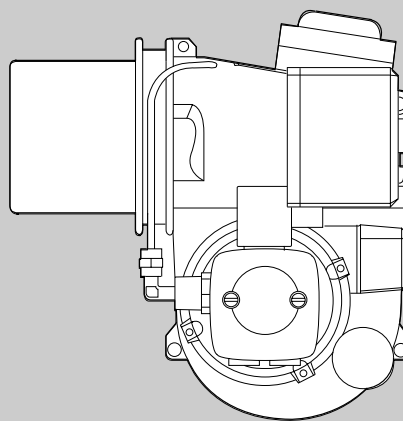


# OIL BURNERS



## MODELS



MINOR 1 SS 2/R

MINOR 1 S 90/R

MINOR 1 SS 80



**LB 197**

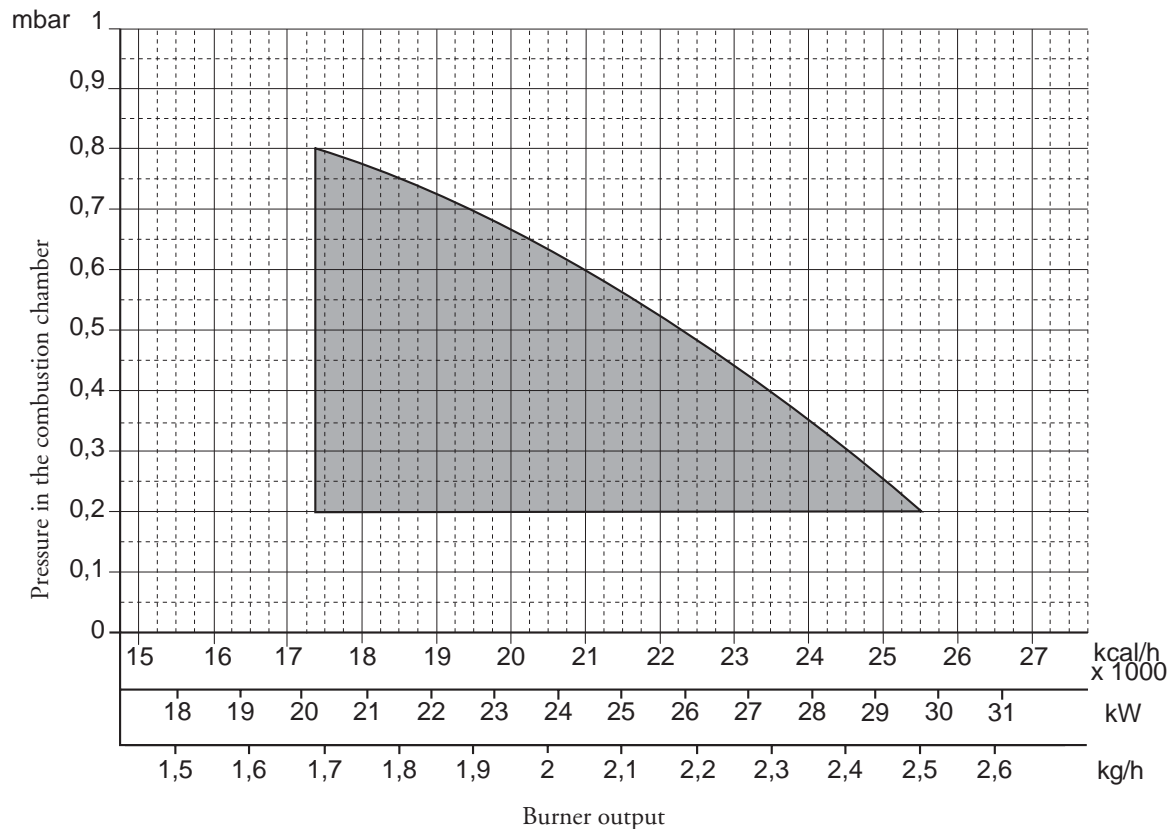
10.03.2004

## TECHNICAL DATA

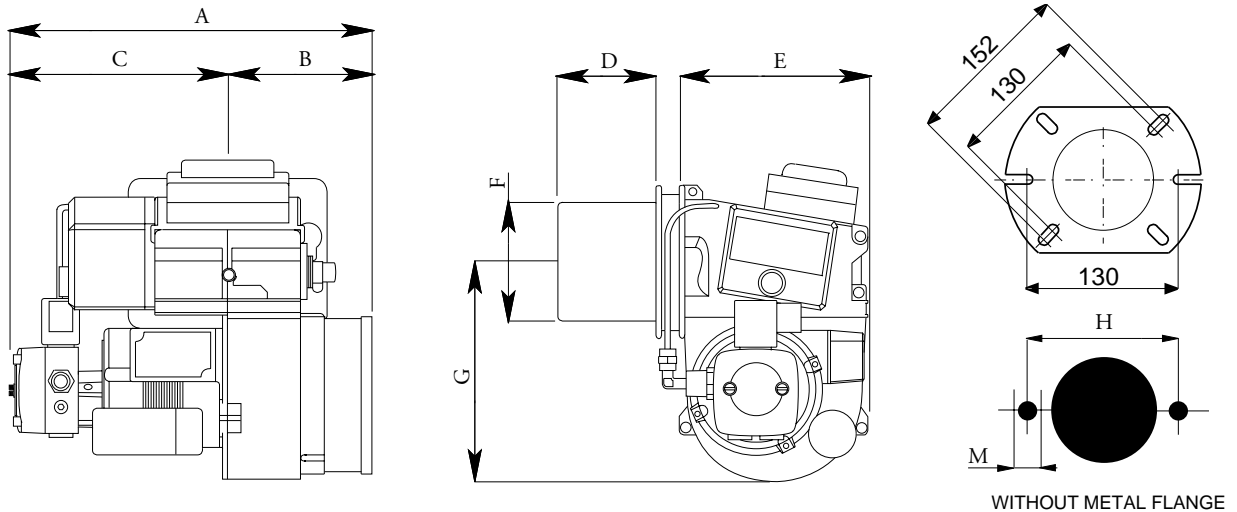
MODELS		MINOR 1	MINOR 1 R
Thermal power max	kcal/h	25500	25500
	kW	29.6	29.6
Thermal power min	kcal/h	17300	17300
	kW	20	20
Max capacity light oil	kg/h	2.5	2.5
Min capacity light oil	kg/h	1.7	1.7
Voltage single phase 50 Hz	Volt	240	240
Motor	W	75	75
Capacitor	μF	3.5	3.5
Rpm	N°	2800	2800
Ignition transformer	kV/mA	8/20	8/20
Control box	LANDIS	LOA 24	LOA 24
Fuel :	Light oil	10.200 Visc.max.1,5°E at 20°C	
	Kerosene	10.300	

**ATTENTION :PRE-HEATER BURNERS MUST NOT BE USED FOR KEROSENE**

### WORKING FIELD



## OVERALL DIMENSIONS

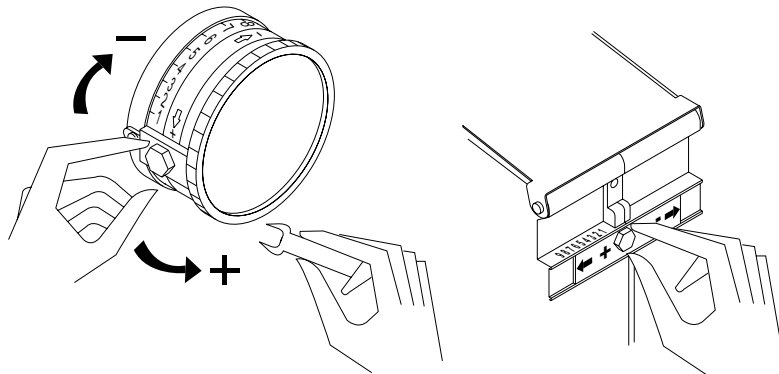


MODELS	A	B	C	D	E	F	G	H	M
MINOR 1 SS 80	270	113	160	65	165	89	160	125	M8
MINOR 1 SS 2	270	113	160	125	165	89	160	125	M8
MINOR 1 S 90	270	113	160	125	165	89	160	125	M8

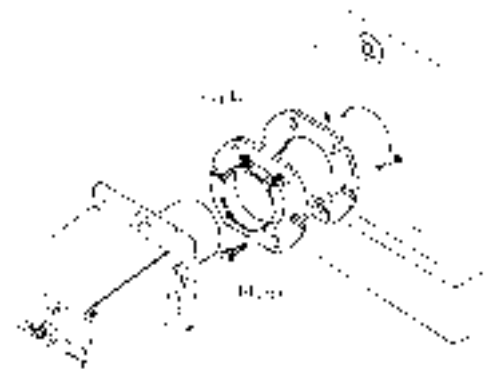
## BURNER START - UP

Make sure there are no leaks on flexible oil line connections. Bleed air from the pump (see page 3). Install a suitable nozzle for the required output. Turn the thermostat to the required setting. The burner will purge for approximately 13 seconds. At this point the oil valve opens and oil is ignited. Regulate the pump pressure (see page 3). Regulate the air. In case of no ignition the burner goes to lock-out in 10 seconds.

### AIR REGULATION



### INSTALLATION

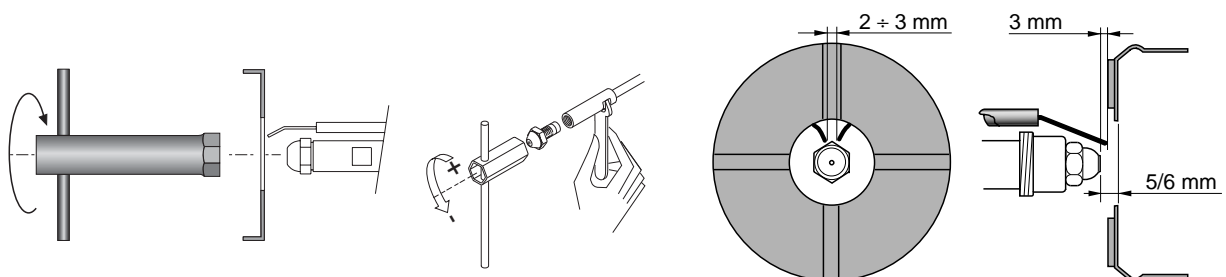


## NOZZLE REPLACEMENT

Remove the nozzle carefully taking great care not to damage the electrodes.

Fit the new nozzle with the same care.

**Notice :** Always check the position of the electrodes after replacing the nozzle (see plan).

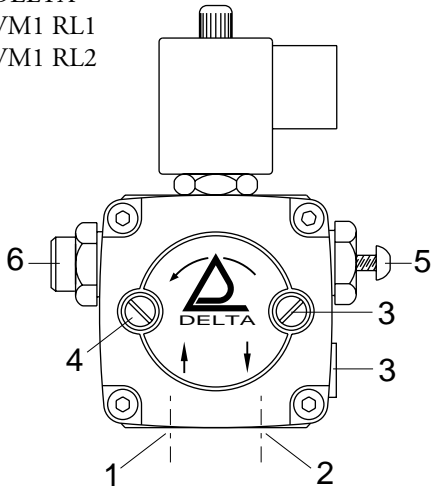


Ignition electrodes setting on firing head

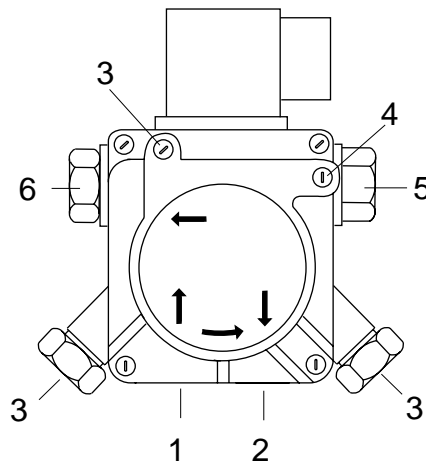
Models Minor 1	Nozzle USgal/h	Spray angle	Spray pattern	Pump pressure	Output (kg/h)
S 90	0.60 (C.E.N.)	60°	Danfoss S	8.4 bar (120 p.s.i.)	2.10 ± 20%
SS 2	0.65 (C.E.N.)	80°	Danfoss S	8.96 bar (130 p.s.i.)	2.30 ± 20%
SS 80	0.75 (C.E.N.)	80°	Danfoss S	9.47 bar (135 p.s.i.)	2.77 ± 20%
S 90 R	0.65 (C.E.N.)	80°	Danfoss S	10.5 bar (150 p.s.i.)	
SS 2 R	0.60 (C.E.N.)	80°	Danfoss S	9.8 bar (140 p.s.i.)	

### PRIMING AND ADJUSTMENT OF THE PUMP

DELTA  
VM1 RL1  
VM1 RL2



SUNTEC AS 47 K

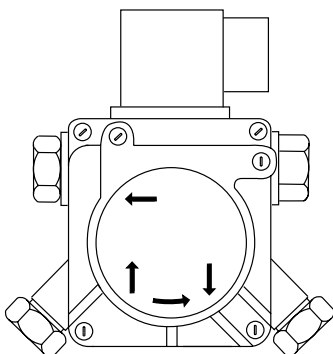


- 1 - INLET
- 2 - RETURN
- 3 - BLEED AND PRESSURE GAUGE PORT
- 4 - VACUUM GAUGE PORT
- 5 - PRESSURE ADJUSTMENT
- 6 - NOZZLE OUTLET

The pump setting indicated by client is carried out in the factory during testing. To prime the pump first of all start the burner and bleed air from the pump through the gauge port. If the burner goes to lock-out after the prepurging time due to lack of pressure in the oil pump, restart the burner.

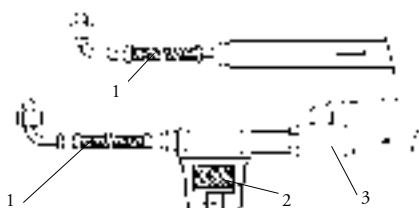
NOTE : before starting up the burner, make sure that the return pipe is clear. Check that the pipes do not leak. It is advisable to use copper pipes. Do not exceed the depression limit of 4 mt.(0,45 bar) to keep low noise levels. The return pipe must reach the same level as the check valve at the bottom of the oil tank..

Two-pipe system

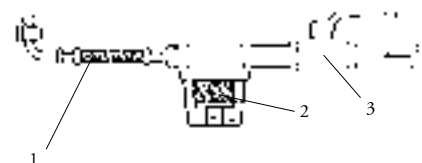
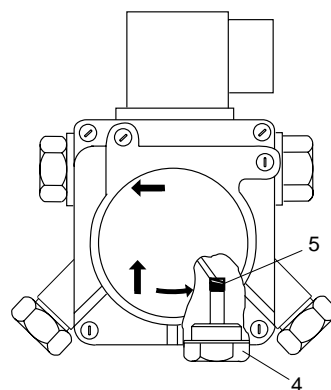


**N.B.** One pipe system  
SUNTEC AS 47 K  
Remove by-pass plug  
for one pipe installation  
and plug return port.

- 1 - HOSE
- 2 - OIL FILTER
- 3 - OIL COCK
- 4 - PLUG
- 5 - BY-PASS PLUG

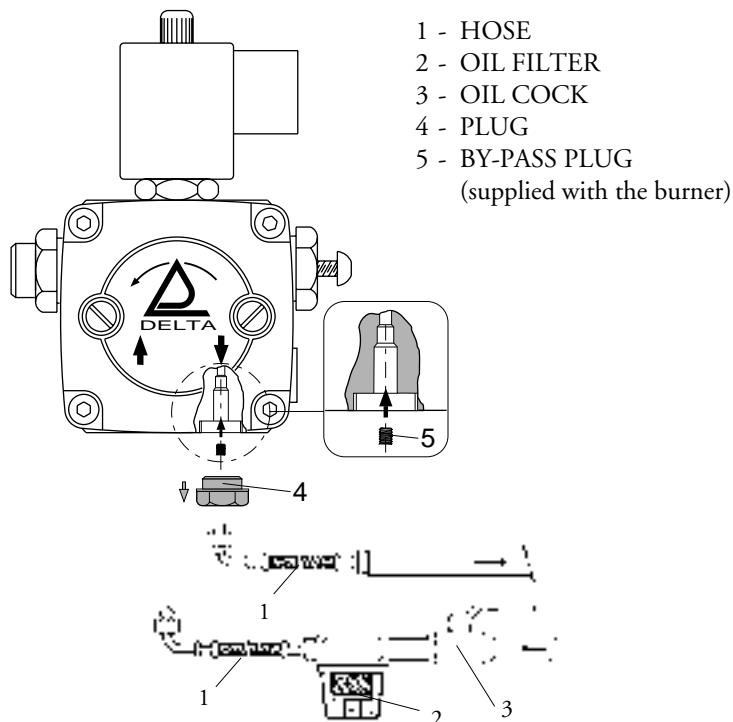


One-pipe system



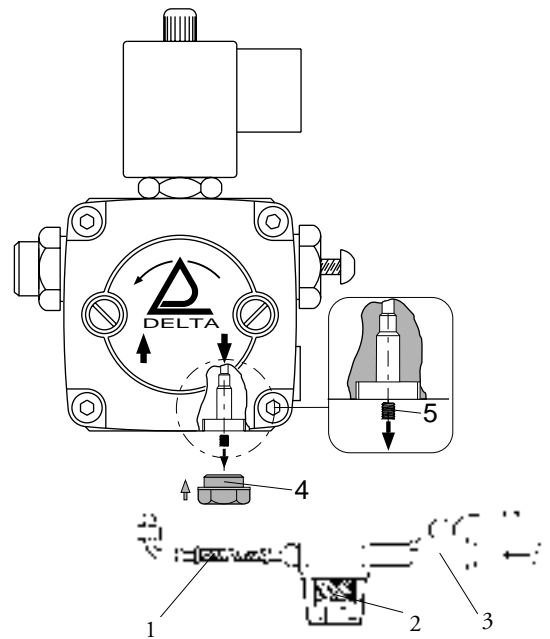
## FROM ONE-PIPE TO TWO-PIPE SYSTEM

DELTA VM1RL1 remove the plug, introduce by-pass plug to outfit for two pipe installation.



## FROM TWO-PIPE TO ONE-PIPE SYSTEM

DELTA VM1RL2 remove by-pass plug for one pipe installation and plug return port.



## FAULT FINDING

### Burner does not start up

- Mains switch not on.
- Blown fuse.
- Boiler thermostats not made.
- Fault in control box.

### Burner pre-purges and stops

- Fault in control box.

### Burner does not ignite during cycle and stops

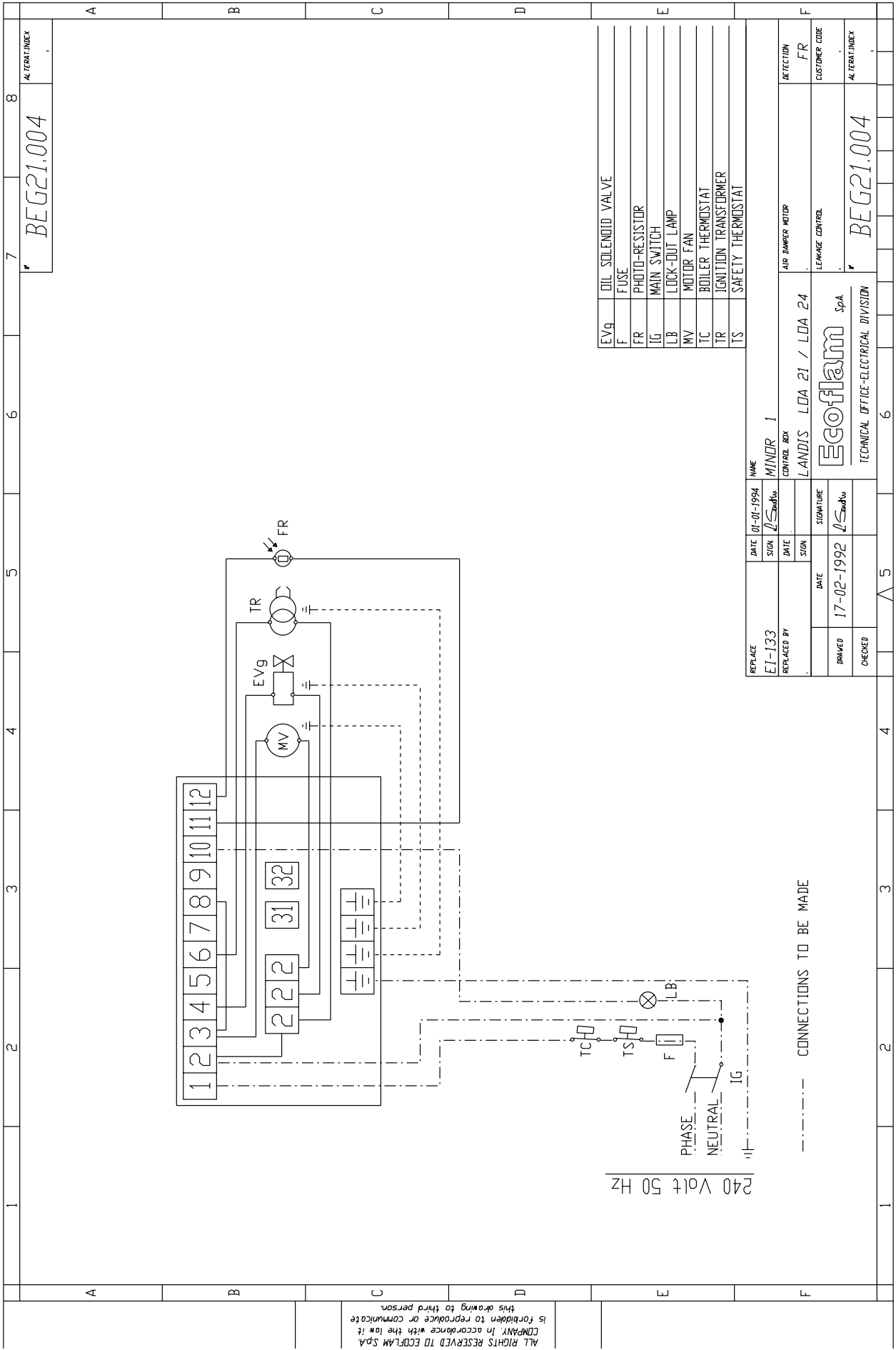
- Fault in control box.
- Fault in photo-resistor.

### Burner does not ignite

- Dirty ignition electrodes.
- Fault at electrodes.
- Electrodes installed wrongly.
- Faulty ignition transformer.
- Blocked nozzle.
- Nozzle needs replacing.
- Oil pressure too low.
- Blocked oil filter.
- Excessive combustion air for nozzle capacity.
- Fault in control box.

### Burner ignites and then stops

- Faulty nozzle.
- Photo-resistor does not "see" flame.
- Excessive combustion air for nozzle capacity.
- Fault in control box.
- Oil pressure too low.
- Blocked oil filter.



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 this drawing to third person.

EVg	OIL SOLENOID VALVE
F	FUSE
FR	PHOTO-RESISTOR
IG	MAIN SWITCH
LB	LOCK-OUT LAMP
MV	MOTOR FAN
TC	BOILER THERMOSTAT
TR	IGNITION TRANSFORMER
TS	SAFETY THERMOSTAT

REPLACE E1-133	DATE 01-01-1994	SIGN [Signature]	NAME MINOR 1
REPLACED BY	DATE	SIGN	CONTROL BOX LANDIS L0A 21 / L0A 24
DRAWN 17-02-1992	DATE	SIGNATURE	 TECHNICAL OFFICE-ELECTRICAL DIVISION
CHECKED	DATE	SIGNATURE	
--- CONNECTIONS TO BE MADE			
DETECTION FR CUSTOMER CODE ALTERNATIVE INDEX BEG21.004			

A										00	01	02	03	04	05	06	07	08	09
B										00	01	02	03	04	05	06	07	08	09
C										00	01	02	03	04	05	06	07	08	09
D										00	01	02	03	04	05	06	07	08	09
E										00	01	02	03	04	05	06	07	08	09

The diagram shows a terminal block with 24 positions. Connections include:  
 - MV (Motor Ventilatore) to terminals 1, 2, 3, 4.  
 - YVg (Elettrovalvola Gasolio) to terminals 5, 6, 7, 8.  
 - STC (Termostato Caldaia) to terminals 9, 10, 11, 12.  
 - STS (Termostato di Sicurezza) to terminals 13, 14, 15, 16.  
 - HLB (Lampada di Blocco) to terminals 17, 18, 19, 20.  
 - B (Interruttore Generale con Fusibile) to terminals 21, 22, 23, 24.  
 - STCA (Termostato di Sicurezza) to terminals 25, 26, 27, 28.  
 - R (Resistenza) to terminals 29, 30, 31, 32.

COLLEGAMENTI DA EFFETTUARSI  
DA PARTE DELL'INSTALLATORE

CONNECTIONS TO BE MADE  
BY INSTALLER

CONNEXIONS A EFFECTUER  
PAR L'INSTALLATEUR

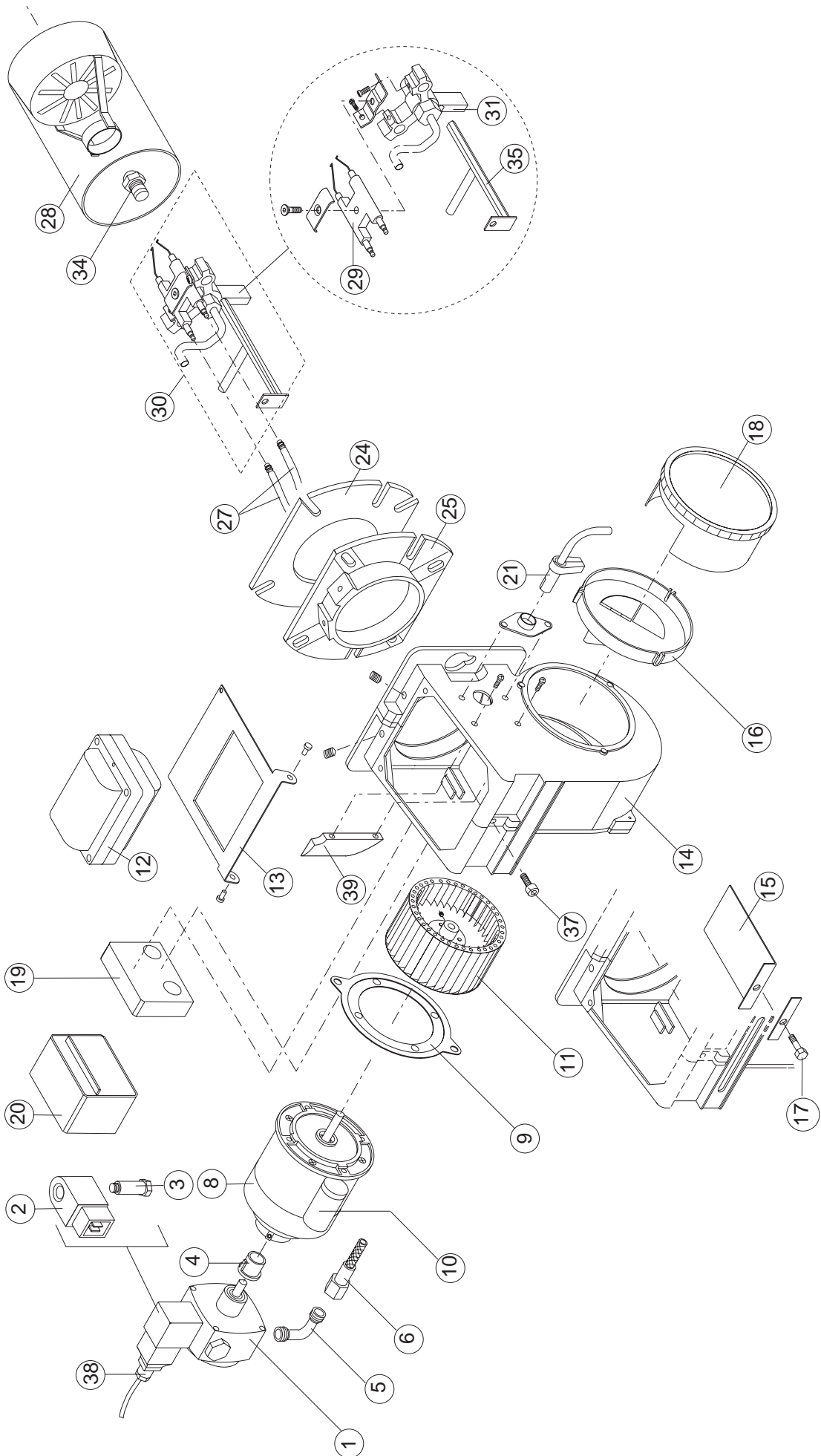
CONEXIONES A EFECTUAR  
POR EL INSTALADOR

~ 50 Hz 240 V  
PE  
N

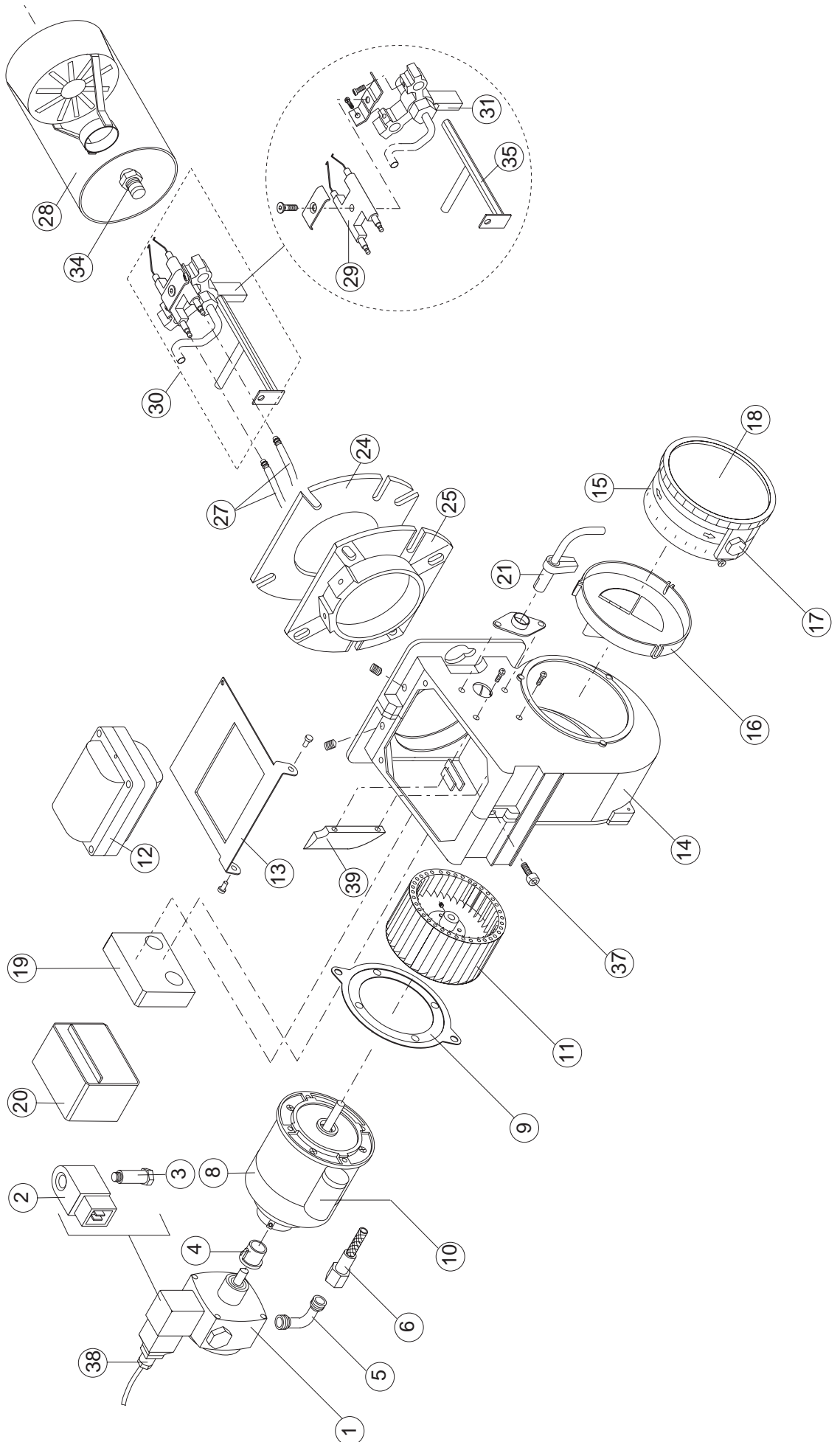
IND. MOD.		DATA-FIRMA		DESCRIZIONE MODIFICA		DENOMINAZIONE		MOTORIDUTTORE	
SIST. I.L.	SIST. I.L.	DATA	FIRMA	DISSEGNAIO	DATA	MINOR 1R - 4R - 8R - 12R	ECOIL 3R - 5R - 8R	SIST. RIVELAZ.	CODICE
SIST. I.L.	SIST. I.L.	DATA	FIRMA	CONTROLLATO	DATA	LANDIS LOA 24	CONTROLLO DI TENUTA	B	BEM21.014
						APPARECCHIATURA		IND. MODIFICA	
						LANDIS LOA 24		BEM21.014	
						UFF. TECNICO-SETTORE ELETTRICO			
						Ecoflam S.p.A.			
						F. B. B. B.			
						04-12-1997			
						FIRMA			

MINOR 1 SS 2 / S 90

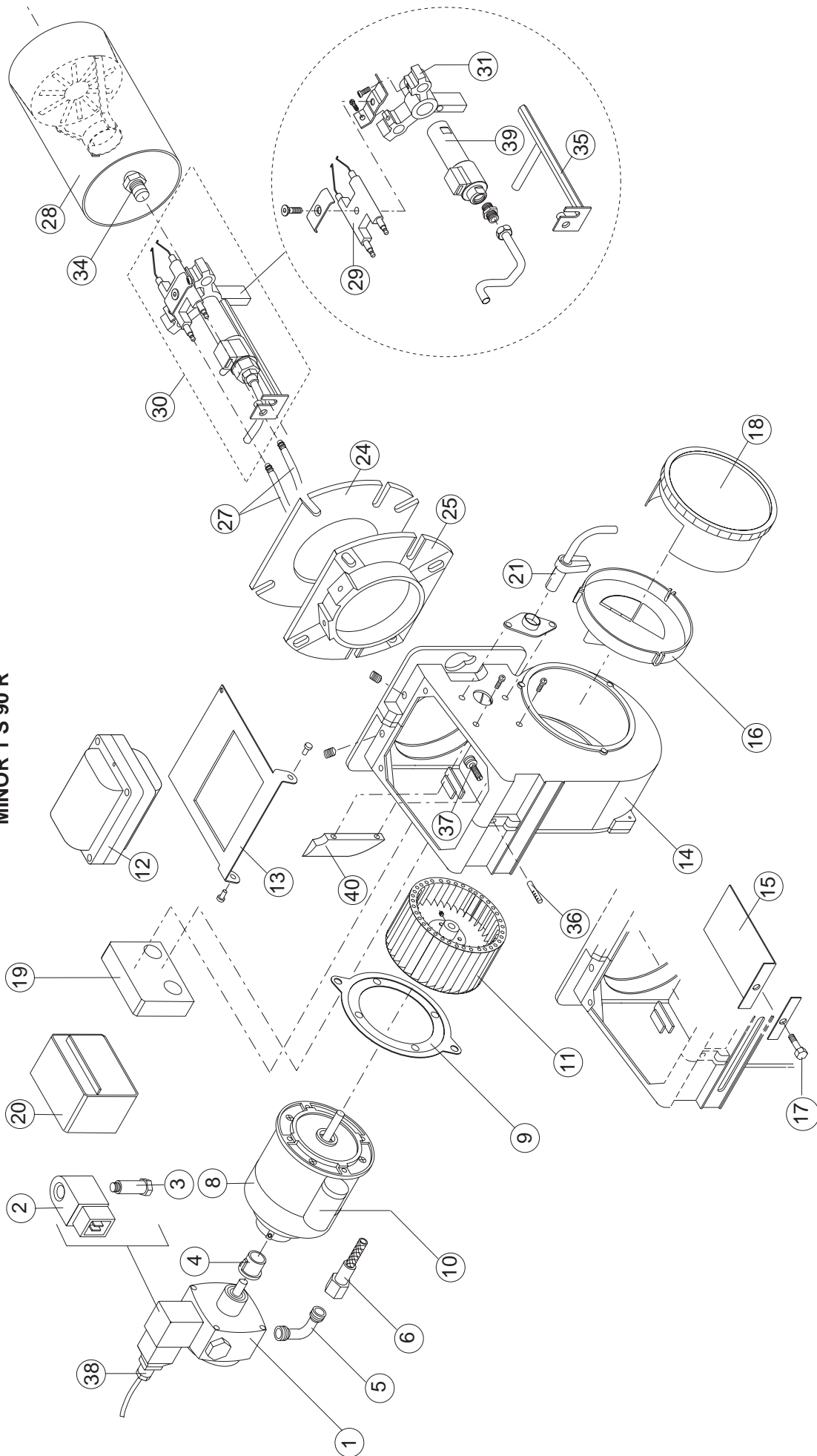




MINOR 1 SS 80



**MINOR 1 SS 2 R**  
**MINOR 1 S 90 R**

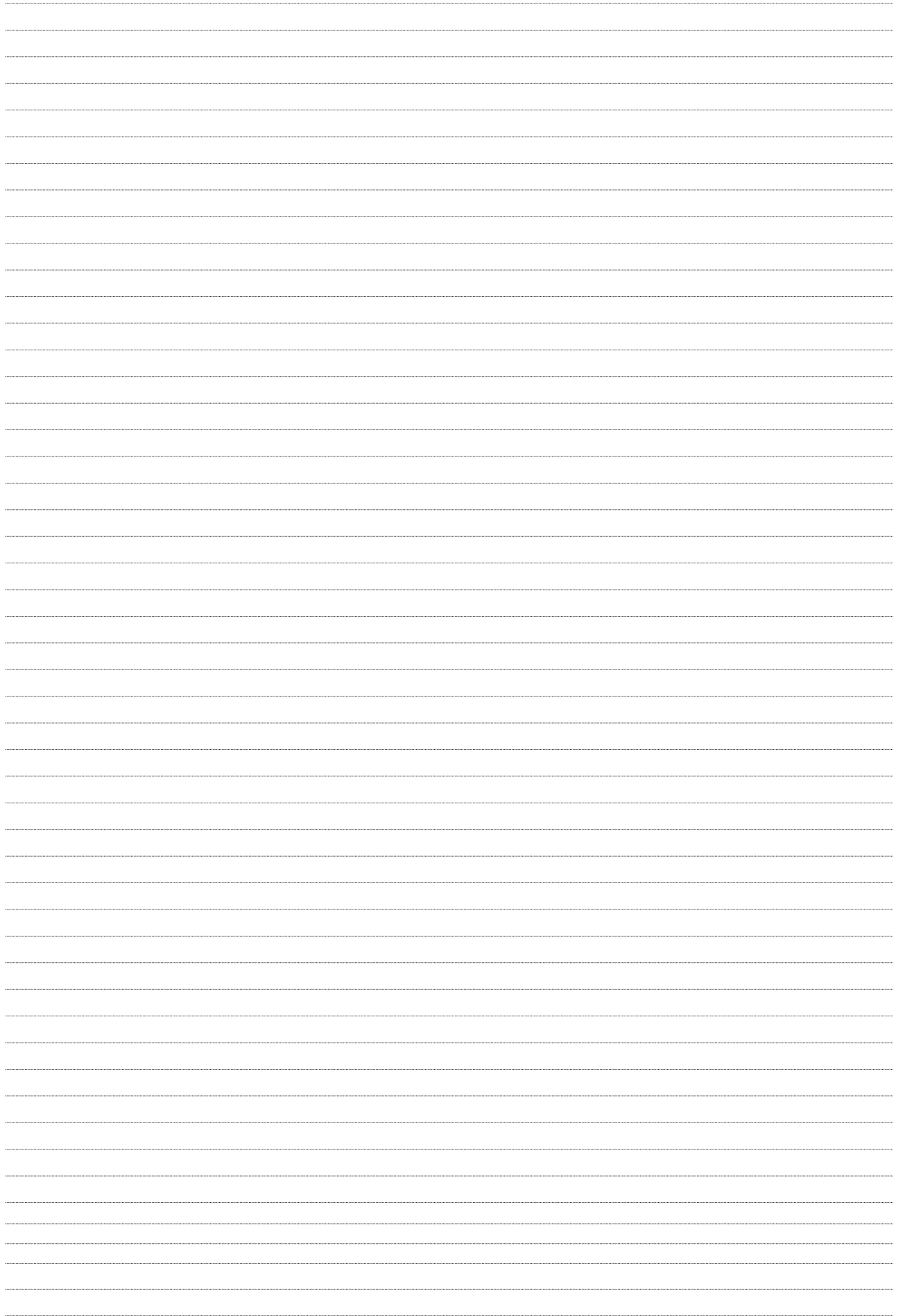


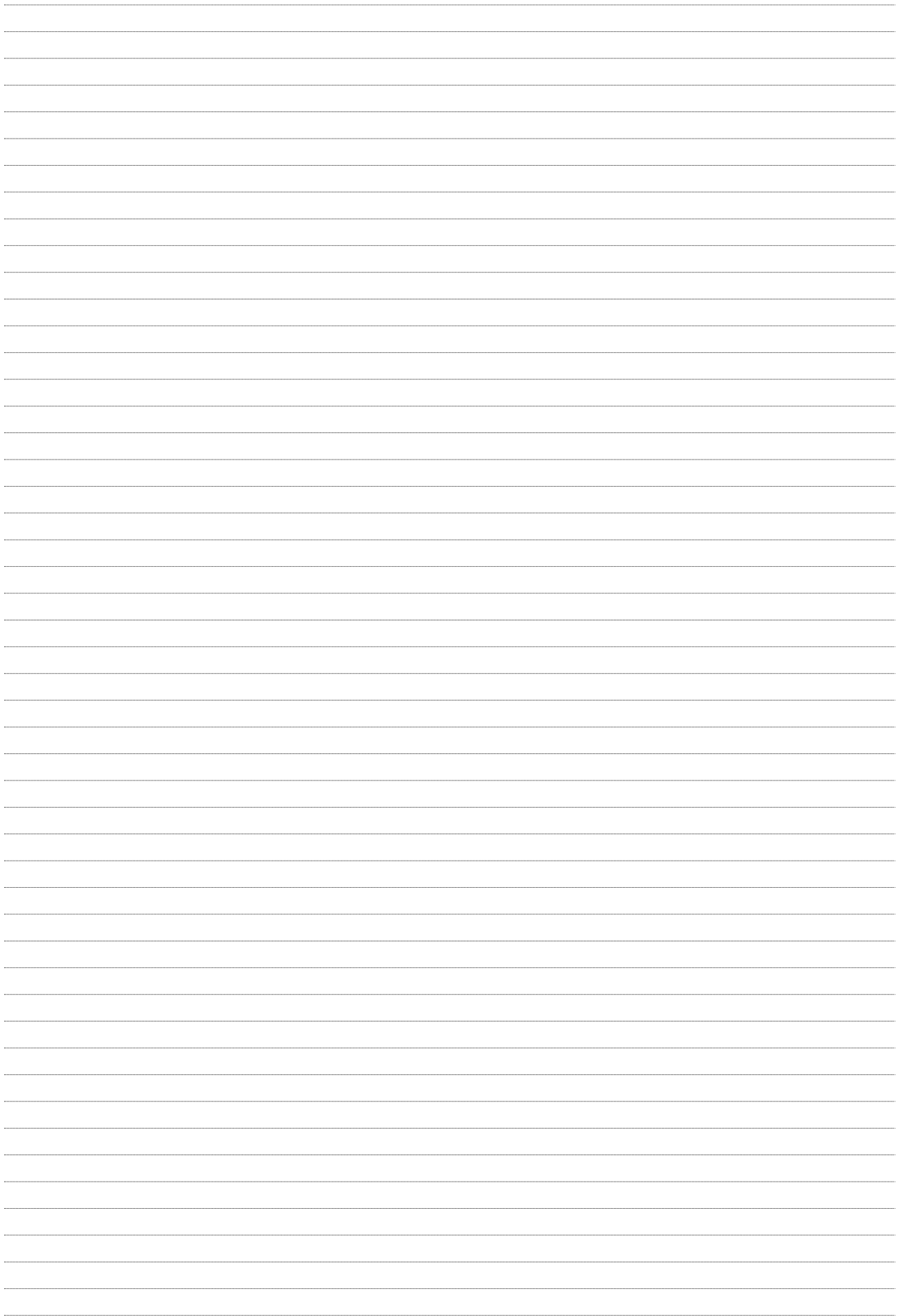
N°	DESCRIPTION		MINOR 1 SS 2 code	MINOR 1 S 90 code	MINOR 1 SS 80 code
1	- OIL PUMP	SUNTEC AS 47 K	P122	P122	P122
		DELTA VM1 RL1	P147/4	P147/4	P147/4
2	- COIL	SUNTEC	V504	V504	V504
		DELTA	V502/2	V502/2	V502/2
3	- OIL VALVE	SUNTEC	V410	V410	V410
		DELTA	V411	V411	V411
4	- COUPLING		MP501/5	MP501/5	MP501/5
5	- NIPPLE		Y401/28	Y401/28	Y401/28
6	- HOSES	NW 6x1000	S927/155	S927/155	S927/155
7	-				
8	- MOTOR	75 W	M110/3	M110/3	M110/3
9	- SUPPORT		BFF03005/001	BFF03005/001	BFF03005/001
10	- CAPACITOR	3,5 µF	C107/8	C107/8	C107/8
11	- FAN	99 x 43	BFV10001/001	BFV10001/001	BFV10001/001
12	- IGNITION TRANSFORMER	COFI E820 CM	T123/2	T123/2	T123/2
13	- COVER		BFC09002/011	BFC09002/011	BFC09002/011
14	- FAN HOUSING		BFF04307/011	BFF04307/011	BFF04313/011
15	- AIR DAMPER		BFS01002/001	BFS01002/001	BFC04011/001
16	- AIR CONVEYOR		GRMP002	GRMP002	GRMP002
17	- AIR DAMPER SCREW		BFT01004/001	BFT01004/001	BFT01002/001
18	- COVER AIR INLET		BFC04007/051	BFC04007/051	BFC04008/051
19	- CONTROL BOX BASE	LANDIS	A402	A402	A402
20	- CONTROL BOX	LANDIS LOA 24	A117/1	A117/1	A117/1
21	- PHOTORESISTOR	LANDIS	A207/3	A207/3	A207/3
22	- WIRING TERMINAL BOX		-	-	-
23	- PROTECTION BOX		-	-	-
24	- GASKET		BFG02001	BFG02001	BFG02001
25	- FLANGE		BFF01005	BFF01005	BFF01005
26	- O-RING		-	-	-
27	- CABLES	TC	-	-	BFE01401/1
		TL	BFE01401/2	BFE01401/2	-
28	- BLAST TUBE	TC	-	-	BFB01052/202
		TL	BFB01003/002	BFB01003/002	-
29	- ELECTRODES		BFE01102	BFE01102	BFE01102
30	- FIRING HEAD	TC	-	-	GRTT5503/021
		TL	GRTT5503/006	GRTT5503/006	-
31	- NOZZLE HOLDER	TC	-	-	GRCR009/10
		TL	GRCR009/2	GRCR009/2	-
32	- DIFFUSER		-	-	-
33	- REAR DISC		-	-	-
34	- NOZZLE		U1065/80S	U1060/60S	U1075/80S
35	- ROD	TC	-	-	BFA05106/101
		TL	BFA05103/001	BFA05103/001	-
36	- INDEX		-	-	-
37	- SCREW		ZM06/12	ZM06/12	ZM06/12
38	- CABLE	SUNTEC	E1102/1	E1102/1	E1102/1
		DELTA	BFE02001/3	BFE02001/3	BFE02001/3
39	- FAN SCOOP		BFC02040	BFC02040	BFC02040

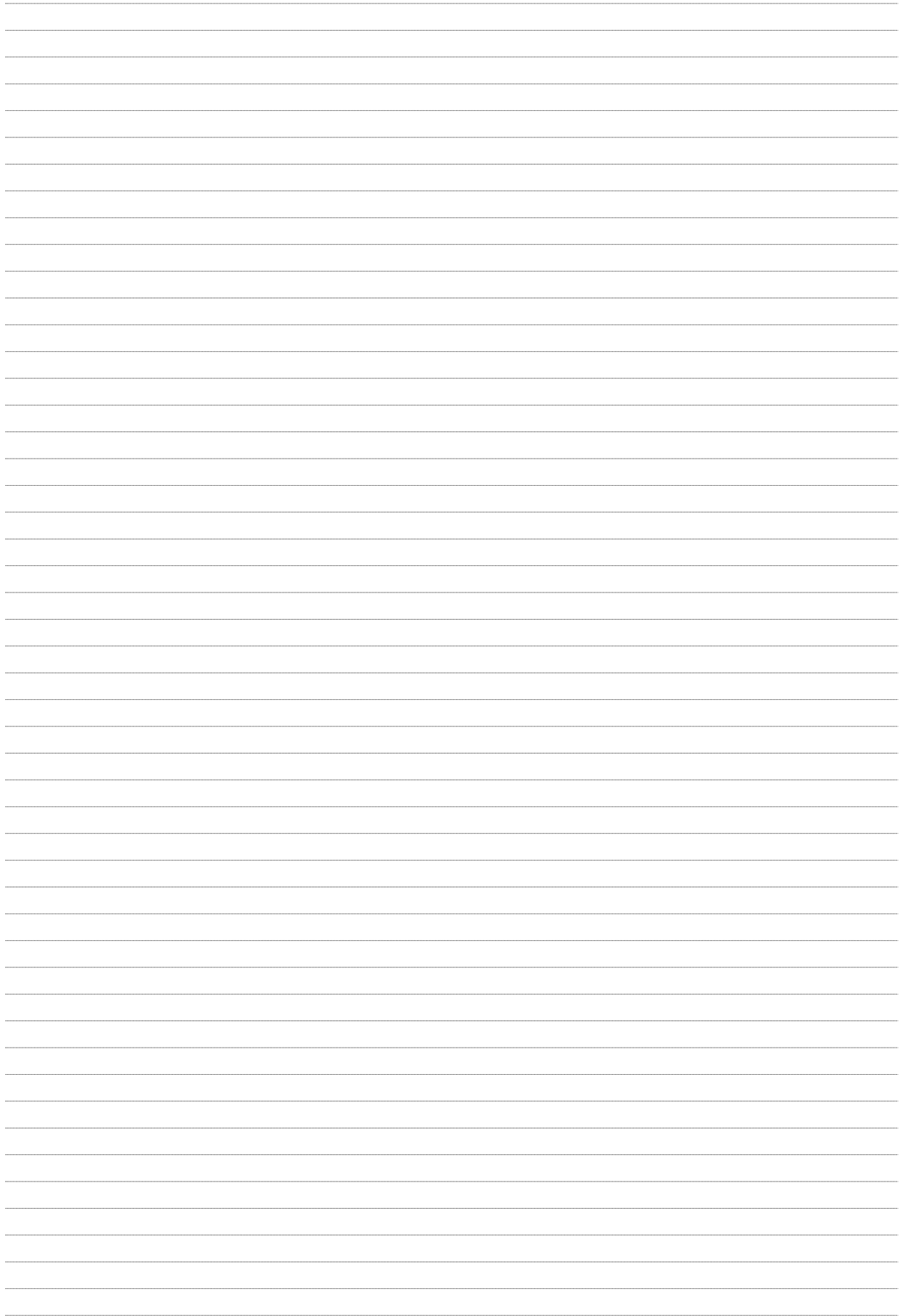
TC = SHORT HEAD TL = LONG HEAD

N°	DESCRIPTION	MINOR 1 SS 2/R code	MINOR 1 S 90/R code	
1	- OIL PUMP	SUNTEC AS 47 K	P122	P122
		DELTA VM1 RL1	P147/4	P147/4
2	- COIL	SUNTEC	V504	V504
		DELTA	V502/2	V502/2
3	- OIL VALVE	SUNTEC	V410	V410
		DELTA	V411	V411
4	- COUPLING		MP501/5	MP501/5
5	- NIPPLE		Y401/28	Y401/28
6	- HOSES	TN 6x1000	S927/1	S927/1
7	-			
8	- MOTOR	75 W	M110/3	M110/3
9	- SUPPORT		BFF03005/001	BFF03005/001
10	- CAPACITOR	3,5 µF	C107/8	C107/8
11	- FAN	99 x 43	BFV10001/001	BFV10001/001
12	- IGNITION TRANSFORMER	COFI E820 CM	T123/2	T123/2
13	- COVER		BFC09002/011	BFC09002/011
14	- FAN HOUSING		BFF04103/011	BFF04103/011
15	- AIR DAMPER		BFS01002/001	BFS01002/001
16	- AIR CONVEYOR		GRMP002	GRMP002
17	- AIR DAMPER SCREW		BFT01004/001	BFT01004/001
18	- COVER AIR INLET		BFC04007/051	BFC04007/051
19	- CONTROL BOX BASE	LANDIS	A402	A402
20	- CONTROL BOX	LANDIS LOA 24	A117/1	A117/1
21	- PHOTORESISTOR	LANDIS	A207/3	A207/3
22	- WIRING TERMINAL BOX		-	-
23	- PROTECTION BOX		-	-
24	- GASKET		BFG02001	BFG02001
25	- FLANGE		BFF01005/051	BFF01005/051
26	- O-RING		-	-
27	- CABLES	TC	-	-
		TL	BFE01401/2	BFE01401/2
28	- BLAST TUBE	TC	-	-
		TL	BFB01003/002	BFB01003/002
29	- ELECTRODES		BFE01102	BFE01102
30	- FIRING HEAD	TC	-	-
		TL	GRTT5503/006	GRTT5503/006
31	- NOZZLE HOLDER	TC	-	-
		TL	BFC10006/052	BFC10006/052
32	- DIFFUSER		-	-
33	- REAR DISC		-	-
34	- NOZZLE		U1060/80S	U1065/60S
35	- ROD	TC	-	-
		TL	BFA05102/001	BFA05102/001
36	- INDEX		BFT05102/001	BFT05102/001
37	- SCREW		BFT01003/101	BFT01003/101
38	- CABLE	SUNTEC	E1102/1	E1102/1
		DELTA	BFE02001/3	BFE02001/3
39	- PRE-HEATER	DANFOSS	PP110	PP110
40	- FAN SCOOP		BFC02040	BFC02040

TC = SHORT HEAD TL = LONG HEAD









**DESIGN AND SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE**

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