

OIL BURNERS

Ecoflam



MAX P 35 AB D HT

MAX P 45 AB D HT

HYDRAULIC SYSTEM



420010481201

420010481201

17.02.2014

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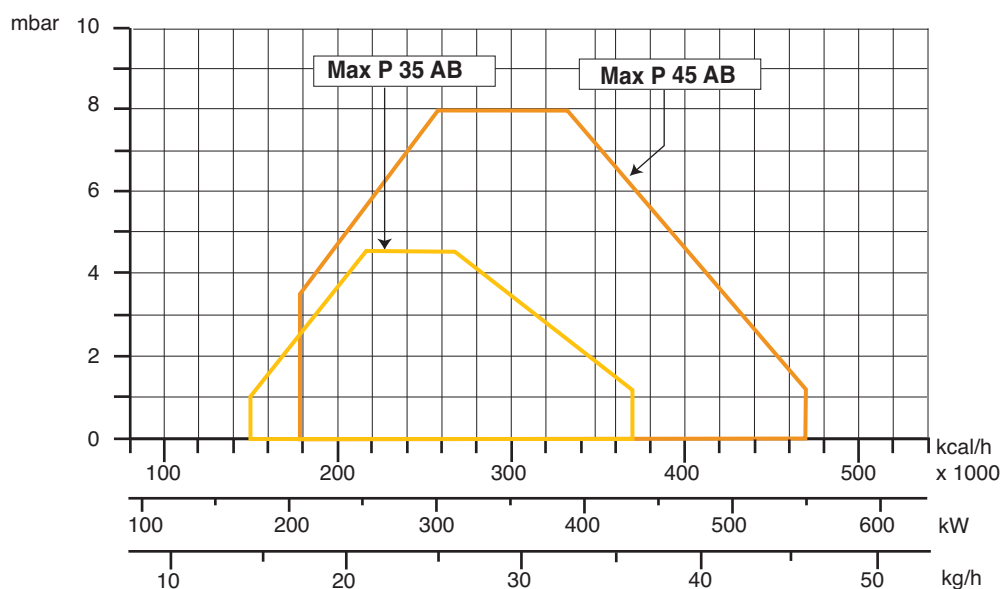
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TECHNICAL DATA

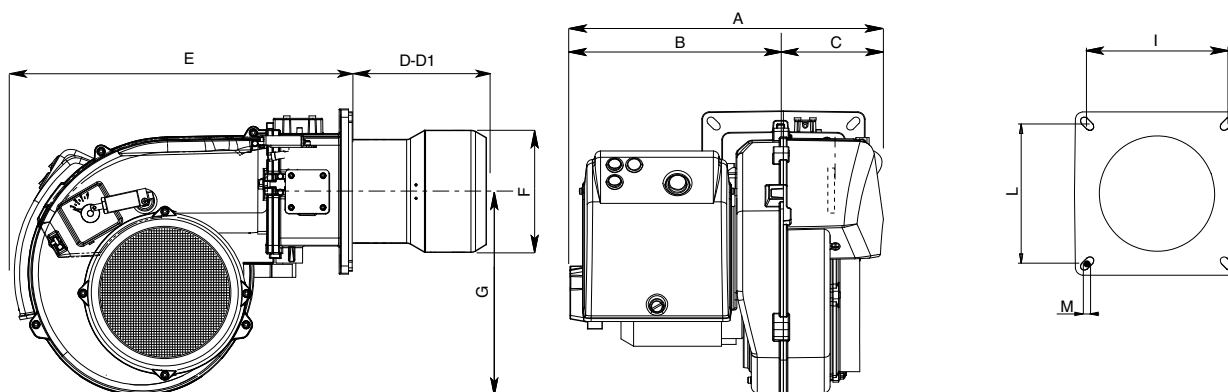
MODELS		MAX P 35 AB	MAX P 45 AB
Thermal power max.	kcal/h	367.000	469.000
	kW	427	546
Thermal power min.	kcal/h	143.000	173.000
	kW	166	202
Max. flow rate light oil	kg/h	36	46
Min. flow rate light oil	kg/h	14	17
Feeding power	50 Hz V	230	230/400
Motor	W		740
Rpm	Nº	2800	2800
Ignition transformer	kV/mA	2x7,5 /40	2x7,5 /40
Control box	LANDIS	LMO 44	LMO 44
Fuel: light oil	kcal/kg	10.200 max. visc 1,5°E a 20°C	

WORKING FIELDS

PRESSURE IN THE COMBUSTION CHAMBER



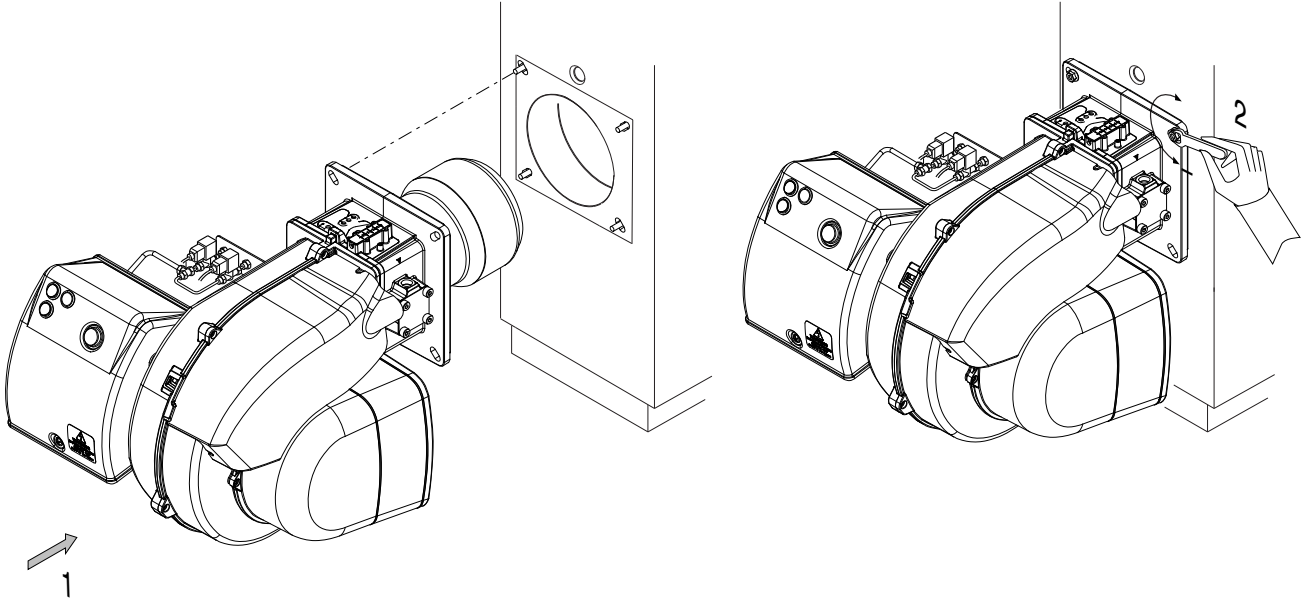
BURNER OUTPUT

OVERALL DIMENSIONS


MODELS	A	B	C	D	D1	E	F	G	I	L	M
MAX P 35 AB HT	424	294	130	175	365	466	160	280	185/200	185/200	M8
MAX P 45 AB HT	424	294	130	175	365	466	160	280	185/200	185/200	M8

D = short head D1 = long head

MOUNTING TO THE BOILER

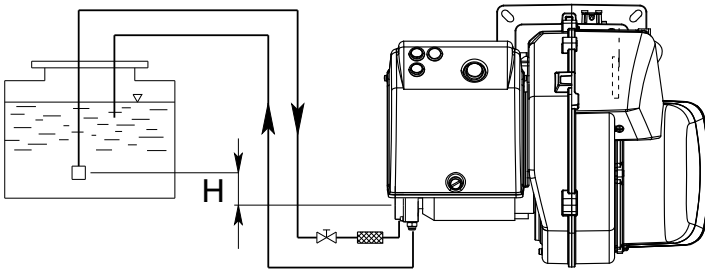


ELECTRICAL CONNECTIONS

All burners are factory tested at 230V 50 Hz single phase (Max P 35) o 400 V 50 Hz 3-phase (Max P 45) for motors and 230V 50 Hz single phase with neutral for auxiliary equipments. Should it be necessary to power the burner with 230V - 50Hz, modify the connections on motor and the terminal board as shown in the picture. Protect the burner supply line with suitable fuses and/or other safety devices as required by the local regulations on the matter.

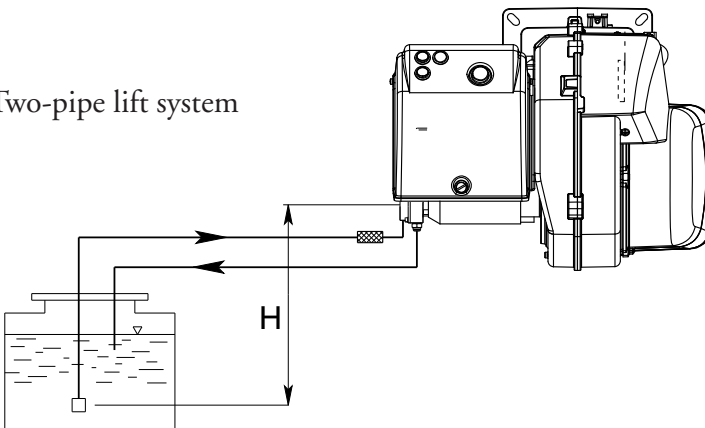
MAXIMUM LENGTHS OF SUCTION LINES FOR TWO-PIPE SYSTEM SUNTEC D 67

Two-pipe siphon feed system



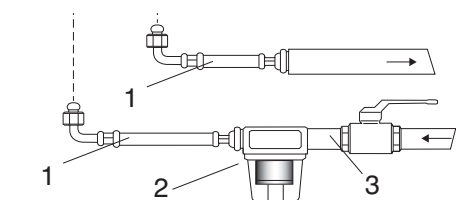
H (m)	Length pipe (m)	
	D 67 (m)	
	ø 10 mm	ø 12 mm
0		
0,5		
1		
2		
3		
3,5		

Two-pipe lift system

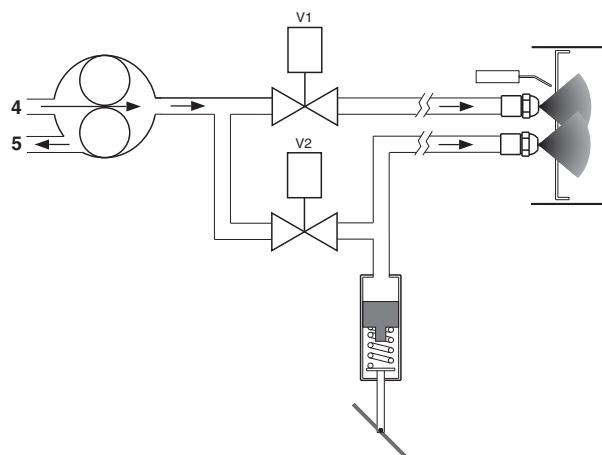


H (m)	Length pipe (m)	
	D 67 (m)	
	ø 10 mm	ø 12 mm
0		
0,5		
1		
2		
3		
3,5		

HYDRAULIC CIRCUIT

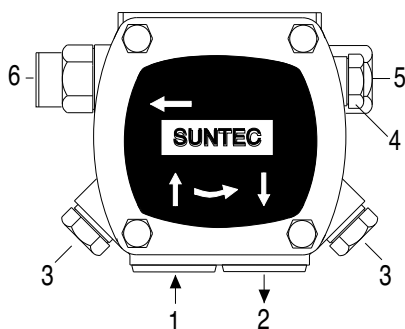


- 1 - HOSE
- 2 - OIL FILTER
- 3 - OIL COCK
- 4 - SUCTION
- 5 - RETURN



PRIMING AND ADJUSTMENT OF OIL PUMP

SUNTEC D 67 A



- 1 - INLET
- 2 - RETURN
- 3 - BLEED AND PRESSURE GAUGE PORT
- 4 - VACUUM GAUGE PORT
- 5 - PRESSURE ADJUSTMENT
- 6 - TO NOZZLE

VERIFY:

- That piping system is perfectly sealed.
- That the use of hoses is avoided whenever is possible (use copper pipes preferably).
- That depression is not greater than 0,45 bar, to avoid pump's cavitation.
- That check valve is suitably designed for the duty.

The pump pressure is set at a value of 12 bar during the testing of burners. Before starting the burner, bleed the air in the pump through the gauge port. Fill the piping with light-oil to facilitate the pump priming. Start the burner and check the pump feeding pressure. In case the pump priming does not take place during the first prepurging, with a consequent, subsequent lock-out of the burner, rearm the burner's lock-out to restart, by pushing the button on the control box. If, after a successful pump priming, the burner locks-out after the prepurging, due to a fuel pressure drop in the pump, rearm the burner's lock-out to restart the burner. Do never allow the pump working without oil for more than three minutes. Note: before starting the burner, check that the return pipe is open. An eventual obstruction could damage the pump sealing device.

BURNER START-UP AND ADJUSTMENT

Once having installed the burner, check the following items:

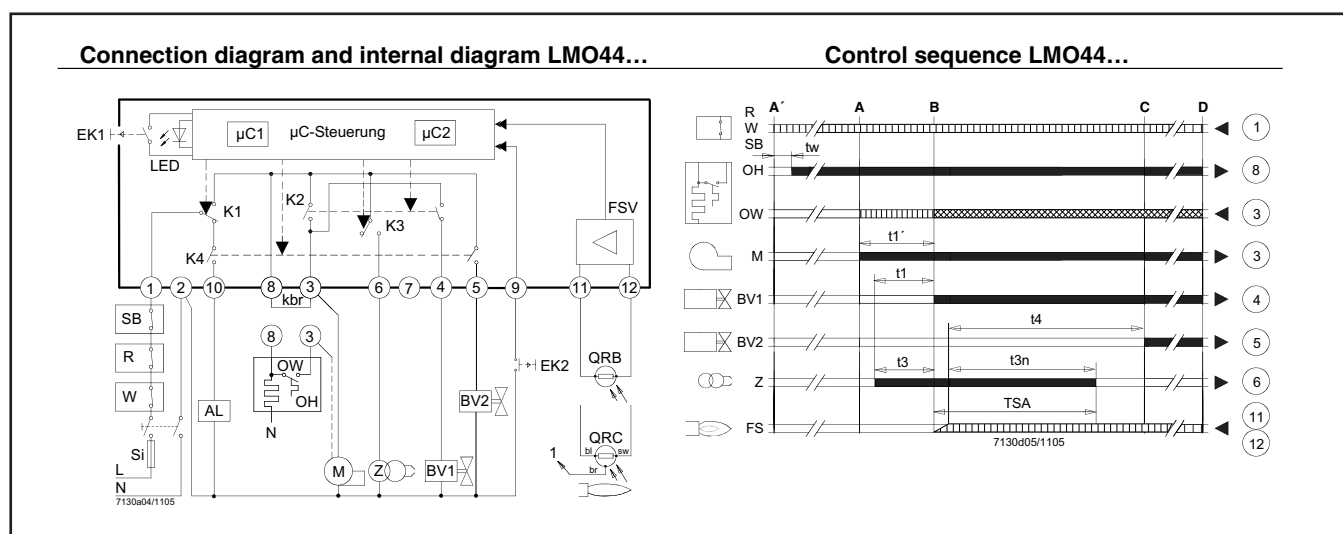
- The burner power feeding and the main line protection fuses
- The correct length of pipes and that the same are sealed.
- The type of fuel, which must be suitable for burner.
- The connection of boiler's thermostats and all the safeties.

When all the above mentioned conditions are checked and accomplished, it is possible to go on with burner's tests. Power the burner. The control box feeds the ignition transformer and the burner's motor at the same time, which will run a prepurging of the combustion chamber for about 20 sec.

At the end of prepurging, the control box opens the fuel pump and the 1st stage (Low flame) solenoid valves, the ignition transformer produces a spark and the burner ignites. After a safety interval of 5÷10 seconds and a correct ignition, the control box turns off the ignition transformer and, 10 seconds later, sets the air damper to its maximum opening and opens the 2nd stage solenoid valve (High flame). In case of faulty ignition, the control box switches the burner into safety condition. In order to obtain an optimal combustion, it is necessary adjust the LOW - HIGH flame air flow, according to the instruction given further on. The fuel pump feeding pressure, must remain around 12 bar.

LANDIS LMO 44 CONTROL INFORMATION SYSTEM

In case of burner lockout, it is possible to read which cause originated it. Proceed as follows: with the burner in lockout mode (red LED switched on) keep pressed the lockout button for more than 3 sec. then release it. The red LED will blink according to the following error code list:



AL Alarm device
 BV... Fuel valve
 EK1 Lockout reset button
 EK2 Remote lockout reset button
 FS Flame signal
 FSV Flame signal amplifier
 K... Contacts of control relay
 kbr Cable link (required only when no oil preheater is used)
 LED 3-color signal lamp
 M Burner motor
 OW Release contact of oil preheater
 OH Oil preheater

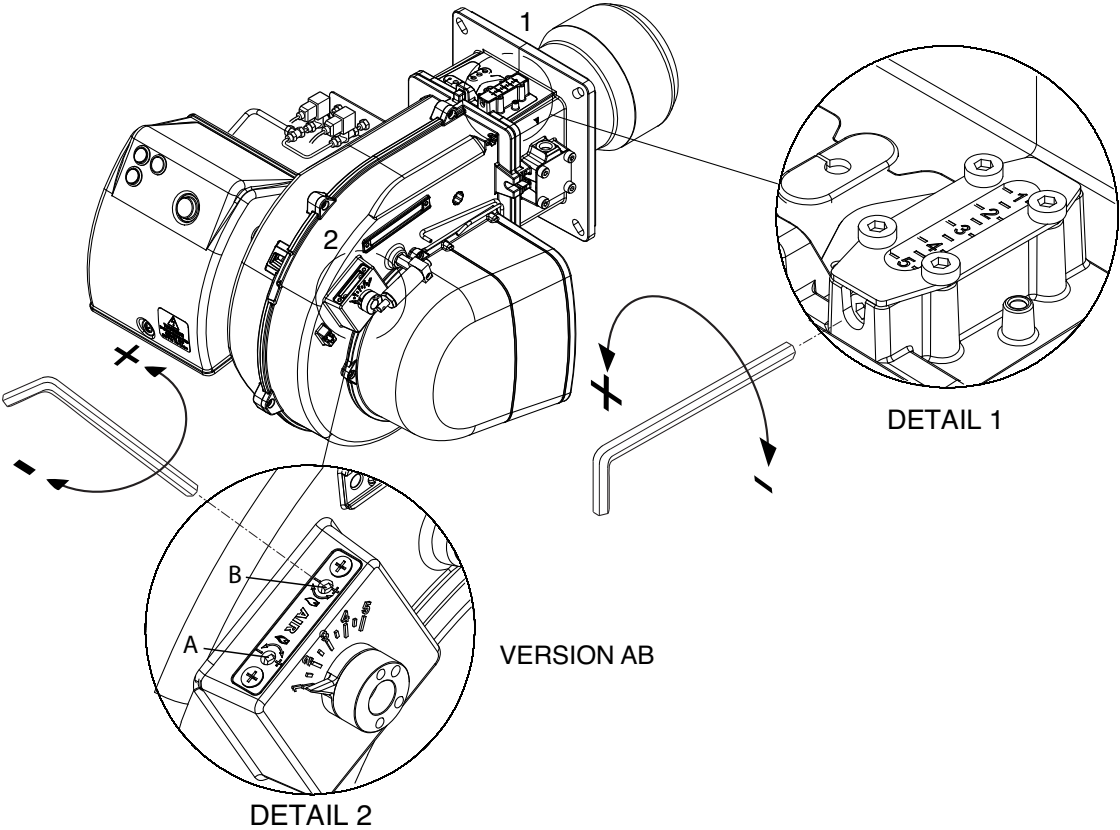
QRB... Photoresistive flame detector
 QRC... Blue-flame detector
 bl = blue, br = brown, sw = black
 R Control thermostat or pressurestat
 SB Safety limit thermostat
 Si External primary fuse
 W Limit thermostat or pressure switch
 Z Ignition transformer
 TSA Ignition safety time
 tw Waiting time

t1 Prepurge time
 t1' Purge time
 t3 Preignition time
 t3n Postignition time
 t4 Interval from flame signal to release of «BV2»
 A' Start of startup sequence with burners using an «OH»
 A Start of startup sequence with burners using no «OH»
 B Time of flame establishment
 C Operating position
 D Controlled shutdown by «R»

Color code table for multicolor signal lamp (LED)		
Status	Color code	Color
Waiting time «tw», other waiting states	○	Off
Oil preheater on, waiting time «tw»	●	Yellow
Ignition phase, ignition controlled	● ○ ● ○ ● ○ ● ○ ● ○ ● ○ ● ○ ● ○ ● ○	Flashing yellow
Operation, flame o.k.	□	Green
Operation, flame not o.k.	□ ○ □ ○ □ ○ □ ○ □ ○ □ ○ □ ○ □ ○ □ ○	Flashing green
Extraneous light on burner startup	□ ▲ □ ▲ □ ▲ □ ▲ □ ▲ □ ▲ □ ▲ □ ▲ □ ▲	Green-red
Undervoltage	● ▲ ● ▲ ● ▲ ● ▲ ● ▲ ● ▲ ● ▲ ● ▲ ● ▲	Yellow-red
Fault, alarm	▲	Red
Error code output (refer to «Error code table»)	▲ ○ ▲ ○ ▲ ○ ▲ ○ ▲ ○ ▲ ○ ▲ ○ ▲ ○ ▲ ○	Flashing red
Interface diagnostics	▲ ▲ ▲ ▲ ▲ ▲ ▲ ▲ ▲ ▲ ▲ ▲ ▲ ▲ ▲ ▲	Red flicker light
Legend:	 Steady on ▲ Red □ Green ○ Off ● Yellow	

Error code table		
Red blink code of signal lamp (LED))	«AL» at term. 10	Possible cause
2 blinks	on	No establishment of flame at the end of «TSA» - Faulty or soiled fuel valves - Faulty or soiled flame detector - Poor adjustment of burner, no fuel - Faulty ignition equipment
3 blinks	on	Free
4 blinks	on	Extraneous light on burner startup
5 blinks	on	Free
6 blinks	on	Free
7 blinks	on	Too many losses of flame during operation (limitation of the number of repetitions)- Faulty or soiled fuel valves. - Faulty or soiled flame detector - Poor adjustment of burner.
8 blinks	on	Time supervision oil preheater - Oil preheater failed 5 times during prepurging
9 blinks	on	Free
10 blinks	off on	Wiring fault or internal fault, output contacts, other faults. 3 times temporary fault of the output contacts

FIRING HEAD / AIR SETTING



To adjust **LOW** air flow, turn the screw **B** as required. To reduce output, turn screw clockwise, to increase it turn screw counterclockwise.

To adjust **HI** air flow, turn the screw **A** as required. To reduce output, turn screw counterclockwise, to increase it turn screw clockwise.

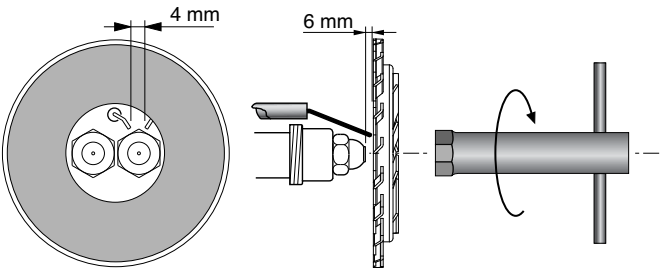
ADJUSTMENT DATA

Output kW		Output kg/h		Nozzle		Pump bar	Air Setting		Head Setting
1°st	2°st	1°st	2°st	1°st	2°st		1°st	2°st	

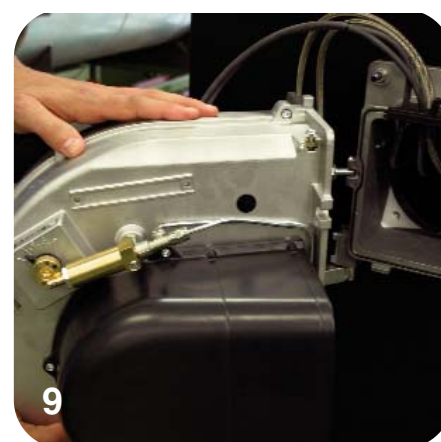
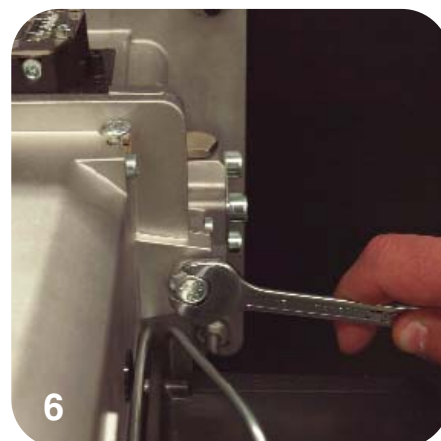
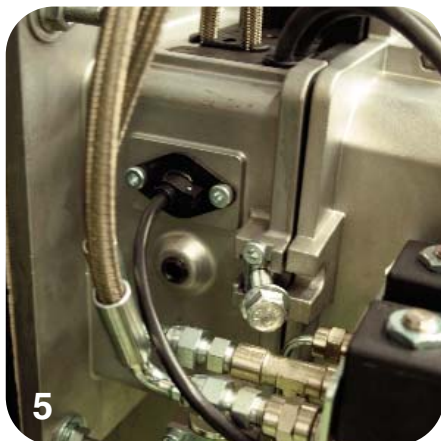
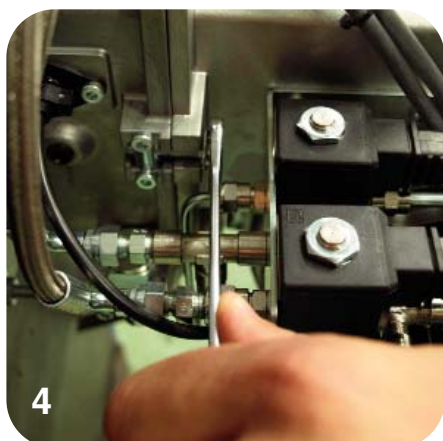
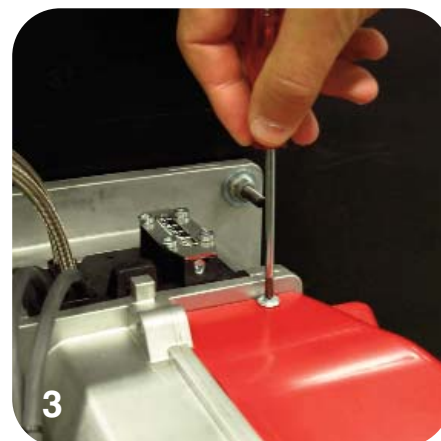
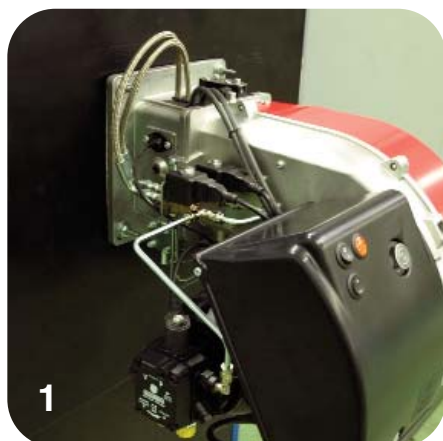
UGELLO : DANFOSS H÷S 80°÷60°; DELAVAN W 60°; STEINEN S 60°

NOZZLE CLEANING AND REPLACEMENT

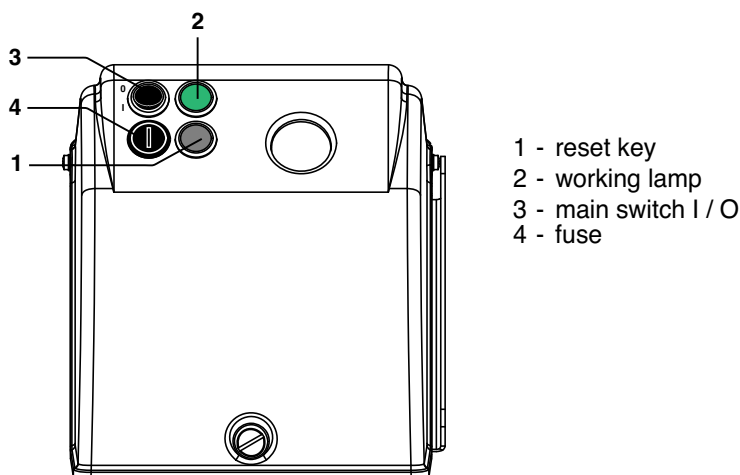
Use only the suitable box wrench provided for this operation to remove the nozzle, taking care to not damage the electrodes. Fit the new nozzle with the same care.
Note: Always check the position of electrodes after having replaced the nozzle (see illustration). A wrong position could cause ignition troubles.



REMOVING FIRING HEAD



DESCRIPTION OF THE CONTROL PANEL OF THE BURNER



MAINTENANCE

The burner does not start.

- Main switch in “0” position.
- Fuses are blown.
- Boiler thermostats are in open position.
- Control box is faulty.

The burner runs the prepurging but does not ignite and then switches into safety condition.

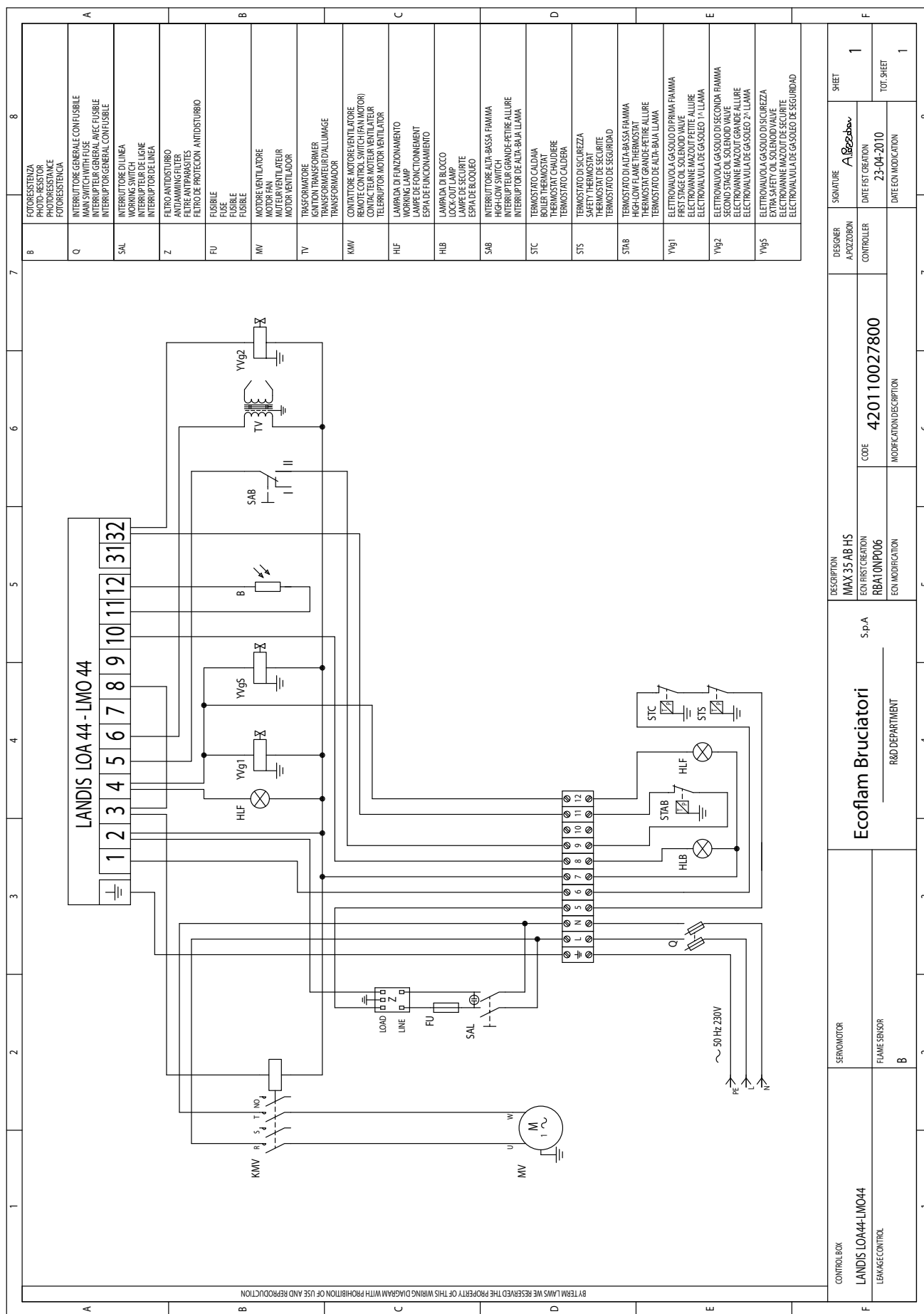
- Control box is faulty.
- Ignition transformer is faulty.
- Electrodes are dirty.
- Electrodes are faulty.
- Electrodes are in wrong position.
- Nozzles are clogged.
- Nozzles are too worn.
- Filters are clogged.
- Oil pressure too low.
- Combustion air flow rate excessively high related to nozzle's flow rate.

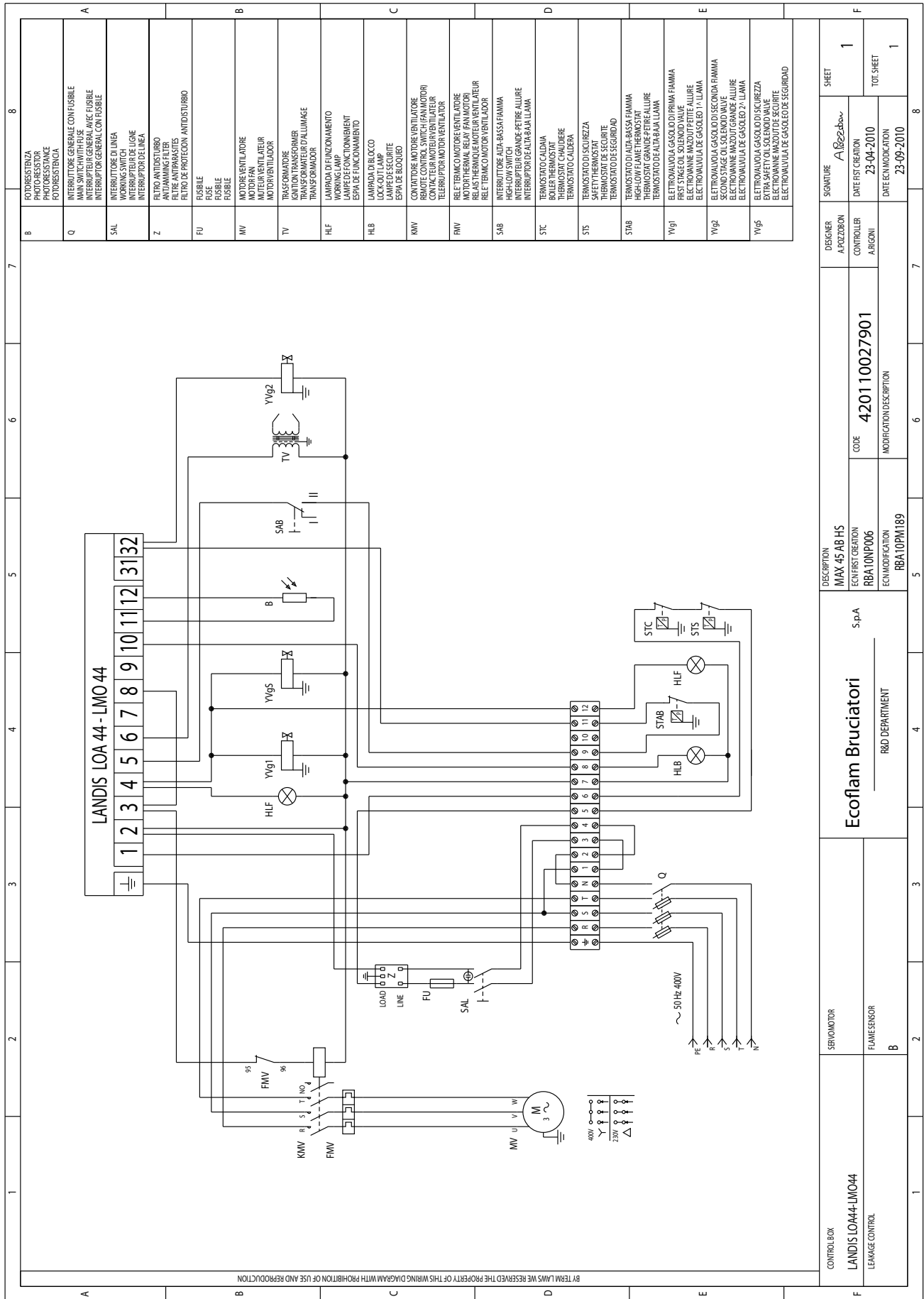
The burner ignites but then switches into safety condition

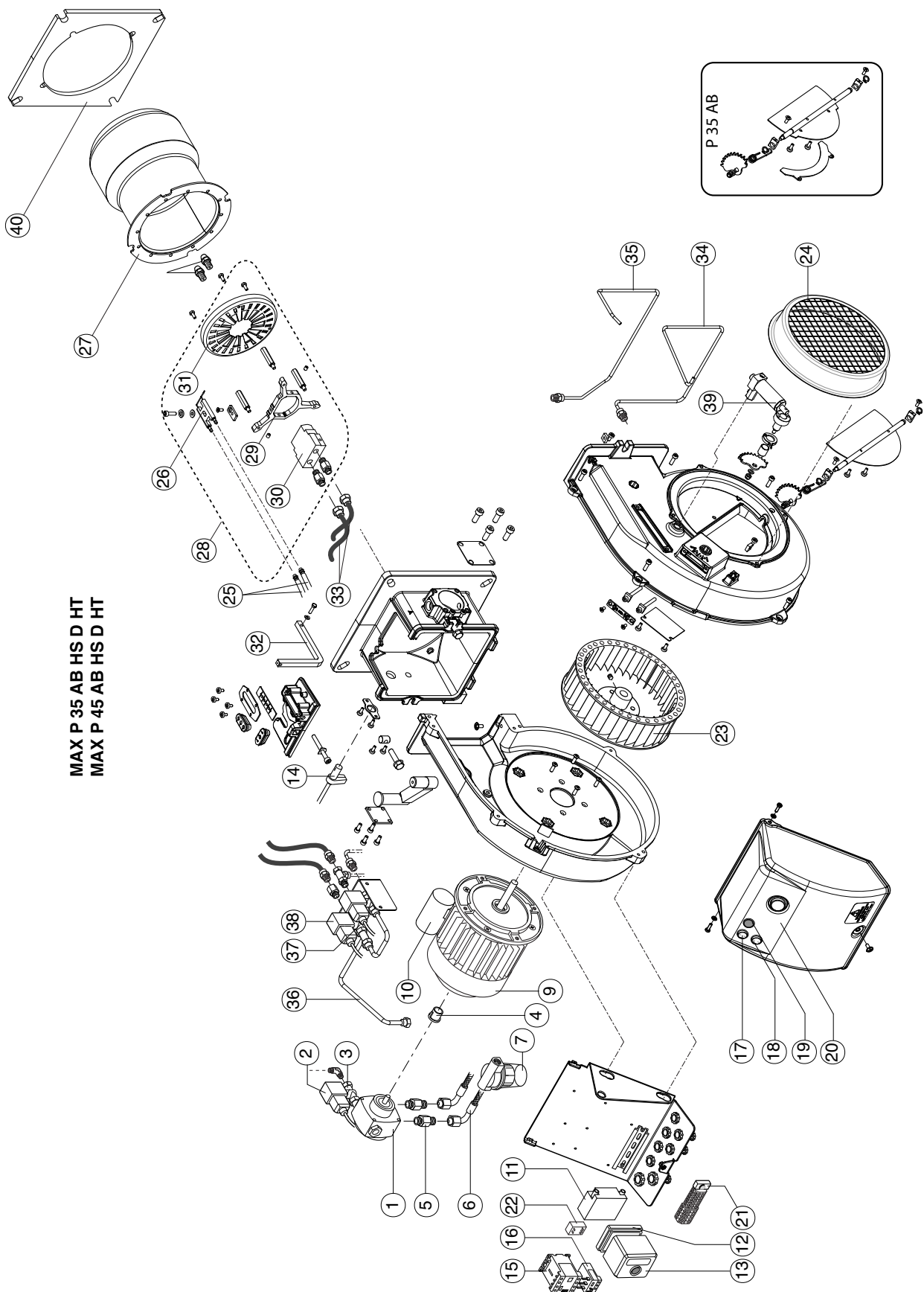
- Control box is faulty.
- Nozzles are clogged.
- Nozzles are too worn.
- The photocell does not detect the flame.
- Filters are clogged.
- Oil pressure too low.
- Combustion air flow rate excessively high related to nozzle's flow rate.

The burner does not switch to High flame

- 1st(Low flame) and 2nd (High flame) stage manual switch on control board is in wrong position.
- Control box is faulty.
- 2nd stage solenoid valve coil is faulty.
- Oil pressure too low.
- Filters are clogged.
- 2nd stage nozzle is too worn.
- 2nd stage nozzle is clogged.
- Air damper's hydraulic jack not properly adjusted or faulty.







			MAX P 45 AB
N°	DESCRIPTION		code
1	OIL PUMP	SUNTEC D 67 A	65322956
2	COIL	DELTA 1/8 F.F.F84	65323765
3	OIL VALVE	DELTA 1/8 F.F.F84	65323754
4	COUPLING	SIMEL	65322918
5	NIPPLE	TN 10X1200 F/3 3/8X1/4	65323188
6	HOSES	TN 10X1200	65323187
7	FILTER	ART.70301-01P	65324051
8	COVER		-
9	MOTOR	740 W	65322808
10	CAPACITOR		-
11	IGNITION TRANSFORMER	DANFOSS CM	65323257
12	CONTROL BOX BASE	LANDIS	65320092
13	CONTROL BOX	LMO44.255C2	65320024
14	PHOTORESISTOR	QRB1A-A050B70A2	65320076
15	REMOTE CONTROL SWITCH	BG0910A	65323138
16	MOTOR THERMAL RELAY	Lovato 11RF9 1,4-2,3A	65323098
17	MAIN SWITCH	KB24448AOBB	65324696
18	HIGH-LOW FLAME SWITCH	KB11248COBB	65324697
19	LAMP	KL09248X2BY	65324695
20	COVER		65324705
21	FUSE SUPPORT	HK 520 04-1	65324279
22	ANTIJAMMING FILTER		65323170
23	FAN	200 x 80	65324710
24	COVER AIR INLET		65325586
25	CABLES	TC	65324863
		TL	65324863
26	ELECTRODES		65320923
27	BLAST TUBE	TC	65324866
		TL	65324867
28	INNER ASSEMBLY		65325987
29	NOZZLE HOLDER SUPPORT		65324868
30	NOZZLE HOLDER		65324860
31	DIFFUSER		65324869
32	ROD	TC	65324861
		TL	65324862
33	FIRING HEAD HOSES	TC	65324874
		TL	65324875
34	HYDRAULIC SYSTEM PIPE		65325527
35	PIPE (2nd FLAME)		65325364
36	PUMP PIPE		65324873
37	OIL VALVE	Parker SCEM VE131IN	65323624
38	COIL	Parker SCEM VE131IN	65323782
39	HYDRAULIC SYSTEM		65322335
40	GASKET		65324701

TC = TESTA CORTA/ SHORT HEAD TL = TESTA LUNGA/ LONG HEAD

Blank lined area for notes or calculations.

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