION

*NOTE: to ease assembly of the flue components, grease 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.*

**All horizontal flue sections must rise by at least 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.**

### Installing an extended flue:

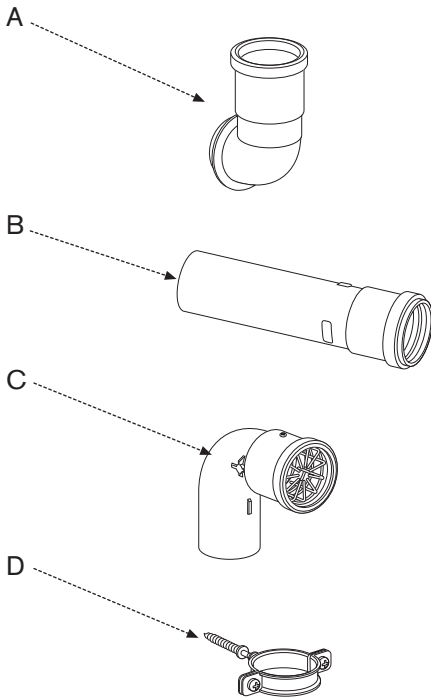
- 1 ▶ Remove terminal retaining screws (B)
- 2 ▶ Disconnect flue assembly (A) from turret (C).
  - ▶ Set the terminal to 400mm, fix with screw and seal joint with the aluminium tape supplied.
- 3 ▶ Slide support clamp (E) (not supplied) onto the flue extension (D) as shown.
- 4 ▶ Push-fit extension (D) as far as possible into the turret (C).
  - ▶ Drill through the turret screw holes into the outer tube of the extension taking care NOT to drill the inner flue tube.
  - ▶ Refix screws (B) to secure extension (D) to the turret (C).
- 5 ▶ Remove the three screws (H, J) around the flue outlet (F) on the boiler. For CDi models see screw pack in boiler.
  - ▶ Check the boiler flue seal is correctly seated.
  - ▶ Apply silicone grease to the boiler flue seal.
- 6 ▶ Fit the flue turret (C) to the boiler flue outlet (F) and rotate to the direction required ensuring flat (G) facing to the rear of the boiler.
  - ▶ For ease of assembly, locate screw (H) first and then fit screws (J) to secure flue turret (C).
- 7 ▶ Slide a support clamp (E) (not supplied) onto additional flue extensions (D).
  - ▶ Working from the boiler, fit the extension/s with support clamp/s as required, to take the weight of the flue.
  - ▶ Drill two holes (180° apart if possible) through the outer flue tube of each extension taking care NOT to drill the inner flue tube and secure with screws (K) as shown.
- 8 ▶ Slide the inner wall seal (L) onto terminal (A).
  - ▶ If fitting from inside the building; slide the outer wall seal (M) onto terminal (A) as shown.
- 9 ▶ Position terminal assembly (A) through the flue opening in the wall to the outside of the building by the distance shown.
- 10 ▶ Fit terminal assembly (A) into the last extension (D).
  - ▶ **The flue terminal MUST be fitted with the 'TOP' uppermost to allow the correct fit and use of the plume management system.**
  - ▶ Drill the outer flue tubes and fix with screws (K).
- 11 ▶ If fitting from the outside of the building; slide the outer wall seal (M) onto terminal (A).

## PLUME MANAGEMENT SYSTEM COMPONENTS

### COMPONENTS Ø60mm PLUME MANAGEMENT KIT:

Part Number: 7-716-191-086 including:

- A TERMINAL BEND
- B EXTENSION 500mm
- C OUTLET ASSEMBLY
- D CLAMP PACK



### EXTENSION COMPONENTS:

#### Ø60mm EXTENSION:

Part Number: 7-716-191-087 including:

- E EXTENSION 1000mm
- F CLAMP PACK

#### 90° BEND:

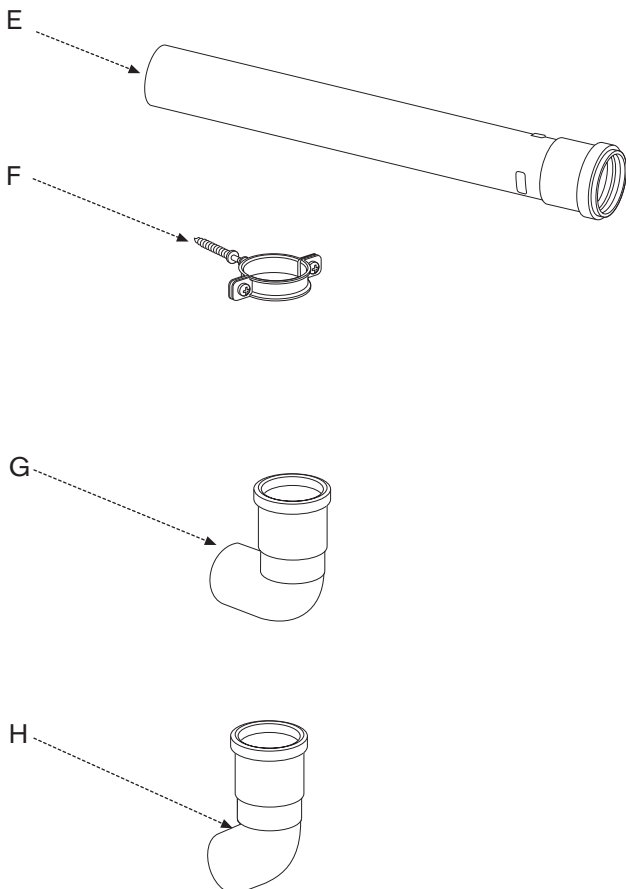
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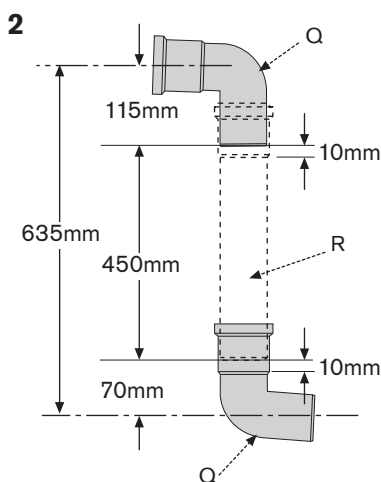
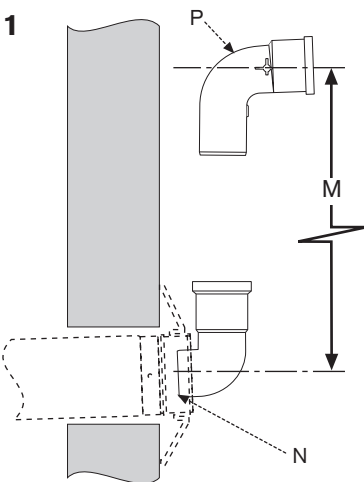
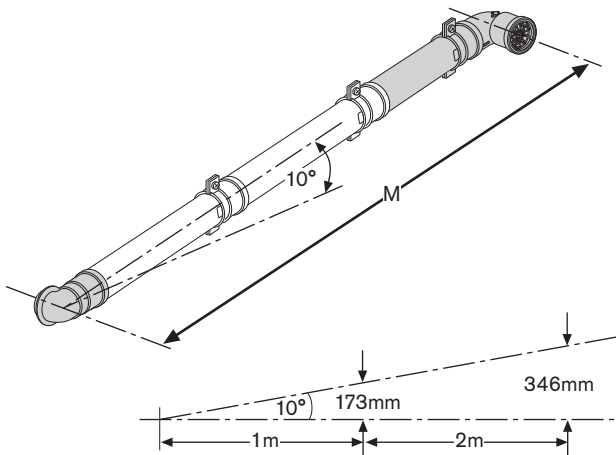
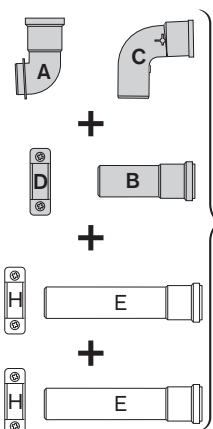
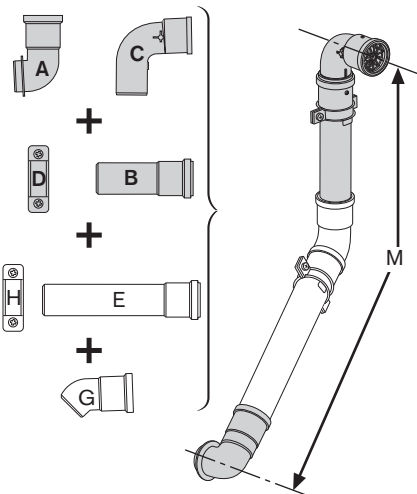
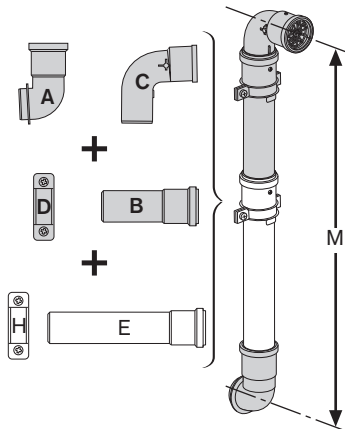
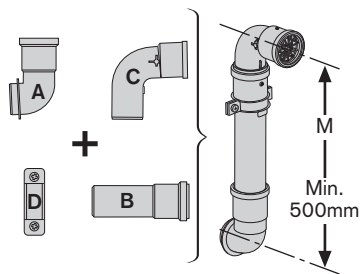
- G 90° BEND

#### 45° BEND:

Part Number: 7-716-191-089 including:

- H 45° BEND x2



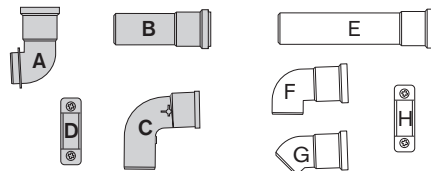


## PLUME MANAGEMENT OPTIONS & MEASURING

The diagrams (opposite) show the components required for typical plume management configurations.

### IMPORTANT:

All plume management sections must rise away from the terminal by a minimum of 173mm per metre (10°) to allow the condensate to drain back to the boiler.



Plume management kit:

- A TERMINAL BEND
- B EXTENSION 500mm
- C OUTLET ASSEMBLY
- D CLAMP

Plume management optional kits:

- E EXTENSION TUBE 1000mm
- F 90° BEND
- G 45° BEND
- H CLAMP

Measure (M) must be a minimum of 500mm and must not exceed the maximum straight length for a horizontal Ø60/100mm flue or a Ø60mm plume management system as stated in the relevant appliance Instruction Manual or addendum.

### MEASURING FOR A PLUME MANAGEMENT SYSTEM:

All boilers have a maximum permissible plume management length (ie.4500mm). This distance is stated in the boiler literature.

- 1 ▶ Measure the plume management flue (M) from the centre of terminal (N), along the required route to the end of the plume outlet (P).

### Additional bends:

- 2 ▶ Adding bends to the plume management system reduces the actual plume management length. Each 90 degree bend is equivalent to 1500mm. Each 45 degree bend is equivalent to 750mm.

### Example:

Use of x2 45 degree bends will reduce the permissible length by 1500mm. Greenstar 28 i junior has a maximum permissible plume management length of 4500mm. This would reduce to 3000mm of straight sections.

## STANDARD PLUME MANAGEMENT INSTALLATION

*NOTE: to ease assembly of the flue components, grease 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.*

### Fitting the standard plume management system:

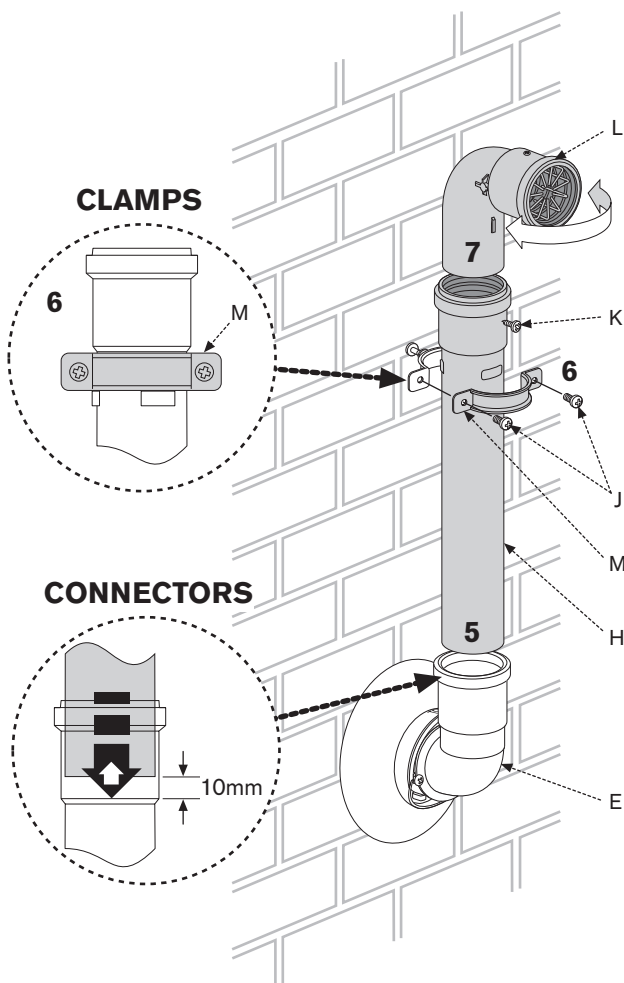
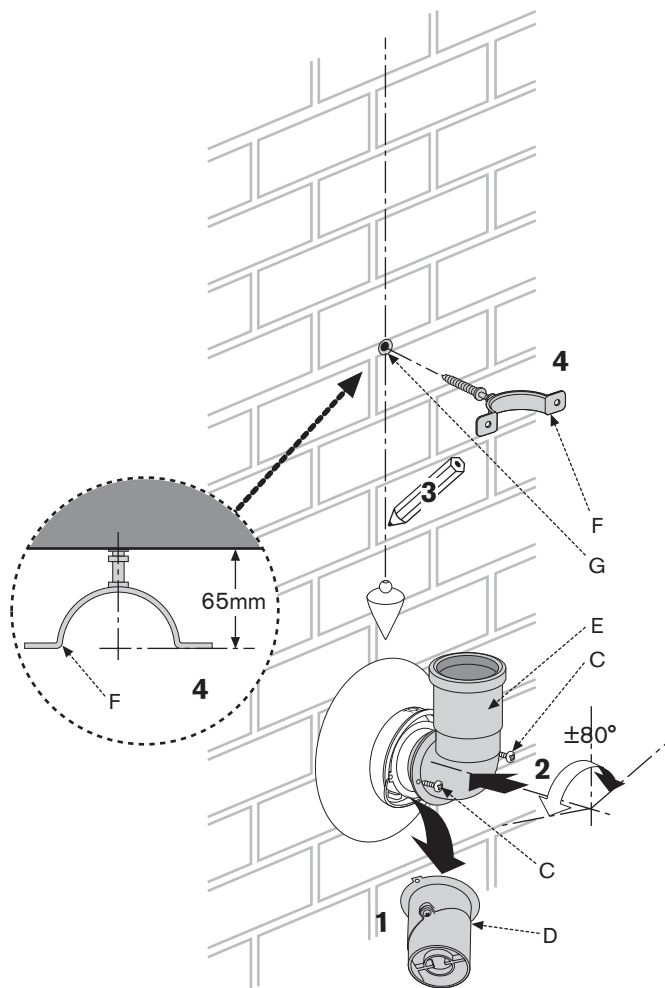
- 1 ▶ Remove screws (C) and discard the complete terminal end (D).
- 2 ▶ Fit the terminal bend (E) to the terminal outlet and refix screws (C) to secure.
  - ▶ Rotate terminal bend (E) for angled fluing.

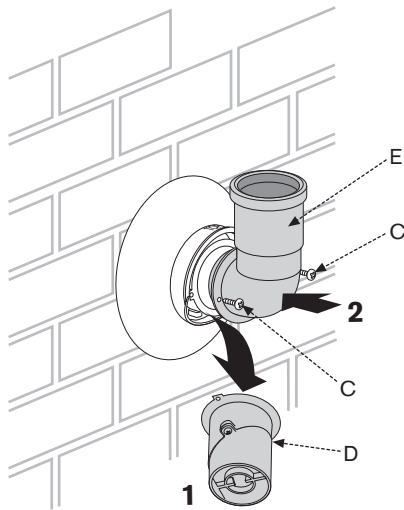
### DO NOT rotate the complete flue terminal assembly.

*NOTE: the flue terminal outlet has built-in stops to limit rotation for horizontal fluing to allow condensate to run back into the boiler for safe disposal. Do not attempt to force beyond the limit stops.*

**All plume management sections must rise by at least 173mm per metre (10°) from the terminal to ensure that condensate flows back into the boiler.**

- 3 ▶ Mark, drill (protecting bend (E) from debris) and fit clamp wall plug (G).
- 4 ▶ Screw clamp (F) into wall plug (G) to the required distance as shown.
- 5 ▶ Push-fit the extension tube (H) as far as possible into bend (E), then withdraw 10mm to allow for expansion.
- 6 ▶ Secure extension (H) to wall with clamp (M) in position shown, using screws (J).
- 7 ▶ Push-fit outlet assembly (L) as far as possible into the extension tube (H).
  - ▶ Rotate the outlet assembly (L) to the direction required and secure to the extension (H) with self-tapping screw (K) supplied.





## EXTENDED PLUME MANAGEMENT INSTALLATION

*NOTE: to ease assembly of the flue components, grease 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.*

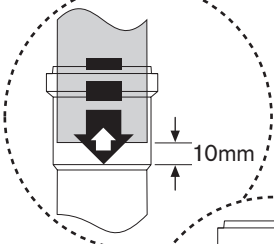
- 1 ▶ Remove screws (C) and discard the complete terminal end (D).
- 2 ▶ Fit the terminal bend (E) to the terminal outlet and secure reusing screws (C).
- 3 ▶ Rotate terminal bend (E) for angled fluing.

**DO NOT rotate the complete flue terminal assembly.**

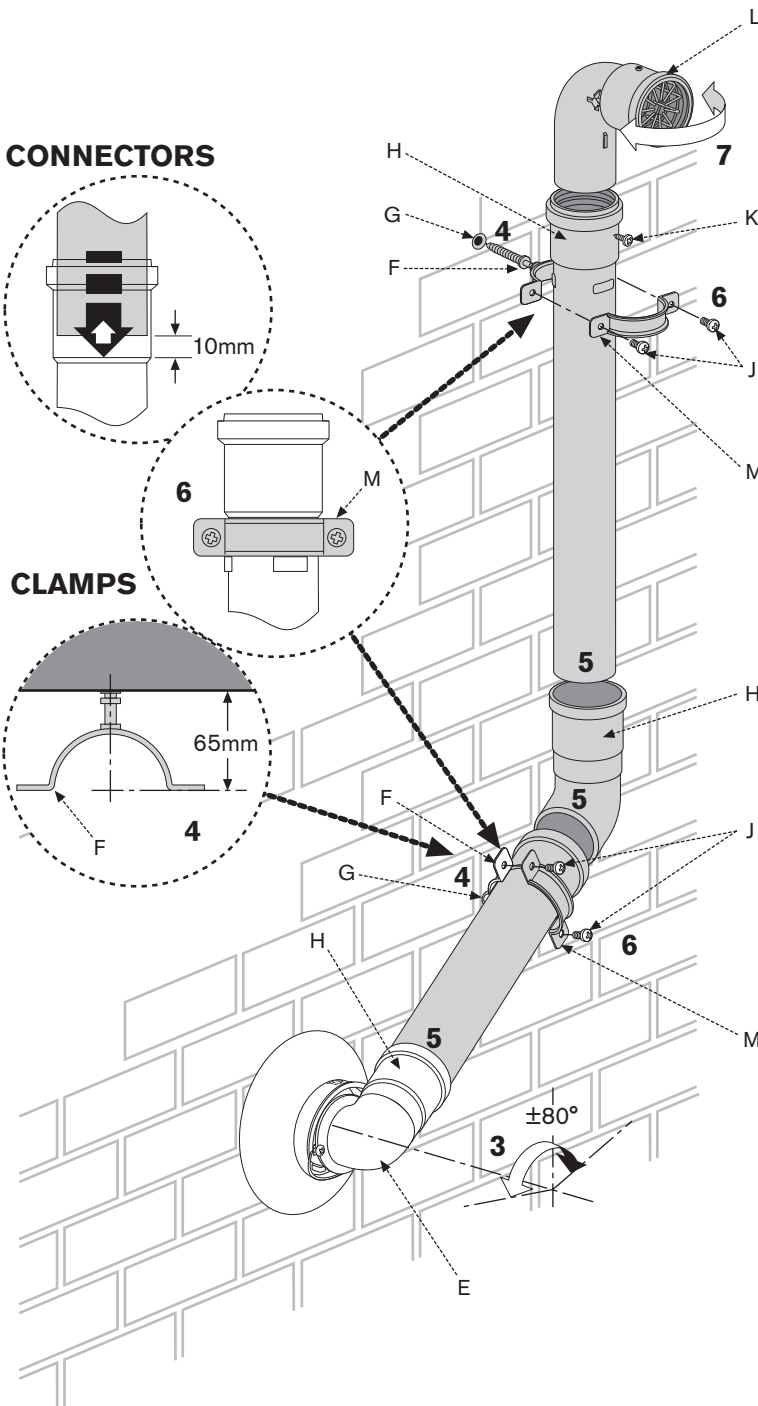
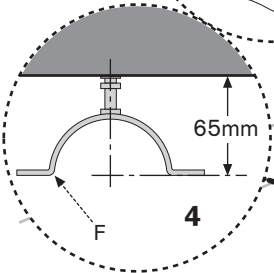
*NOTE: the terminal bend (E) has built-in stops to limit rotation for horizontal fluing to allow condensate to run back into the boiler for safe disposal. Do not force the bend beyond its limit stops.*

**All plume management sections must rise by at least 173mm per metre (10°) from the terminal to ensure that condensate flows back into the boiler.**

### CONNECTORS



### CLAMPS



- 4 ▶ Mark, drill (protecting bend (E) from debris) and fit clamp wall plugs (G).

- ▶ Screw clamps (F) into wall plugs (G) to the required distance as shown.

*Work from the terminal bend (E) connecting and clamping to support the weight of the extensions.*

- 5 ▶ Push-fit the extension tubes/bends as far as possible into the connectors (H), then withdraw each one by 10mm to allow for expansion.

- 6 ▶ Align extension clamps (M) in position as shown and secure with screws (J).

- 7 ▶ Push-fit outlet assembly (L) as far as possible into the extension tube connector (H).

- ▶ Rotate the outlet assembly (L) to the direction required and secure to the extension with self-tapping screw (K) supplied.

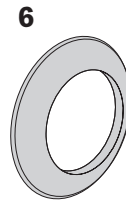
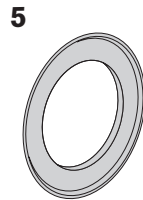
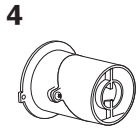
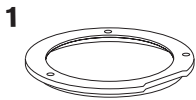
### SERVICING & MAINTENANCE:

An annual visual check of the plume management kit must be observed.

The plume management kit must be visually inspected - annually.

Painting of the plume management kit is not permitted.

DO NOT paint the plume management kit!



### SPARE PARTS:

#### Ø60/100mm Telescopic horizontal flue:

##### 1 Collar - flue turret:

Part No. 8-716-111-254-0

##### 2 Air sample point plug - flue turret:

Part No. 8-716-111-253-0

##### 3 Flue sample point cap with seal - flue turret:

Part No. 8-716-111-252-0

##### 4 Terminal outlet assembly:

Part No. 8-716-111-209-0

##### 5 Wall seal inner:

Part No. 8-716-111-211-0

##### 6 Wall seal outer:

Part No. 8-716-111-212-0

# INSTRUCTION MANUAL

## FLUE KIT INSTALLATION

**[www.worcester-bosch.co.uk](http://www.worcester-bosch.co.uk)**

**Worcester, Bosch Group**

**Cotswold Way, Warndon, Worcester WR4 9SW**

Part Number: 8-716-111-256c (03.07)

*Worcester, Bosch Group is a trading name of BBT Thermotechnology UK Ltd.*

