

OIL BURNERS

Ecoflam



MAIOR TS P 120 AB



420010489300

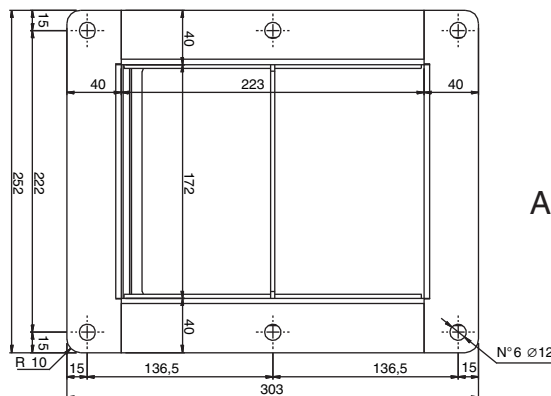
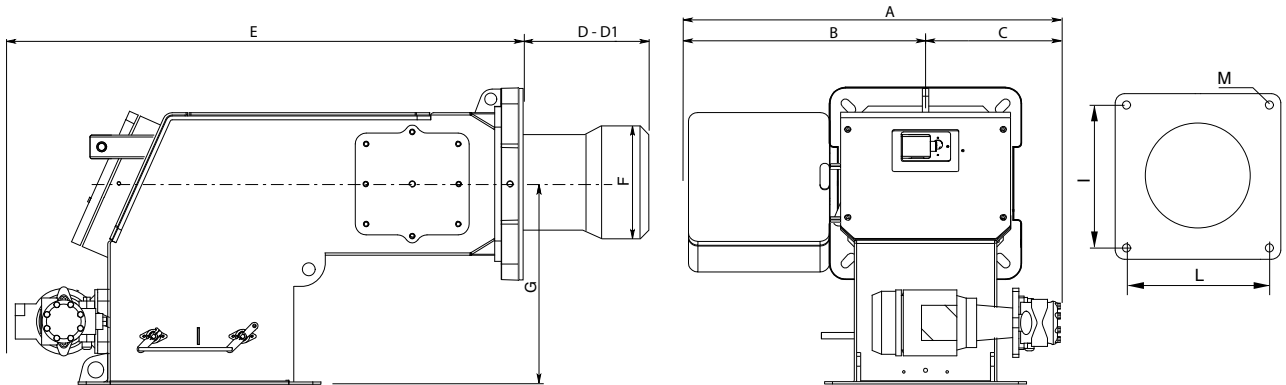
420010489300

09.10.2015

TECHNICAL DATA

MODEL		MAIOR TS P 120 AB	
Thermal power max.	kW	1423	
	kcal/h	1.200.000	
Thermal power min.	kW	830	
	kcal/h	700.000	
Max. flow rate light oil	kg/h	120	
Min. flow rate light oil	kg/h	70	
Fuel : light oil	kcal/kg	10.200 max. visc 1,5°E a 20°C	

OVERALL DIMENSIONS

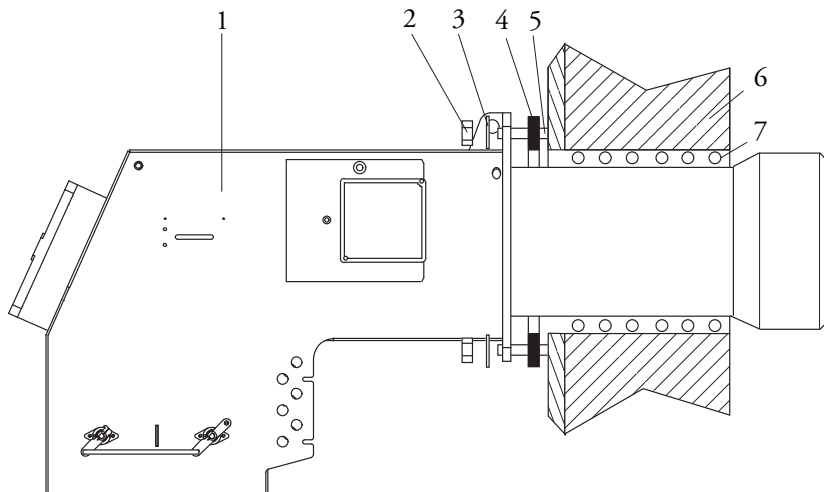


AIR FLANGE

Dimensions (mm)

MODEL	A	B	C	D	D1	E	F	G	I	L	M
Maior TS P 120 AB HT	755	513	242	220	440	710	190	290	190	190	M10
D = short head D1 = long head											

BURNER INSTALLATION

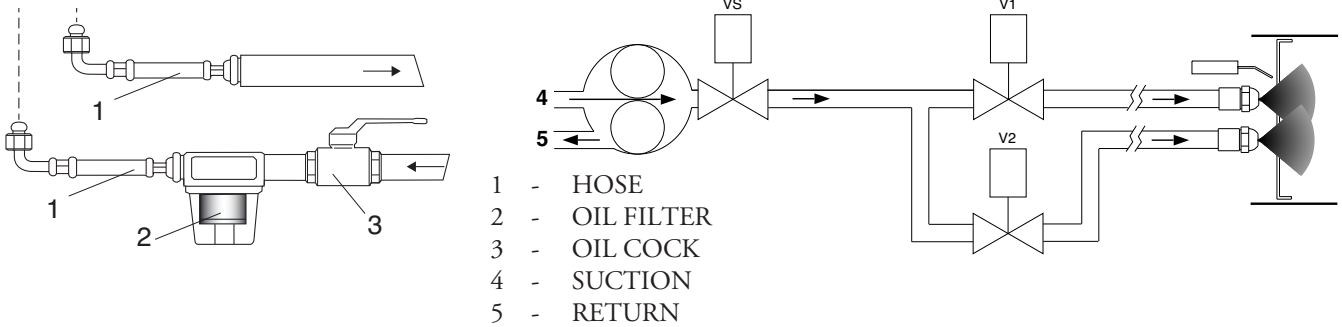


- 1 - BURNER
- 2 - NUT
- 3 - WASHER
- 4 - GASKET
- 5 - BOLT
- 6 - BOILER
- 7 - GASKET

ELECTRICAL CONNECTIONS

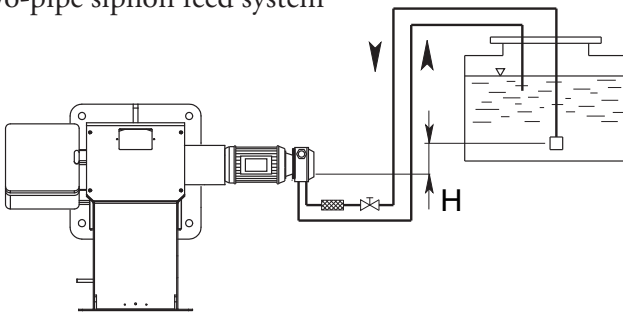
All burners are factory tested at 400 V - 50Hz 3-phase for motors, and 230 V - 50Hz single phase with neutral for auxiliary equipments. Should it be necessary to power the burner with 230V - 50Hz, modify the connections on motor and the terminal board as shown in the picture. Protect the burner supply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

HYDRAULIC CIRCUIT



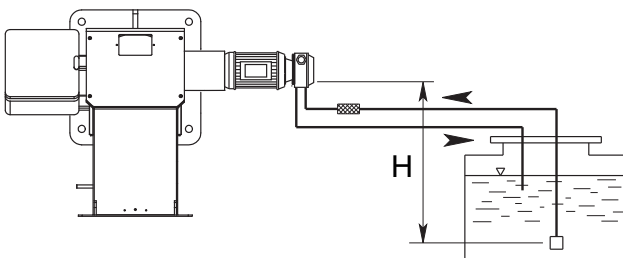
MAXIMUM LENGTH OF SUCTION LINES FOR TWO-PIPE SYSTEM

Two-pipe siphon feed system



H (m)	Pipe length			
	AS 67 / AN 77 (m)		AJ 6 (m)	
	ø 10 mm	ø 12 mm	ø 14 mm	ø 16 mm
0	32	90	22	38
0,5	36	90	25	45
1	40	90	30	50
2	48	90	35	60
3	56	90	38	70
3,5	60	90	40	80

Two-pipe lift system



H (m)	Pipe length			
	AS 67 / AN 77 (m)		AJ 6 (m)	
	ø 10 mm	ø 12 mm	ø 14 mm	ø 16 mm
0	25	70	25	45
0,5	21	62	20	38
1	18	54	18	33
2	10	38	10	20
3	5	20	5	10
3,5	---	10	2	4

To correct length of pipes is calculated by summing up the length of all vertical and horizontal right sections and bends. The static suction head will be the distance between the non-return valve and the burner's pump axle. The depression must not be greater than 0.45 bar; should it be higher, some damages could occur to the pump, with consequent increase in mechanical noises and ,eventually, a failure.

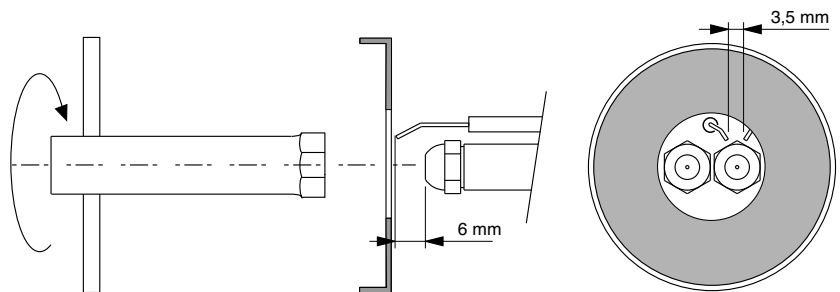
NOZZLE FLOW RATE

DELAVAN B - MONARCH PLP

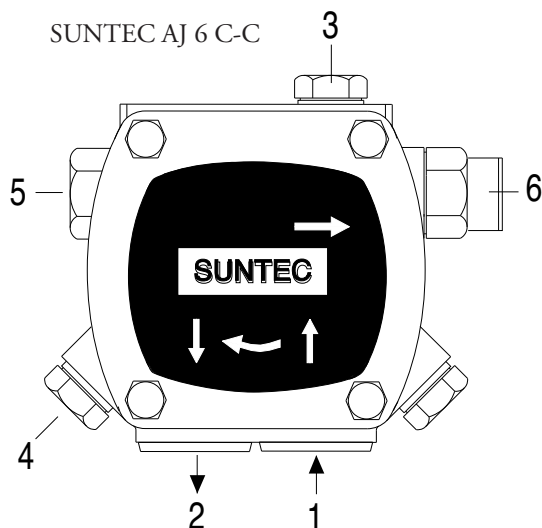
NOZZLE GPH	PUMP PRESSURE (bar)						
	10	11	12	13	14	15	16
2,50	9,50	9,97	10,41	10,83	11,24	11,64	12,02
3,00	11,40	11,96	12,49	13,00	13,49	13,96	14,42
3,50	13,30	13,95	14,57	15,17	15,74	16,29	16,83
4,00	15,20	15,94	16,65	17,33	17,99	18,62	19,23
4,50	17,10	17,94	18,73	19,50	20,24	20,95	21,63
5,00	19,00	19,93	20,82	21,67	22,48	23,27	24,04
5,50	20,90	21,92	22,90	23,83	24,73	25,60	26,44
6,00	22,80	23,92	24,98	26,00	26,98	27,93	28,84
6,50	23,70	25,91	27,06	28,17	29,23	30,26	31,25
7,00	26,60	27,90	29,14	30,33	31,48	32,58	33,65
7,50	28,50	29,90	31,22	32,50	33,73	34,91	36,05
8,30	31,54	33,08	34,55	35,97	37,32	38,63	39,90
9,50	36,10	37,87	39,55	41,17	42,72	44,22	45,67
10,50	40,06	41,73	43,74	45,41	47,20	48,90	50,50
12,00	45,60	47,80	50,00	52,00	54,00	55,90	57,70
13,80	52,40	55,00	57,50	59,80	62,10	64,20	66,30
15,30	58,10	61,00	63,70	66,30	68,80	71,10	73,60
17,50	66,50	69,80	72,90	75,80	78,70	81,50	84,10
19,50	74,10	77,70	81,20	84,50	87,70	90,80	93,70
21,50	81,70	85,70	89,50	93,20	96,70	100,10	103,40
24,00	91,20	95,70	99,90	104,00	107,90	111,70	115,40
28,00	106,40	111,60	116,60	121,30	125,90	130,30	134,60
30,00	114,00	119,60	124,90	130,00	134,90	139,60	144,20
GPH	OUTPUT kg/h						

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.



PRIMING AND ADJUSTMENT OF OIL PUMP



- 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.
- The motor rotation direction.
- The correct calibration of the motor's thermal protection.

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 seconds and a correct ignition, the control box turns off the ignition transformer and, 10 seconds later, sets the motorised 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 such a case, the manual rearming of the burner shall not take place before 30 seconds have elapsed from the burner's safety shutdown. In order to obtain an optimal combustion, it is necessary adjust the LOW - HIGH flame air flow, according to the instruction given further on. During such a phase, it will be possible to manually switch between HIGH (II) and LOW (I) flame and viceversa, through the High/Low flame switch. At the end of the adjusting phase, leave the switch in position II (HIGH flame). The fuel pump feeding pressure, must remain around 12 bar.

SIEMENS 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:

Error Code	Possible cause
2 blinks	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
3 blinks	Free
4 blinks	Extraneous light on burner start-up
5 blinks	Free
6 blinks	Free
7 blinks	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	Time supervision oil pre-heater
9 blinks	Free
10 blinks	Wiring error or internal error, output contacts

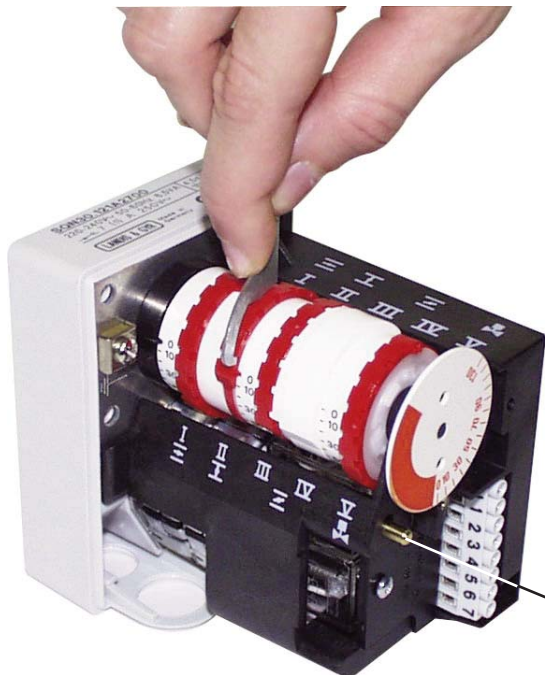
COMBUSTION AIR FLOW ADJUSTMENT (HIGH-LOW FLAME)

SIEMENS SQN 30-31 121A2700

Remove the cover to gain access to the adjustment cams. The cams are adjusted using the key provided for description:

- I - Limit switch for the "HIGH FLAME" position of the air damper (MAX POWER).
- II - Adjusting cam for the air damper position at shut down.
- III - Limit switch for the "LOW FLAME" position of the air damper.
- IV - Limit switch "NOT USED"
- V - Auxiliary switch for the release of the second stage valve (HIGH FLAME).

NOTE : Cam V (to enable the stage two electrovalve to open) is adjusted to an intermediate position between the low flame and high flame positions (to an angle approximately 5° greater than the low flame position).



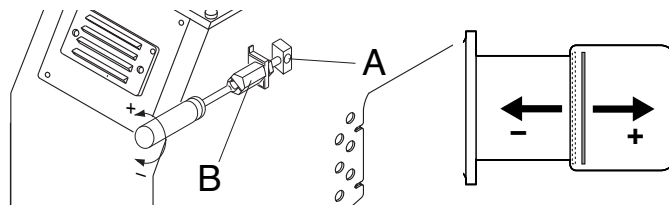
Release lever

SETTING THE FIRING HEAD

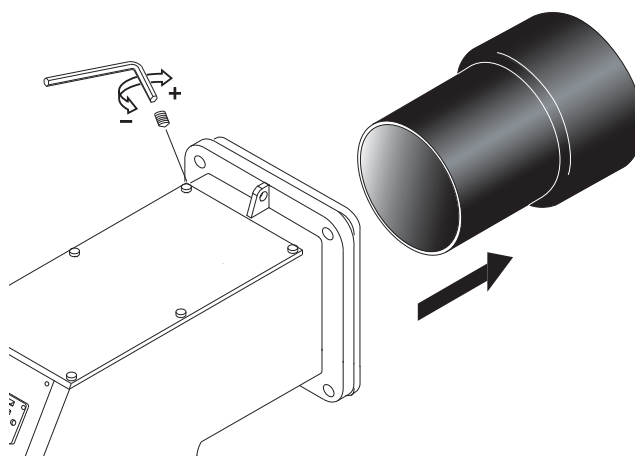
The firing head position adjustment is made in order to obtain the best combustion efficiency. When used with minimum outputs the firing head is adjusted in rear position.

With high output, the firing head is adjusted in forward position.

Adjustment: - Loosen screw A through a suitable Allen key.- By a screwdriver act on the hex. head screw B until is reached the desired position. - Tighten screw A



REMOVING THE BLAST TUBE



TROUBLESHOOTING**The burner does not start.**

- Main switch in "0".
- Fuses are blown.
- Boiler thermostats are in open position.
- Control box is defective.

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

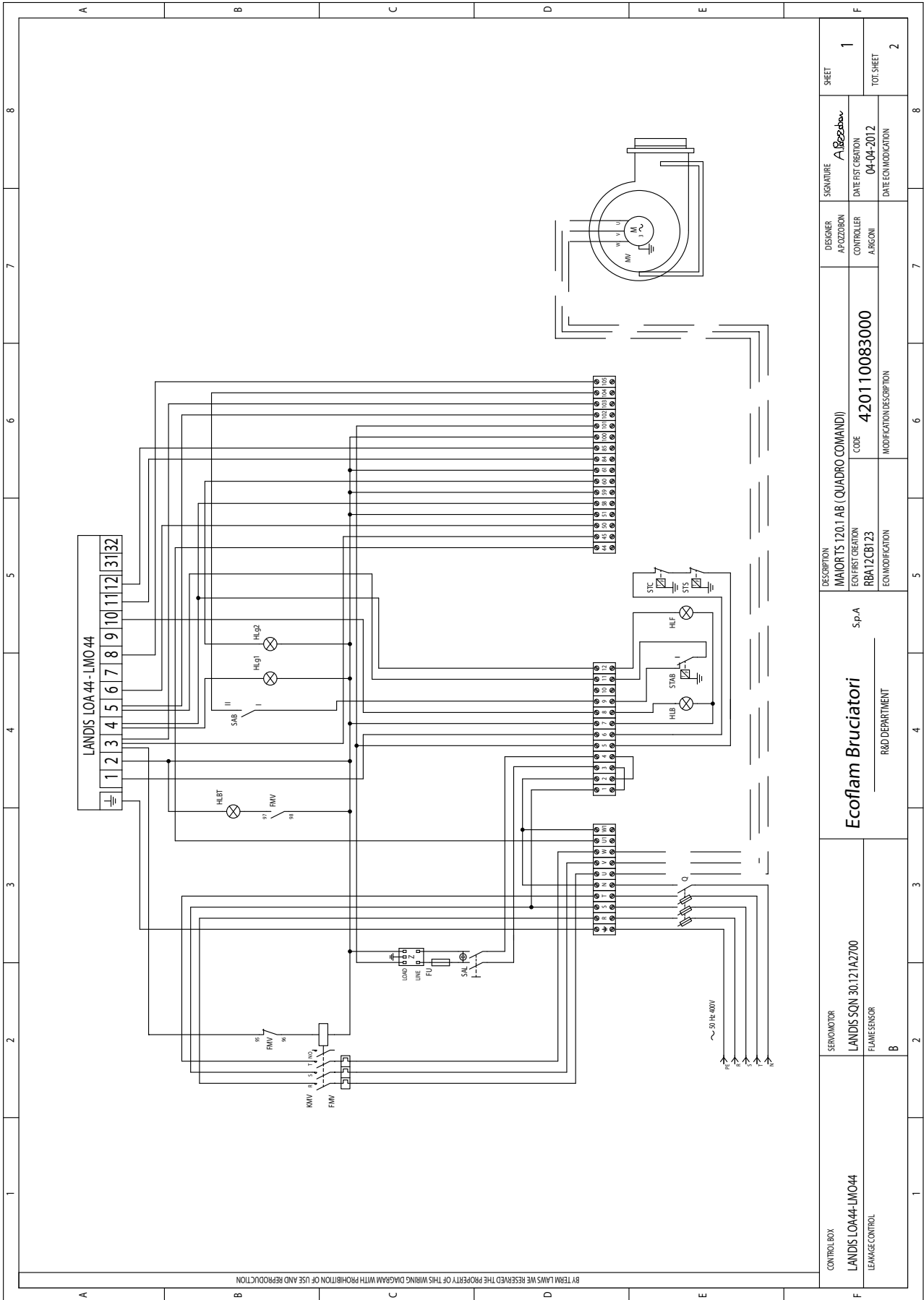
- Control box is defective.
- Ignition transformer is defective.
- Electrodes are dirty.
- Electrodes are defective.
- Electrodes are in wrong position.
- Nozzles are clogged.
- Nozzles are too worn.
- Filters are clogged.
- Oil pressure too low.
- Combustion air flow rate excessively high related to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

The burner ignites but then switches into safety condition.

- Control box is defective.
- 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.

- Low flame and High flame manual switch on control board is in wrong position.
- Control box is defective.
- Solenoid valve coil is defective.
- Oil pressure too low.
- Filters are clogged.
- Nozzle is too worn.
- Nozzle is clogged.
- Air damper's motor jack not properly adjusted or defective.

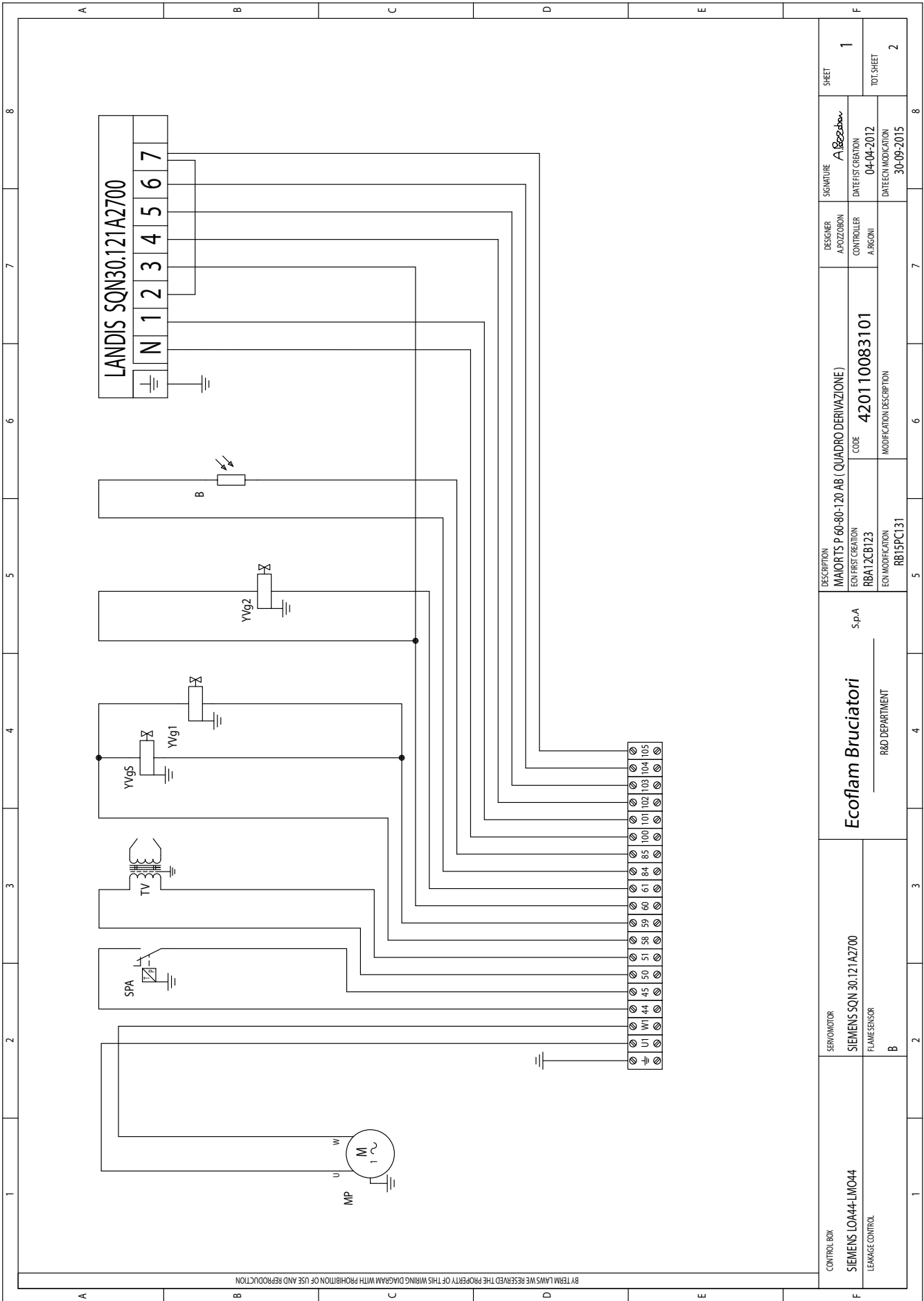



BY TEMI LAM'S WE RESERVE THE PROPERTY OF THIS WIRING DIAGRAM WITH PROHIBITION OF USE AND REPRODUCTION

CONTROL BOX LANDIS LOA 44-LMO 44 FLAME SENSOR	SEMI-MOTOR LANDIS SQN 30.12 IA 2700	Ecoflam Bruciatori		MAIOR TS 120.1 AB (QUADRO COMANDI)		DESIGNER APAZZORON	SIGNATURE A. Bazzobon	SHEET 1
	B	S.p.A	R&D DEPARTMENT	ECO FIRST CREATION RBA12CB123	CODE 420110083000	CONTROLLER A.BORGON	DATE FIRST CREATION 04-04-2012	TOP SHEET 2
				ECO MODIFICATION	MODIFICATION DESCRIPTION	DATE ECO MODIFICATION		8

A										B										C										D										E										F																																																																																																													
1										2										3										4										5										6										7										8																																																																																									
Q										Z										FU										MIV										FMV										HLB										HL91										HL92										XIV										SAL										STC										ST5										S4B										STAB										HLF										HLBT									
INTERRUTTORE GENERALE CON FUSIBILE MAINS SWITCH WITH FUSE INTERRUPTEUR GENERAL AVEC FUSIBLE INTERRUPTOR GENERAL CON FUSIBLE										FILTRO ANTIDISTURBO ANTI-FLAMMING FILTER FILTRE ANTIPARASITES FILTRO DE PROTECCION ANTIDISTURBO										FUSIBILE FUSE FUSIBLE										MOTORE VENTILATORE MOTOR FAN MOTOR VENTILATEUR MOTOR VENTILADOR										RELE TERMICO MOTORE VENTILATORE ACTOR THERMAL RELAY FAN MOTOR RELE THERMIQUE MOTEUR VENTILATEUR RELE TERMICO MOTOR VENTILADOR										LAMPADA DI BLOCCO LOCK-OUT LAMP LAMPE DE SECURITE ESPA DE BLOQUEO										LAMPADA DI PRIMA FIAMMA 1ST FLAME LAMP LAMPE DE 1 ^{er} ALLURE ESPA DE 1 ^{er} LLAMA										LAMPADA DI SECONDA FIAMMA 2ST FLAME LAMP LAMPE DE 2 ^{es} ALLURE ESPA DE 2 ^a LLAMA										CONTATTORE MOTORE VENTILATORE CONTACTOR FAN MOTOR (MOTOR) CONTACTEUR MOTEUR VENTILATEUR TELERRUPTOR MOTOR VENTILADOR										INTERRUTTORE DI LINEA WORKING SWITCH INTERRUPTEUR DE LIGNE INTERRUPTOR DE LINEA										TERMOSTATO CALDAIA BOILER THERMOSTAT THERMOSTAT CHAUDIERE THERMOSTATO CALDERA										TERMOSTATO DI SICUREZZA SAFETY THERMOSTAT THERMOSTAT DE SECURITE THERMOSTATO DE SEGURIDAD										INTERRUTTORE ALTA-BASSA FIAMMA HIGH-LOW SWITCHE PETITE ALLURE INTERRUPTEUR DE ALTA-BAJA LLAMA										TERMOSTATO DI ALTA-BASSA FIAMMA HIGH-LOW SWITCHE PETITE ALLURE THERMOSTAT GRANDE-PETITE ALLURE										LAMPADA DI FUNZIONAMENTO WORKING LAMP ESPA DE FONCTIONNEMENT										LAMPADA DI BLOCCO TERMICO THERMAL LOCK-OUT LAMP LAMPE DE THERMAL DE SECURITE ESPA DE BLOQUEO RELE TERMICO									
A										B										C										D										E										F																																																																																																													
CONTROL BOX LANDIS LOA 44-LMO 44										SERVO MOTOR LANDIS SQN 30.12.1A2700										Ecoflam Bruciatori S.p.A.										DESCRIPTION MAIOR TS 200.1 AB (QUADRO COMANDI)										DESIGNER A-POZZOBON										SIGNATURE A. Pozzobon										SHEET 2																																																																																																			
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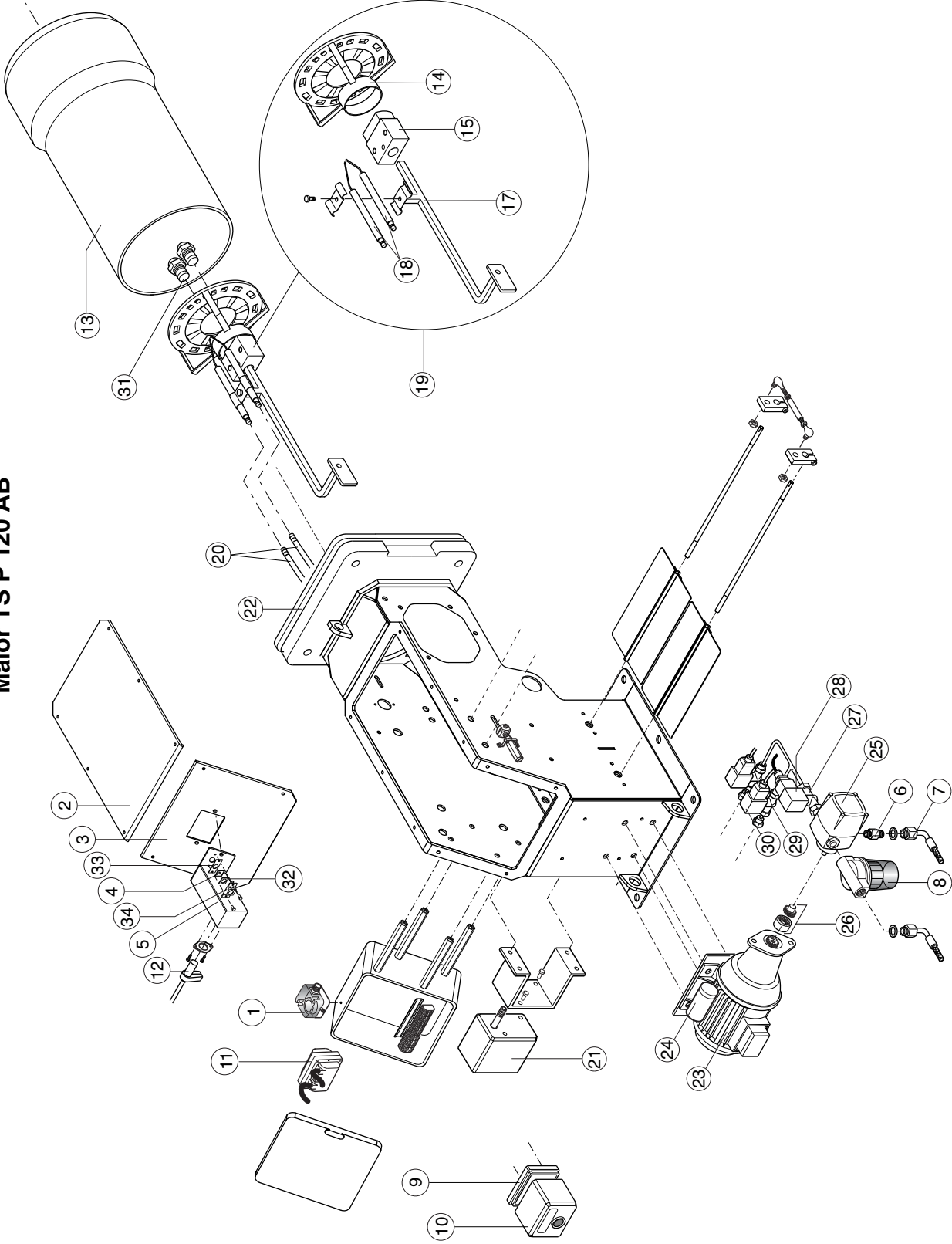
BY THIS DRAWING WE RESERVE THE PROPERTY OF THIS WIRING DIAGRAM WITH PROHIBITION OF USE AND REPRODUCTION



A	B	C	D	E	F													
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7	8																	
A	B	C	D	E	F													
	<table border="1"> <tr> <td>B</td> <td>FOTORESISTENZA PHOTO-RESISTOR FOTORESISTENCIA</td> </tr> <tr> <td>MIP</td> <td>MOTORE POMPA OIL PUMP MOTOR MOTEUR POMPE MOTOR BOMBA</td> </tr> <tr> <td>TV</td> <td>TRASFORMATORE IGNITION TRANSFORMER TRANSFORMADOR</td> </tr> <tr> <td>V1g1</td> <td>ELETTROVALVOLA GASOLIO DI PRIMA FIAMMA ELECTRIC VALVE GASOLINE ELECTROVALVULA MANTENIMIENTO A LLAMA</td> </tr> <tr> <td>V1g2</td> <td>ELETTROVALVOLA GASOLIO DI SECONDA FIAMMA ELECTRIC VALVE GASOLINE ELECTROVALVULA MANTENIMIENTO A LLAMA</td> </tr> <tr> <td>V1g5</td> <td>ELETTROVALVOLA GASOLIO DI SICUREZZA EXTRA SAFETY OIL SOLENOID VALVE ELECTROVALVULA MANTENIMIENTO DE SEGURIDAD</td> </tr> <tr> <td>SPA</td> <td>PRESOSTATO ARIA AIR PRESSURE SWITCH PRESOSTATO AIRE</td> </tr> </table>	B	FOTORESISTENZA PHOTO-RESISTOR FOTORESISTENCIA	MIP	MOTORE POMPA OIL PUMP MOTOR MOTEUR POMPE MOTOR BOMBA	TV	TRASFORMATORE IGNITION TRANSFORMER TRANSFORMADOR	V1g1	ELETTROVALVOLA GASOLIO DI PRIMA FIAMMA ELECTRIC VALVE GASOLINE ELECTROVALVULA MANTENIMIENTO A LLAMA	V1g2	ELETTROVALVOLA GASOLIO DI SECONDA FIAMMA ELECTRIC VALVE GASOLINE ELECTROVALVULA MANTENIMIENTO A LLAMA	V1g5	ELETTROVALVOLA GASOLIO DI SICUREZZA EXTRA SAFETY OIL SOLENOID VALVE ELECTROVALVULA MANTENIMIENTO DE SEGURIDAD	SPA	PRESOSTATO ARIA AIR PRESSURE SWITCH PRESOSTATO AIRE			
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CONTROL BOX	SERVO MOTOR																	
SIEMENS LOA 44-LMO 44	SIEMENS SQN80.121A2700																	
LEAKAGE CONTROL	FLAME SENSOR																	
	B																	

BY TERM LAWS WE RESERVED THE PROPERTY OF THIS WIRING DIAGRAM WITH PROHIBITION OF USE AND REPRODUCTION

Maior TS P 120 AB



N°	DESCRIPTION	MAIOR TS P 120 AB code
1	AIR PRESSURE SWITCH LGW10A2P	65323047
2	DOWN COVER	65324164
3	UP COVER	65324163
32	GLASS	65321883
5	PEED WINDOM FRAME	65324767
6	NIPPLE TN 10X1200	65323188
7	HOSES TN 14X1200	65323184
8	FILTER ART.70104-03	65324806
9	CONTROL BOX BASE SIEMENS	65320092
10	CONTROL BOX SIEMENS LMO44.255C2	65320024
11	IGNITION TRANSFORMER COFI TRS 1020/21 CM	65323223
12	PHOTORESISTOR SIEMENS QRB1A-A050B70A2	65320076
13	BLAST TUBE TC	65320404
	TL	
14	DIFFUSER	65320771
15	NOZZLE HOLDER	65320712
16	SUPPORT NOZZLE HOLDER	-
17	ROD TC	65320234
	TL	
18	ELECTRODES	65322315
19	INNER ASSEMBLY TC	
	TL	
20	CABLE TC	65322003
	TL	
21	AIR DAMPER MOTOR SIEMENS SQN30 S121A2700	65322903
22	GASKET ISOMART	65321117
23	PUMP MOTOR SIMEL 370 W	65322775
24	CAPACITOR 14 µF	65321854
25	PUMP SUNTEC AJ6CC10004P	65322950
26	COUPLING	65325387
27	OIL VALVE DELTA 1/8 F.F.F84	65323754
28	COIL DELTA 1/8 F.F.F84	65323765
29	OIL VALVE PARKER VE131IN-XT09	65323624
30	COIL PARKER VE131IN-XT09	
31	NOZZLE	
32	GASKET 28x28	65321948
33	GASKET 30x50	65321949
34	GLASS COVER	65321884

TC = SHORT HEAD TL = LONG HEAD

Ecoflam

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e-mail: export@ecoflam-burners.com

Società soggetta alla direzione e al coordinamento di Ariston Thermo S.p.A.

Via A. Merloni, 45 - 60044 Fabriano (AN) - CF 01026940427

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