

**OPERATING INSTRUCTIONS
AND
INSTALLATION PROCEDURES
FOR**



VULCAN
HYDRAFLAME OIL HEATER

MODEL 301 CONSOLE AND MODEL 302 INBUILT

J. S. MUIR

2271 3-6-64

SOMERS.



Manufactured by
VULCAN ELECTRICS PTY. LTD.

125 Highbury Rd., Burwood, Vic.

All enquiries regarding sales, installations and service to: OIL HEATING DIVISION, 28 0271

FOR THE PURCHASER

Page

Guarantee Coupon	Front insert
Operating Instructions	3
Important Points to Watch	4

FOR THE INSTALLER

Cleaning the Heater	4
Oil Storage Installations	6
Electrical Installation	7
Inbuilt Fireplace Installation	9
Console Fireplace Installation	11
Outside Wall Installation	12
Inside Wall Installation	13
Testing the Heater	14
Removal and Service of the Oil Control Valve Assembly	15
Removal of the Twin Rotor Air Flow Assembly	17
The Trouble Shooting Chart	8

VULCAN HYDRAFLAME OIL HEATER MODEL 301 CONSOLE



Fig. 1

Red ignition
light (behind mesh).

"OIL" CONTROL

"AIR" CONTROL

RESET BUTTON

TWIN ROTOR SWITCH

Removable oil-proof tray.
(Pull out sideways.)

CUTAWAY ILLUSTRATION MODEL 302 INBUILT MECHANICAL DETAIL IS THE SAME FOR MODEL 301 CONSOLE

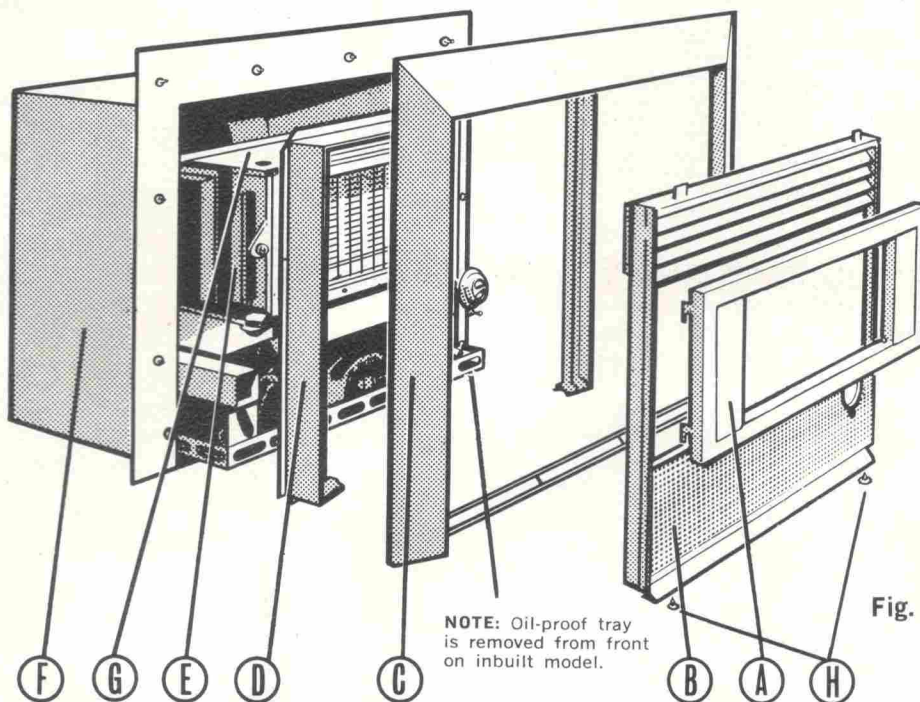


Fig. 2

NOTE: Oil-proof tray
is removed from front
on inbuilt model.

- | | |
|-----------------------------|-----------------------------------|
| (A) WINDOW PANEL | (E) INTERIOR ASSEMBLY |
| (B) COMPLETE FRONT ASSEMBLY | (F) OUTER CASE |
| (C) SURROUND | (G) DRAUGHT TESTING HOLE |
| (D) FRONT NOSE | (H) FRONT GRILLE RETAINING SCREWS |

VISUAL FLAME TUNING

FOR HIGHEST EFFICIENCY

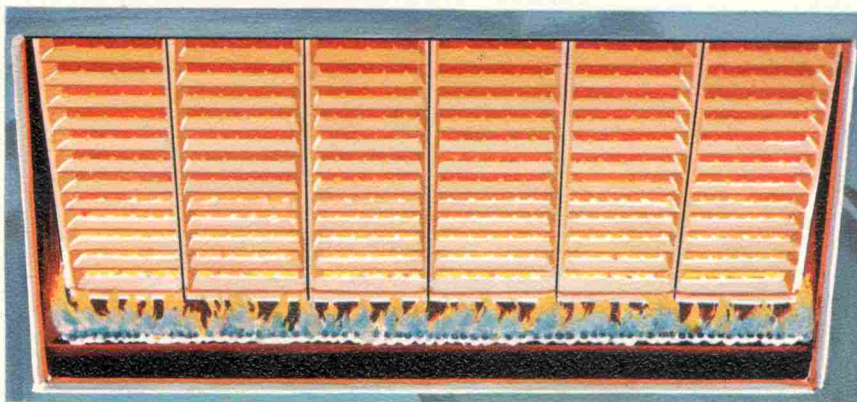
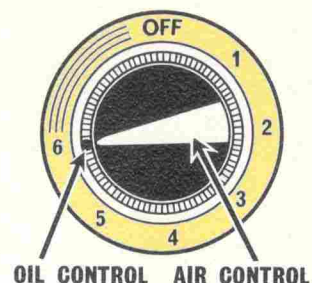


FIG. 3 RIGHT Blue flame with yellow tips.



RIGHT SETTING

Oil and air knobs approximately together.

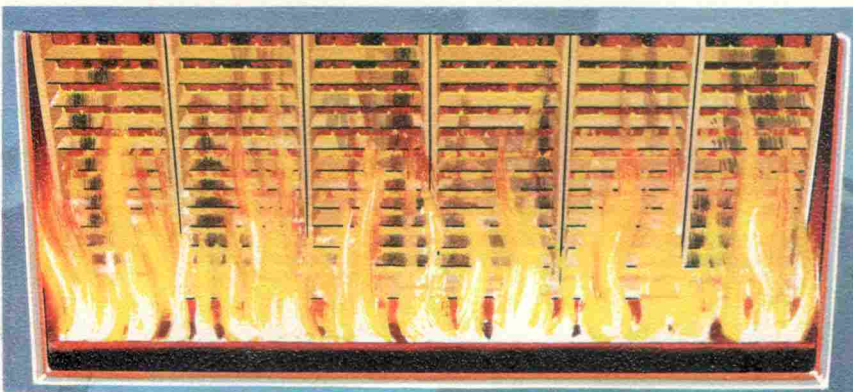
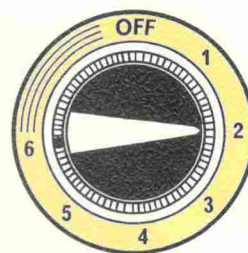


FIG. 4 WRONG High smoky yellow flame indicates too little draught and causes sooting up of radiants. Increase draught knob until correct flame picture (Fig. 3) appears.



WRONG SETTING

Oil knob on 6" and air knob on much lower setting resulting in too little draught.

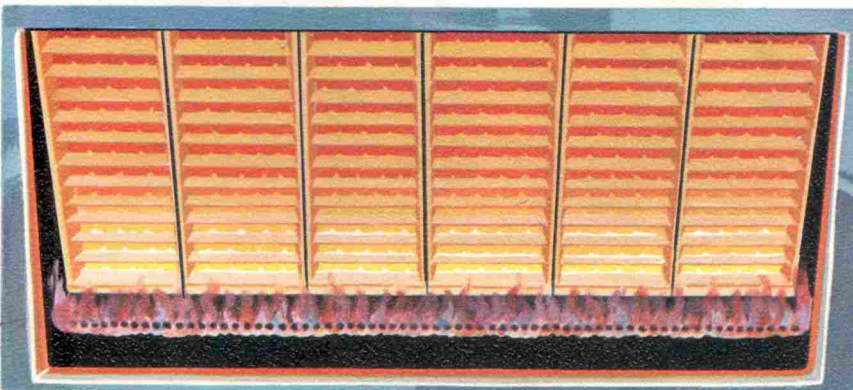
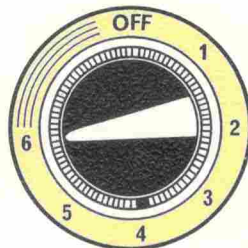


FIG. 5 WRONG Reddish/purple flame indicates excessive draught, causing carbon in burner. Reduce draught knob until correct flame (Fig. 3) appears.



WRONG SETTING

Air knob on 6" and oil knob on lower setting resulting in excessive draught.

OPERATING INSTRUCTIONS

Lighting the Heater

NOTE:

The first lighting will probably be slow, due to the time taken for the oil to fill the fuel line and the oil control valve.

1. Make sure that the storage tank contains sufficient heating oil for correct operation (a minimum of 8 gallons).
2. Turn on the tap at the tank outside.
3. Make sure that the power point or isolating switch installed by the electrician is "on". Switch the twin rotor air circulator "off" (Figure 1, Page 1).
4. Place the "oil" knob on **position 2** and the "air" knob on **position 2**. The red ignition light must now appear behind the grille on the left-hand side. If this fails to appear, turn off the oil control immediately and refer to Trouble Shooting Chart Fault 1 on Page 18.
5. Push in firmly the re-set button under the control knobs. This operates with an audible "click".
6. After 4 or 5 minutes, ignition will have taken place and the flames will appear on the left of the burner under the radiants.
7. Approximately 10 minutes after ignition (or 15 minutes after starting the unit), the red ignition light will switch itself off automatically and the flames will spread across the burner.
8. A few minutes after the flames have spread across the burner, they will begin to drop from the top row of holes. The heater is now ready to be adjusted to any setting required.

NOTE:

Do not increase the setting of the heater above Setting 2 until the flames have dropped, as indicated in Point 8.

9. The heater will take approximately 30 minutes after starting to stabilize completely. Fine tuning of the air control (described opposite) may then be carried out.

Operation of the Heater

1. To turn the heater up or down, increase or decrease the oil control setting, but leave the air control setting on the previous position for approximately 2 minutes before adjustment.
2. The correct flame picture on higher settings, as illustrated on Figure 3 opposite, is a bank of blue jets with occasional light yellow tips which impinge on the bottom of the radiants. When this flame picture is obtained, the saving in running cost gained by the very high efficiency of the combustion amounts to an average of 3d. per gallon for every gallon of fuel used.
3. A high yellow flame (see Figure 4 opposite) is an indication of lack of sufficient air (or too much oil) and is corrected by turning the "air" knob to a higher setting or decreasing the "oil" knob to a lower setting until the correct flame picture appears.
4. A reddish-purple flame (see Figure 5 opposite) indicates excessive draught (or insufficient oil) and is rectified by turning the "air" knob to a lower setting or increasing the "oil" knob to a higher setting until the correct flame picture is obtained.
5. If the above procedures do not give the correct flame picture, refer to the Trouble Shooting Chart, Points 7, 11 and 12.
6. When adjusting the controls to achieve the correct flame picture, it is necessary to allow a few minutes between adjustments to give the burner time to stabilize again.

To Turn the Heater Off

Turn the oil control knob back to the "off" position and then 2 minutes later the air control knob may also be turned off.

Note: It is important, when turning the heater off, that both "air" and "oil" knobs are not turned off simultaneously.

IMPORTANT POINTS FOR THE PURCHASER

1. All Vulcan oil heaters operate satisfactorily on recognised domestic heating oils — for instance, BP Heating Oil.
2. **Never** attempt to relight the heater whilst it is hot. Ignition is automatically switched off when the heater is hot and will only operate after the heater has cooled down. The ignition light will not come on until the ignition is ready to operate.
3. If, after 10 minutes, ignition has not taken place, refer to the Trouble Shooting Chart, Point 11, Page 21.
4. When the heater is turned up too quickly, or lit in a flooded condition (see Points 3 and 2 (c), Pages 18 and 19 in Trouble Shooting Chart) an unusual whoofing noise and high yellow flames and black soot may occur as the excessive oil burns. If this occurs **do not become alarmed, but merely turn the "oil" and "air" knobs down until the noise ceases**. If the ignition is still on turn the power point or isolating switch off. Should this noise occur on each occasion the heater is lit, please notify the manufacturer.
5. When winter is over, do not forget to turn off the tap at the tank. Do this also during winter holidays and when the heater is not in use for a period of time.
6. **Never drape clothes**, etc., over the heater, nor place them on a clothes-horse closer than 6' away.
7. The twin rotor silent air flow unit increases air circulation and may be switched on or off at any time. It is usually used when the heater is burning on a high setting. However, the heater performs satisfactorily with or without the rotor operating.
8. It should be noted that any accumulation of black soot on the radiants will burn off quickly when the flame is correctly adjusted.

Cleaning the Heater

A registered installer should check your Hydraflame and, if necessary, clean out the burner at the beginning of each season.

The procedure is as follows:

1. Remove the complete front of the heater (see A and B, Figure 2, Page 1). The front is removed by loosening two screws marked "H", Figure 2.
2. Remove (1) indicator light box (D, Figure 6), (2) ignition bar assembly (C, Figure 6), (3) the heat shields and baffle (A, Figure 6).
3. Unscrew the two brass retaining nuts (E, Figure 6, Page 5) and remove the front glass window.
4. Remove the radiants and the cast iron radiant support bar.
5. Unscrew and remove the three brass slotted nuts (A, Figure 10, Page 7), retaining the ignition system on the left-hand side of the burner. Lift breather tube (L) clear of the ignition cover. Disconnect ignition wires at the terminals (B). Open the small gate (Figure 11) by sliding upwards. Insert a medium-sized screwdriver between the inner cap and the burner and twist. The ignition assembly will loosen with a click.
NOTE: It is most important that the ignition assembly is removed very carefully, to avoid damage.
6. Remove the baffle retaining screws (Figure 8) on both ends of the burner.
7. Remove the burner baffles, using a piece of wire (see Figure 8).
8. With a wire brush and scraper, remove any carbon deposits from inside the burner and clean out with a vacuum cleaner. The baffles should be wiped very carefully.
9. Clean the ignition assembly carefully around the porcelain and metal components. Do not touch the open spiral.
10. Replace the components as they were removed, and your Hydraflame is ready for another year of trouble-free operation.

CLEANING THE HEATER

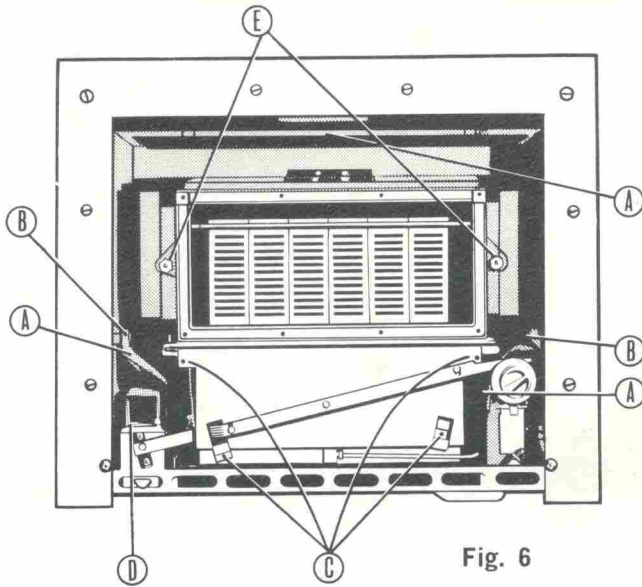


Fig. 6

- (A) Removable heat shields
- (B) Baffle retaining screws.
- (C) Ignition bar assembly retaining screws.
- (D) Indicator light box retaining screw.
- (E) Window assembly retaining nuts

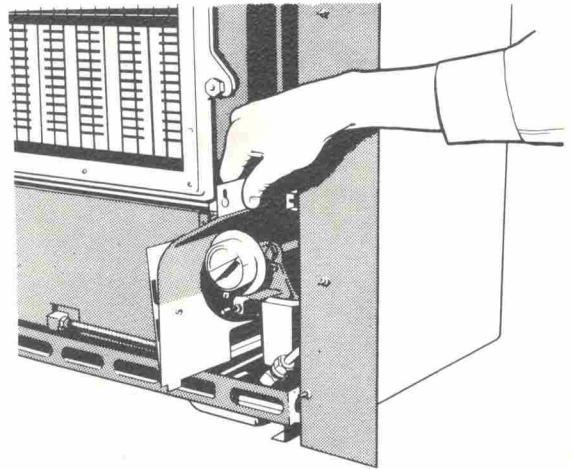


Fig. 7

REMOVAL OF SIDE HEAT SHIELDS

REMOVING THE BAFFLES

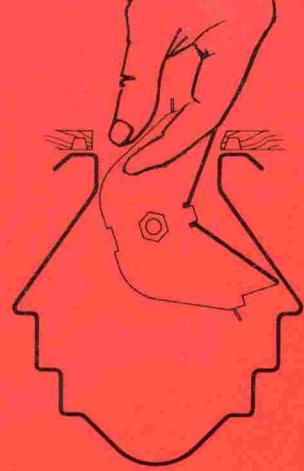
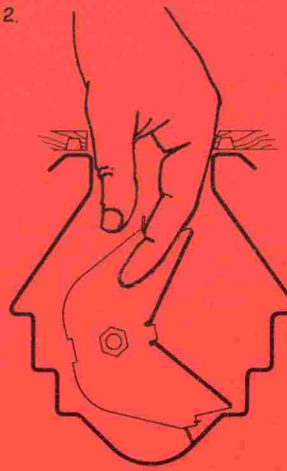
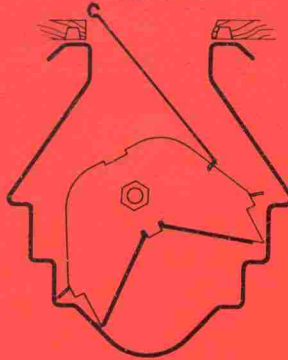
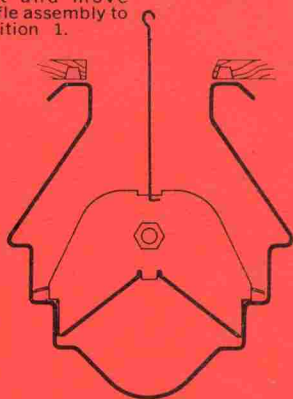
1.

2.

3.

Lift and move baffle assembly to position 1.

Locate wire in side hole, turn baffle assembly to position 2.

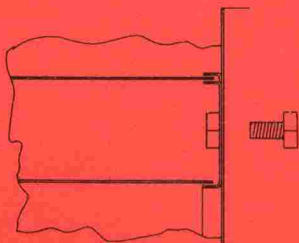


Two shut-off plates, top and bottom baffles placed into burner as an assembly.

Shut-off plates then held to burner ends by bolts.

When replacing the burner baffles and end plates, it is important that the end plates are pushed firmly downwards when the end bolts are tightened.

NOTE: Glow plug assembly must be removed prior to removing baffles.



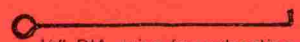
 1/8" DIA. wire for extraction.

Fig. 8

INSTALLATION PROCEDURES

Oil Storage Installation, Figure 9

Note:

Several types of oil storage tanks are available and these should be installed in accordance with the following instructions:

1. The height from the floor to the centre of the tank should be a minimum of 3'. The top of the tank must **never** exceed 7' above the floor.
2. Always use "Flexment" or a similar sealing cement when making joins in the fuel line.
3. The copper fuel line should be free from kinks and should rise evenly from its lowest point to both the tank and the unit. Use copper saddles for fixing the fuel line, as nails will damage the copper tube.
4. When using a tank or stand mounted on the ground, make absolutely sure that the tank is level and that the concrete strips or slabs are firm in the ground. This will eliminate the dangerous possibility of a tank falling over.
5. **The fuel line connection must be made direct to the fitting in the front of the heater. A flexible connector must not be used under any circumstances.**
6. The tank must be fitted with an approved "breather".

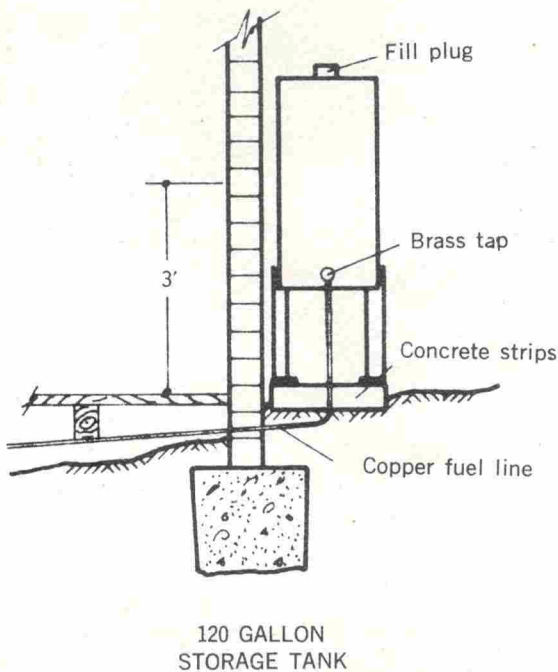


Fig. 9

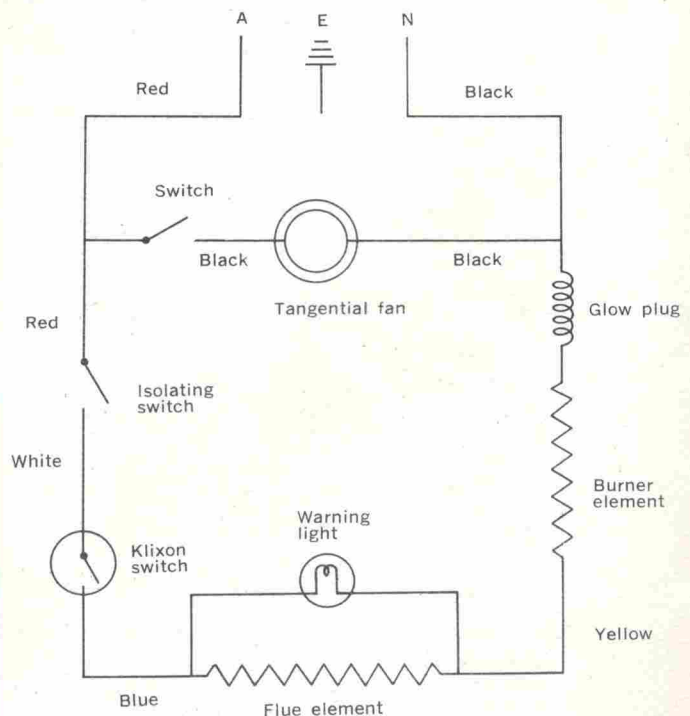


Fig. 10A

ELECTRICAL INSTALLATION

(Wiring diagram is shown on bottom of Page 6)

Model 301 Console Heater

The Hydraflame console is fitted with 24" of heavy-duty flex with a special moulded three-pin plug on the end. **This must not be altered or interfered with under any circumstances.** It is mandatory that a qualified electrician installs a combination switch and power point within reach of the flex on the heater and that the active and neutral connections to the power point from the switch are correct.

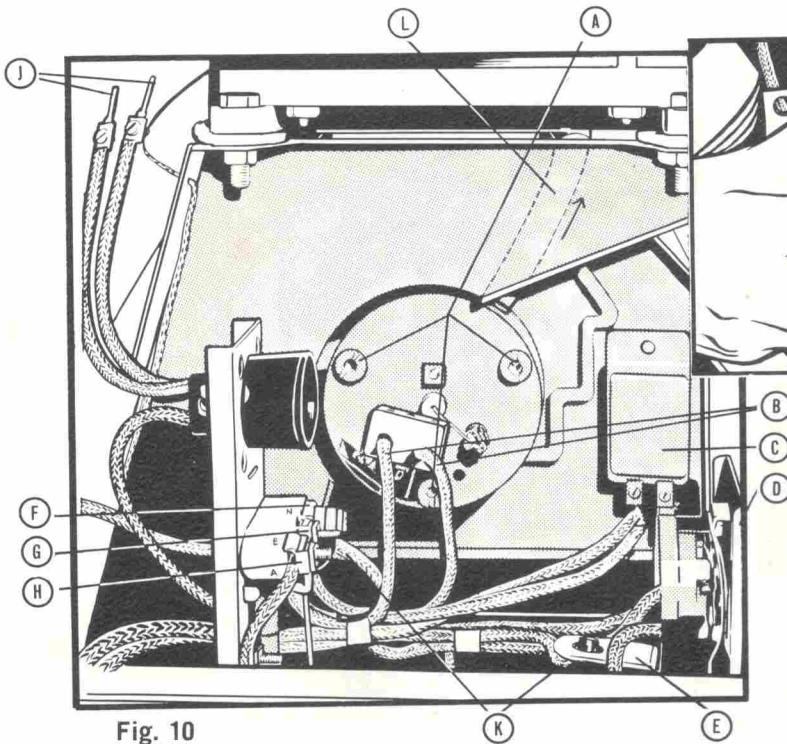


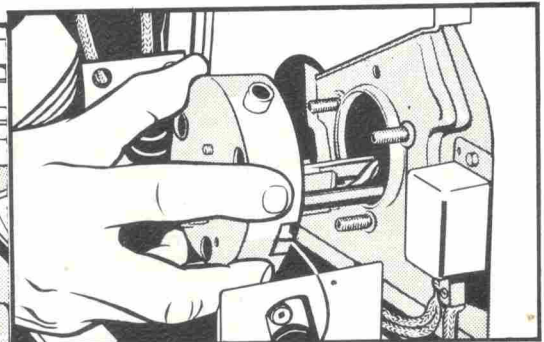
Fig. 10

- | | |
|--|---------------------------------|
| (A) IGNITION ASSEMBLY RETAINING SCREWS | (F) NEUTRAL TERMINAL |
| (B) IGNITION WIRING TERMINALS | (G) EARTH TERMINAL |
| (C) AUTOMATIC CUT-OUT SWITCH | (H) ACTIVE TERMINAL |
| (D) IGNITION "ON-OFF" SWITCH | (J) DRAUGHT ELEMENT TERMINALS |
| (E) TWIN ROTOR "ON-OFF" SWITCH | (K) TWIN ROTOR WIRING TERMINALS |
| | (L) IGNITION "BREATHING" TUBE |

NOTE:

No alternatives are permitted for the wiring of these heaters.

Temporary electrical connections and extension cords to existing power points will be unsatisfactory and the Guarantee on the appliance will automatically be void unless the correct specified electrical connections are made.



Sliding gate
(for removal of
ignition assembly).

Fig. 11

Model 302 Inbuilt

This model has an electrical connection terminal on the left-hand side, which is exposed once the baffles are removed (see Figure 10). It is mandatory that the active and neutral connections are correctly made. The electrician must install an isolating switch in the proximity of the heater, into which the inbuilt heater is wired.

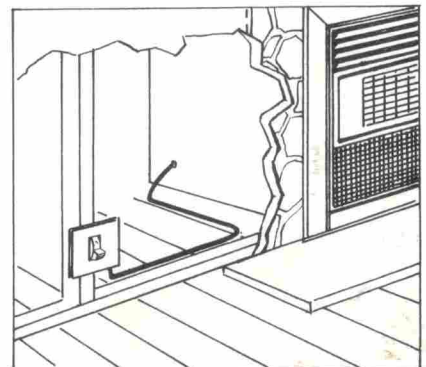


Fig. 12

ALL JOINTS IN FLUE PIPE SHOULD BE
SEALED WITH MASKING TAPE
TO PREVENT AIR LEAKS

SUITABLE FIREPLACE DIMENSIONS

Fireplace openings not requiring alteration are:

Height	Minimum 24"	Maximum 27½"
Width	Minimum 27"	Maximum 34"
Depth	Minimum 18"	Maximum 24"

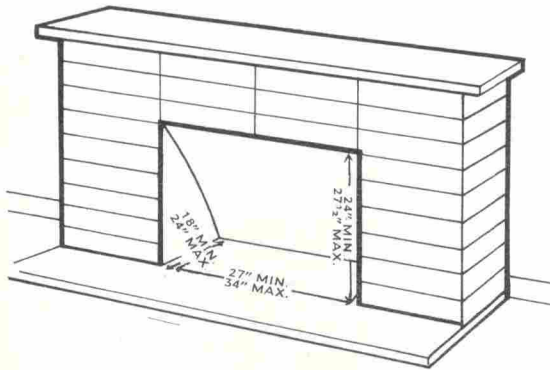
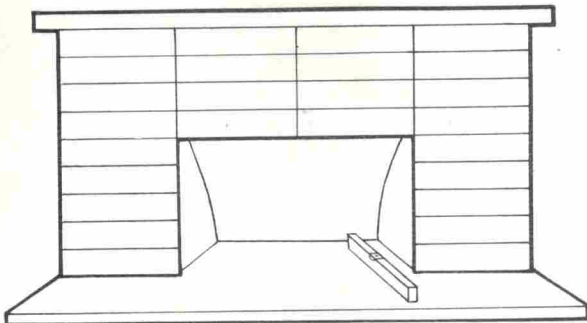


Fig. 13



HEARTH MUST BE MADE FLAT AND LEVEL

Fig. 15

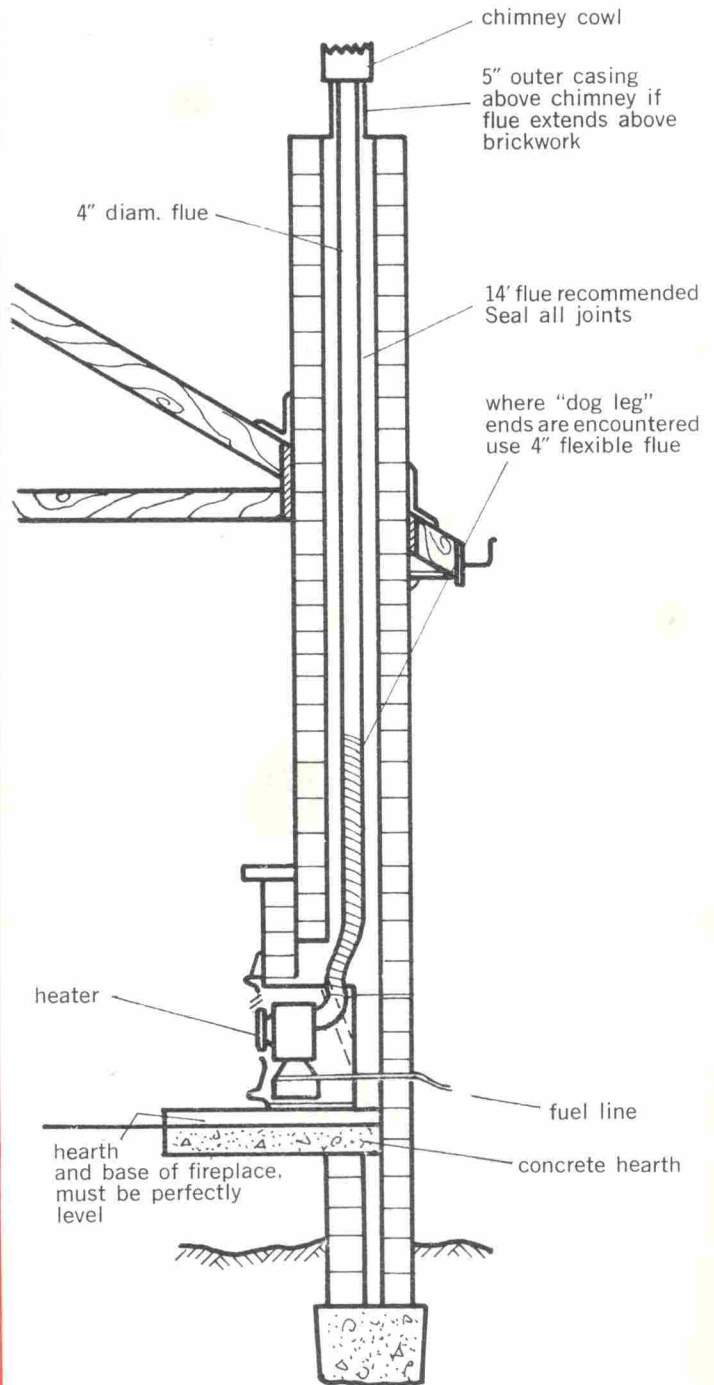


Fig. 14

INBUILT FIREPLACE INSTALLATION

(see Figure 15, opposite)

Note: Details of suitable fireplace openings are shown opposite (Figure 13).

1. Remove the sloping bricks at the back of the fireplace and the hobs from the base of the fireplace. **The base must be perfectly level with the hearth** and, in the case of the base of the fireplace being below the hearth, this must be brought up to the correct level by using bricks and mortar (Figure 15).
2. Insert into the chimney (possibly from the top) a minimum of 14' of 4" flue. This will include the 4' of special flexible flue provided with the heater. This flexible flue **must** be used where there are "dog legs" and the chimney is not perfectly straight (see Figure 14). All flue joins must be sealed with masking tape or fireproof cement to prevent air leaks.
3. Remove the heater from its outside case (see E, Figure 2, Page 1).
4. Install the empty outside case (F, Figure 2, Page 1) into the fireplace, making absolutely certain that the case is **level all ways**. Should the fireplace front not be plumb, this should be ignored, as it is essential that the outside case of the heater is perfectly level, to ensure the correct operation of the unit. Bring the fuel line in from the rear to the front right-hand side (see Figure 16, Page 10).
5. Fasten the outside case to the fireplace with screw-ins or small loxins (as shown in Figure 16 or Figure 19).
6. Bring the end of the 4" flue in the chimney approximately 2" into the installed outer case of the heater.
7. Slide the heater back into its case and connect the flue (as shown in Figure 18). Drill a hole through the flue into the flue outlet on the heater and fasten into position with self-tapping screws as shown. This join should also be sealed with fireproof cement.
8. The fuel line connection may now be made (as shown in Figure 17).
9. Replace top and side baffles (Figures 19 and 7), ensuring that the baffles are correctly located in the slots provided in the base of the heater.
10. Refit the front nose of the heater case D and then the front surround C (as shown in Figure 2, Page 1).
11. The top of the chimney must be sealed correctly (as shown in Figure 21, Page 15).

NOTE: A diagram showing methods of sealing the chimney top is attached to the top of the inbuilt heater.

12. Light and test the heater as indicated on Page 14.

INBUILT FIREPLACE INSTALLATION

NOTE:

- (a) $\frac{3}{16}$ or $\frac{1}{4}$ asbestos rope should be used to seal between the case and the brickwork to prevent vibration and air leaks.
- (b) It is also advisable to pack between the outer case and the brickwork inside the fireplace with timber blocks packed with insulation, also in order to prevent possible vibration of the case inside the fireplace.

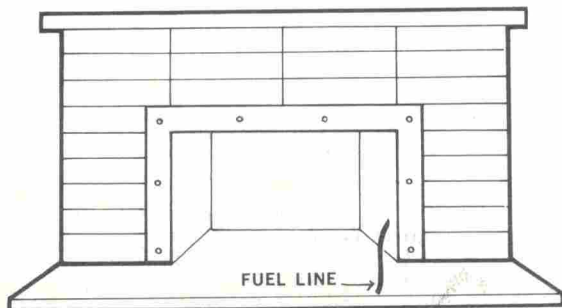


Fig. 16

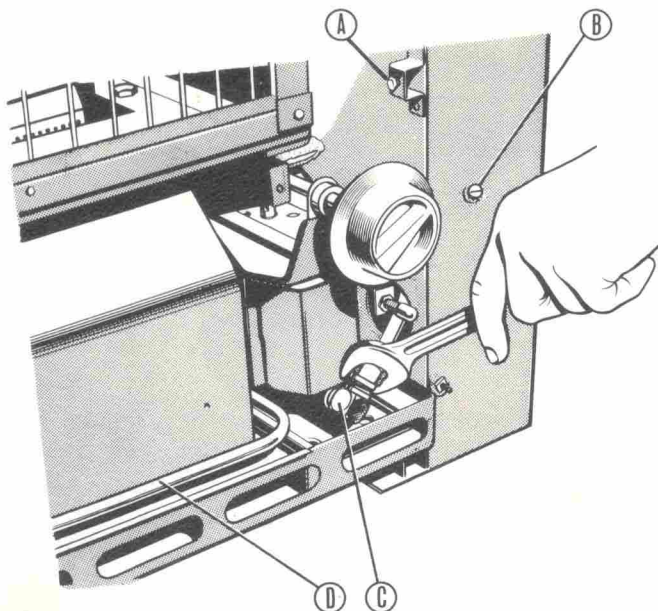


Fig. 17

- (A) Baffle retaining screw.
- (B) Screw fastening outer casing to fireplace.
- (C) 5/16" oil line connection.
- (D) Fuel line from oil control to burner.

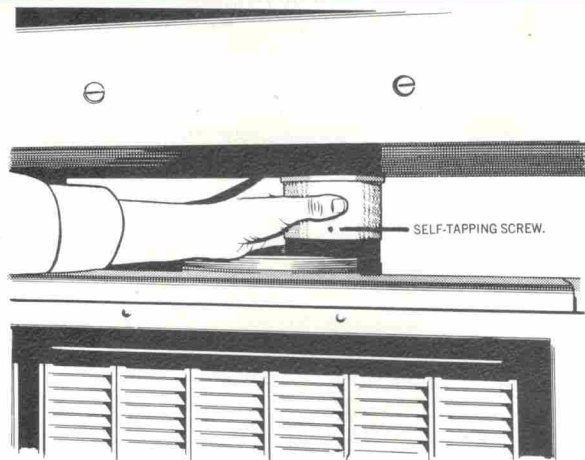


Fig. 18

SECURE THE FLUE ON TO THE FLUE OUTLET FIRMLY
AND FASTEN WITH SELF-TAPPING SCREW

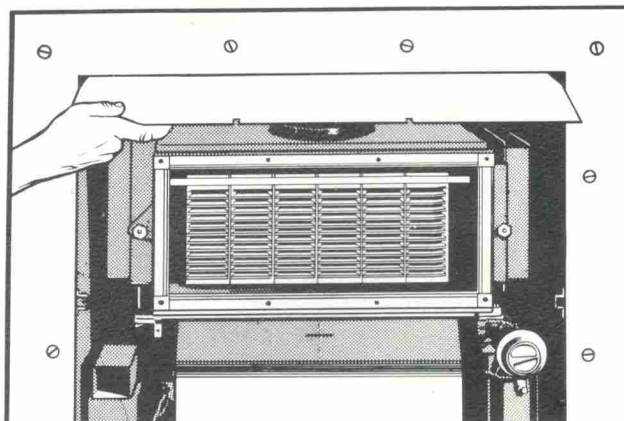


Fig. 19

REMOVAL OF TOP BAFFLE ASSEMBLY

CONSOLE FIREPLACE INSTALLATION

1. Remove the sloping bricks at the back of the fireplace.
2. Insert a minimum of 14' of flue into the chimney. Where "dog legs" are encountered, use 4" flexible flue, which is readily obtainable. Seal flue joints with masking tape or fireproof cement to eliminate air leaks.
3. Pop-rivet the special Vulcan bend to the bottom of the flue and prop this in position using bricks from the fireplace.
4. Frame-up the fireplace opening with timber.
5. Cut a register plate out of galvanized iron or other suitable fireproof material and screw this in position to the wooden frame. Make certain that the horizontal section of the bend is precisely at the correct height. Bring the fuel line through the register plate into the room on right-hand side of unit.
6. Cut off the excess flue in front of the register plate, but allow 2" to protrude forward of the **front of the fireplace**.
7. Place the heater in position into the flue, and connect up the fuel line (see Figure 17, opposite), which will come in through the back of the heater into the oil control connection.
8. Cement the cowl plate into position on top of the chimney with waterproof cement to eliminate the entry of water into the chimney. The 4" chimney flue should extend approximately 1" above the top of the cowl plate to enable this to be located correctly inside the cowl (Figure 21).
In case of the chimney being too short to allow for 14' of flue, a 5" extension piece may be placed on the cowl plate, the 4" flue extended up to the same height and the cowl fitted as above (Figure 21).
9. Light and test the heater as indicated on Page 14.

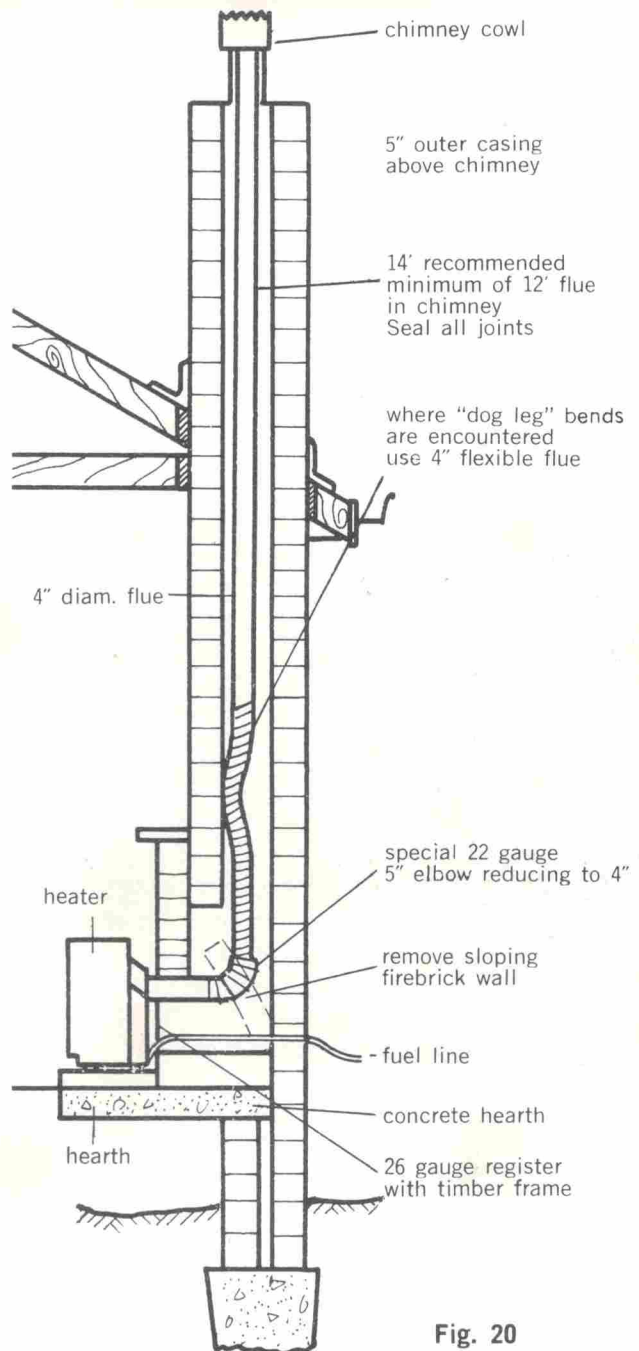
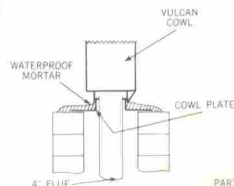


Fig. 20

THE TOP OF THE CHIMNEY MUST BE SEALED OFF COMPLETELY AROUND THE FLUE COWL PLATE WITH WATERPROOF MORTAR

WHERE CHIMNEY IS OF SUFFICIENT HEIGHT



WHERE FLUE HAS TO BE EXTENDED ABOVE CHIMNEY

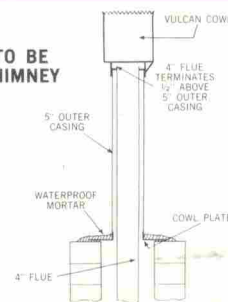


Fig. 21

OUTSIDE WALL INSTALLATION

(see illustration opposite)

1. Select the approximate position for the heater, but first make sure there are no timber roof members in the position where the flue will pass through the eave.
2. Cut a 9" diameter hole out of the inside plaster wall and the same circle out of the outside weatherboards. In the case of an outside brick wall, a 5¼" hole is all that is necessary.
3. Fasten the insulating sleeve into position with toggle bolts, or screws if there is a timber frame behind the plaster.
4. Cut a 5" diameter hole in the eave, the centre of which is 5½" out from the wall. Remove sufficient roof material above the hole for the flue to pass through.
5. Join together a minimum of 14' of 4" flue and fit this on to the Vulcan bend, making sure that all joints in the 4" flue are sealed with masking tape or fireproof cement. Fit a similar length of 5" flue on to the special ring on the Vulcan bend and using pop-rivets or self-tapping screws fasten the whole flue system in position. The 4" inner flue should protrude approximately 1" above the 5" outer casing, so that when the Vulcan cowl is fitted the 4" inner flue will then be located correctly inside the cowl. Note: No sealing is required for the outer flue casing.

6. Important

Insulate around the outer casing in the eave, making sure that all timber in the eave within 9" of the flue is properly insulated with mineral wool insulation.

7. Slide the heater into position in the flue and connect the copper fuel line (as shown on Figure 17, Page 10).
8. Light and test the heater as indicated on Page 14.

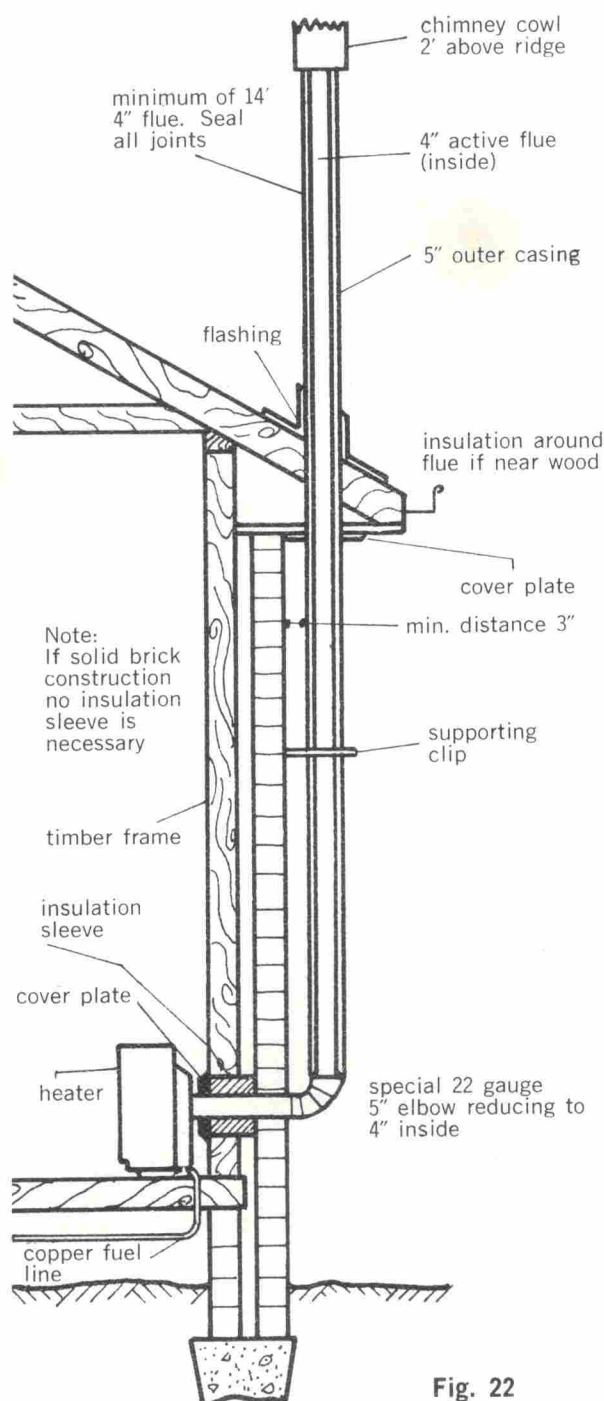


Fig. 22

INSIDE WALL INSTALLATION

(see illustration opposite)

1. Select the approximate position for the heater but first make sure that there are no ceiling joists in the position where the flue would pass through the ceiling. In this type of installation the flue may be offset by using crimped bends to miss timber roof rafters.
2. Cut a 9" diameter hole in the inside wall at the exact position for the flue. In a solid brick wall cut out a 5 1/4" diameter hole.
3. Fasten the insulating sleeve in position with toggle bolts or, where there is timber frame behind the plaster, screws.
4. Cut a 12" diameter hole in the exact position where the flue will pass through the ceiling. The centre of this hole must be 6" to 7" out from the wall.
5. Fasten the floor and ceiling plates.
6. Place in position the Vulcan bend and fit to this two lengths of 4" diameter flue. After observing the position of roof rafters, the flue system may then be completed, but it is essential that at least 14' of vertical 4" flue is installed to provide the correct draught for the heater.
7. Complete the flue system making sure that all joints are sealed with fireproof cement or masking tape and that the entire length of flue protruding above the roof is fitted with 5" outer casing.
8. Anchor the flue system firmly in the roof by means of brackets or 20-G metal angle.
9. The 4" inner flue should extend approximately 1" above the 5" outer casing. When the Vulcan cowl is fitted this ensures correct location of the inner flue.

10. Important

Where a flue passes through the ceiling and the roof, at least 2" of mineral wool insulation must be applied to the flue where it passes within 9" of any roof members. If possible, it is desirable that the entire length of flue inside the roof is sleeved with the 5" outer casing.

11. Complete the screens to the flue in the room or cupboard.

12. Light and test the heater as indicated on Page 14.

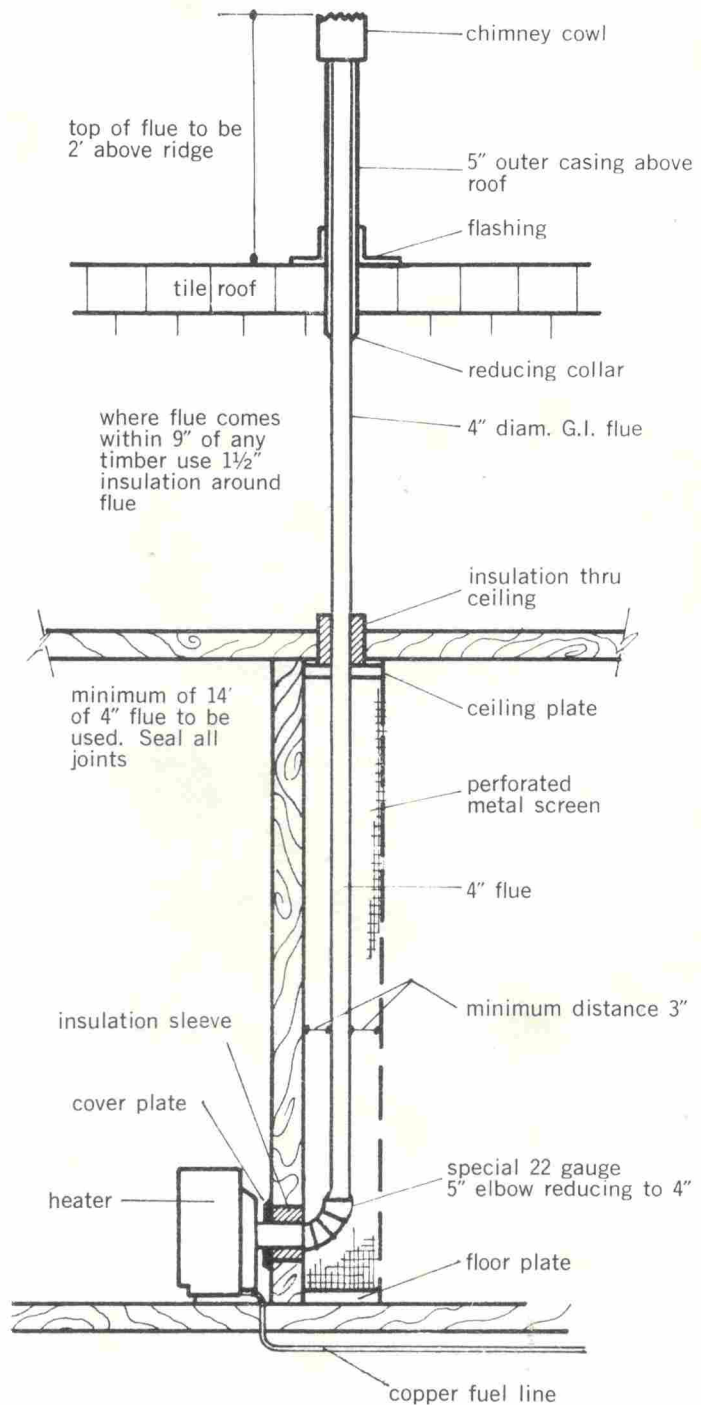


Fig. 23

TESTING THE HEATER

NOTE:

MANOMETER

- (a) Testing cannot be carried out without a draught meter.
- (b) It is essential that the heater has been operating for 30 to 40 minutes before any adjustments are carried out and, whilst adjusting the heater, it is necessary to leave approximately 5 minutes between adjustments to enable the flame to stabilize.
- (c) Testing **should not** be carried out on windy days, because excessive wind creates unstable draught conditions.

1. Light the heater (Page 3).
2. Turn the heater to "full fire" after 10 minutes and leave for 20 minutes for the flue system to heat properly.
3. Testing may now be carried out.
4. Insert the draught meter into the testing hole provided in the top of the heat exchanger (see G, Figure 2, Page 1).
With the "air" knob on maximum, the draught should measure no less than:
.065" water gauge
or
1.65 mm. water gauge (on metric types)

MANOMETER

5. (a) If the draught reading is under
.06" water gauge
1.45 mm. water gauge (on metric types)

the heater **will not** operate correctly and the flue must be checked and, if necessary, extended. It should be noted that bends and joints in the flue tend to reduce draught and these should be kept to a minimum.

If the required draught is not achieved the incorrect burning condition (Figure 4, Page 2) will occur continuously when the heater is turned up to a high setting, resulting in the continuous sooting of the radiants and inefficient burning.

(b) If, with the correct draught of .065" water gauge the oil and air knobs are placed on the "full setting" and the smoky yellow flame (Figure 4, Page 2) occurs continuously, this indicates that the "maximum" oil control adjustment is too high and must be reduced as follows: Insert a small screwdriver into the "max." adjustment screw hole (see B, Figure 25) and turn the screw clockwise half a turn at a time in order to reduce the flow of oil until the correct flame picture (Figure 3, Page 2) appears.

(c) If, on the other hand, with the correct draught of .065"wg and the "oil" and "air" knobs on the full setting, the flame is a reddish purple colour, this indicates that the maximum oil control adjustment is too low. This can be increased by turning the "max." screw (B, Figure 25) anti-clockwise, half a turn at a time until the correct flame picture (Figure 3, Page 2) appears.

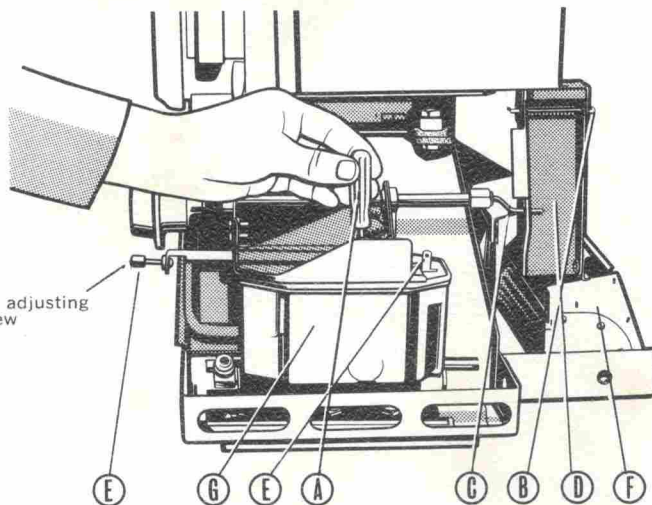
6. On minimum fire, i.e. "air" and "oil" knobs on the No. 1 setting, the heater should burn with a clear blue flame with yellow tips and must just be visible. If the flame is not visible, this indicates that the minimum adjustment on the oil control valve is too low. This may be increased by turning the minimum adjustment screw (Figure F, Page 25) half a turn anti-clockwise at a time (as shown in Figure 24) until the flame is visible. This indicates that the flame is again burning cleanly.

REMOVAL OF THE OIL CONTROL VALVE ASSEMBLY

1. Remove heat shield (Figure 7, Page 5).
2. Disconnect fuel line to heater (C, Figure 17).
3. Disconnect fuel line from control valve to burner (see F, Figure 26).
4. Unscrew oil control assembly retaining screws (see E, Figure 26).
5. The oil control valve assembly may now be removed in its entirety.

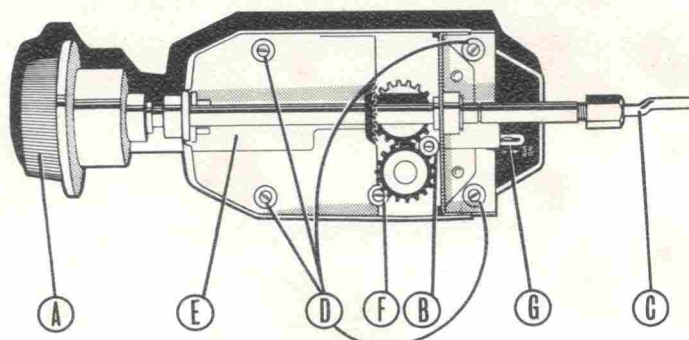
Fig. 24

Push in when adjusting
"maximum" screw



- | | |
|--|--|
| Ⓐ Showing adjustment of "min." oil flow screw. | Ⓔ Oil control "on-off" button & lever. |
| Ⓑ Cotter pin for removal of draught regulation assembly. | Ⓕ Twin rotor assembly. |
| Ⓒ Draught regulation shaft. | Ⓖ Oil control valve assembly. |
| Ⓓ Draught regulation hinge assembly. | |

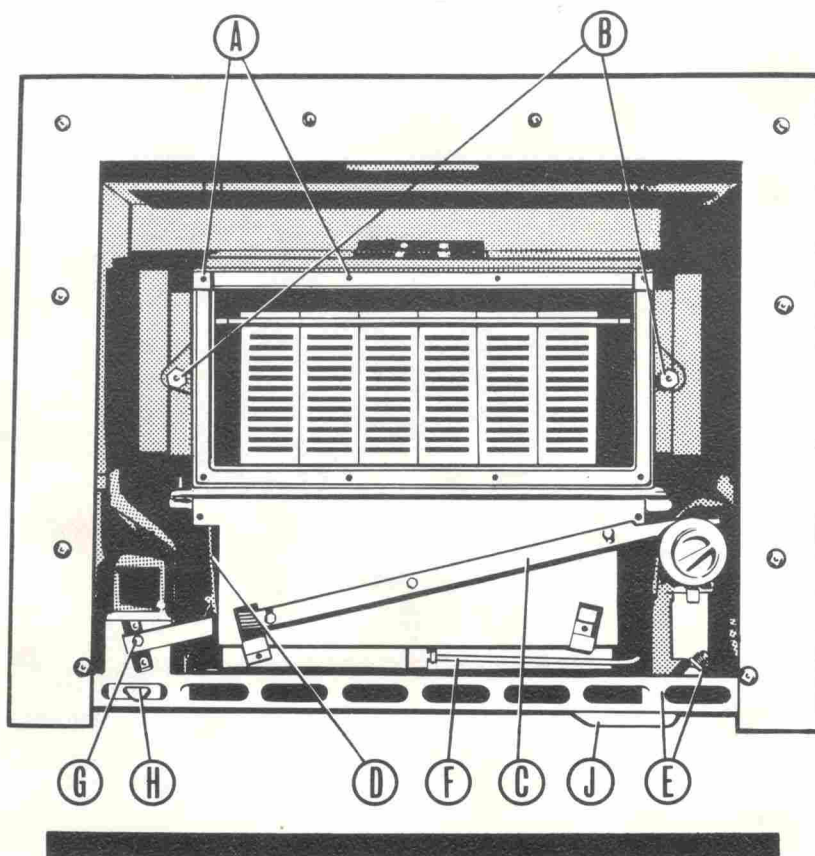
Fig. 25



- | |
|---|
| Ⓐ OIL ADJUSTMENT KNOB. |
| Ⓑ "MAXIMUM" OIL FLOW ADJUSTMENT SCREW. |
| Ⓒ AIR REGULATION SHAFT. |
| Ⓓ OIL CONTROL COVER RETAINING SCREWS. |
| Ⓔ OIL CONTROL "ON-OFF" LEVER OPERATING BAR. |
| Ⓕ "MINIMUM" OIL FLOW ADJUSTMENT SCREW. |
| Ⓖ OIL CONTROL "ON-OFF" LEVER. |

SERVICING THE HEATER cont'd.

Fig. 26



- Ⓐ Window frame retaining screws.
- Ⓑ Window assembly retaining nuts.
- Ⓒ Ignition "on-off" operating bar.
- Ⓓ Return spring.
- Ⓔ Oil control assembly retaining screws.
- Ⓕ Fuel line from oil control to burner.
- Ⓖ Ignition "on-off" switch.
- Ⓗ Twin rotor fan "on-off" switch.
- Ⓙ Removable oil proof tray

REMOVAL OF TWIN-ROTOR AIRFLOW ASSEMBLY

1. Disconnect fuel line connection to heater (see C, Figure 17, Page 10).
2. (a) In the case of the 301 Console move the heater forward.
(b) In the case of the 302 Inbuilt disconnect the electrical connections (see F, G, H, Figure 10) and flue connection (Figure 18) and slide the whole of the heater forward (E, Figure 2, Page 1).
3. The airflow unit may now be removed (as shown in A, Figure 27 below).

Removal of draught regulation assembly. See B1 and 2, Figure 27 below.

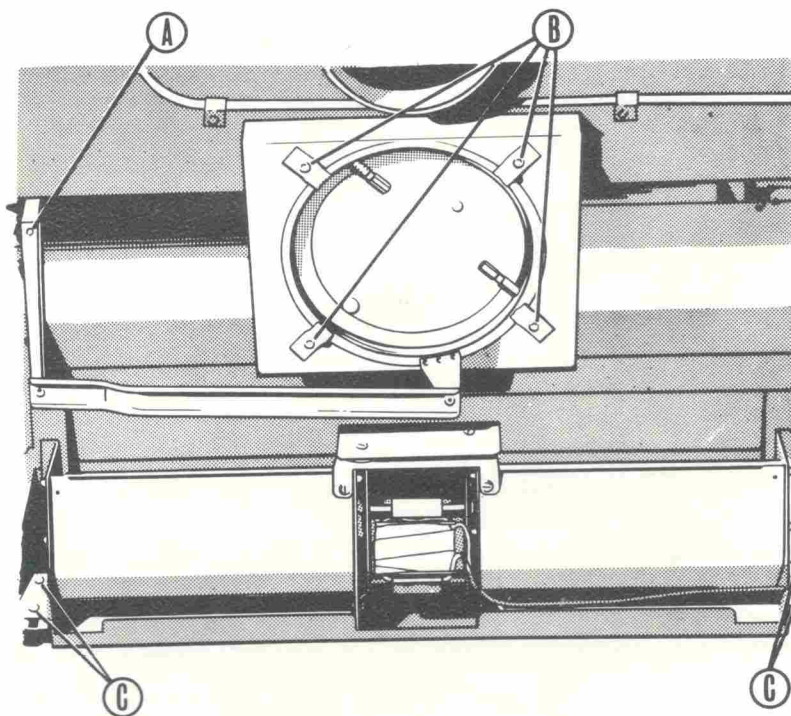


Fig. 27

TO REMOVE TWIN ROTOR ASSEMBLY.

1. Undo 4 screws **C**.
2. Disconnect electrical wires at the side.

TO REMOVE DRAUGHT REGULATION ASSEMBLY.

1. Remove cotter pin **A**.
2. Remove 4 retaining screws **B**.

TROUBLE SHOOTING CHART

NOTE:

Correct flame picture (see Figure 3, Page 2). The correct flame picture on high fire is a blue flame with yellow tips, licking into the radiants. On medium and low fire, the flames should be blue with a slight yellow top. The presence of red or purple in the flame indicates too much draught. The presence of too much yellow on high fire or in the medium or low range settings indicates too little draught and will cause sooting of the radiants.

FAULT	CAUSE	REMEDY
1. Ignition light does not appear when the "oil" knob is switched on.	A. Ignition light blown.	A. Replace ignition light and test ignition.
	B. Ignition operating bar sticking.	B. Remove heater front and check ignition operating bar for free movement.
	C. Isolating switch or power point turned off.	C. Switch isolating switch or power point on.
	D. Break-down in electrical system.	D. Call Vulcan.
2. Glass smokes up (heater burning on "full" setting). Note: (a) Smoke on glass will clear itself after the heater has been turned up to "full" setting for approximately 30 minutes. (b) If desired, the window may be removed, as illustrated in Figure 6, Page 5, E.	A. Down draught caused by incorrect (or absence of) cowl.	A. Check flue and cowl installation.
	B. Air knob on lower setting than oil knob, resulting in excessive "oil" to "air" mixture.	B. Increase air knob until correct flame picture appears.
	C. Heater lit in flooded condition.	C. Follow the lighting instructions carefully.
	D. High fire adjustment too high.	D. Call installer. Reduce "max." oil adjustment until the correct flame picture appears.

TROUBLE SHOOTING CHART

FAULT	CAUSE	REMEDY
2a. Glass smokes up (heater burning on No. 1 setting).	E. Minimum oil adjustment screw adjusted too low, resulting in insufficient oil flow on the No. 1 setting to achieve good combustion.	E. Call installer. Increase "min." adjustment screw "F" (see Figures 24 and 25, Page 15) until smokeless combustion is achieved on the No. 1 setting (with draught also set on No. 1).
	F. Heater run out of oil and automatically re-ignites itself with burner in flooded condition after the storage tank outside has been filled.	F. Always ensure an adequate supply of heating oil.
3. Burner and oil control valve flood with oil.	A. "Creep" over very long periods.	A. This occurs sometimes during late summer when the heater has been turned off for very long periods. Be sure to turn the storage tank off at the end of winter and at holiday time.
	B. Storage tank installed too high above the floor.	B. An installation fault. The maximum height of the top of the tank above the floor must never exceed 7'. Call the installer.
	C. No air vent in storage tank.	C. An installation fault. Call the installer.
	D. Faulty oil control valve.	D. Call Vulcan.
4. Soft soot accumulation on the radiants.	A. See Fault 2 (A, B, C and D).	A. See Fault 2 (A, B, C and D).
	B. Air control mechanism faulty.	B. Call Vulcan.

TROUBLE SHOOTING CHART

FAULT	CAUSE	REMEDY
5. Hard carbon build-up in burner (as distinct from soft soot in the heat exchanger [above]). Note: The Hydraflame should never develop hard carbon in the burner if the operating instructions are followed carefully.	A. Heater left to burn for long periods with an excessive "air" to "oil" mixture (for instance, the oil knob on setting 2 and the draught knob on setting 5 or 6).	A. Always adjust the oil and air knobs so that the correct flame picture (see Figure 3, Page 2) is obtained.
6. Flame fluctuates up and down.	A. Heater turned up to the "full" setting too quickly, without time for the burner to stabilize.	A. Follow the lighting instructions carefully.
7. Heater rumbles. Note: Under normal circumstances, if this noise occurs, turn the "oil" and "air" knobs down and if the ignition light is still on, turn off the isolating switch or power point supplying the heater.	A. Heater lit in a flooded condition or turned up too quickly.	A. Follow the lighting instructions carefully.
	B. Too much draught.	B. This rumbling is usually accompanied by a reddish-purple flame in the burner (Figure 5, Page 2). Adjust the draught knob, until the correct flame picture appears. In case of very excessive draught (over 2" W.G.) fit a second draught breaker to the flue.
8. Heater flares continuously, with a high yellow flame, after 25-30 minutes of burning on the "full" setting. Note: In the case of Cause C the heater may still be operated by turning the power point or isolating switch "off", which will enable the heater to be operated normally, until such time as the service man arrives.	A. Maximum oil adjustment far too high.	A. Call the installer.
	B. Electric ignition circuit not cutting out automatically.	B. Call Vulcan.
	C. Faulty oil control valve.	C. Call the installer or Vulcan.
9. Twin rotor air flow unit does not operate when switched on.	A. Outside power failure or blown fuse.	A. Call Electricity Department or electrician.
	B. Electrical breakdown in unit.	B. Call Vulcan.

TROUBLE SHOOTING CHART

FAULT	CAUSE	REMEDY
10. Persistent oil smell from heater.	A. Leaky oil line connection: (a) at oil control, (b) at incoming oil line connection, (c) at connection from oil control valve to burner.	A. Call the installer or Vulcan. Turn the heater off at the outside tank.
	B. Oil spilled on the floor or carpet in front of the heater at the time of installation.	B. Clean carpet.
	C. Faulty heater.	C. Call Vulcan.
11. Heater will not start. Ignition light "on". Note: If the ignition light fails to operate, this may not necessarily mean that the ignition system has broken down. Check to see if the cause is a blown ignition light or lack of power at the power point or isolating switch. Ignition light "off".	A. Tank empty.	A. Call the oil company.
	B. Tank tap turned "off".	B. Turn tank tap "on".
	C. Reset button has not been pushed.	C. Follow the lighting instructions carefully.
	D. Fuel line blocked.	D. Call installer.
	E. Outside power failure.	E. Call Electricity Department.
	F. Electrical fault in unit.	F. Call Vulcan.
12. Flame burns with a reddish-purple colour continuously.	A. Excessive draught or gusty high winds.	A. Adjust the air knob until the correct flame picture appears. In case of very excessive draught (over .2" W.G.) fit a second draught bracket to the flue. DRAUGHTER ←
13. Flame burns yellow continuously in certain areas (even after the air knob has been adjusted).	A. Door not properly closed.	A. Tighten up door nuts "E" (see Figure 6, Page 9). ↑ PAGE 5



VULCAN

OIL HEATERS OF THE 60's