

Bagela[®]

Operating instructions

Spare part list

Asphaltrecycler

BA 10000



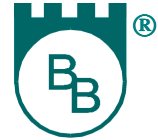
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1 Safety Instructions for Asphalt Recyclers

1. Before putting the recycler into operation, familiarise yourself fully with all parts of the machine and its functions.
2. Carefully read the operating instructions issued by the manufacturer.
3. Before starting the recycler, check if all protective guards and devices are in place and in good working order.
4. Before starting the recycler, check if all operating controls and safety devices function properly.
5. If safety devices are out of order or if there are any other shortcomings, which may interfere with the safe operation of the recycler, inform your supervisor immediately.
6. If there are any faults, which may interfere with safe operation, shut down the recycler immediately.
7. Do not leave the recycler at the end of the working day unless you have switched off the engine and secured the asphalt recycler against accidental movement or unauthorised use.
8. Before operation, put up the recycler where it does not interfere with the regular road traffic. If necessary, ensure that the traffic flow is bypassed.
9. Do not undertake any repair or maintenance work with the recycler running unless specifically required for resettings and/or readjustments.
10. After any repair or maintenance work, make sure all protective guards and devices have been refitted properly.
11. The recycler should be inspected for good operation by a duly qualified mechanic at least once a year.

2 Operating instruction - short version

Setting-up of asphalt recycler:

- Before uncoupling the recycler from the towing vehicle, put chocks against the wheels and apply the hand brake.
- Let the rear props down to the ground and secure them with pins.
- With the aid of the spirit level at the chassis, level out the recycler into horizontal position by turning down the forward propping jacks.
- Do not place the unit below overhead power lines, parts of buildings or trees to avoid fires.

Putting recycler into operation:

- Start engine and bring it to full speed.
- Engage the tumbler driving system.

Burner operation:

- Caution! Do not start the burner unless the tumbler is turning.
- Set burner to 1st firing stage (switch position 2).
- After about 2 minutes, when the flame has stabilised, set burner to 2nd firing stage (switch position 3).
- Set thermostat to the required temperature.
 - I. first burner stage max. 180°C: red pointer
 - II. second burner stage max. 150°C: green pointer

Charging:

- Fill asphalt into the recycler until the reading of the hydraulic oil pressure gauge is
 - at 80 bar for processing asphalt lumps, or
 - at 60 bar for processing asphalt fines.

DO NOT OVERFILL THE TUMBLER TO AVOID EXCESSIVE SMOKE EMISSION!

Discharging:

At the beginning of asphalt reprocessing there may be a delay in true temperature reading due to the fact that the temperature of the charge is measured via the soak heat.

- Make sure the first batch of reprocessed asphalt is discharged 10 minutes after start-up, irrespective of the temperature reading.

Warning: Load becomes inflammable, should sojourn duration dwell.

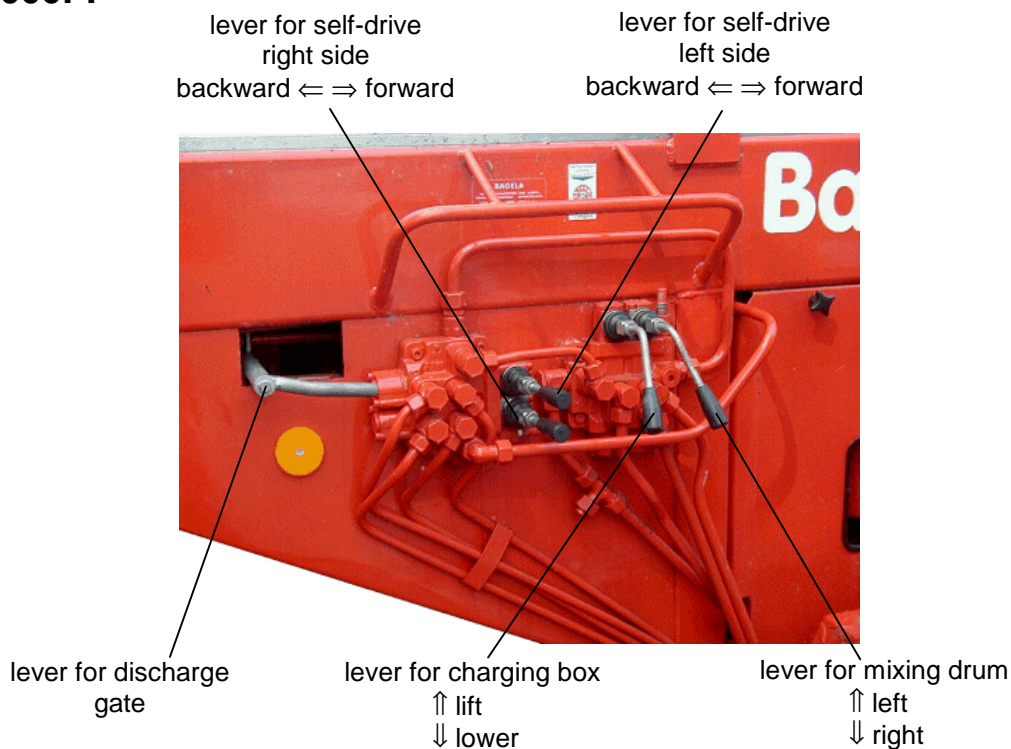
- During continuous operation, keep the contents of the tumbler to a level corresponding to 80 bar (for asphalt lumps) or 60 bar (for asphalt fines) on the hydraulic oil pressure gauge, keep the burner firing at its maximum rate (second stage) and discharge the reprocessed asphalt continuously.

Stopping operation:

- Switch off the burner (to stage 1 – burner fan blowing)
- Make sure the tumbler is empty.
- Stop the tumbler drive so that the outlet gate is in low position.
- Leave the engine running and the burner fan blowing (burner switch on 1) until the tumbler has cooled down to 100 °C.

Type of oil to be used: light fuel oil. Consumption rate: 5 kg/t

BA 7000F:



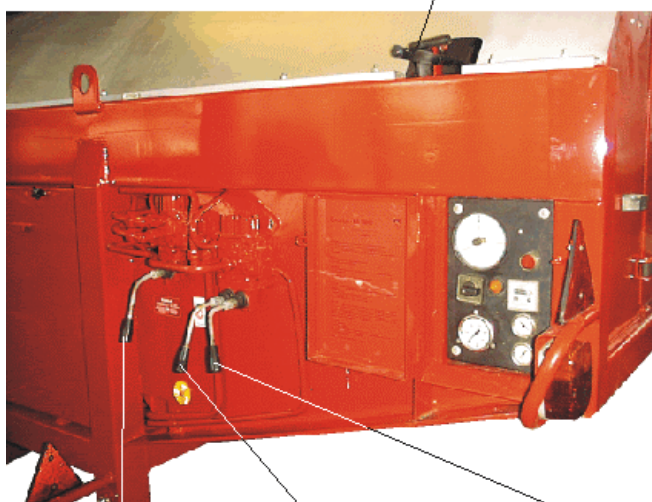
BA 10000:

lever for self-drive right side
forward \leftarrow \Rightarrow backward



lever for self-drive left side
forward \leftarrow \Rightarrow backward

lever for discharge gate

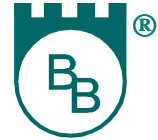


1. stage lever for mixing drum
 \uparrow right
 \downarrow left

2. stage lever for mixing drum
 \uparrow on

lever for charging box
 \uparrow lower
 \downarrow lift

Control lever for self-drive only for recyclers with extra-outfit self-drive.



3 General Description

The asphalt recyclers BA 7000F and BA 10000 may be used for reprocessing cold asphalt mix (fines, milling asphalt) and broken-up asphalt slabs of sizes up to 300 mm by 400 mm by 100 mm (BA 10000: 400x500x100). Thicker slabs should be broken down to lumps of 300 mm side lengths.

Do not fill more than 1100 kg into the tumbler of the BA 7000F (BA 10000: 2000 kg), which corresponds to 80 bar on the hydraulic oil pressure gauge.

Transport:

- Adjust the drawbar so that the recycler is in horizontal position and the permitted supporting load will not be exceeded.

4 Procedure for reprocessing broken-up asphalt slabs

4.1 Set-up of recycler for stationary operation

- Before uncoupling from the towing vehicle, secure the recycler against accidental movement by chocks and applying the hand brake.
- Let the rear props down to the ground and secure them with pins.
- With the aid of the spirit level at the chassis, level out the recycler into horizontal position by turning down the forward propping jacks.
- Do not place the recycler below overhead power lines, parts of buildings or trees to avoid fires.
- Top up fuel oil for the burner and diesel for the engine.
- Check the engine oil level and top up if required.

Attention: Use clean fuel only. At temperatures below zero add a suitable fuel flow improver. Never start the engine and the burner while the recycler is being moved.



4.2 Start-up

- For engine start-up see separate operation instruction.
- To attain the voltage required for starting the oil burner, push the accelerator lever up against its maximum stop.
- Engage the tumbler;
 - upper position = forward mode
 - middle position = neutral
 - lower position = reverse mode, lever must be held down

THE POSITION OF THE OPERATING LEVER CORRESPONDS TO THE TURNING DIRECTION OF THE TUMBLER.

- Before reversing the tumbler, make sure it is revolving at slow speed.
- To avoid excessive shocks on the structure due to unbalance in the tumbler, never move the lever abruptly and in a jerky manner. However, any shocks due to rough treatment will be absorbed by the shock valves.

4.3 Charging

- Fill asphalt lumps into the recycler until the hydraulic oil pressure gauge shows approx. 80 bar.

DO NOT OVERFILL THE RECYCLER TO AVOID EXCESSIVE SMOKE EMISSION.

4.4 Burner operation

Caution: Do not start the burner unless the tumbler is turning.

- Set burner to 1st firing stage (switch position 2).
- After about 2 minutes, when the flame has stabilised, set burner to 2nd firing stage (switch position 3).
- Set thermostat to the required temperature.
 - I. first burner stage max. 180°C: red pointer
 - II. second burner stage max. 150°C: green pointer

4.5 Discharging

At the beginning of the asphalt reprocessing there may be a delay in true temperature reading due to the fact that the temperature of the charge is measured via the soak heat.

- Make sure that the first batch of reprocessed asphalt is discharged 10 minutes after start-up, irrespective of the temperature reading.

Warning: Load becomes inflammable, should sojourn duration dwell.

- During continuous operation, keep the contents of the tumbler to a level corresponding to 80 bar on the hydraulic oil pressure gauge and keep the burner firing at its maximum rate (second stage) and discharge the reprocessed asphalt continuously

Opening and closing of the discharge gate:

The discharge gate is mechanically opened and closed via the hydraulic tumbler drive by moving a control rod to either stop.

Open the gate: by pushing the control rod in; the tumbler operates in reverse mode

Close the gate: by pulling the control rod out; the tumbler operates in forward mode

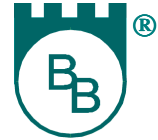
Attention: To open or close the discharging mouth, the drum of the BA 10000 may only rotate in speed level 1!

4.6 Work interruption

- If the work is to be interrupted for up to thirty minutes, discharge the tumbler to one third or half of its contents, close the discharge gate, keep the tumbler turning and the burner firing at low rate (first stage)
- If the work is to be interrupted for more than 30 minutes, discharge the tumbler completely and switch off burner and engine
- At continuous operation keep the contents of the tumbler at a level corresponding to 80 bar on the hydraulic oil pressure gauge, keep burner operation at maximum rate and discharge the reprocessed asphalt continuously.
- Fill asphalt lumps into the recycler until the reading of the hydraulic oil pressure gauge is 80 bar and in case of asphalt fines at 60 bar.

4.7 Drum cleaning

- To make sure that all asphalt lumps in the tumbler are thoroughly heated through, close the discharge gate and keep the contents tumbling for five minutes at the first burner firing stage.
- Then open the discharge gate and, with the aid of the forward propping jacks, lower the discharge end of the recycler to ensure complete discharge
- Remove any stones trapped in the tumbler by fully opening the discharge gate and the grating (manually)
- Close the grating and the discharge gate, keep engine and burner fan running until the tumbler has cooled down to 100°C.
- Finally switch off burner and engine and shut down the recycler.



5 Procedure for reprocessing milling asphalt (asphalt fines) **(differs from procedure for reprocessing broken-up asphalt lumps)**

5.1 Setting up of the recycler

With the aid of the spirit level at the chassis, level out the recycler by turning the forward propping jacks into such a position that the discharge end is slightly raised above the horizontal (half a bubble in the spirit level).

5.2 Charging

Attention: Charge only asphalt fines which have been stored in a dry place!

- Charge the recycler continually to keep the contents at a constant level corresponding to about 60 bar on the hydraulic pressure gauge.

DO NOT OVERFILL THE RECYCLER TO AVOID EXCESSIVE SMOKE EMISSION.

5.3 Discharging

- Open discharge gate half-way.
- Discharge the reprocessed asphalt continuously at a ratio equal to the charging rate.
- If the temperature of the tumbler contents rises above normal, open the discharge gate a little more and lower the discharge end by means of propping jacks.
- If the temperature falls, close the discharge gate further and raise the discharge end.



6 Trouble shooting diagram for light oil burner

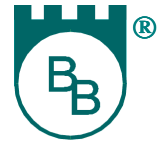
TROUBLE OBSERVED	INSTRUMENT READING	POSSIBLE CAUSES	CORRECTION
General trouble		incorrect basic adjustment	check basic settings check power supply
Motor of burner does not turn	stage 1	no power supply	check power supply operate overload switch at generator
Burner on, but no flame malfunction lamp burns	vacuum gauge exceeds 0,4 bar	filter blocked	replace filter cartridge clean filter strainer
	vacuum gauge remains below 0,4 bar pressure gauge does not rise	pump entrains air	fill fuel oil tank replace O-rings check suction line for leaks shut vent cock
	vacuum gauge remains below 0,4 bar pressure gauge at: 13 bar - BA 7 / 16 bar - BA 10	photosensor gets outside light	push photosensor into bushing, glass side should be towards tumbler
		nozzle blocked	replace nozzle
		no ignition spark	check transformer, cables and ignition electrodes; replace ignition electrodes
		solenoid valve defective	check plug for proper seating; check and, if necessary, replace solenoid valve
		incorrect voltage	check generator voltage 230V 50Hz; tense V-belt adjust engine speed
		oil firing control defective	replace oil firing control
Burner on, flame on, but goes out again malfunction lamp burns	vacuum gauge below 0,4 bar pressure gauge at: 13 bar - BA 7 / 16 bar - BA 10	photosensor defective	check connection of photosensor if necessary replace photosensor
		incorrect burner head adjustment	check basic settings
		oil firing control defective	replace oil firing control

Bagela®

asphalt recycler
BA 7000F / BA 10000



TROUBLE OBSERVED	INSTRUMENT READING	POSSIBLE CAUSES	CORRECTION
Burner on, flame on and out at intervals		temp. control setting too low safety thermostat actuates	set green pointer to 150 ° C set red pointer to 180° C charge the tumbler
malfunction light not on	vacuum gauge exceeds 0,4 bar	fuel starvation	replace filter cartridge and clean filter strainer screw off pump cover and clean pump strainer
Burner on, flame on and out at intervals malfunction light on	vacuum gauge below 0,4 bar pressure gauge oscillates below: 13 bar - BA 7 / 16 bar - BA 10	fuel starvation pump entrains air	fill up fuel oil tank replace O-rings check suction line for tightness
	vacuum gauge below 0,4 bar pressure gauge below: 13 bar - BA 7 / 16 bar - BA 10	fuel starvation	set pump pressure to 13 bar - BA 7 or 16 bar - BA 10 replace pump
Burner on, flame on but tears off		incorrect air setting	check basic setting move jet pipe slightly forward or backward reduce air intake by turning adj. ring
Burner on, flame on in stage 1, but goes off in stage 2 after a while, the same happens again malfunction light remains off	vacuum gauge below 0,4 bar pressure gauge: 13 bar - BA 7 / 16 bar - BA 10	air in pressure line	unscrew pressure line at control cylinder , switch on burner, flame goes on and out after long intervals; as soon as fuel oil flows out without air bubbles, close pressure line
		too much air intake	close air flap of stage 2 a little
Black smoke comes out of the burner		too little air intake	increase air intake
Blue smoke comes out of the burner		too much air intake	decrease air intake

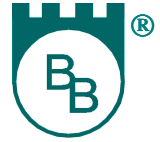


7 Maintenance instructions

- As soon as the pointer of the filter fouling indicator moves into the first red field (-0,3 to -0,4 bar), discard the fouled filter and insert a new one.
- If the filter gets clogged up frequently, clean the fuel tank.
- For engine maintenance see separate operating instructions.
- For burner maintenance see separate operating instructions
- Change the hydraulic oil and filter once a year.
- **Relubricate the chain and sprocket drive before each operation.**
- **Relubricate the four tumbler rollers every 20 operating hours.**

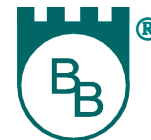
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asphalt recycler



Attachment

- I. EC-Declaration of Conformity
- II. Technical Data
- III. Two-Stage-Oil-Burner
- IV. Hydraulic Diagram
- V. Electric diagram
- VI. Lighting system



EC-Declaration of Conformity		Bagela Baumaschinen GmbH & CO. Gottlieb-Daimler-Straße 5 D-24568 Kaltenkirchen / Germany Tel.: +49 (0) 41 91 99 33 0	
acc. 98/37/ EEC			
Name and address of manufacturer:	Bagela Baumaschinen GmbH & CO. Gottlieb-Daimler-Straße 5 D-24568 Kaltenkirchen / Germany Tel.: +49 (0) 41 91 99 33 0 Fax.: +49 (0) 41 91 99 33 99		
Description:	Designation: Asphalt Recycler Type: BA Output: 4 - 10 t/h Ident. No.: W09..2KB13101 to W09..2KB13699		
Legal provisions:	98/37/EEC	Directive concerning legal regulations of member states for machines	
Harmonised standards:	EN 292 Part 1 EN 292 Part 2 EN 294 EN 349	Safety of machines; basic terminology, general design principles Safety of machines; basic terminology, general design principles Safety of machines; safety clearances from dangerous points Safety of machines; safety clearances to avoid personal injuries	
National standards and technical specifications:	UVV-VBG 1	Basic national regulations	
Signature:	<div style="display: flex; justify-content: space-between;"> <div> Kaltenkirchen, 12.Dec.01 </div> <div style="text-align: right;">  D. Marquardt </div> </div>		

Bagela®

asphalt recycler



Type:	BA 10000
Serial No.:	W09A102052KB13201
Drive engine:	4-cyl. diesel engine, electric start
Power:	20 kW
Heating:	Two-Stage-Oil-Burner Thermostatic control
Effect	400 kW
Fuel	light fuel oil
Consumption approx.	5 kg/to
Generator	220 V / 2 kVA
Output	up to max. 10 to/h
Drum filling approx.	2000 kg
A-sound level (medium value at a distance of 7 m and 1 m height)	
idle running	61 dB(A)
max. speed	74 dB(A)
Chassis	tandem-chassis electric brake height adjustable draw bar ring eye (DIN)
admissible weight	5000 kg
coupling height	650-1250 mm
tyres	215/70 R17,5
Length	5400 mm
Width	2000 mm
Height	2100 mm
Weight:	4400 kg

Two-Stage-Oil-Burner

EO-B 45-Z / H

**(Special construction
for BAGELA Asphalt-Recycler)**

Technical Information

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Technical Data	4	Instructions Pump Type Suntec	7
General Instructions	5		

Burner components and their function

The EO-B 45-Z /H is a special designed 2-stage oil-burner to heat the BAGELA Asphalt-Recycler BA 10000.

The burner casing is manufactured from Silumin. Fuel-pump and E-motor are flanged to the casing. Both are coupled with an elastic PERBUNAN-shaft.

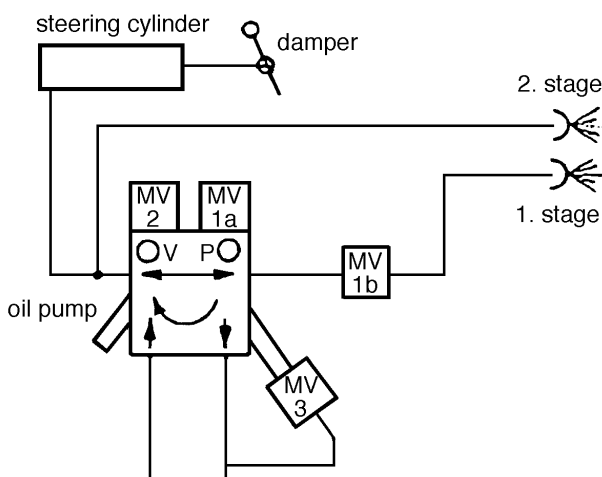
The fan sucs the combustion air via the inlet-system through the basket-typ design of the pump-coupling. Under full-load capacity (burner operation position "3" on the switch board) the combustion-air-supply is adjustet via the air inlet-system. Under part-load (burner operation position "2" on the switch board) the air-supply is reduced through a steering cylinder which moves the damper at the air supply. The opening angle of the damper is pre-adjusted with the adjusting screw at the steering cylinder (see Fig. 1). During operation the air flow is steered automatically from the pressure in the fuel pipe. The cylinder is de-aerated before supply. If needed, it can be de-aerated on site with the aim of the screw connection on the pressure side.

To operate the burner at both stages the fuel supply to the two nozzles takes place via 3 magnetic valves (see Fig. 1). A safety valve (MV1a) and the 2 further valves MV1b and MV2, which releases the fuel flow. Under full-load mode the release of the magnetic valve MV2 opens simultaneously the steering cylinder including the damper, which releases the total air flow to the combustion head. At the first start-up or at restart after a refilled storage tank, all fuel tubes can be de-aerated by opening the magnetic valve MV3 (see Fig. 1). Procedure: Press trouble light switch till the light shines. MV3 is open. After about 4 min. press trouble light switch again. Trouble light dims out. The burner is in full function again.

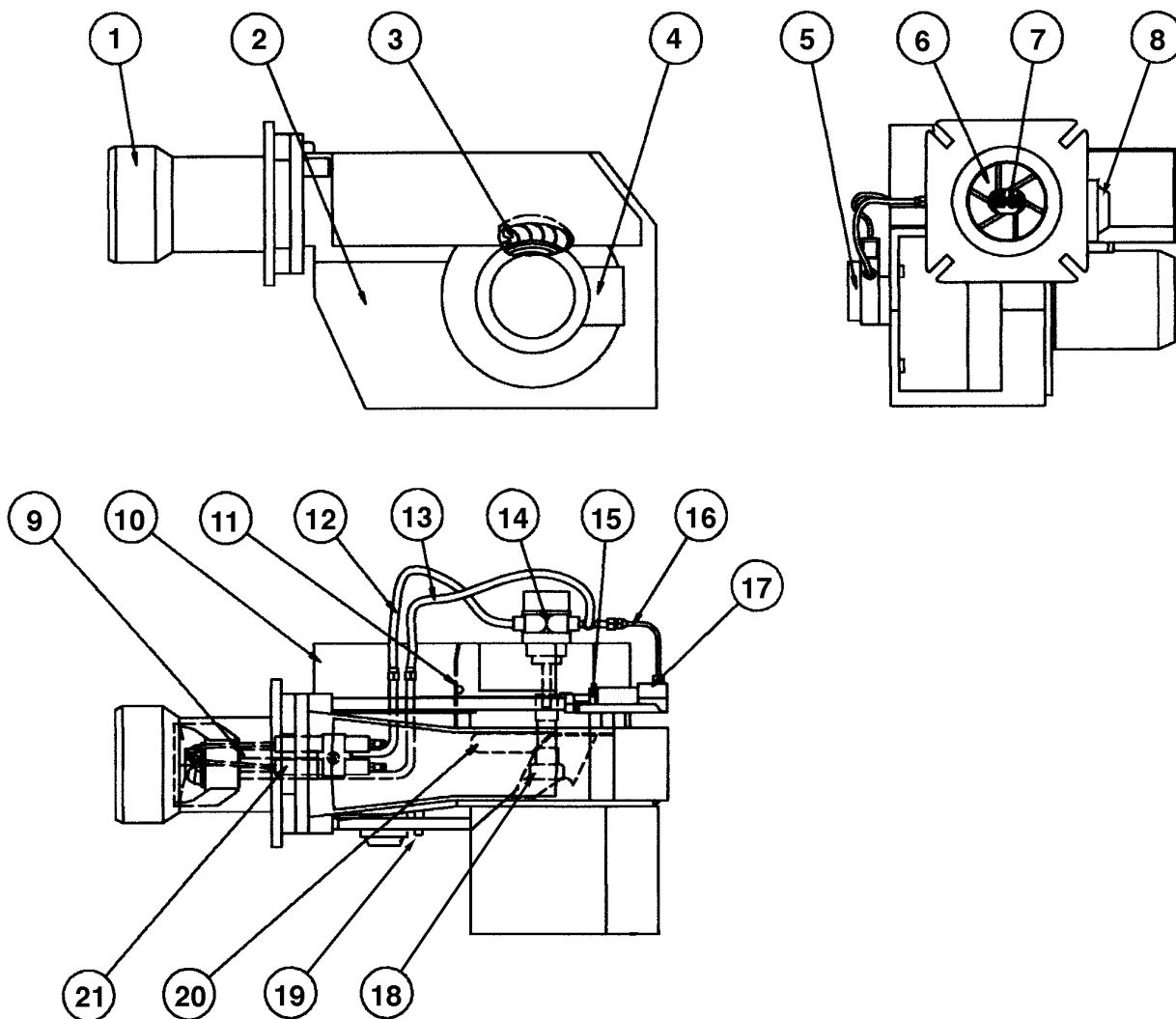
The high quality precision-draft-tube is manufactured from stainless steel. It is fixed with 2 screws to the burner casing. The nozzle holder is fitted inside co-axally. For individuell adjustment an axial positioner device is fitted at the passage of the burner case.

The burner operation is steered and controlled through the control box, which is connected to the burner with a plug cable. The proper flame operation itself is controlled via a foto-cell.

Domestic gas oil or diesel fuel is recommended as fuel with cloud points $\leq -1^{\circ}\text{C}$ to avoid paraffinic crystals.



Description



Components

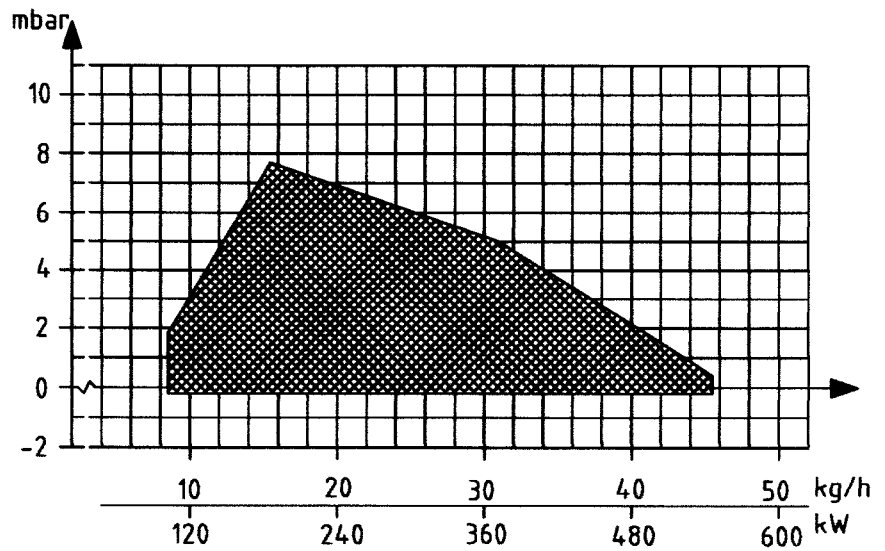
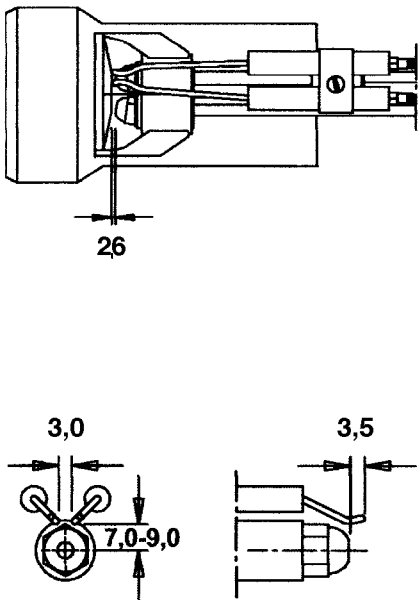
- | | | |
|-------------------------|--|--------------------------|
| 1. Flame cone | 10. Air intake | 18. Photoresistor |
| 2. Fan housing | 11. Air damper | 19. Drive coupling |
| 3. Fan wheel | 12. Connecting pipe Stage 1 | 20. Conical shield plate |
| 4. Motor | 13. Connecting pipe Stage 2 | 21. Ignition electrodes |
| 5. Pump | 14. Solenoid valves | |
| 6. Shrouded disc | 15. Nozzle assembly adjustment | |
| 7. Nozzle | 16. Connecting pipe, pump -
adjustment device | |
| 8. Ignition transformer | 17. Adjustment device, Nozzle
assembly adjustment | |
| 9. Nozzle assembly | | |

Technical Data

Output range and Nozzles recommended

Burner	Oil capacity kg	Output		Nozzle Monarch mounted	Pump pressure bar
		kW	Mcal/h		
EO-B 45-Z /H	8,5 - 45,5	101 - 540	87 - 464	for 1. stage: 5,0 - 60° R for 2. stage: 2,75 - 60° R	14

Burner head



171 216 91 00-01

General Instructions

ADJUSTMENT OF BURNER

The burner is from the factory pre-set to an average value. A final adjustment on site can be necessary. To adjust the combustion device, start by increasing the air volume and the nozzle assembly somewhat. When the burner starts it is burning with excess air and smoke number 0. Reduce the nozzle assembly adjustment until soot occurs, and then increase the adjustment to make the soot disappear again. Then the volume of air is reduced until soot occurs and increased again to reach a combustion free of soot. By this procedure an optimum adjustment is obtained.

A whistling sound maybe heard which can be eliminated or reduced as follows: Increase the nozzle assembly adjustment somewhat. The CO₂-content and consequently the air volume will then be reduced.

ADJUSTMENT OF NOZZLE ASSEMBLY

Adjust the nozzle assembly with the adjustment screw D to the desired position.

AIR ADJUSTMENT

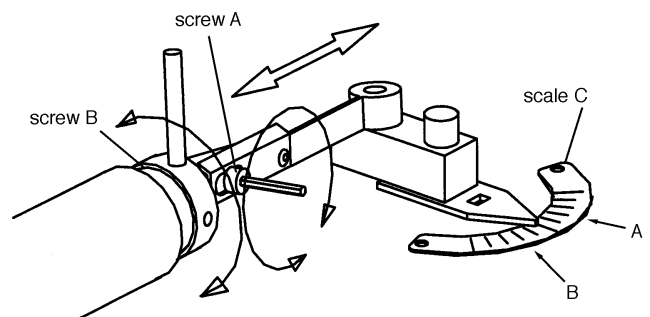
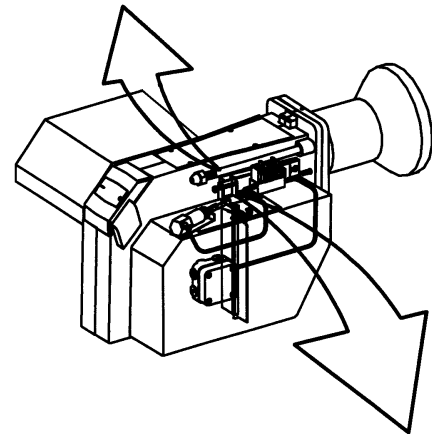
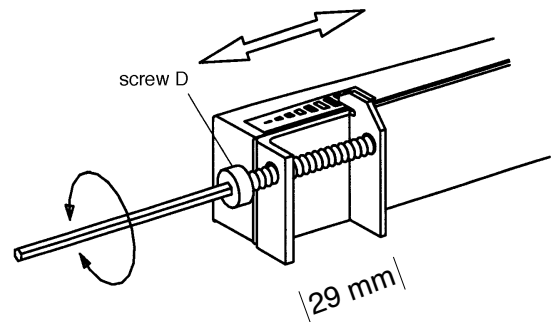
First stage:

Set the operating switch on low capacity (burner operation position "2"). Loosen the screw (A) and turn the damper to the position wanted. Tighten the screw (A) again.

Second stage:

Set the operating switch on high capacity (burner operation "3"). Screw the knurled ring (B) in (reduce) or out (increase). The position of the damper can be read on the damper scale (C).

Check the air adjustment by making a flue gas analysis.

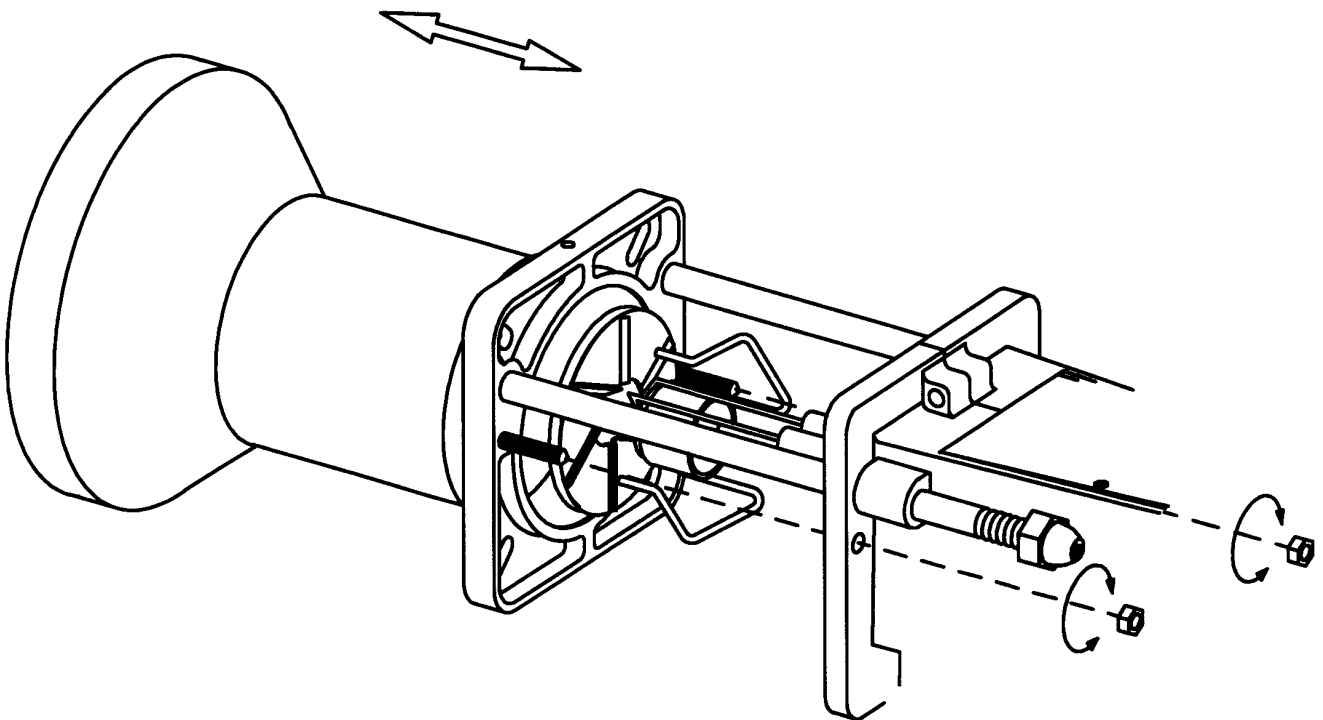


Maintenance of the Oil Burner

Warning! Before doing any service switch off power at the main switch and cut off the oil supply.

SERVICE OF THE BURNER HEAD

The burner should be examined regularly for any sign of malfunction or oil leakage.



Instructions Pump Type Suntec A2L 65C - 75C

TECHNICAL DATA

One or two-pipe system.

Viscosity range: 2-12 mm²/S

Pressure range: 8-15 bar

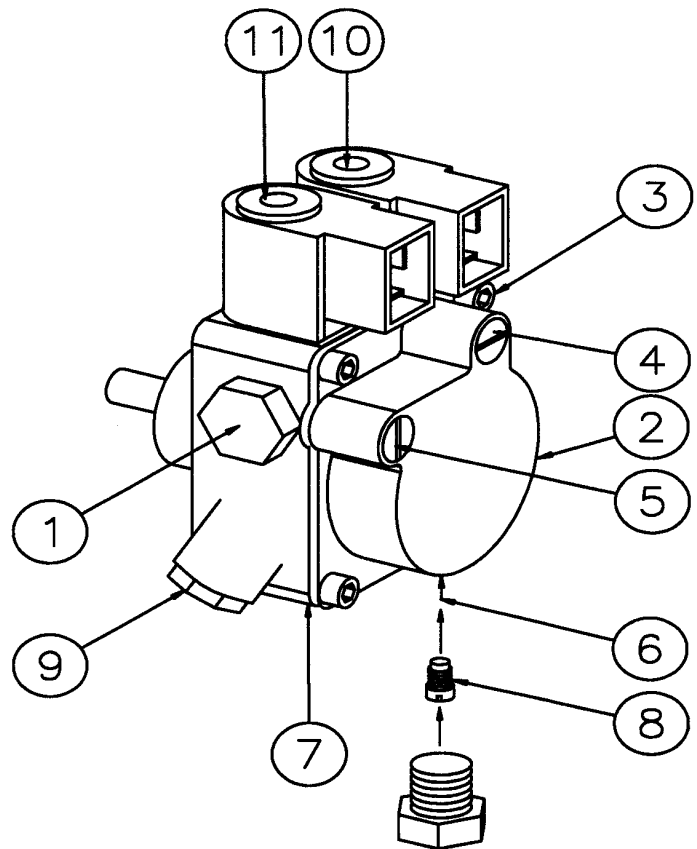
Rated voltage of coil: 220/240V

50/60 Hz

Oil temperature: max 60°C

COMPONENTS

1. Nozzle outlet G 1/8"
Stage 2
2. Pressure gauge port G 1/8"
3. Nozzle outlet G 1/8"
Stage 1
4. Pressure gauge port G 1/8"
5. Vacuum gauge port G 1/8"
6. Return line G 1/4"
and internal by-pass plug
7. Suction line G 1/4"
8. Return plug
9. Pressure adjustment

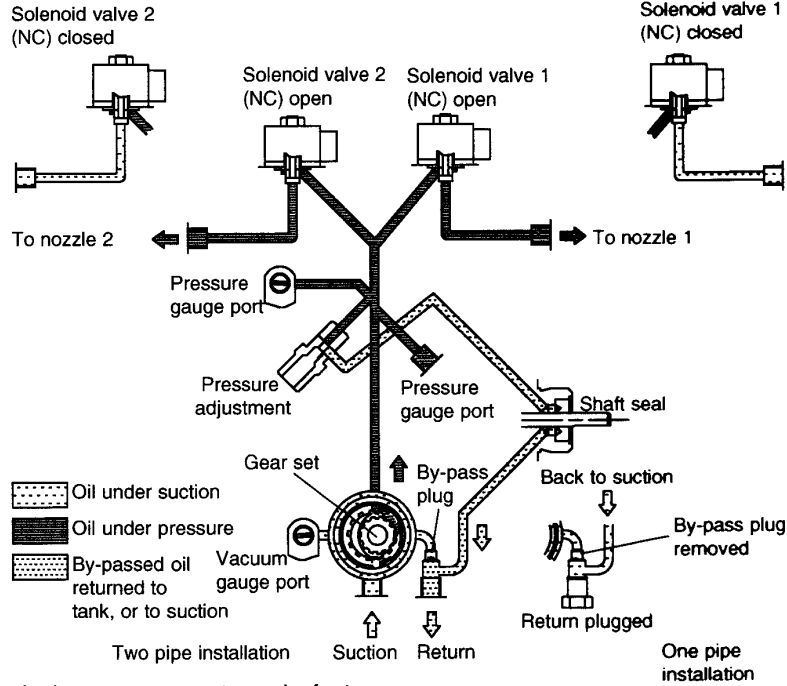


PUMP OPERATING PRINCIPLE FOR A2L 65C - 75C

The **SUNTEC A2L** oil pump has two nozzle outlets. It incorporates two blocking solenoid valves with in-line-cut-off function, one for each nozzle outlet.

The gear set draws oil from the tank through the built-in filter and transfers it to the nozzle line via the cut-off solenoid valves. A pressure regulating valve is used to dump all oil which is not required at the nozzle.

In one-pipe operation, the oil which does not go through the nozzle lines is returned directly to the gear inlet and the suction line flow is equal to the sum of the 2 nozzle flows. In two-pipe operation, the by-pass plug must be fitted in the return port, which ensures that the oil dumped by the regulating valve is returned to the tank and the suction line flow is equal to the gear set capacity.



design ensures extremely fast response and the switching can be selected according to the burner operating sequence and is independent of motor speed.

When the solenoids are non-activated, the valves are closed and all oil pressurised by the gear set passes through the regulator to suction or to the return line, depending upon pipe arrangement.

As soon as the solenoids are activated, oil passes to the nozzle lines at the pressure set by the pressure regulating valve.

Shaft rotation and nozzle location seen from shaft end

Gear set capacity

A2L: 2 nozzle outlets

A2L XX C

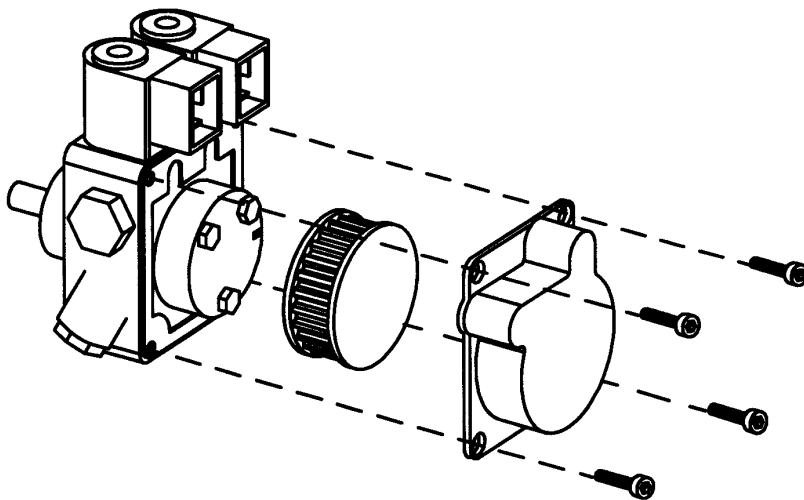
BLEED

Bleeding in two-pipe operation is automatic: it is assured by a bleed flat on the piston. In one-pipe operation, a high pressure connection must be loosened until the air is evacuated from the system.

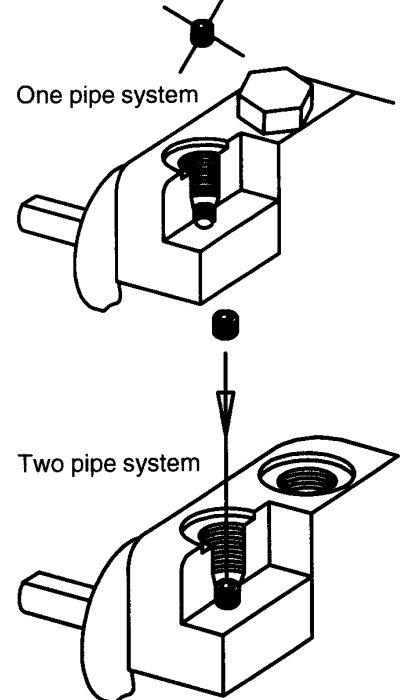
CUT-OFF

The solenoid valves of the A2L pump are of the "normally closed" type and are situated in the nozzle lines. This

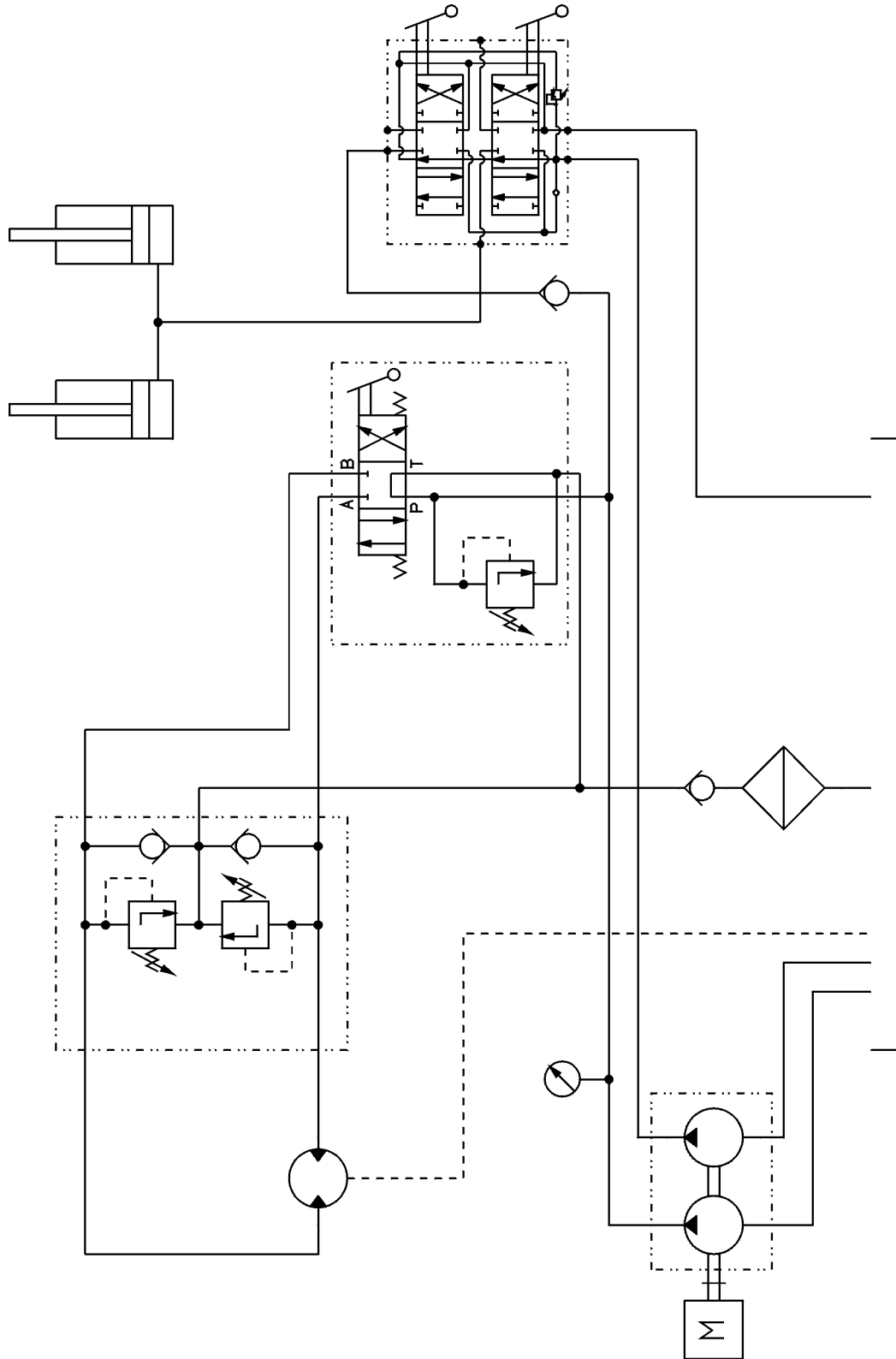
EXCHANGE OF FILTER



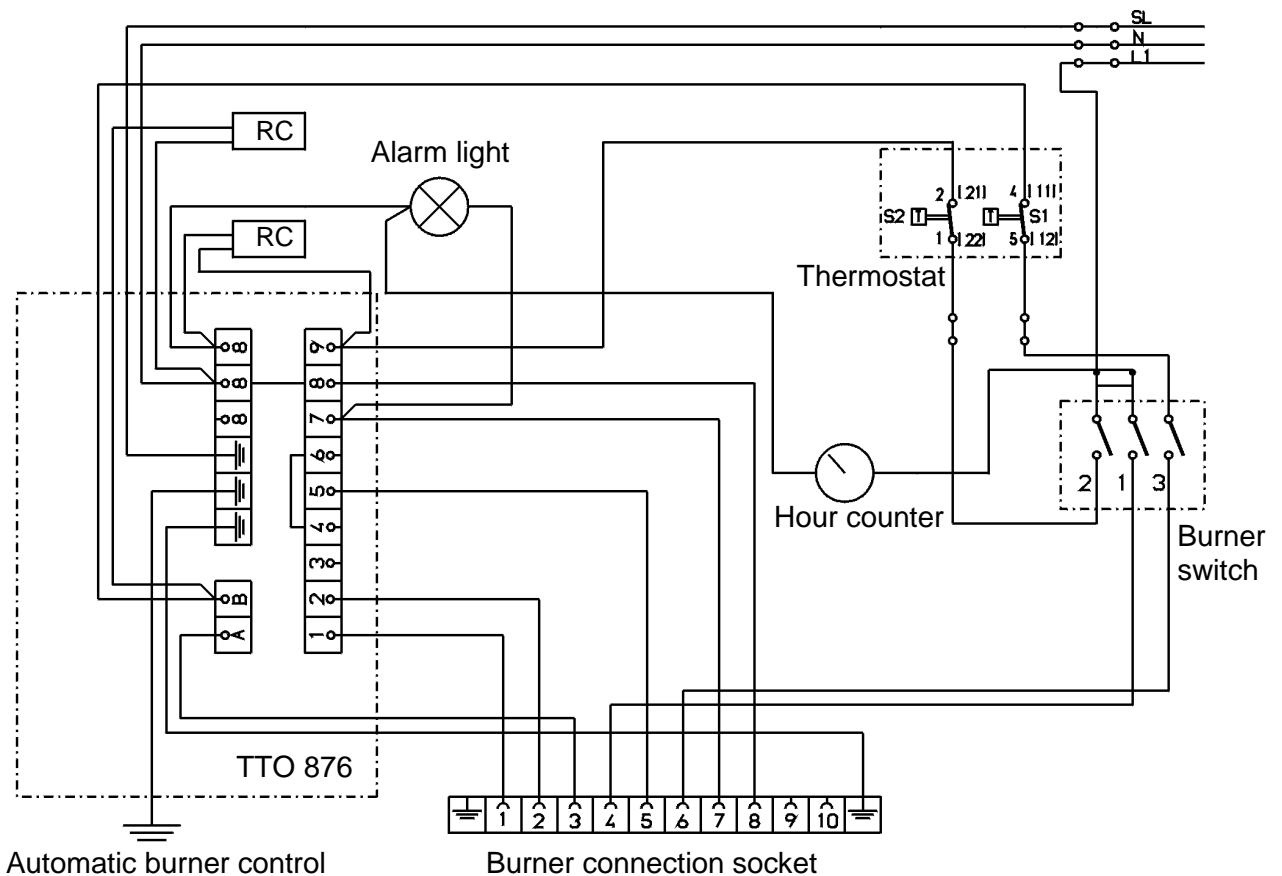
MOUNTING/DISMOUNTING RETURN PLUG



Hydraulic diagram



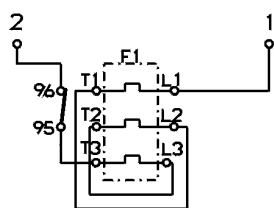
Electric diagram



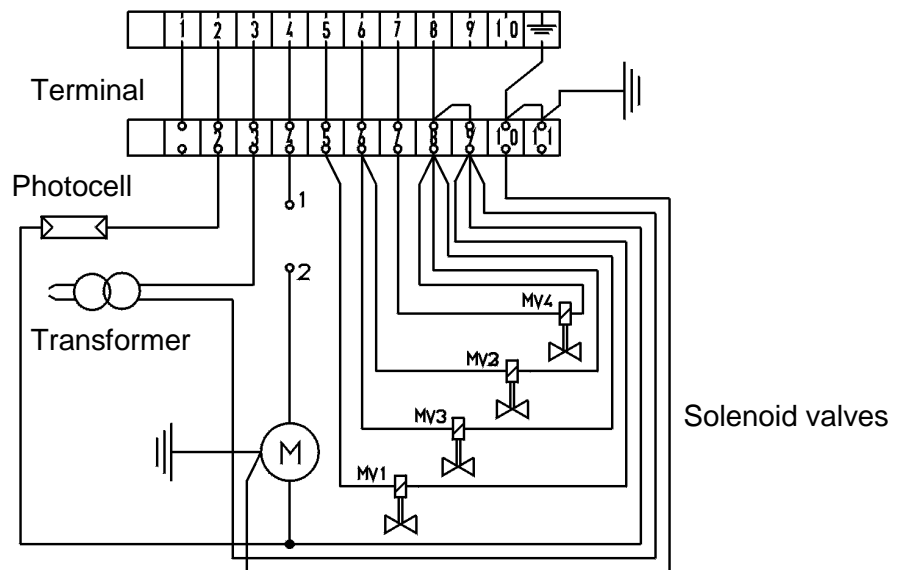
Automatic burner control

Burner connection socket

Engine protection switch



Burner connection plug



Solenoid valves



Lighting system 12V

