

Installation & Maintenance Manual

Series NOL fully automatic oil burner Models NOL13/NOL16

Oil Burner

Handbook

Series NOL fully automatic oil burners Models NOL13/NOL16

BURNER CAPACITY

The Nu-way NOL13 and NOL16 pressure jet burners are designed to meet the requirements of all international markets, and have a maximum output of 333 kW on/off burners and 346 kW high/low burners. The NOL13 is able to fire, at reduced thermal output, appliances having resistances as listed under the burner selection chart. The units can also fire appliances having a maximum draught in the combustion chamber of 10 Pa (1 mm wg: 0.04 in wg) at full appliance rating.

AIR REGULATION

Adjustable air trimming damper for on/off operation: hydraulically actuated for high/low control. Burner fitted with patented air control device producing smoother starting conditions.

CONTROLS

Flame supervision by photo-electric cell with sequence controller to comply with relevant standards. The NOL13/16 burners may be controlled by suitable thermostats, time switches, etc.

FUEL

Light distillate oil Class D (1.5-5.5 cSt @ 40°C). Burner outputs based upon Gross CV of 45.5 MJ/kg.

FUEL SYSTEM

Suitable for single pipe gravity or two pipe suction lift oil supply systems. For fuel storage and handling temperature requirements please consult the Burner Manual.

CONSTRUCTION

Monobloc metric design using fasteners to ISO standards. Removable coverplate for easy access to fan and inner assembly. Adjustable burner head maintains high air velocity and gives maximum combustion efficiency throughout burner range.

APPROX. WEIGHT

20.5 kg.



OPTIONAL EXTRA FEATURE

This burner can be supplied with fully closing air control, at extra cost.

ELECTRICAL DATA

	1 phase	3 phase
Main Supply (V)±10%	230	400
Frequency (Hz)	50	50
Motor (W)	250	250
(HP) 2 Pole	0.33	0.33
Burner Start Current (A)	7.0	3.5
Main Fuse (A)	10	5

BURNER DATA

Burner Model	Minimum Burner Capacity			Maximum Burner Capacity			Diffuser diameter mm	Minimum Burner Throughput*		Maximum Burner Throughput*		Nozzle Spray Angle
	kW	kcal/h x 10 ³	Btu/h x 10 ³	kW	kcal/h x 10 ³	Btu/h x 10 ³		Litres/h	USgal/h	Litres/h	USgal/h	
NOL13 on/off	147	126	500	381	328	1300	89	13.6	3.6	35.8	9.45	60°
NOL16 on/off	382	329	1305	469	403	1600	76	36.0	9.5	43.9	11.6	60°
NOL13 high/low	147	126	500	381	328	1300	89	13.6	3.6	35.8	9.45	60°

INSTALLATION

Flue The top of the chimney should be above all roofs within a radius of 10 m. If a cowl is fitted, remove it.

Ensure that the flue pipe from the appliance finishes flush with the inside wall of the chimney.

If draught over the fire exceeds 0.02 kPa (2mm wg: 0.08 in wg) draught stabiliser should be fitted in a position recommended by the appliance maker. To provide minimum requirements of 0.05 and 0.012 kPa (5.0 — 1.2mm wg: 0.05 — 0.2 in wg.). For pressurised combustion conditions check Burner Selection Chart.

Fuel Storage and Handling The provisions of BS. 2869 will normally ensure that the fuel will be of adequate performance. As there are Winter and Summer fuel grades and in order to prevent the fuel waxing under sustained cold and exposed conditions, Class D grade of fuel should be stored and supplied to the burner at a minimum temperature of 5°C (41°F), in line with the fuel suppliers recommendations to suit site conditions.

Fuel Supply (and, where fitted, return) line should consist of copper tube (NEVER galvanised steel), the final connection to the pump inlet port being made with the length of flexible pipe supplied with the burner. Joints should be made with compression fittings, not by soldering.

When gravity feed is used (the most common), the maximum head should not exceed 4m (equivalent to a pressure of 35 kPa).

On installations where the fuel tank is situated below the level of the burner the maximum suction permitted is 40 kPa (300 mm Hg) and a two-pipe (supply and return) fuel supply system MUST be used.

Note that the pump is factory set for single pipe installation. When using a two-pipe system refer to the appropriate sketch opposite for pump modifications.

Single Pipe System On a single pipe (gravity feed) system, the pump should be primed under gravity from the tank and not by running the pump mechanically. To prime the pump remove the purge plug. connect the purge port to a suitable container.

Two Pipe System The suction line/pump will require priming before energising the pump mechanically. It is essential to ensure that the return pipe is not obstructed in any way, e.g. by a plug, closed valve, etc. Any obstructions will damage the pump.

The fuel supply line/pump may need bleeding/priming, if the oil storage is allowed to drain completely.

Electricity Supply Connect burner to electricity supply, thermostats, time switches etc., as appropriate.

PRE-FIRING CHECK & INITIAL SETTING

1. Remove nozzle assembly by taking cover and carrying out instructions shown in maintenance photograph.
2. Check or fit nozzles of correct size/angle for appliance.
3. Check electrode setting is as sketch (on/off setting is different to high/low).
4. Replace nozzle assembly.
5. The setting of the burner diffuser plate which has an adjustment of 20mm, is carried out by loosening retaining screw between the oil inlet pipes and sliding to desired position. This screw must be firmly secured when setting is achieved.

To determine setting the following instruction should be carried out.

- a) 147—220 kW (126,000—189,000 kcal/h : 500,000—750,000 Btu/h) adjust to position 'L' in sketch (diffuser fully back). The air damper should be approximately No. 3 (see sketch).
- b) 220—322 kW (189,000—277,000 kcal/h : 750,000—1,100,000 Btu/h) to position 'M' in sketch (diffuser mid-position). The air damper should be approximately No. 7 (see sketch).
- c) 322 kW upwards (277,000 kcal/h : 1,100,000 Btu/h) adjust to position 'H' in sketch (diffuser fully forward). The air damper should be in the fully open position (see sketch).
- d) High/low burners set diffuser as described in a, b or c above. Set air damper to position No. 2 (see sketch) for low flame setting at all ratings.

GENERAL

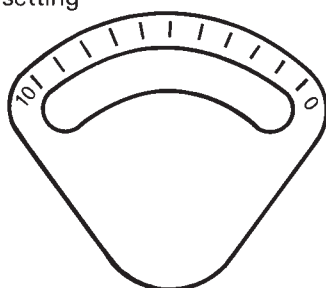
The air damper should be used as a final adjustment with the diffuser set in the appropriate position. Obviously variation of both settings are necessary to cater for all appliances. Optimum combustion results are obtained by using the maximum air pressure available across the diffuser plate and adjusting air damper to obtain acceptable CO₂ and smoke values.

Diffuser plate setting



Note: L M H shown for illustration purposes only

Air damper setting



OPERATION.

To start burner turn main electricity isolating switch and, where fitted, separate burner switch, to ON.

The burner can be stopped in an emergency by opening the electrical switch provided in the line between the burner and the electricity supply.

There is a pre-purge period during which the ignition is switched on and the motor will run.

At the end of this period magnetic oil valve opens and burner lights.

After a further period the ignition is switched off and the burner continues to run until it is switched off by:-

- (a) the control thermostat contacts opening upon the room or water temperature being reached
- or (b) safety or limit thermostat contacts opening
- or (c) burner is switched off manually.

If, during start up, the flame fails to be established the photocell will detect this and will shut down the burner and the "lock out" lamp in the sequence control box is automatically lit.

If during normal running, the flame is extinguished the magnetic oil valve closes and ignition spark is restored, the purge period recommences, magnetic oil valve opens after 10-15 seconds, on flame re-establishment, burner will continue to run. If burner fails to light it goes to "lock-out" after 10-15 seconds.

The manual reset button, also on the sequence control box, should not be operated until at least 30 seconds after the burner has been "locked out".

For burners with fully closing air dampers see page 6.

COMMISSIONING.

Ensure correct nozzle fitted. Set air damper to suit combustion requirement.

FAULT FINDING.

Motor fails to start. Check that power is available to the burner. Check all fuses in the supply to the burner. Check that the contacts of both control and safety limit thermostats on the appliance or in the room are closed, and therefore "calling for heat". If these thermostat contacts are not closed check the thermostat settings.

Motor starts but burner will not light. If the flame is not established the burner will be stopped and "locked out" after a safety period of 10-15 seconds: a warning light is illuminated on the sequence control box. The manual reset button on the sequence controller should not be operated until at least 30 seconds after the burner has been "locked out".

Fully closing air damper (if fitted) check that air flap is open and micro switch is in the closed position.

Ascertain whether oil is being sprayed by the nozzle.

If oil is passing through nozzle, check that there is a spark at the electrodes. Check all connections including high voltage leads.

Check electrode gap and correct if necessary.

Ensure that electrodes are not short circuited and that their insulators are clean and not cracked.

If there is no oil spray check that there is an oil supply to the burner and that all valves are open. Check that nozzle is not blocked. Ensure that all filters are able to pass oil. Check that the solenoid valve is open. Check that fuel pressure delivered by the pump is correct (180 psi).

Unstable pump pressure. On two pipe suction lift systems disconnect return pipe from pump; air free fuel should flow out when the pump is run.

On single pipe systems remove the purge plug to ascertain that air-free oil flows out.

Check that all pipework and connections on the suction side are free of leaks and that there are no blockages.

Burner starts, then stops after a short time. Check that photocell is clean and correctly located. Check air damper setting and re-adjust as necessary. Check for blocked nozzle.

Flame unstable, burner stops. Check for fuel supply fault, eg partial blockage of fuel supply pipe. Check nozzle atomisation, etc.

Burner stops after satisfactory running period. If flame fails during normal running period, the ignition will be switched on again. If the flame is not re-established after a period the burner is stopped and "locked out", and a warning (lock out) light illuminated in the sequence control box.

If the flame is re-established during this period the ignition is switched off and the burner will continue to operate normally.

MAINTENANCE.

Before carrying out any work on the burner ensure that the electricity and oil supply is switched off.

Filters. A filter is fitted within the pump. To gain access remove pump end-plate.

Withdraw filter and clean it in paraffin or other solvent, using a stiff brush.

Replace filter and pump end-plate. Re-prime pump.

A filter should also be fitted in the fuel supply line. If fitted with a disposable element this should be replaced at least once per year, the frequency depending on the needs of the installation and the cleanliness of the fuel.

If the filter has a cleanable element this should be cleaned, at suitable intervals, in exactly the same way as has been described for the pump filter. Re-prime pump.

Motor. The motor requires no maintenance: it has bearings which are factory lubricated for the life of the motor.

Fan. If fan is damaged or becomes loose on the motor shaft the motor must be removed from the burner casing. Re-fit/replace fan.

BURNERS HIGH/LOW/OFF CONTROL

INTRODUCTION

High/low models differ from the simpler on/off models in the following respects:

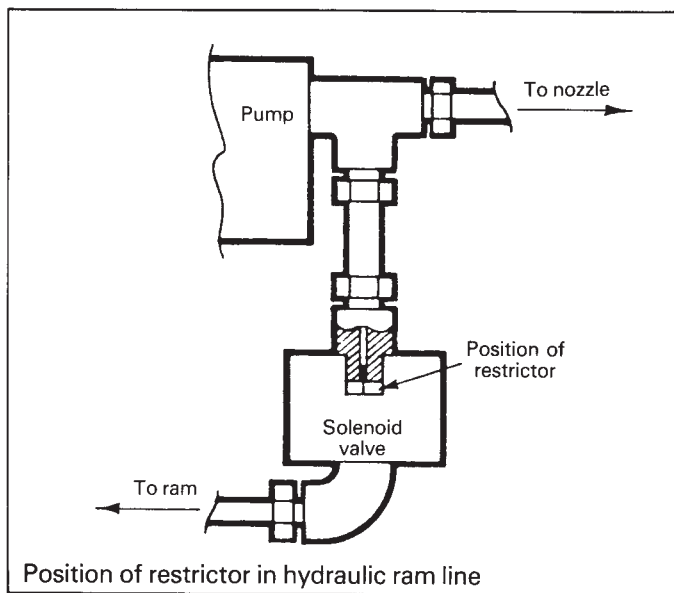
There are two atomizing nozzles arranged vertically above each other, controlled by two magnetic valves (low valve internal in pump). The top nozzle only sprays on low flame whilst both nozzles spray on high flame. The air inlet damper is adjusted to suit the rate of firing by a hydraulic ram operated by oil pressure from the high flame magnetic valve against a return spring within the ram itself. The high flame magnetic valve is energised by the H/L appliance controlling instrument during normal running, but is always de-energised for 15 to 30 secs (dependent on the control box fitted), at each burner start, thus giving a low flame light up. The low flame magnetic valve and the burner motor operate together and are controlled by the on/off appliance controlling instrument. A limit instrument (hand reset) is normally fitted to the appliance also.

While the burner is both at rest and on low flame, the ram is fully retracted by its internal spring, and the low flame air adjustment is made at the point where the ram lever contacts the adjustable lock-nut (see under pre-firing check).

When the burner is on high flame the ram is extended, and the ram lever contact the flame lock-nut. This is used to trim the high flame air. (See illustration.)

INITIAL FIRING

Follow the installation instructions for on/off burners, as listed under pre-firing check.



TESTING THE INSTALLATION

Bleed the oil line to the burner. Bleed the pump free of air by slackening off the plug in the pressure gauge port and briefly running the burner motor (see pump maker's instructions). Remove the burner nozzle assembly (see photographs) and check that the electrodes are set in the correct position (see diagram).

OPERATION

Set the appliance H/L controlling instrument to the required operating temperature (or pressure). Set the on/off control instrument to a temperature some 5°C above this. Set the limit instrument 5°C above the on/off control setting.

Initially, set the air damper (see pre-firing check) by means of the low flame stop. Manually extend the ram and set the high flame stop so that the damper can open almost fully. Turn on the burner and allow it to start. It will light on low flame and should be held in that position until appliance is ready to accept high flame. Whilst on low flame adjust damper to give a clean flame. In 15 to 30 seconds (dependent upon the model of control box fitted) it will then change to high flame. Adjust the high flame stop to give a clean flame without unnecessary excess air and then run the installation for fifteen minutes approx. (until it is at normal running temperature).

Whilst still on high flame, again re-adjust the high flame stop to give a CO₂ reading of 10% to 12% (or as specified by the appliance manufacturer). Reduce the setting of the control instrument until the burner changes to low flame. Adjust the damper linkage until a CO₂ reading 8% to 10% (or as specified by the appliance manufacturer) is achieved.

In all cases an acceptable smoke reading should be achieved.

FAULT FINDING

The fault finding section for on/off burners apply generally to the H/L models. However, additional notes on fault finding for H/L burners are as shown.

Burner will not change to high flame. Check the settings and operation of the H/L thermostat (or pressure switch) — H/L magnetic valve failing to open. (Faulty valve or no high flame signal from control box).

Flame failure on changing to high flame (or small sparky high flame). Low oil pressure.

Momentary flame failure on changing to high flame. Restricted or insufficient oil supply to burner.

Large smokey flame on changing to high flame. Air shutter sticking in the low flame position. Oil line to pump blocked (see sketch). The diffuser has not been adjusted to allow sufficient air to pass.

Burner will not change to low flame (except on initial start). Check setting and operation of H/L control instrument.

Burner starts on high flame. Faulty control unit.

Burner lockouts during pre-purge If photo-cell detects light during pre-purge period, burner will lock-out or fail safe; cause could be leaking solenoid, illumination from combustion chamber, etc.

BURNERS HIGH/LOW/OFF CONTROL WITH FULLY CLOSING AIR DAMPER (Electric Motor System)

INTRODUCTION

The burner system/head is that described for high/low burners but in order to achieve the fully closing air damper facility a reversible motor with a separate adjustable cam bank is fitted to the burner to give the necessary modes of operation.

The cam arrangement is as indicated below and should be initially set as shown for given operation.

Cam 1 — fixed for F.C.A.D.

Cam 2 — high flame air

Cam 3 — low flame air

Cam 4 — high flame oil valve

The cams are friction therefore move clockwise to increase and anti-clockwise to decrease. (Never undo the Nyloc retaining nut on top of the cam bank when adjusting the cam positions.)

INITIAL CAM SETTING

Cam 1 — fixed for F.C.A.D.

Cam 2 — to give air damper 60° open

Cam 3 — to give air damper 20° open

Cam 4 — will activate the high oil valve and should be set when air damper moves off cam 3 but before it reaches cam 2 thus ensuring a smooth changeover from low to high fire. Suggested position half way between cams 2 and 3.

All other combustion checks and settings should be as that stated in this manual for the high/low burner.

BURNERS ON/OFF CONTROL WITH FULLY CLOSING AIR DAMPER (Ram Operated)

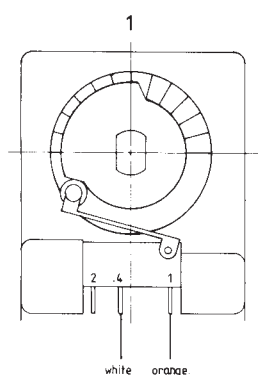
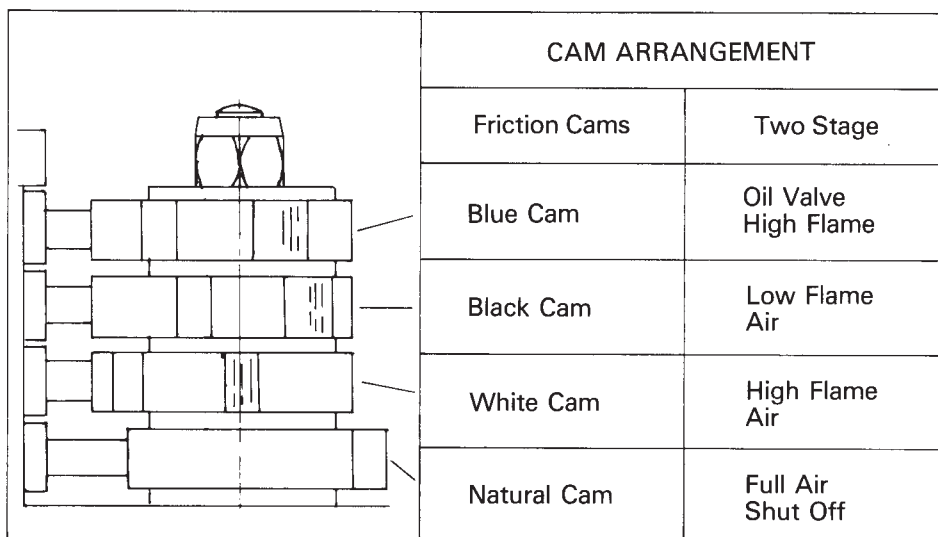
INTRODUCTION

The burner system is that described for on/off but in order to achieve the fully closing air damper facility a hydraulic ram is fitted to operate the air flap from the closed position.

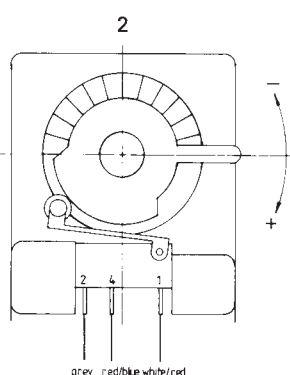
OPERATION

At the start of the pre-purge period the motor runs and the air damper opens under hydraulic pressure from the pump. At the end of the pre-purge and providing that the interlock micro-switch is made proving air in the operational position, the burner will then light and continue to run under the control of the appliance instruments.

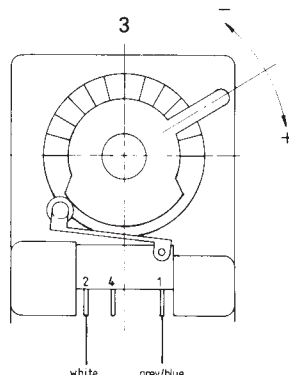
When the appliance shuts down, the hydraulic pressure will cease and the air damper will close.



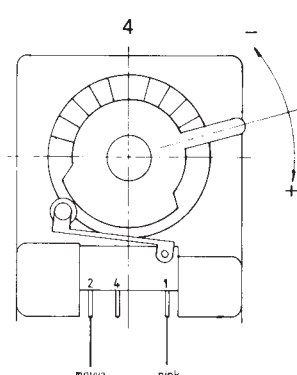
Full Air Shut Off
Colour: Natural



High Flame (Damper)
Colour: White



Low Flame
Colour: Black



High Flame (Valve)
Colour: Blue

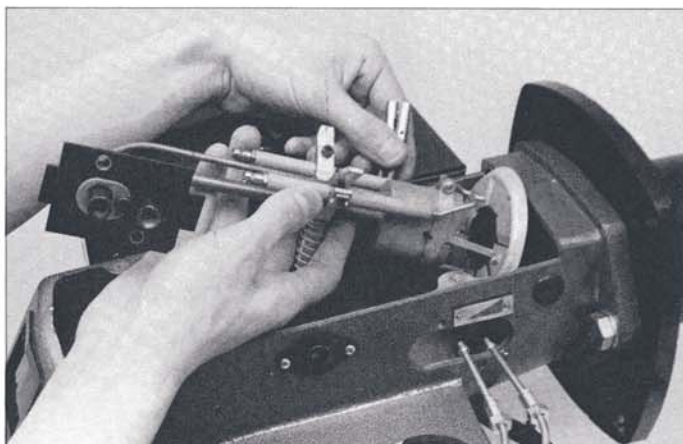
MAINTENANCE



General view of burner (H/L version). The adjustable diffuser assembly with the setting scale is clearly shown. Below this is the circular air damper scale giving the air damper position.



The photo cell is removed from burner for cleaning. Do not touch cell with the fingers and use only a clean dry cloth for cleaning. Ensure viewing face points towards burner combustion head when replacing.



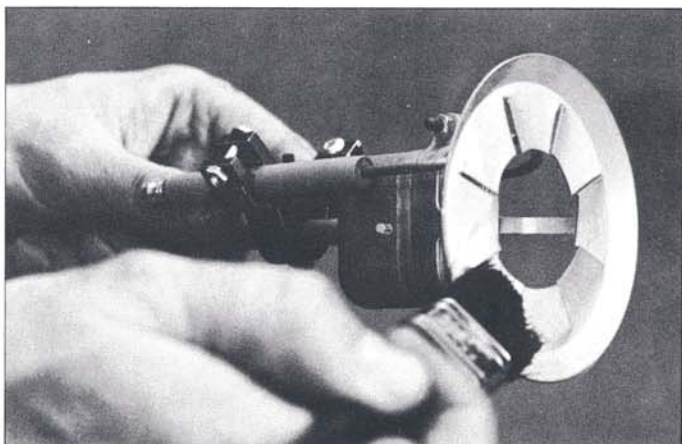
For nozzle assembly removal, the top cover must be taken off by undoing four screws. The electrode HT connectors must then be disconnected, the photo cell removed and the tubing nuts retaining the inner assembly, disconnected. After undoing the two outer retaining screws the assembly can be lifted clear. **Do not remove central screw** as this locates diffuser assembly.



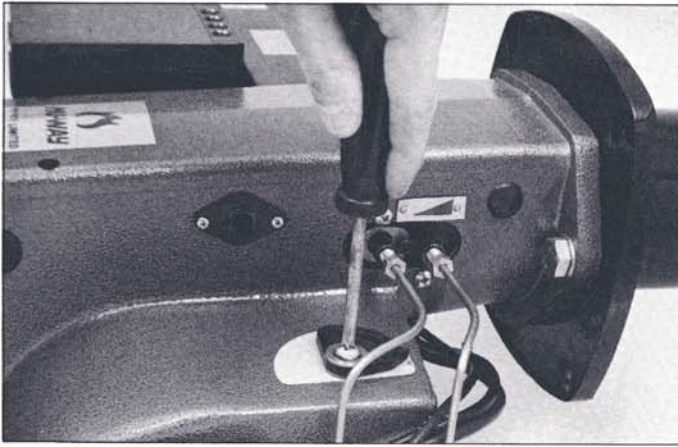
Cleaning the fan runner: use a stiff brush.



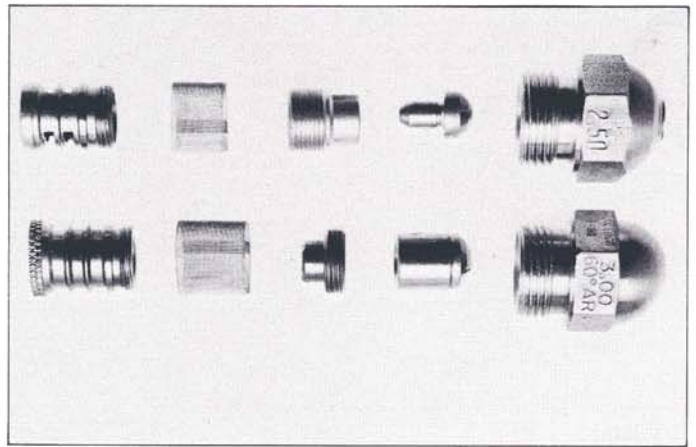
It is necessary to dismantle diffuser from inner assembly before nozzle removal. Nozzles are removed using a nozzle spanner. Fit nozzle to burner inner assembly by hand; use spanner only for final tightening. Re-assemble diffuser in correct position, i.e. diffuser retaining clamp firmly against nozzle shoulder or stop (see sketch).



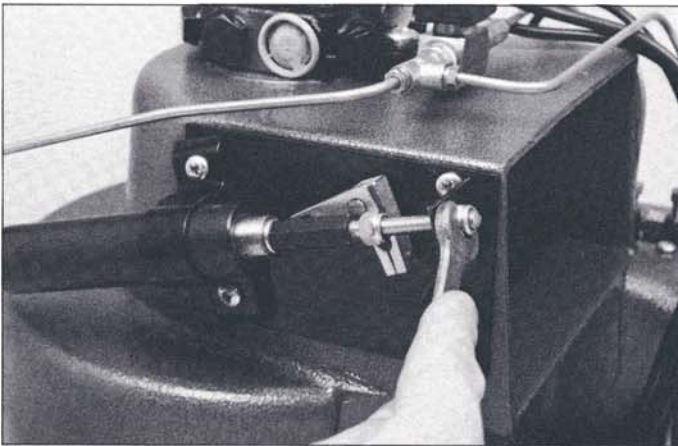
The air diffuser should be cleaned using a stiff brush.



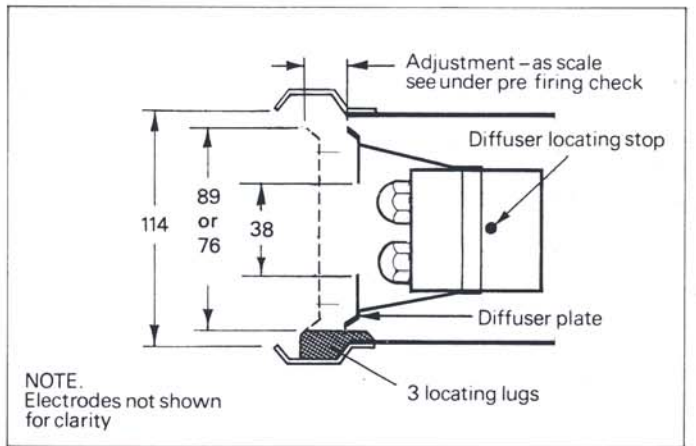
On/off burner flap adjustment is carried out by undoing handwheel, loosening screw as shown, and setting against metal corner pin. Retighten in reverse order.



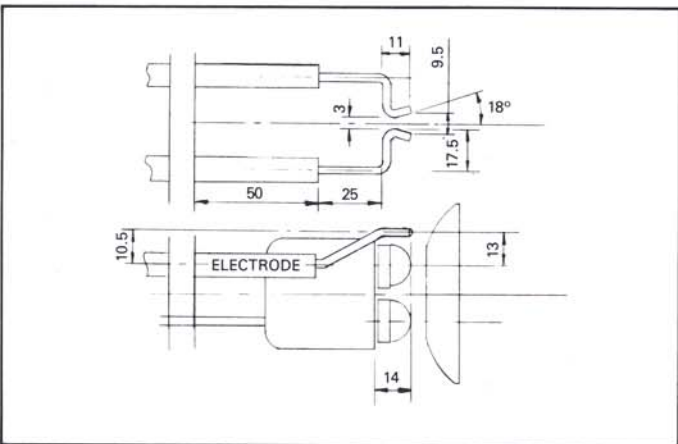
Dismantle nozzle itself to enable internal filter to be cleaned. Do not use any metal or wood to remove deposits. Wash in solvent. Wipe off any remaining dust using a clean, lint-free rag. Illustration shows correct assembly sequence for (above) Monarch and (below) Steinen nozzles. Replace after 2000 hours operation.



High/low burner flap adjustment: picture indicates adjustment of low flame air, when on high flame with plunger extended adjustment is on left hand nut.



Adjustable burner head arrangement.



Electrode setting.

SUPPLEMENT TO HANDBOOKS

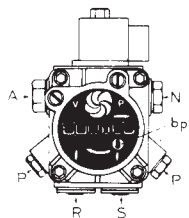
SPECIFICATION CHANGES

NEW WIRING COLOURS

In accordance with the Requirements for Electrical Installations BS 7671:2001 Amendment No 2 (the IEE wiring regulations), wiring colour coding has been amended to Brown (L) and Blue (N) for single phase power circuits and Brown (L1) Black (L2) and Grey (L3) and Blue (N) **in three phase power circuits** from 1 June 2006.

Full details of the changes can be found in Amendment No 2 (AMD 14905) to BS 7671:2001 - which is a free download from the IEE website (www.iee.org/cablecolours). They are also within the new version of BS7671:2001 (Incorporating Amds 1& 2) published on 31st March; this new version of the Wiring Regulations can be identified by its brown cover.

SUNTEC OIL PUMP TYPE AS67



CONNECTIONS

S : suction 1/4" BSP or 1/8" BSP
 N : nozzle outlet 1/8" BSP
 R : return 1/4" BSP or 1/8" BSP
 P : pressure gauge port 1/8" BSP
 V : vacuum gauge port 1/8" BSP
 A : pressure adjustment
 (A1 = low pressure
 A2 = high pressure)
 r : rotation
 bp : by-pass plug for 2 pipe operation

INSTALLATION

Pumps with letter 'P' in the pump code are usually supplied for 2-pipe operation (the by-pass plug is fitted in the return port).

For 1-pipe operation this plug must be removed with a 5/32" allen key and the return port sealed by steel plug and washer.

Pumps identified by an 'M' in the pump code are supplied for 1-pipe operation (without by-pass plug, and with return plugged).

Pumps may be mounted in any position except with the shaft upwards, but the shaft should not be submitted to any axial or radial forces.

The maximum inlet and return pressures must not exceed 2 bar.

The maximum vacuum must not be more than 0.45 bar to prevent air separation from oil.

It is recommended to use a separate filter upstream of the pump.

The pump is intended to be used with cylindrical fittings and sealing washers, other sealants are not recommended.

START UP

Check that sense of rotation for pump and motor are the same.

In order to purge pumps used on 1 pipe systems, loosen one of the high pressure connections: on 2 pipe systems, purging is automatic.

With AP pumps, any air that may have accumulated in the tube should be purged by several successive operations of the solenoid.

With AS and AP pumps, do not activate the solenoid when it is not fitted on the pump.

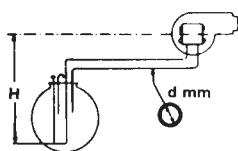
Notes:

Pump pressure of 1250 kPa (12.7 kg/cm²: = 180 psi) is factory-set standard.

The turndown on high/low units is 1.5:1 up to 235 kW (202,000 kcal/h): 800,000 Btu/h) and 2:1 above.

* Based on calorific value of 10.6 kW/litre (137,500 Btu/US gal).

Two pipe lift system



H max. = 4.5m

Pump	60			
Q* (l/h)	102			
d (mm)**	6	8	10	12
H (m)				
0	6	27	70	150
0.5	5	23	62	132
1	4	20	53	114
2	2	13	36	79
3	0	6	9	44
4	0	0	2	9

Viscosity range	2 to 12mm ² /s (cSt)
Inlet pressure	2 bar max.
Return pressure	2 bar max.
Suction height	0.5 bar max. vacuum - 0.4 bar advised to prevent air separation from oil.
Rated speed	3600 rmp max.
Oil temperature	Max. 70°C in the pump
Starting torque	1.0 cm . daN

Electrical characteristics

Solenoid valve voltage	24,110 or 220 V + 10% - 15%; 50/60Hz
Consumption	9 VA
Protection	IP 50

PRESSURE REGULATION

With all models the pressure is increased by turning the regulator screw clockwise and vice versa.

With **AP pumps**, it is preferable to set the high pressure (screw on pump with solenoid activated) before the low pressure (screw in tube, with solenoid non activated).

Care should be taken not to overtighten the screw in the tube, as this may eliminate the lower pressure range.

SYSTEMATIC MAINTENANCE

- Check stop valve and in line filter.**
- Check pump filter.**
This filter should be cleaned with a soft brush and clean fuel oil.
Each time, the cover gasket and 'o' ring for Rev. 3 models should be changed.
- Check tightness of all couplings and unused plugs.**
- Check shaft coupling.**
- Check pump pressure.**
Fit a pressure gauge in the fitting provided and run the pump in the normal manner.
If the pressure required cannot be obtained, check that the pump is completely purged. If air bubbles are found in the fuel, check all connections for tightness.
- Check pump vacuum.**
Fit a vacuum gauge in the fitting provided and run the pump in the normal manner, making sure to fully purge the pump.
The vacuum should not exceed 0.45 bar. If this is the case, check condition of all components (non return valve, stop valves, filters. . .)
If the pump does not suck correctly, check for air leaks in the line by retightening all fittings.

PIPE DIMENSIONS

Rated speed: 2850 rpm

Viscosity: 5 cSt

Pressure: 9 bar

The table below gives the maximum length (in metres) of suction line as a function of 3 variables:

- lift between fuel unit and tank (H)
- nozzle capacity or pump type
- pipe diameter (d)

for normal atmospheric pressure (sea-level) and 0.45 bar vacuum.

The length indicated (intersection of horizontal lines and columns) assumes the fitting of 4 right angle bends, 1 stop valve, 1 non return valve; if additional restrictions exist, the length must be reduced accordingly.

*Q: Pump capacity at 0 bar

** Only mentioned diameters can be used, bigger pipes are not suitable.

BURNER SETTING RECORD

1. Burner Type
2. Burner Specification
3. Nozzle Type and Size Reference
4. Pump Pressure - Bar
5. Low Flame (High/Low Burners Only) Spill Pressure - Bar
6. High Flame (Main Flame On/Off Burners) Spill Pressure - Bar
7. Turn-Down Ratio
8. Oil Throughput Kg/H
9. % CO₂ High (Main) Flame
10. % CO₂ Low Flame
11. Smoke Number H/F (M/F)
12. Smoke Number L/F
13. Date of Commissioning
14. Commissioning Engineer

This form must be completed by the Commissioning Engineer

BOILERHOUSE INSTRUCTIONS

NOL13/NOL16

These instructions are provided for the benefit of the operator and are intended to be of assistance in making minor adjustments and providing the burner with proper maintenance, cleaning and lubrication. Additional information can be obtained through your installer or from the manufacturer.

FUEL

The unit is designed to burn light distillate oil (28-40 secs Redwood No 1 at 38°C: 1.4-5.7 cSt at 38°C). Do not attempt to use petrol, or any oil which may contain traces of petrol.

BOILERHOUSE VENTILATION

It is most important that the boilerhouse has an adequate supply of fresh air for both ventilation and combustion purposes.

PUMP BLEEDING

If the fuel tank is allowed to drain completely it will be necessary to bleed the oil pump free of air by slackening the plug in the pressure gauge port allowing oil to run through until air free. (See pump instructions.)

OIL FILTRATION - SEDIMENT REMOVAL

There is an oil strainer inside the body of the fuel pump and a separate oil filter between the oil pipe from the tank and the oil burner. The oil strainer should be removed and cleaned with paraffin during the pre-season check-up. At the same time the oil filter cartridge should be replaced or cleaned, as appropriate for the type fitted. Bleed fuel pump free of air, as described above, to remove any trapped air.

Draw off any accumulation of water or sediment in the fuel tank by opening the sludge cock in the tank bottom, immediately before any new delivery of fuel. Do not run the burner while the tank is being refilled and, if possible, do not restart for one hour after refilling is concluded.

NOZZLE CLEANING

Nozzles cleaned as required see maintenance photographs. Replace after 2000 hours service.

STARTING AND STOPPING

Start the burner by setting the thermostat pointer to a figure which is higher than the room or water temperature. Stop the burner by setting the thermostat to a point below this temperature.

The burner may set itself in the 'Safety Lockout' position — this will occur if the burner stops for any reason other than the action of the thermostat — and must then be restarted by pressing the reset button on the flameguard/sequence control. Ask your installer to

instruct you in the proper method of resetting. If frequent resetting becomes necessary, call the service engineer whose name and address should be inserted below.

Do not attempt to start the burner when the fire-box may be full of oil vapour. It is desirable to allow the furnace to cool for about 15 minutes before resetting the control to restart the burner from the 'Lock-out' position.

EMERGENCY STOP

The burner can be stopped in emergency by opening the wall switch provided on the line between the burner and the electric supply. The installer must identify this switch.

CHECKING BURNER OPERATION

Inspect burner flame periodically. If it becomes lopsided or smokey, call a service engineer.

When cleaning the room housing the heater unit, always switch off the burner to reduce the amount of dust and lint drawn in through the air inlet.

SUMMER CARE, AUTUMN RESTART

During the summer months, or whenever heat is not required over a considerable period, the wall switch may be opened. To restart the burner it is only necessary to close this switch.

At the close of the heating season have the furnace cleaned and flues swept. See that the complete burner plant, especially the electric ignition system, nozzle, oil filter etc., is checked over and cleaned by a competent service engineer.

PREVENTIVE MAINTENANCE

Consult your heating engineer for advice on regular preventive maintenance intervals. It is not possible to recommend a service interval for universal use since operating conditions vary widely from installation to installation.

CAUTION

Never burn rubbish or refuse in the heater fire-box. Never leave waste paper or rags lying around near the burner or the heater.

INSTALLER.....

NAME.....

ADDRESS

.....

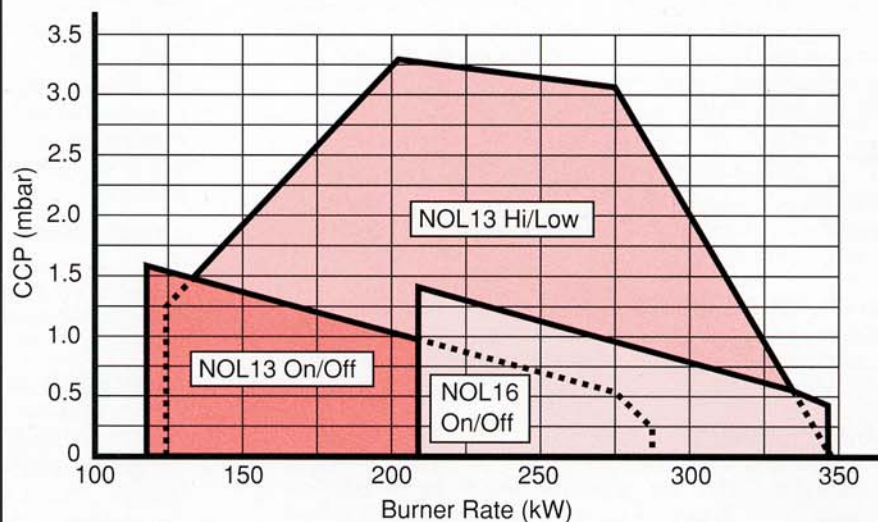
FOR SERVICE TELEPHONE

NIGHTS, SUNDAYS OR HOLIDAYS

.....

TELEPHONE.....

BURNER SELECTION CHART

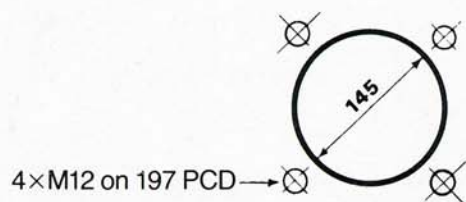
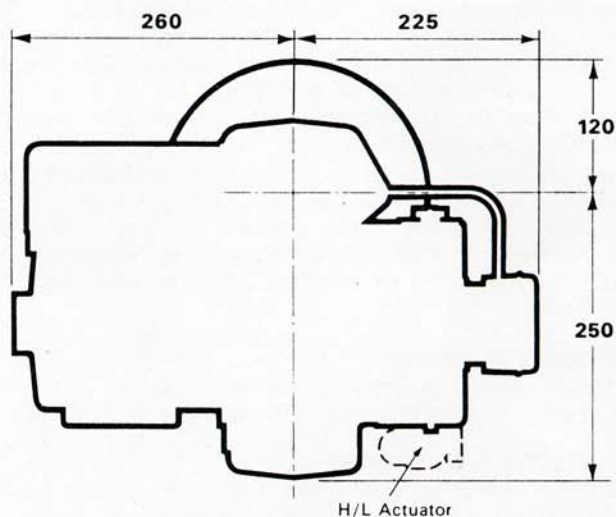
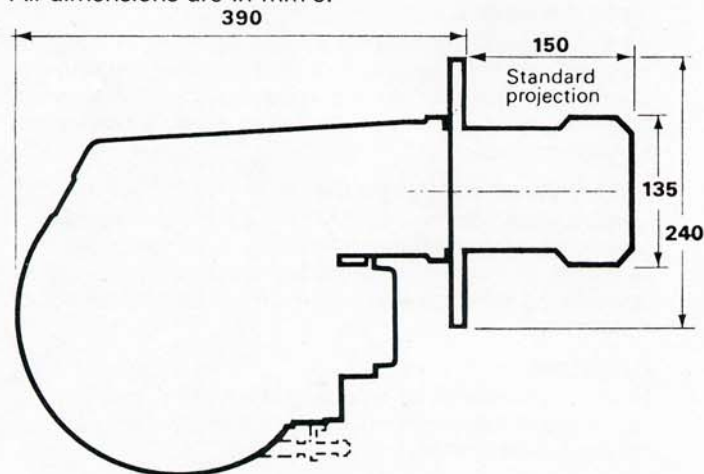


BURNER OUTPUT

Burner outputs shown are based upon an air temperature of 20°C and an altitude of 500m.

DIMENSIONS

All dimensions are in mm's.



FULL BURNER DESIGNATION - NOL13-NOL16

BURNER TYPE	NO	(L)	(13/16)	(S/T)	(1/3)	(D / L / S)	150
OIL TYPE							
NOMINAL OUTPUT (in 100,000's Btu/hr)							
OPERATION							
ELECT. SUPPLY (1PH)							
CONTROL MAKE							
PROJECTION							

TYPICAL BURNER DESIGNATION NOL 16 S3L 150

Nu-way policy is one of continuous improvement. The right to change prices and specifications without notice is reserved.



BS EN ISO 9001
CERT No. FM00921

ISSUE 10/98

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