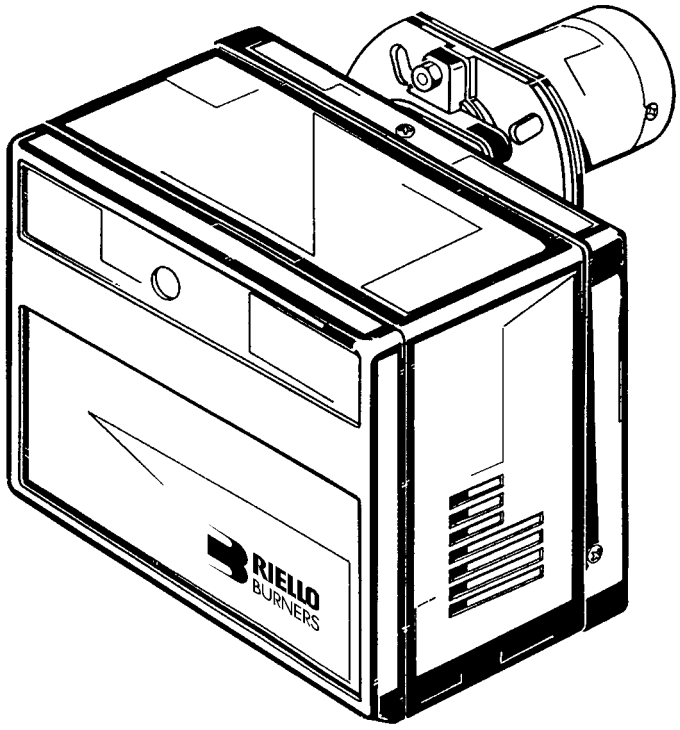
Light oil - kerosene burner

One stage operation



CODE	BOULTER CODE	MODEL	TYPE
3746466	8-716-111-551	COH 220	464 T55

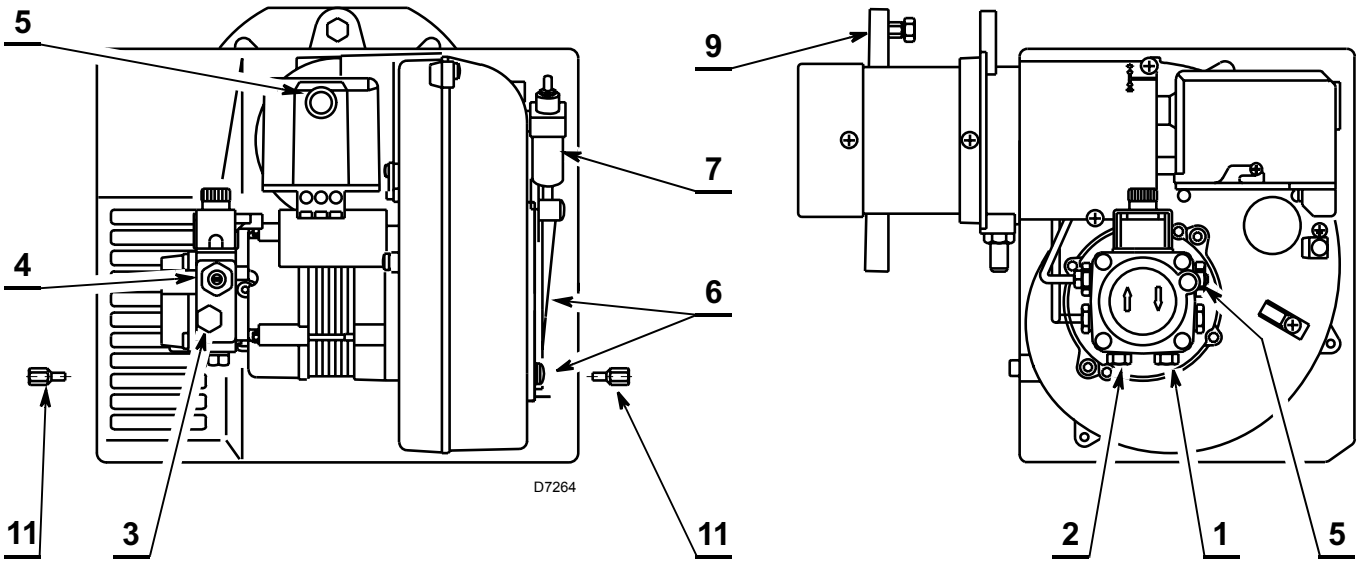
TECHNICAL DATA

TYPE	464 T55
Thermal power – output	54 – 120 kW – 4.5 – 10 kg/h
Fuel	Light oil, viscosity 4 – 6 mm^2/s at 20 °C Kerosene, viscosity 1.6 – 6 mm^2/s at 20 °C
Electrical supply	Single phase, 230 V ± 10% ~ 50Hz
Motor	Run current 0.85 A – 2800 rpm – 293 rad/s
Capacitor	4 µF
Ignition transformer	Secondary 8 kV – 16 mA
Pump	Kerosene, maximum pressure 10 bar (145 psi) Light oil, maximum pressure 15 bar (218 psi)
Absorbed electrical power	0.18 kW

➤ Burner with CE marking in conformity with EEC Directives: EMC89/336/EEC, Low Voltage 73/23/EEC, Machines 98/37/EEC and Efficiency 92/42/EEC.

➤ The burner meets protection level of IP X0D (IP 40), EN 60529.

Fig. 1

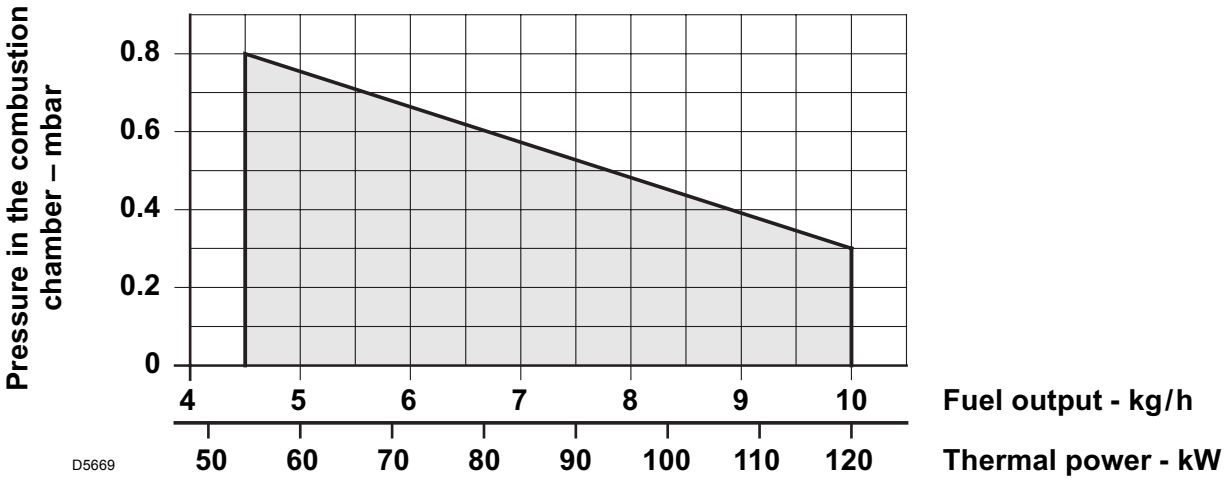


1 – Return line
2 – Suction line
3 – Gauge connection
4 – Pump pressure regulator
5 – Vacuum gauge connection
6 – Screws fixing air-damper
7 – Hydraulic jack with air-damper
8 – Lock-out lamp and reset button
9 – Flange
10 – Combustion head adjustment screw
11 – Screws for fixing the cover supplied with the burner

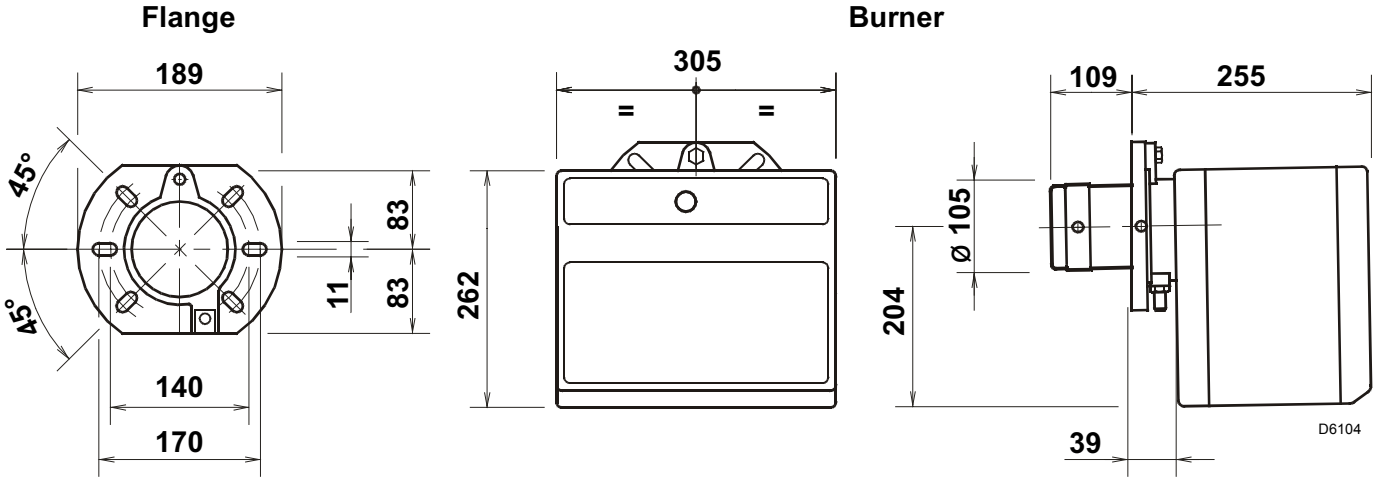
STANDARD EQUIPMENT

Quantity	Description
1	Flange
1	By-pass screw (clipped on the pump)
1	Screw with two nuts for flange
1	Cable grommet
1	Flexible oil pipe with nipple
2	Screws for fixing the cover

FIRING RATE



OVERALL DIMENSIONS



MOUNTING THE BURNER

It is necessary t hat an insul ating ga sket is placed between t he boil er door a nd the burner flange.

Verify that the installed burner is lightly leaned towards the button. *(See figure 2).*

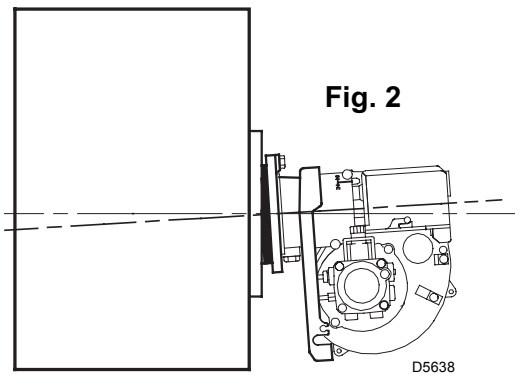
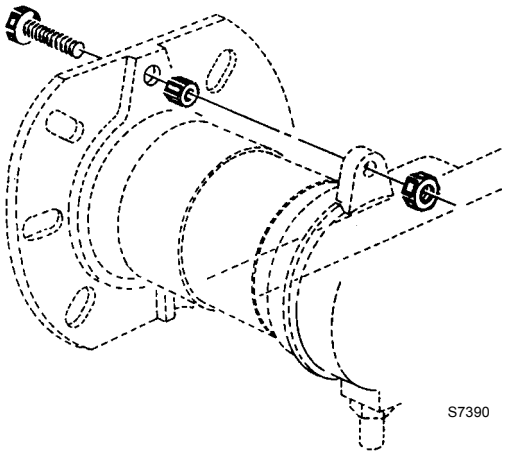
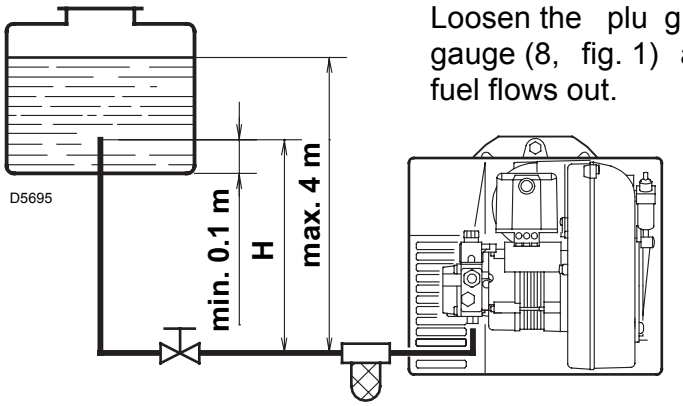


Fig. 2

BURNER FIXING



HYDRAULIC SYSTEMS



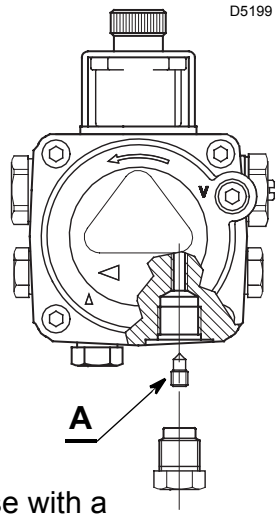
PRIMING THE PUMP

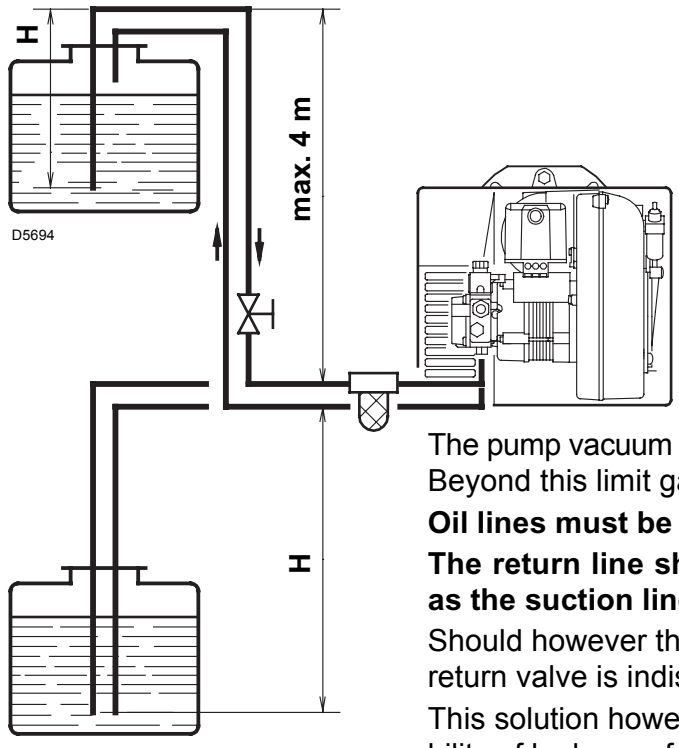
Loosen the plug of the vacuum gauge (8, fig. 1) and wait until the fuel flows out.

H meters	L meters	
	I. D. 8 mm	I.D. 10 mm
0.5	10	20
1	20	40
1.5	40	80
2	60	100

H = Difference of level.
L = Max. length of the suction line.
I.D. = Internal diameter of the oil pipes.

H meters	L meters	
	I. D. 8 mm	I.D. 10 mm
0	35	100
0.5	30	100
1	25	100
1.5	20	90
2	15	70
3	8	30
3.5	6	20





WARNING

The pump is supplied for use with a one pipe system. For use on a two pipe system, it is necessary to screw the **by-pass screw (A)** supplied as burner's accessory. *(See figure).*

The pump vacuum should not exceed a maximum of 0.4 bar (30 cm Hg). Beyond this limit gas is released from the oil.

Oil lines must be completely airtight.

The return line should terminate in the oil tank at the same level as the suction line; in this case a non-return valve is not required.

Should however the return line arrives over the fuel level, the non-return valve is indispensable.

This solution however is less safe than previous one, due to the possibility of leakage of the valve.

PRIMING THE PUMP:

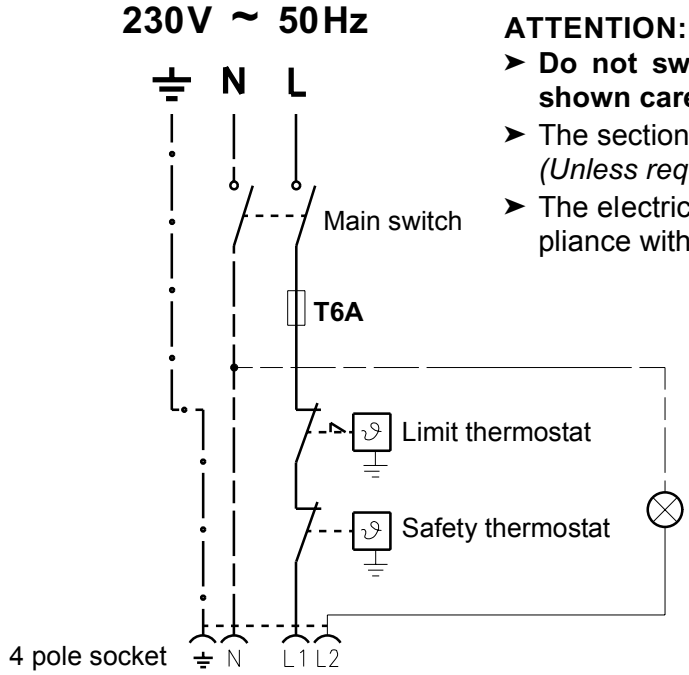
Start the burner and wait for the priming. Should lock-out occur prior to the arrival of the fuel, await at least 20 seconds before repeating the operation.

Warning: before starting the burner make sure that the return pipe-line is not clogged: any obstruction would cause the pump seals to break.

WARNING:

- Check periodically the flexible pipes conditions. Using kerosene, they have to be replaced at least **every 2 years.**
- A metal bowl filter with replaceable micronic filter must be fitted in the oil supply pipe.

ELECTRICAL WIRING



ATTENTION:

- **Do not swap neutral and phase over, follow the diagram shown carefully and carry out a good earth connection.**
- The section of the conductors must be at least 1mm².
  (Unless requested otherwise by local standards and legislation).
- The electrical wiring carried out by the installer must be in compliance with the rules in force in the country.

TESTING

Check the shut-down of the burn er by opening the thermostats.

TO BE DONE BY THE INSTALLER

CARRIED-OUT IN THE FACTORY

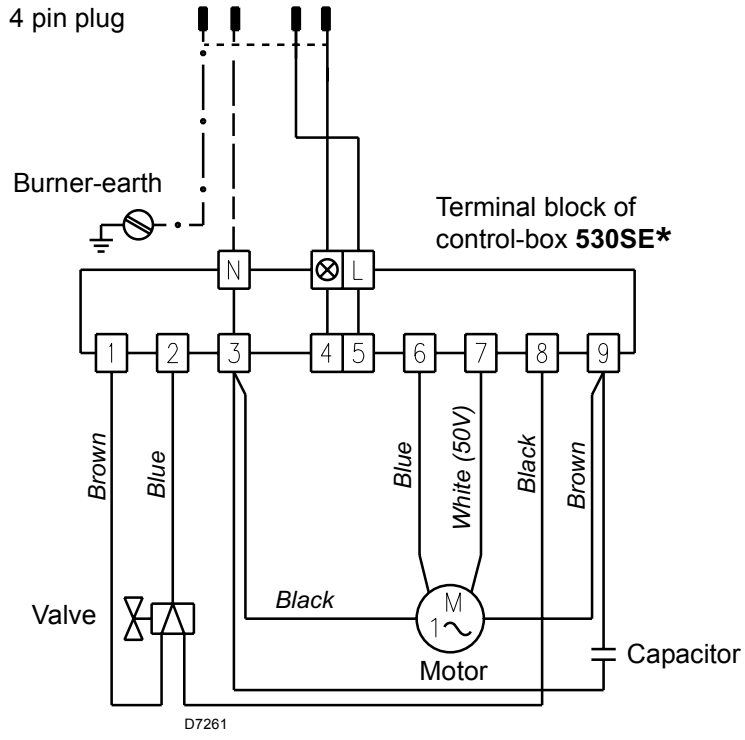
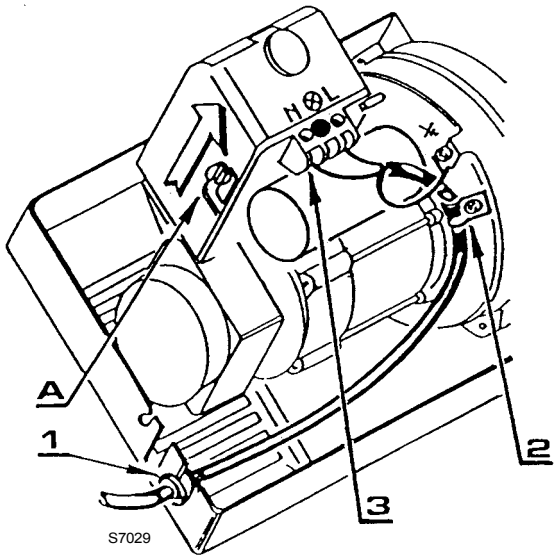


Fig. 2



CONTROL BOX

- **To remove the control box from the burner, loosen screw (A, fig. 2) and pull towards the arrow.**
- The photoresistance is fitted directly into the control box (underneath the ignition-transformer) on a plug-in support.

RUN OF THE ELECTRICAL CABLE

1 - Cable gland
2 - Cable-clamp
3 - Terminal block
N - Neutral
L - Phase
⏚ - Burner-earth

COMBUSTION ADJUSTMENT

In conformity with Efficiency Directive 92/42/EEC the application of the burner on the boiler, adjustment and testing must be carried out observing the instruction manual of the boiler, including verification of the CO and CO_2 concentration in the flue gases, their temperatures and the average temperature of the water in the boiler.

To suit the required appliance output, fit the nozzle then adjust the pump pressure, the setting of the combustion head and the air damper opening in accordance with the following schedule.

FUEL LIGHT OIL

Nozzle 1		Pump pressure 2	Burner output	Comb. head adjustment 3	Air damper adjustment 4
GPH	**Angle**	**bar**	**kg/h ± 4%**	**Set-point**	**Set-point**
1.10	60°	12	4.72	2	3
1.25	60°	12	5.37	2.5	3.4
1.50	60°	12	6.44	3	3.8
1.75	60°	12	7.51	4	4
2.00	60°	12	8.59	5	5
2.25	60°	12	9.66	6	6

1 NOZZLES RECOMMENDED: Monarch type R ; Delavan type W - B
Steinen type S - Q ; Danfoss type S - B

FUEL KEROSENE

Nozzle 1		Pump pressure 2	Burner output	Comb. head adjustment 3	Air damper adjustment 4
GPH	**Angle**	**bar**	**kg/h ± 4%**	**Set-point**	**Set-point**
1.50	60°	8	4.43	1.5	2.6
1.75	60°	8	5.17	2	2.9
2.00	60°	8	5.91	2.5	3.3
2.25	60°	8	6.64	3.5	3.5
2.50	60°	8	7.38	4	3.8
3.00	60°	8	8.86	5	5
3.00	60°	10	9.99	6	6

1 NOZZLES RECOMMENDED: Monarch type R ; Delavan type B - W
Steinen type S - Q ; Danfoss type S - B

For 2.50 - 3.00 GPH nozzles it is advisable to use, if possible, full cones.

2 PUMP PRESSURE

The pump leaves the factory set for kerosene working.

10 bar: maximum pressure for kerosene.

FOR LIGHT OIL INCREASE PRESSURE

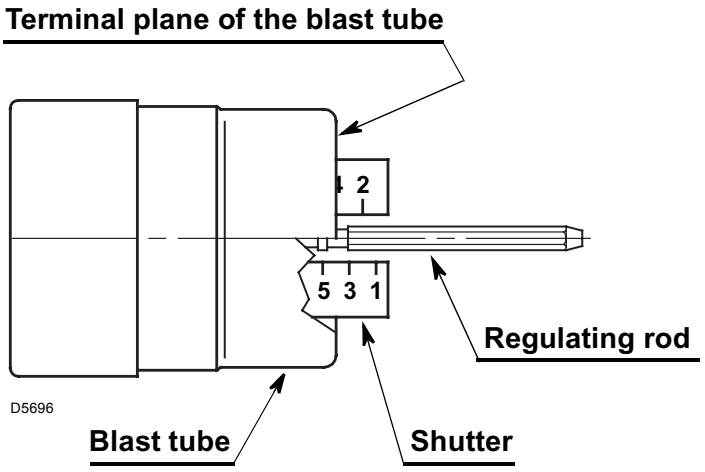
12 bar: pressure suitable for light oil in most cases.

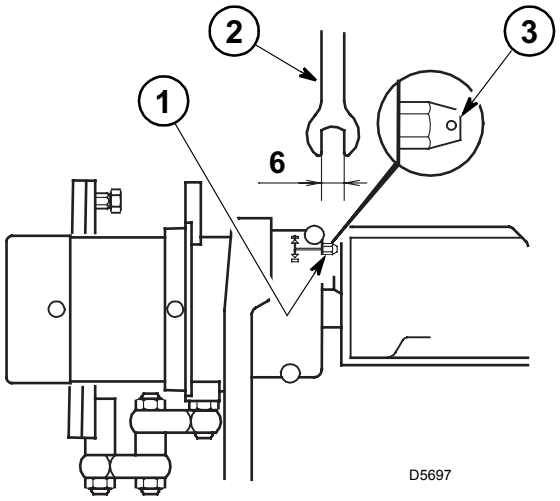
14 bar: improves flame retention; it is therefore suitable for ignitions at low temperatures.

3 COMBUSTION HEAD SETTING:

This is done when fitting the nozzle, with the blast tube removed.
It depends on the output of the burner and is carried out by rotating the regulating rod, till the terminal plane of the blast tube is level with the set-point, as indicated in the schedule.

In the sketch below, the combustion head is set for an output of 1.75 GPH at 12 bar *(for light oil)* or 2.50 GPH at 8 bar *(for kerosene).*
The shutter is level with set-point **4** as required by the schedule at page 5.





Combustion head settings indicated in the schedule are valid for most cases.
The setting of the fan output according to the installation should normally be done only through the air damper. Should one subsequently want to retouch also the setting of the combustion head, with the burner running, operate on the rod (1) with a 6 mm spanner (2) as follows:

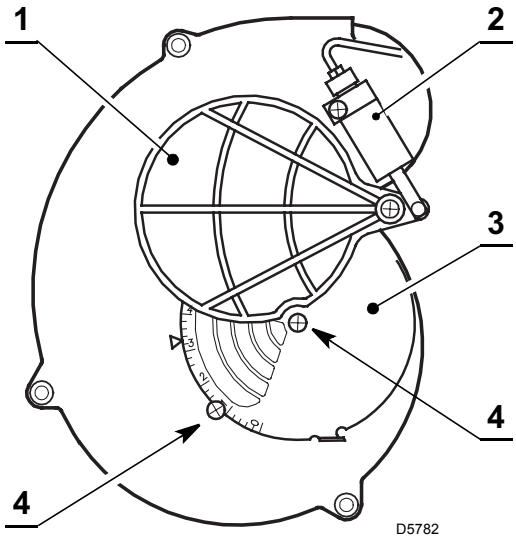
Turn to the right: (sign +), in order to increase the volume of air entering the combustion chamber and thus diminishing its pressure.
There is a reduction of CO_2 and the adhesion of the flame to the air diffuser disc improves. *(Setting advisable for ignitions at low temperatures).*

Turn to the left: (sign –), in order to reduce the volume of air entering the combustion chamber and thus increasing its pressure. The CO_2 improves and the adhesion of the flame to the diffuser tends to reduce. *(This setting is not advisable for ignitions at low temperatures).*
In any case do not bring the combustion head setting more than one point away from that indicated in the schedule. One set-point corresponds to 3 turns of the rod; a hole (3) at its end facilitates counting the number of turns.

4 AIR DAMPER ADJUSTMENT:

The mobile air damper **(1)** operated by the jack **(2)** assures the complete opening of the air intake.
The regulation of the air-rate is made by adjusting the fixed air damper **(3)**, after loosing the screws **(4)**. When the optimal regulation is reached, **screw tight the screws (4)** to assure a free movement of the mobile air damper **(1)**.

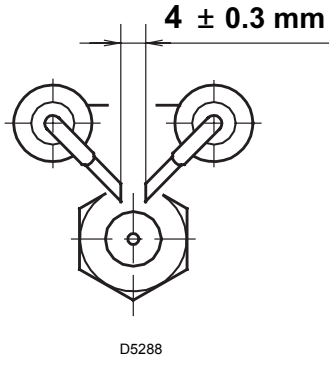
The settings indicated in the schedule is purely indicative. Each installation however, has its own unpredictable working conditions: actual nozzle output; positive or negative pressure in the combustion-chamber, the need of excess air, etc. All these conditions may require a different air-damper setting.

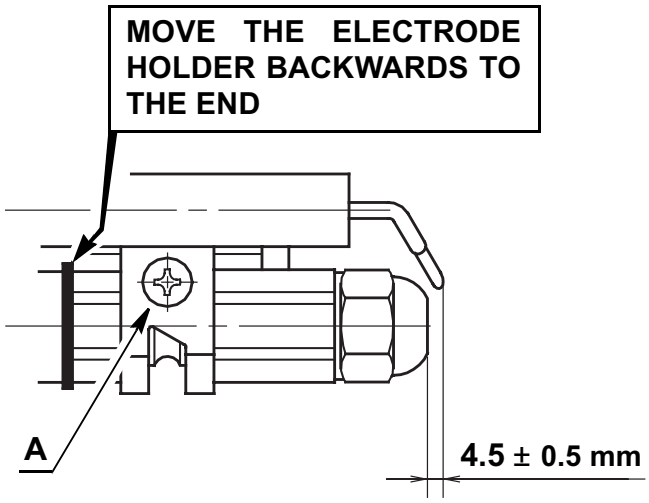


ELECTRODE SETTING

Attention:
Before assembling or removing the nozzle, loosen the screw **(A)** and move the electrodes ahead.

Fig. 3





BURNER START-UP CYCLE

ONLY FOR LIGHT OIL

ADJUSTMENTS, TO AVOID FLAME - DETACHMENT, AT BURNER IGNITION

This inconvenience can occur, when the temperature of the light oil decreases below + 5 °C.

1) CORRECT POSITIONING OF THE ELECTRODES
(See fig. 3)

2) PUMP - SETTING
When the temperature of the light oil decreases below + 5 °C, increase the pressure to 14 bar.

3) COMBUSTION-HEAD SETTING
Regulate the combustion-head one set-point further ahead than indicated in the instructions.
Example: *the instructions require to set the combustion-head on set-point 4.*
Instead, the setting is made on set-point 5.

4) FAN - AIR DAMPER ADJUSTMENT
Adjust the air damper of the fan, such as to obtain a smoke-number not inferior to 1.
(i.e. a combustion with the lowest possible excess-air).

SAFETY WARNINGS

The dimension of the boiler's combustion chamber must respond to specific values, in order to guarantee a combustion with the lowest polluting emissions rate.
The Technical Service Personnel will be glad to give you all the imformation for a correct matching of this burner to the boiler.

This burner must only be used for the application it was designed for.

The manufacturer accepts no liability within or without the contract for any damage caused to people, animals and property due to installation, adjustment and maintenance errors or to improper use.

BURNER IDENTIFICATION

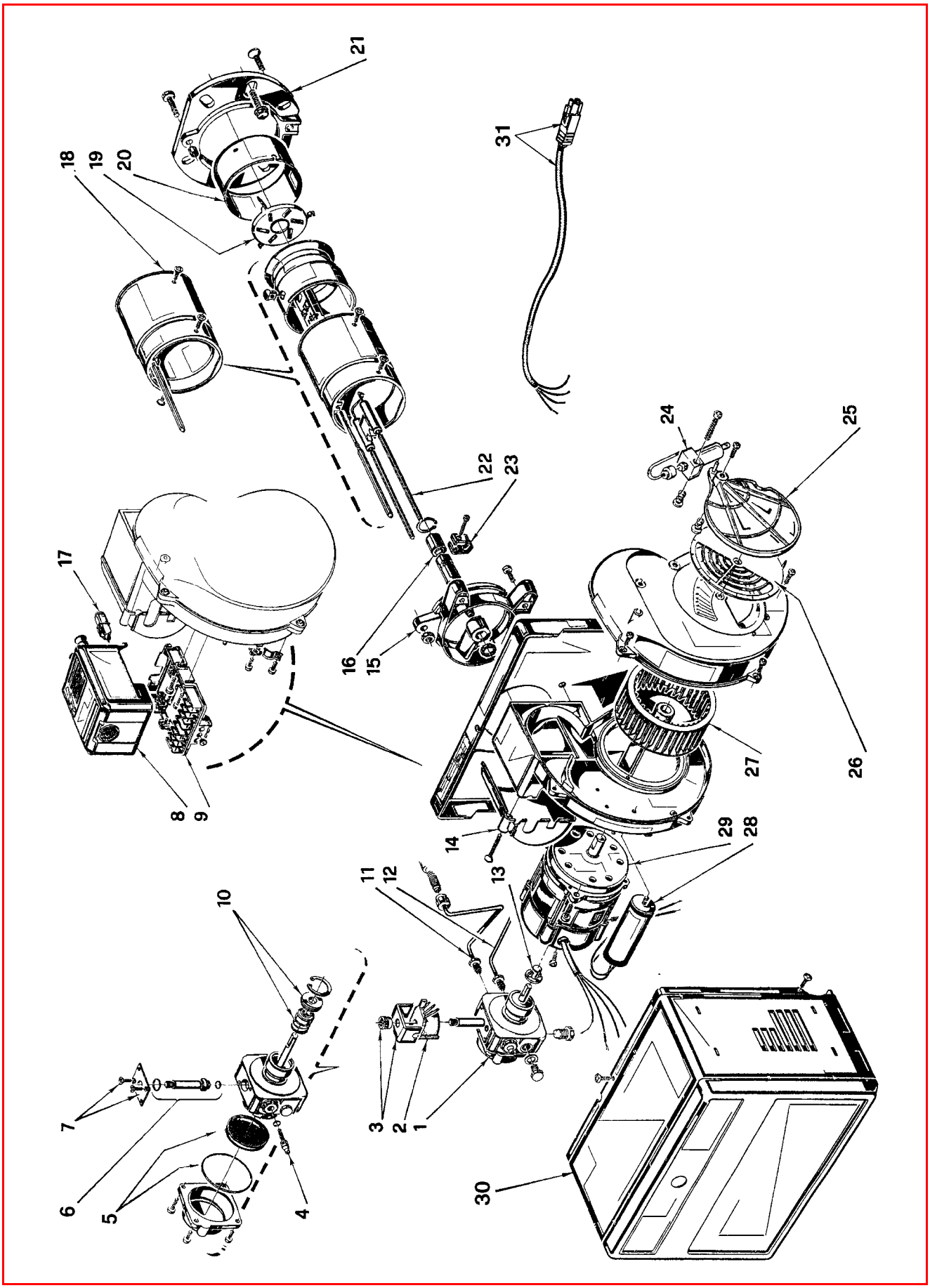
The Identification Plate on the product gives the serial number, model and main technical and performance data. If the Identification Plate is tampered with, removed or missing, the product cannot be clearly identified thus making any installation or maintenance work potentially dangerous.

BASIC SAFETY RULES

- ➤ Children or inexpert persons must not use the appliance.
- ➤ Under no circumstances must the intake grids, dissipation grids and ventilation vents in the installation room be covered up with cloths, paper or any other material.
- ➤ Unauthorised persons must not attempt to repair the appliance.
- ➤ It is dangerous to pull or twist the electric leads.
- ➤ Cleaning operations must not be performed if the appliance is not disconnected from the main power supply.
- ➤ Do not clean the burner or its parts with inflammable substances (e.g. petrol, alcohol, etc.). The cover must be cleaned with soapy water.
- ➤ Do not place anything on the burner.
- ➤ Do not block or reduce the size of the ventilation vents in the installation room.
- ➤ Do not leave containers and inflammable products in the installation room.

Bruciatore di gasolio - kerosene • Light oil - kerosene burner • Brûleur fioul domestique - kérosène Öl-/Kerosin-Gebläsebrenner • Stookoliebrander-kerosine

MOD.	COD.	BOULTER COD.	TIPO/TYPE/TYP
COH 220	**3746466**	**8-716-111-551**	**464 T55**



N.	COD.	DESCRIZIONE	DESCRIPTION	DESCRIPTION	BESCHREIBUNG	BENAMING	RICAMBI CONSIGLIATI ADVISED SPARE PARTS RECHANGE CONSEIL EMPFOHLENE ERSATZTEILE AANGERADEN RESERVEONDERDELEN
1	**3007811**	POMPA	PUMP	POMPE	PUMPE	POMP	C
2	**3002279**	BOBINA	COIL	BOBINE	MAGNETVENTIL-SPULE	SPOEL	B
3	**3006553**	MANTELLO E POMELLO	SHELL AND KNOB	ETRIER ET ECROU	BÜGEL UND KNOPF	BEUGEL EN MOER	A
4	**3007202**	REGOLATORE	REGULATOR	REGULATEUR	REGLER	REGELAAR	A
5	**3008653**	FILTRO - ANELLO OR	FILTER - O - RING	FILTRE - JOINT TORIQUE	FILTER - O - RING	FILTER - DICHTING O - RING	A
6	**3006925**	VALVOLA	NEEDLE VALVE	VANNE MAGNETIQUE	MAGNETVENTIL-KÖRPER	VENTIEL	A
7	**3007203**	PIASTRINA	PLATE	PLAQUETTE ETRIER	PLATTE	BEUGELPLAATJE	A
8	**3001156**	APPARECCHIATURA 530SE*	CONTROL BOX 530SE*	BOITE DE CONTROLE 530SE*	STEUERGERÄT 530SE*	CONTROLEDOOS 530SE*	B
9	**3002278**	MORSETTIERA	TERMINAL BOARD	SOCLE	STECKSOCKEL	BASIS CONTROLEDOOS	C
10	**3000439**	ORGANO DI TENUTA	PUMP SEAL	ORGANE D'ETANCHEITE	DICHTUNGSEINSATZ ANTRIEBSWEL.	ASDICHTING	A
11	**3005789**	TUBO	TUBE	TUYAU	DRUCKROHR	DRUKLEIDING	
12	**3007815**	TUBO	TUBE	TUYAU	DRUCKROHR	DRUKLEIDING	
13	**3000443**	GIUNTO	JOINT	ACCOUPLEMENT	PUMPENKUPPLUNG	KOPPELING	A
14	**3006557**	COPERCHIO	COVER	COUVERCLE	DECKEL	DEKSEL	
15	**3005791**	COLLARE	COLLAR	COLLIER	BRENNERFLANSCH	TEGENFLEN	
16	**3005764**	PORTAUGELLO	NOZZLE HOLDER	PORTE GICLEUR	DÜSENSTOCK	SPROEIERHOUDER	B
17	**3002280**	FOTORESISTENZA	P.E. CELL	CELLULE PHOTORESISTANCE	FOTOWIDERSTAND	FOTOCEL	A
18	**3005792**	GRUPPO BOCCAGLIO	BLAST TUBE ASSEMBLY	GROUPE GUEULARD	BRENNERROHRSYSTEM	BRANDERKOPGROEP	B
19	**3005793**	ELICA	DIFFUSER DISC	ACCROCHE FLAMME	STAUSCHEIBE	VLAMHOUDER	A
20	**3005794**	ANELLO	END RING	EMBOUT GUEULARD	FLAMMKOPF	BRANDERKOPRING	B
21	**3005796**	FLANGIA	FLANGE	BRIDE	KESSELFLANSCH	FLENS	
22	**3002918**	GRUPPO ELETTRODI	ELECTRODE ASSEMBLY	GROUPE ELECTRODES	ELEKTRODENBLOCK	ELECTRODENGROEP	A
23	**3006552**	FASCETTA	ELECTRODE BRACKET	SUPPORT ELECTRODES	ELECTRODEN HALTERUNG	ELECTRODENKLEM	
24	**3006911**	MARTINETTO IDRAULICO	HYDRAULIC JACK	VERIN AIR	LUFTKLAPPE DRUCKKOLBEN	VIJZEL LUCHTREGELING	C
25	**3000879**	SERRANDA	AIR DAMPER	VOLET AIR	LUFTKLAPPE	LUCHTKLEP	
26	**3007205**	SERRANDA	AIR DAMPER	VOLET AIR	LUFTKLAPPE	LUCHTKLEP	
27	**3005788**	GIRANTE	FAN	TURBINE	GEBLÄSERAD	VENTILATOR	C
28	**3005798**	CONDENSATORE 4 µF	CAPACITOR 4 µF	CONDENSATEUR 4 µF	KONDENSATOR 4 µF	CONDENSATOR 4 µF	B
29	**3007971**	MOTORE	MOTOR M	OTEUR	MOTOR	MOTOR	C
30	**3008935**	COFANO	BODY	CAPOT	VERKLEIDUNG	BRANDERKAP	
31	**3007793**	CAVO E SPINA A 4 POLI	LEAD AND 4 -PIN PLUG	CABLE ET FICHE A 4 POLES	VERBIN. UND 4 - POL. STECK.	KABEL EN 4 - POL. STEKKER	

A = Ricambi per dotazione minima - Spare parts for minimum fittings - Pièces détachées pour équipement mimimum - Erzatzteile für minimale Ausstattung - Reserveonderdelen voor minimale uitrusting.
A+B = Ricambi per dotazione base di sicurezza - Spare parts for basic safety fittings - Pièces détachées pour équipement standard de sécrité - Erzatzteile für Sicherheitsgrundausstattung - Reserveonderdelen voor basis veiligheidsuitrusting.
A+B+C = Ricambi per dotazione estesa di sicurezza - Spare parts for extended safety fittings - Pièces détachées pour équipement complet de sécurité - Erzatzteile für erweiterte Sicherheitsausstattung - Reserveonderdelen voor uitgebreide veiligheidsuitrusting.

Kerosene and light oil burners

One stage operation

RDB

CODE	BOULTER CODE	MODEL	TYPE
3748960	8-716-108-334	CAMRAY5 150/200	490 T51
3748961	8-716-108-333	CAMRAY5 200/240	490 T51
3748962	8-716-111-556	COH 280	490 T51