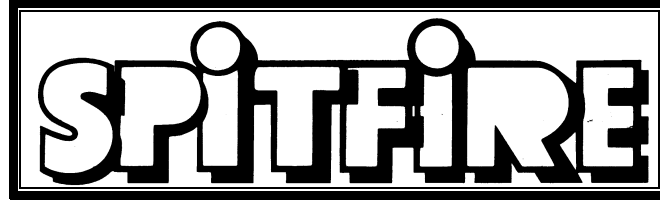


OPERATING & MAINTENANCE MANUAL

INDUSTRIAL DIRECT FIRED DIESEL/KEROSENE HEATERS



IC 25

NOT FOR DOMESTIC USE – SPACE HEATING ONLY

Made By:



Spitwater Australia Pty Ltd
953 Metry St
North Albury , NSW , Australia

WARNING: **FAILURE TO FOLLOW OPERATING, SAFETY AND MAINTENANCE INSTRUCTIONS LISTED IN THIS MANUAL RELEASES THE MANUFACTURER FROM ANY RESPONSIBILITY FOR ACCIDENTS OR DAMAGES TO BOTH HUMANS AND OBJECTS AND MAY RENDER ANY WARRANTY VOID**

TECHNICAL DATA

Model		IC25
Fuel Supply		Diesel Kerosene
Heat Output	kW kcal/h	21.00 18500
Fuel Consumption	kg/h	2.10
Air Flow	m ³ /h	1000
Electricity Supply	V/∅/Hz	230/1/50
Pressure	bar	0.42
Motor	W/A	300/2.5
Limit Thermostat	°C	200
Tank Size	L	41
Weight	kg	44
Dimensions LxWxH	mm	1125x513x680

The manufacturer reserves the right to modify design features and technical data without notice.

INTRODUCTION

The SPITFIRE range of portable heaters has been designed to give safe, efficient and reliable service when the correct operating sequences are followed and proper attention is given to cleaning and maintenance procedures. This manual is to provide up to date information necessary to the user/serviceperson for operating, cleaning and servicing the heaters, together with fault-finding techniques and general specifications details and diagrams. Please note that the information given herein after may be subject to revision in compliance with the policy of continual improvements.

The SPITFIRE range of heaters should only be used in the manner and purpose for which they were intended and in accordance with the recommendations and safety precautions detailed in the following Manual and in the Operating Instructions stickers on the unit itself.

All SPITFIRE heaters undergo rigorous safety and operational tests before being despatched into the marketplace however it is still imperative that prior to use, all operators have read and understood all information and instructions provided and are aware of possible hazards.

IMPORTANT SAFETY INSTRUCTIONS & PRECAUTIONS

This booklet contains important information for the use and safe operation of this heater. Please read and understand all warnings before you start using the unit.

WARNING: When using this heater:

1. Read all instructions before using this heater.
2. Know how to start and stop the unit. Be quite familiar with the controls.
3. Follow the maintenance procedures and fault-finding techniques outlined in the manual.
4. Do not restrict under any circumstances either the inlet or outlet end of the heater.
5. Do not operate this heater in basements or below ground.
6. Not for domestic use space heating only.
7. The heater must not be used in close proximity to combustible material. A guard must be placed 900mm away from the heater outlet to prevent the approach of combustible materials.
8. Read carefully the instructions concerning Electricity and Fuel Supply.
9. Use only clean filtered diesel or kerosene as fuel. Do not refill the fuel tank while the heater is running.
10. Do not operate the heater with the top cover removed.
11. Allow a minimum room size as listed in the technical specifications.
12. Do not pull on the electrical cord in order to unplug the unit.
13. Do not effect temporary repairs on worn or damaged electrical cords and plugs. Have worn, cut or damaged cords and plugs replaced by an authorised service person/electrician.
14. To prevent injury always disconnect the power plug before disassembling any part of the heater, effecting any servicing or when the unit is not in use.
15. Local regulations should be followed as to the installation of industrial heaters.

ELECTRICITY SUPPLY

The SPITFIRE range of heaters is designed to run off 220-240V Single-Phase 50Hz electrical supply. The unit should be plugged into a 10A outlet.

WARNING: This appliance must be earthed.

Note: If the Plug needs to be replaced to suit local requirements a qualified electrician should carry out the replacement taking care to earth the unit and maintain the correct phase connection as per the wiring diagram.

FUEL SUPPLY

Please only use the following fuel types in the heater: **Kerosene with viscosity of 1.3 cst or Diesel with viscosity of 1.5cst**

WARNING: Under no circumstances should any other fuel type be used. Do not fill the fuel tank while the heater is running.

INSTALLATION AND OPERATING INSTRUCTIONS

INSTALLATION (All Models)

1. Identify your unit from the model description on the serial number label affixed to the heater and the exploded views contained in this manual.
2. Where necessary. Fit wheels on axle using the clips and cover supplied. Fit axle assembly and support to the tank using the bolts supplied.
3. Fill the Fuel Tank using clean filtered fuel.
4. Connect Power Plug to Mains Power Outlet
5. Have your chimney installation checked by local authorities.

OPERATING INSTRUCTIONS

TO START & USE

1. WHERE FITTED. This unit can be fitted with a thermostat. If required please contact your service agent for further information. Set operating temperature to the desired position on the thermostat.
2. Turn power switch to the On (I) position. This will start the ignition cycle.

TO STOP (NORMAL OPERATION)

1. Turn power switch to the Off position. The fan will continue to run until the cooling cycle is complete, DO NOT REMOVE THE PLUG FROM THE ELECTRICAL SUPPLY UNTIL THE FAN HAS STOPPED RUNNING AS THIS WILL CAUSE DAMAGE TO THE UNIT.
2. After the fan has stopped running remove the plug from the electrical outlet

MAINTENANCE AND FAULT FINDING PROCEDURES

WARNING: ALWAYS ISOLATE UNIT FROM THE ELECTRICAL SUPPLY BEFORE ATTEMPTING ANY REPAIRS OR MAINTENANCE.

TROUBLESHOOTING GUIDE

FAULT

CAUSE

FAULT	CAUSE
A The fan motor never starts	1-2-3-4-5-6-7-14
B The fan motor starts but unit goes into lockout	8-9-10-11-12-13-14-15-17
C Heater runs but excessive smoke/smell is emitted	4-8-11-15-16-17
D Heater runs but flames exit from front guard	15-16-17

ALL REPAIRS / MAINTENANCE WORK SHOULD BE CARRIED OUT BY A QUALIFIED TECHNICIAN.

CAUSE

REMEDY

CAUSE	REMEDY
1. Electricity Supply is faulty	<ul style="list-style-type: none"> • Check the power plug is plugged in. • Check that electricity supply is available and wiring connections are secure
2. The motor is blocked/faulty	<ul style="list-style-type: none"> • Check and replace as necessary
3. The fan is blocked/damaged	<ul style="list-style-type: none"> • Check and replace as necessary
4. The compressor assembly is blocked/damaged	<ul style="list-style-type: none"> • Check and adjust or replace as necessary
5. Switch/switch connections is/are faulty/loose	<ul style="list-style-type: none"> • Check and replace as necessary
6. If fitted: <ul style="list-style-type: none"> * The thermostat setting is incorrect * The thermostat plug is not plugged in * The thermostat/thermostat connection is loose/faulty 	<ul style="list-style-type: none"> • Adjust thermostat accordingly • Plug the thermostat plug into the appropriate socket • Check and replace as necessary
7. Limit thermostat is faulty	<ul style="list-style-type: none"> • Check for continuity in Limit thermostat connection
8. Diesel flow absent /low	<ul style="list-style-type: none"> • Check that the fuel tank is full. Fill if necessary. • Check fuel filter for blockages. Clean/replace as necessary. • Check fuel line for blockages. Clean or replace as necessary. • Check air line for blockages/leaks. Tighten/clean or replace as necessary. • Check air filters. Clean and replace as necessary • Check the compressor assembly for correct operation. Adjust and replace as necessary.
9. Diesel nozzle Blocked /faulty	<ul style="list-style-type: none"> • Check and clean/replace as necessary
10. Photocell flame detection unit dirty or not working properly	<ul style="list-style-type: none"> • Check, clean and adjust or replace as necessary
11. Inlet/outlet grill or inside of heater is dirty or partially blocked	<ul style="list-style-type: none"> • Check and clean as necessary
12. Limit thermostat cuts in interrupting the heater	<ul style="list-style-type: none"> • Check if the inlet/outlet grill are dirty or blocked, clean as necessary • Check that airflow in and out of the heater is not impeded
13. Diesel is not igniting	<ul style="list-style-type: none"> • Check Transformer and replace if necessary • Check High Tension leads and adjust/replace as necessary • Check electrodes and adjust and replace as necessary
14. Burner Control box faulty	<ul style="list-style-type: none"> • Check and replace if necessary
15. Pressure adjustment is incorrect	<ul style="list-style-type: none"> • Check and adjust/clean compressor regulating valve as necessary (Follow pressures listed in the technical specifications an see maintenance instructions) • Check compressor for correct operation and wear. Adjust/replace as necessary. • Check air line for blockages/leaks. Tighten/clean or replace as necessary.
16. Nozzle O'Ring is damaged	<ul style="list-style-type: none"> • Check and replace as necessary
17. Fuel is contaminated/bad quality	<ul style="list-style-type: none"> • Drain tank and replace fuel

MAINTENANCE

General

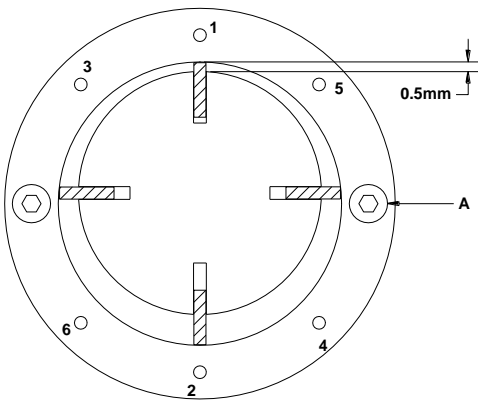
- Every refill clean fuel filter
- Every 150 hours wash inlet filter with mild detergent and dry. **Filter must be thoroughly dry before replacing and must not be oiled.**
- Outlet filter:
Clean and if necessary replace the outlet filter after the first 30 hours of running in.
Every 150 hours clean by blowing air from the inside surface out. **Do not wash or use oil on this filter**
If when reassembling the gasket is damaged replace it. **Do not use sealants**
- Every 300 hours rinse fuel filter in clean fuel.
- Every 300 hours clean and check fuel nozzle and nozzle o' ring for wear. If worn or damaged replace.
- Every 500 hours drain the fuel tank and flush it using clean fuel.
- Twice per season make sure the Fan is clean. Make sure fan is dry before operating.
- Once per season make sure the combustion chamber and head are clean and free from dust. Use compressed air to clean

Electrical

- Once per season check that electrodes gap is 2.5mm. Make sure that the transformer and transformer leads are in good condition
- Once per season check that the motor fixing bolts are tight and make sure that the fan fixing screw at the fan boss is tight.
- Once per season check the limit thermostat junction for continuity.
- Once per season check that all electrical connections are tight and in good condition.

Compressor / Air lines/Air Pressure

- Every 150 Hours check that all air lines are tight and in good condition.
- Once per season check the compressor rotor and blades. When handling make do not drop the units and store them in a clean dry place, as any dirt/moisture will damage the compressor. If worn replace the rotor and blades (all four blades have to be replaced as a set even though only one might be damaged). Reassemble making sure that the notch on the blades is towards the centre of the rotor and that there is a 0.5mm gap between the rotor and the ring as shown in figure below. Re tighten the compressor plate slowly with the motor running following the numerical sequence shown below.

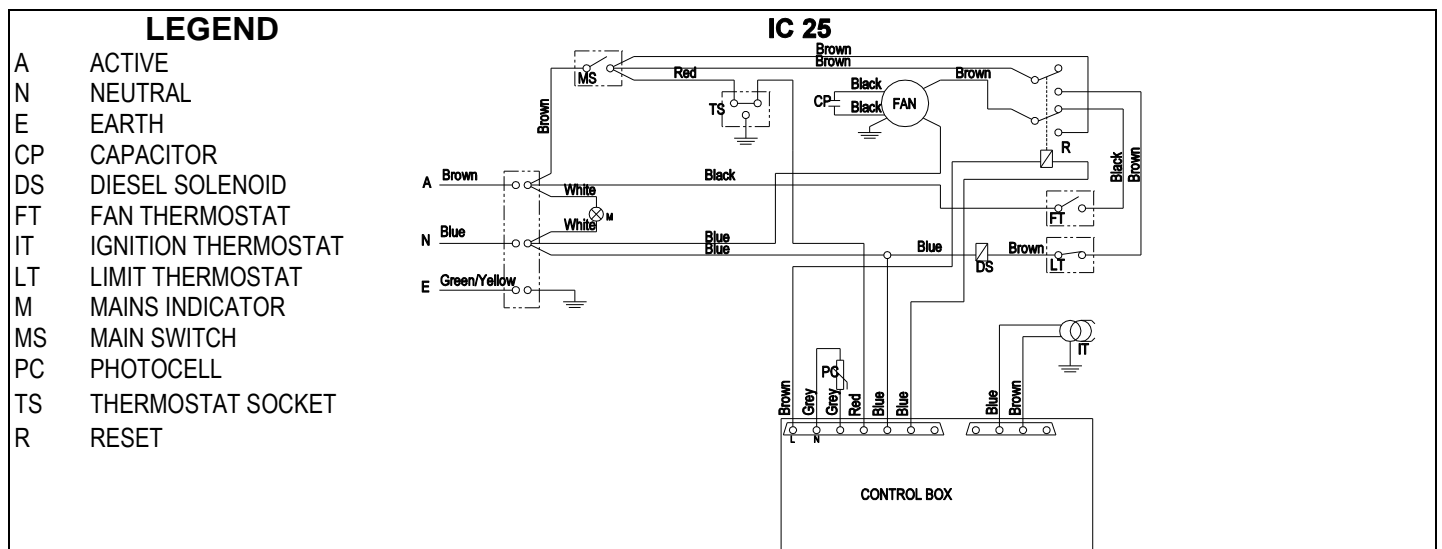


- Once Per season make sure that the operating pressure is as listed in the technical specifications by fitting a pressure gauge in port. If necessary adjust the pressure by acting on valve and relock using locknut.

Safety

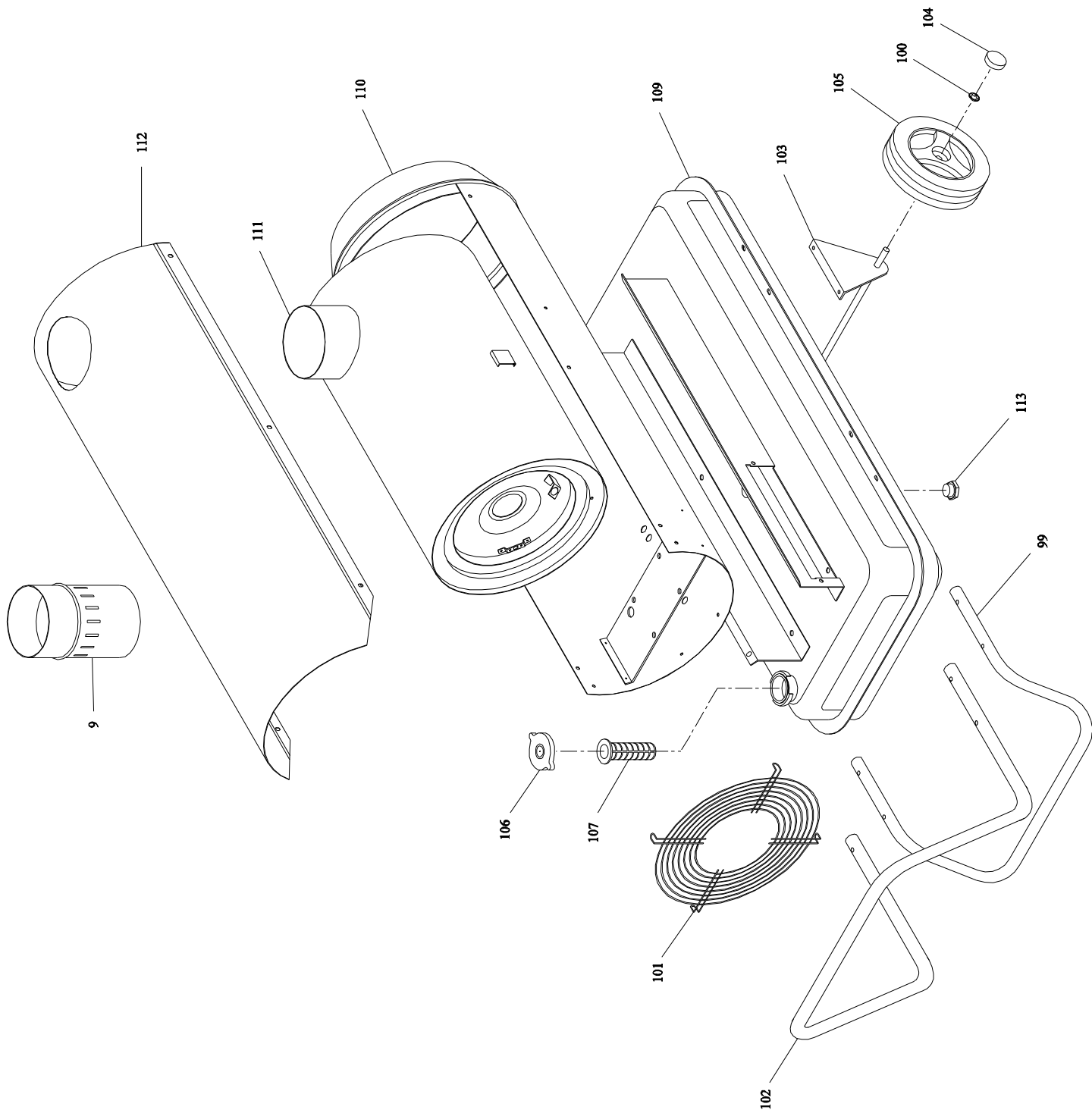
- After every major maintenance procedure or at least once per season check heater for correct operating sequence and that all safety mechanisms are operating correctly (Photocell, limit thermostat etc)

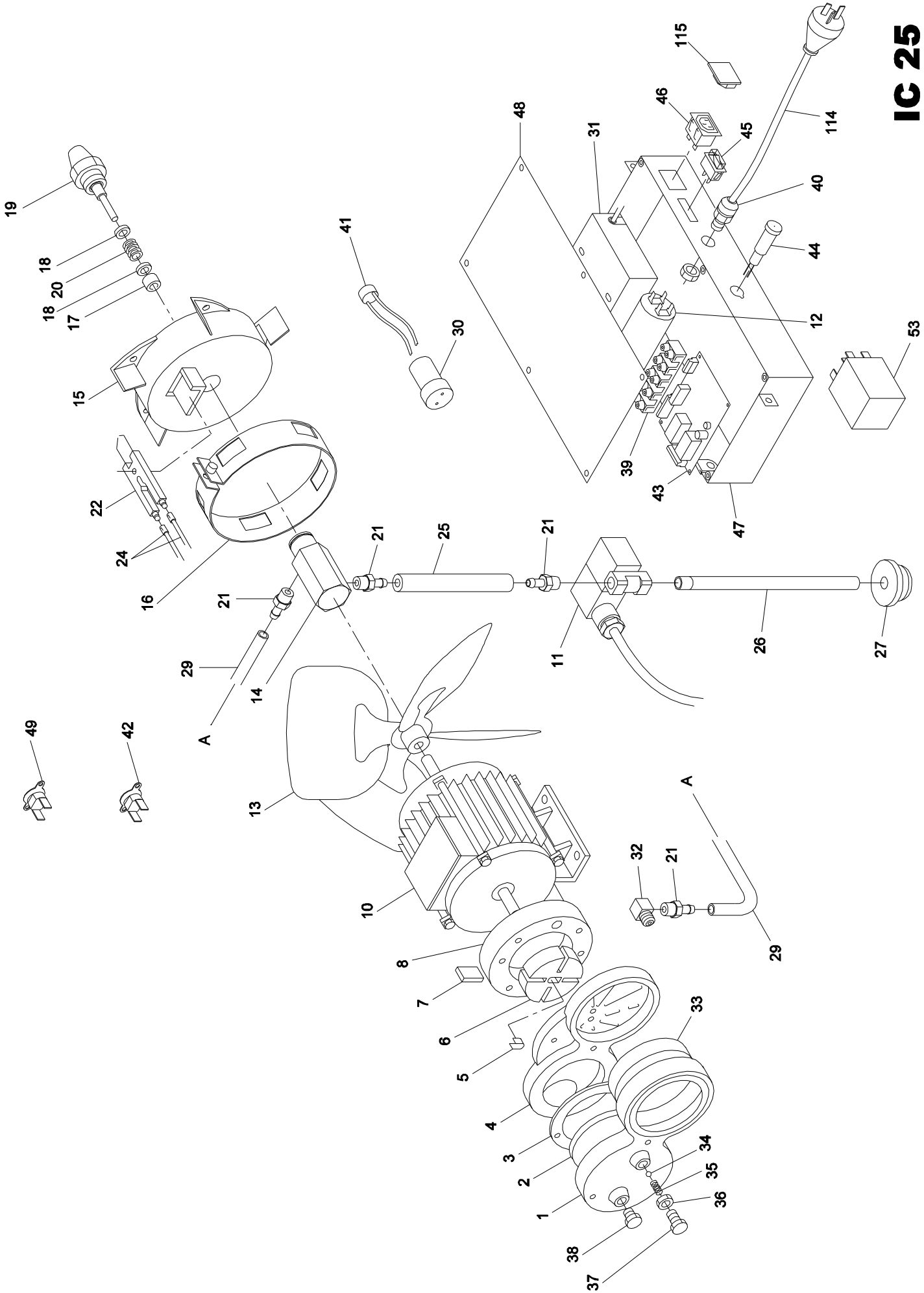
WIRING DIAGRAM



EXPLODED VIEWS

IC25





IC 25

PARTS LISTING

POS	DESCRIPTION	IC25	POS	DESCRIPTION	IC25	POS	DESCRIPTION	IC25
1	FILTER HOLDER	100141	24	HIGH/V.CABLE-mm.4	100184	47	ELECTRICAL BOX	100122
2	OUTLET FILTER	100130	25	FUEL HOSE	260008	48	COVER ELEC.BOX	100124
3	CORK GASKET	100156	26	FUEL PIPE	260009	49	FAN THERMOSTAT	33041/D
4	COMPR. PLATE	100125	27	GASKET	100210	53	RELAYS	33253
5	COMPR.DOG	100123	29	AIR TUBE	260007	99	TROLLEY	250125
6	ROTOR	350115	30	PHOTOCELL PROTEC.	100119	100	HUB CUP	33230/B
7	COMPR. BLADE	350116	31	TRAFO 2 EXIT-mm.4	100221	101	GRILLE	100161
8	COMPR.RING	350117	32	ELBOW 1/8M-1/8F	100183	102	HANDLE	250122/A
9	CHIMNEY EXTENSION	260005	33	INLET FILTER	100129	103	AXLE WITH BRACKET	100163
10	MOTOR	100147	34	AIR REG.BALL	100131	104	HUB CUP COVER	33230/C
11	SOLENOID VALVE	33214/B	35	AIR REG. SPRING	100132	105	WHEEL	33231
12	CAPACITOR	100135	36	NUT 1/8	100155	106	TANK CAP	44720
13	FAN	11001	37	AIR REG.VALVE	100133	107	TANK DIESEL FILTER	44680
14	NOZZLE HOLDER	100197	38	PLUG 1/8	100134	109	TANK	260001
15	BURNER HEAD/2 EL.	100196	39	TERMINAL BLOCK	33356	110	BOTTOM CASING	260002
16	AIR REGULATING RING	260006	40	CABLE GLAND	48417/E	111	COMB.CHAMBER	260003
17	NOZZLE SEAL	100199	41	PHOTOCELL	300006/A	112	TOP COVER	260004
18	NOZZLE WASHER	70200/DA	42	LIMIT THERMOSTAT	33041/A	113	DRAIN PLUG	100157
19	SIPHON NOZZLE	150110	43	CONTROL BOX	300132	114	CABLE	33018
20	NOZZLE SPRING	100200	44	LIGHT	33125	115	PLUG T.A.	100126
21	BARB 1/8	44541	45	SWITCH	33016			
22	ELECTRODE/DOUBLE	100225	46	THERMOSTAT SOCKET	33070			