

HS3500DF, HS6000DF

Owner's Manual & Parts Breakdown



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NEVER LEAVE THE HEATER UNATTENDED WHILE BURNING!



OPERATING INSTRUCTIONS AND OWNER'S MANUAL

Model #

HS3500DF
HS6000DF

READ INSTRUCTIONS CAREFULLY: Read and follow all instructions. Place instructions in a safe place for future reference. Do not allow anyone who has not read these instructions to assemble, light, adjust or operate the heater.

DIRECT FIRED PORTABLE HEATER



WARNING: If the information in this manual is not followed exactly, a fire or explosion may result causing property damage, personal injury or loss of life.

- Do not store or use gasoline or other flammable vapors and liquids in the vicinity of this or any other appliance.
- Service must be performed by a qualified service agency.

This is an unvented portable heater. It uses air (oxygen) from the area in which it is used. Adequate combustion and ventilation air must be provided.

WARNING:

⚠ YOUR SAFETY IS IMPORTANT TO YOU AND TO OTHERS, SO PLEASE READ THESE INSTRUCTIONS BEFORE YOU OPERATE THIS HEATER.

GENERAL HAZARD WARNING:

⚠ FAILURE TO COMPLY WITH THE PRECAUTIONS AND INSTRUCTIONS PROVIDED WITH THIS HEATER, CAN RESULT IN DEATH, SERIOUS BODILY INJURY AND PROPERTY LOSS OR DAMAGE FROM HAZARDS OF FIRE, EXPLOSION, BURN, ASPHYXIATION, CARBON MONOXIDE POISONING, AND/OR ELECTRICAL SHOCK.

⚠ ONLY PERSONS WHO CAN UNDERSTAND AND FOLLOW THE INSTRUCTIONS SHOULD USE OR SERVICE THIS HEATER.

⚠ IF YOU NEED ASSISTANCE OR HEATER INFORMATION SUCH AS AN INSTRUCTIONS MANUAL, LABELS, ETC. CONTACT THE MANUFACTURER.

WARNING:

⚠ NOT FOR HOME OR RECREATIONAL VEHICLE USE

⚠ WARNING: FIRE, BURN, INHALATION, AND EXPLOSION HAZARD. KEEP SOLID COMBUSTIBLES, SUCH AS BUILDING MATERIALS, PAPER OR CARDBOARD, A SAFE DISTANCE AWAY FROM THE HEATER AS RECOMMENDED BY THE INSTRUCTIONS NEVER USE THE HEATER IN SPACES WHICH DO OR MAY CONTAIN VOLATILE OR AIRBORNE COMBUSTIBLES, OR PRODUCTS SUCH AS GASOLINE, SOLVENTS, PAINT THINNER, DUST PARTICLES OR UNKNOWN CHEMICALS.

⚠ WARNING: This product can expose you to chemicals including lead and lead compounds, which are known to the State of California to cause cancer and birth defects or other reproductive harm. Wash your hands after handling this product. For more information visit www.P65Warnings.ca.gov.

⚠ WARNING: Fuels used in liquefied propane gas appliances, and the products of combustion of such fuel, can expose you to chemicals including benzene, which is known to the State of California to cause cancer and cause birth defects or other reproductive harm. For more information visit www.P65Warnings.ca.gov.

WARNING:

READ THE INSTRUCTIONS GIVEN IN THIS MANUAL BEFORE USING THE APPLIANCE.

- DO NOT USE GASOLINE, NAPHTHA OR VOLATILE FUELS.
- THE ELECTRICAL SYSTEM TO WHICH THE APPLIANCE IS CONNECTED MUST COMPLY WITH ALL SAFETY REGULATIONS IN FORCE. A RESIDUAL CURRENT CIRCUIT BREAKER MUST BE PROVIDED ON THE MAIN DISTRIBUTION BOARD.
- UNPLUG THE HEATER BEFORE ATTEMPTING ANY SERVICE OR MAINTENANCE.
- ALWAYS CHECK THE POWER SUPPLY CABLE BEFORE USE. IT MUST NOT BE BENT, CRUSHED, OR ANYWAY DAMAGED.
- THE POWER SUPPLY CABLE MUST BE REPLACED ONLY BY QUALIFIED PERSONNEL.
- ONLY USE AN ORIGINAL H07RN-F POWER CABLE WITH WATERPROOF PLUG.
- DO NOT TOUCH THE EXHAUST GAS OUTLET. DANGER OF BURNS!

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IMPORTANT

Before using the heater, read and understand all instructions and follow them carefully. The manufacturer is not responsible for damages to goods or persons due to improper use of units.

GENERAL RECOMMENDATIONS

The direct-fired heater runs on diesel fuel. This direct combustion heater exhausts hot air and the combustion products into the room, while those with indirect combustion are fitted with a flue to take the fumes away through the chimney.

Always follow local ordinances and codes when using this heater:

- Read and follow this owner's manual before using the heater.
- Use only in places free of flammable vapors or high dust content.
- Never use heater in immediate proximity of flammable materials (the minimum distance must be 6 ft.).
- Make sure fire fighting equipment is readily available.
- Make sure sufficient fresh outside air is provided according to the heater requirements. Direct combustion heaters should only be used in well vented areas in order to avoid carbon monoxide poisoning.

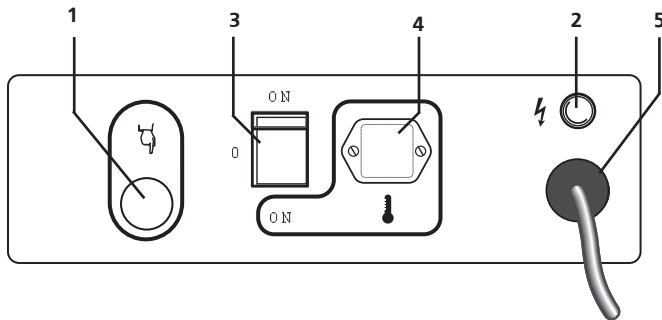
- Never block air inlet (rear) or air outlet (front).
- In case of very low temperatures add kerosene to the heating oil.
- Make sure heater is always under surveillance and keep children and animals away from it;
- Before starting the heater always check free rotation of ventilator fan.
- Unplug heater when not in use.

TECHNICAL SPECIFICATIONS			HS 3500DF	HS 6000DF
Heat input	[kBTU/h]		400	610
Air flow	[cfm]		1,795	2,800
Fuel Type			Diesel/Kerosene/#1-2 Fuel Oil	
Heat output	[kBTU/h]		360	610
Fuel consumption	[gal/h]		2.6	4.46
	[lb/h]		18.56	30.84
Power supply	Phase		1	1
	Voltage	[V]	120	120
	Frequency	[Hz]	60	60
Electric consumption	[W]		632	1,240
	[A]		6.00	11.10
Nozzle	[USgal/h]		2.00-30 S	3.00-80 S
Pump pressure	[psi]		174	217
Adjustment of combustion air flap	[in]		a=0.59	a=1.00
Tank capacity	[gal]		27.7	35.7
Dimensions, L x W x H	[in]		56.4 x 26.4 x 35.6	68.5 x 28.8 x 44
Net Weight	[lb]		153	243

OPERATION

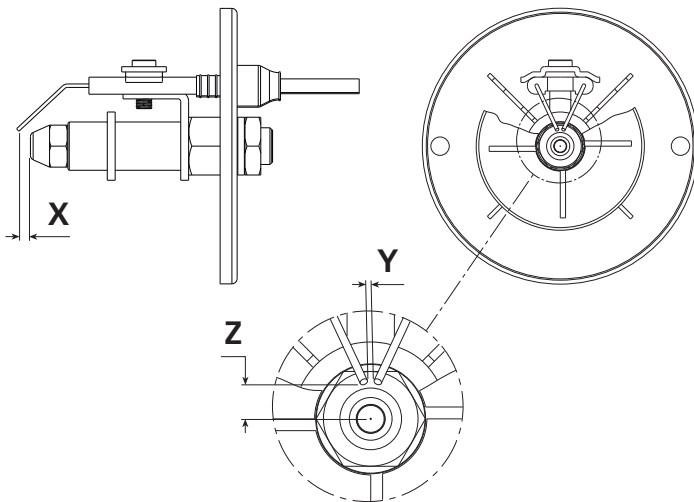
Before any attempt of starting the heater is made, check that your electrical supply conforms to the data on the model plate.

Control Board



- 1 RESET BUTTON WITH CONTROL LAMP
- 2 CONTROL LAMP
- 3 MAIN SWITCH
- 4 ROOM THERMOSTAT PLUG
- 5 POWER CORD

Gap of Electrodes



Models	X	Y	Z
3500 DF	0.157 in	0.098 in	0.157 in
6000 DF	0.157 in	0.098 in	0.157 in

Clearances

The following minimum safety clearances from materials or objects in the surroundings of the heater must be ensured:

Sides	2.5 ft.	Air Inlet	2.5 ft.
Top	6 ft.	Air outlet	12 ft.

- Floors and ceilings must be made of fireproof materials in the room where the heater is operated.
- The air inlet and outlet must never be blocked for any

reason.

- Install the heater on a flat, level floor in a steady position.
- It is forbidden to connect direct-fired heaters to air ducts.

⚠ WARNING

- DO NOT USE GASOLINE, NAPHTHA OR VOLATILE FUELS.
- STOP HEATER BEFORE ADDING FUELS.
- ALWAYS FILL OUTDOORS AWAY FROM OPEN FLAME
- DO NOT USE EXTERNAL FUEL SOURCE.
- DO NOT OPERATE HEATER WHERE FLAMMABLE LIQUIDS OR VAPORS MAY BE PRESENT.
- DO NOT START HEATER WHEN CHAMBER IS HOT
- DO NOT START HEATER WHEN EXCESS FUEL HAS ACCUMULATED IN THE CHAMBER.
- DO NOT PLACE COOKING UTENSILS ON TOP OF THE HEATER.
- PLUG ELECTRICAL CORD INTO A PROPERLY GROUNDED THREE-PRONG RECEPTACLE.

The generator can only work automatically when a control device, such as for example a thermostat or a timer, is connected to the generator. Connection to the generator is made by removing the socket cover(4) and inserting the thermostat plug.

To start the machine you must:

- If connected to the thermostat, turn the switch to (ON + 🔥);
- If not connected to the thermostat, turn the switch to (ON).

When unit is started for the first time or is started after the oil tank has been totally emptied, the flow of oil to the burner may be impaired by air in the circuit. In this case the control box will cut out the heater and it might be necessary to renew the starting procedure once or twice by depressing the reset button (1).

Should the heater not start, check that oil tank is full and depress reset button (1).

Should the heater still not work, please refer to chapter "OBSERVED FAULTS, CAUSES AND REMEDIES".

STOPPING THE HEATER

Set main switch (3) on "0" position or turn thermostat or other control device on lowest setting.

The flame goes out and the fan continues to work for approx. 90sec. cooling the combustion chamber.

SAFETY DEVICES

The unit is fitted with an electronic flame control box. In case of malfunction this box will cut in and stop the heater, at the same time the pilot lamp in the control box reset button (1) will light up.

Heaters are also equipped with an overheat thermostat safety cutout which will stop the heater in case of overheating. This thermostat will reset automatically but you will have to depress button (1) on control box before being able to restart the heater.

TRANSPORT

⚠ WARNING

- Before making any attempt to restart heater find and eliminate reason of overheating.

Before heater is moved it must be stopped and unplugged. Before moving the heater wait till it has totally cooled off and make sure oil tank cap is securely fixed.

The hot air generators with wheels must be wheeled. The suspended version which has no wheels must be transported with adequate machinery.

MAINTENANCE

Preventive and regular maintenance will ensure a long trouble free life to your heater.

⚠ WARNING

- Never service heater while it is plugged in, operating or hot. Severe burns or electrical shock can occur.

Every 50 hours of operation: disassemble filter and wash with clean oil, remove upper body parts and clean inside and ventilator with compressed air, check correct attachment of H.V. connectors to the electrodes and check H.V. cables, remove burner assembly, clean and check electrode settings, adjust according to scheme "GAP OF ELECTRODES".

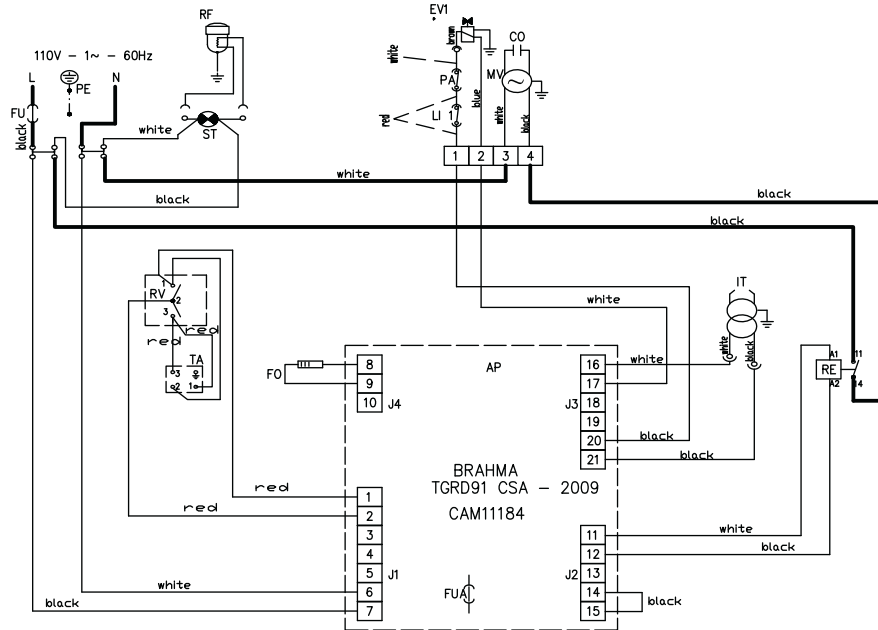
COLUMN INTENTIONALLY LEFT BLANK

TROUBLESHOOTING

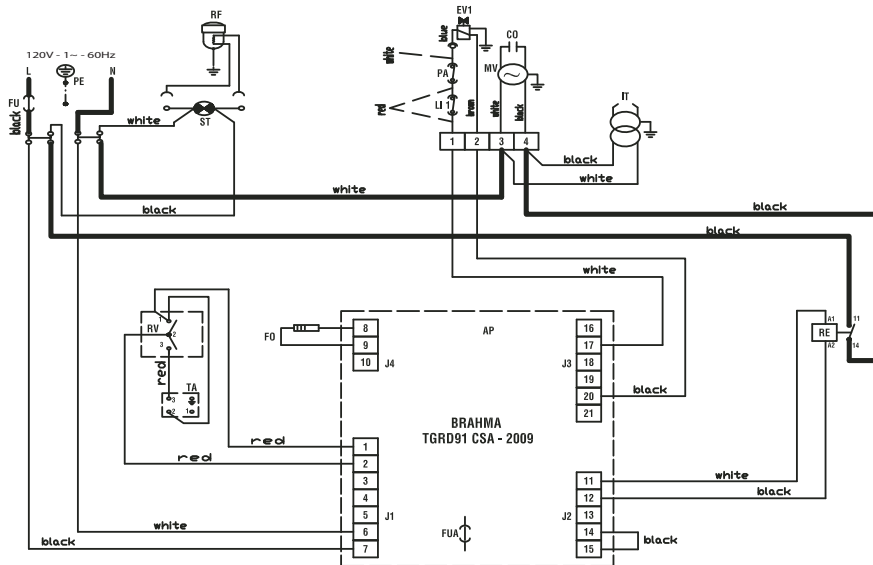
TROUBLE	CAUSE	SOLUTION
Motor does not start, no ignition	No electrical current	Check mains (should be 120 V – 1~ – 60 Hz) Check proper positioning and functioning of switch Check fuse
	Wrong setting of room thermostat or other control	Check correct setting of heater control. If thermostat, make sure selected temperature is higher than room temperature
	Thermostat or other control defective	Replace control device
	Electrical motor defective	Replace electrical motor
	Electrical motor bearings defective	Replace electrical motor bearings
	Burned out condenser	Replace condenser
Motor starts, no ignition or cuts out	Electric ignitor defective	Check connection of H.V. leads to electrodes and transformer Check electrodes setting (see scheme “GAP OF ELECTRODES”) Check electrodes for cleanliness Replace H.V. transformer
	Flame control box defective	Replace control box
	Photocell defective	Clean or replace photocell
	Not enough or no fuel at all at burner	Check state of motor-pump plastic coupling Check fuel line system including fuel filter for possible leaks Clean or replace oil nozzle
	Solenoid defective	Check electrical connection Check thermostat LI Clean or replace solenoid
Motor starts, heater emits smoke	Not enough combustion air	Make sure air inlet and outlet are free Check setting of combustion air flap Clean burner disc
	Too much combustion air	Check setting of combustion air flap
	Fuel contaminated or contains water	Drain fuel in tank with clean fuel Clean oil filter
	Air leaks in fuel circuit	Check the seals on the ducts and the diesel filter
	Not enough fuel at burner	Check pump pressure Clean or replace fuel nozzle
	Too much fuel at burner	Check pump pressure Replace nozzle
Heater does not stop	Solenoid	Replace solenoid coil or complete solenoid

If heater still not working properly, please revert to nearest authorized dealer.

WIRING DIAGRAM 3500 SERIES MODELS



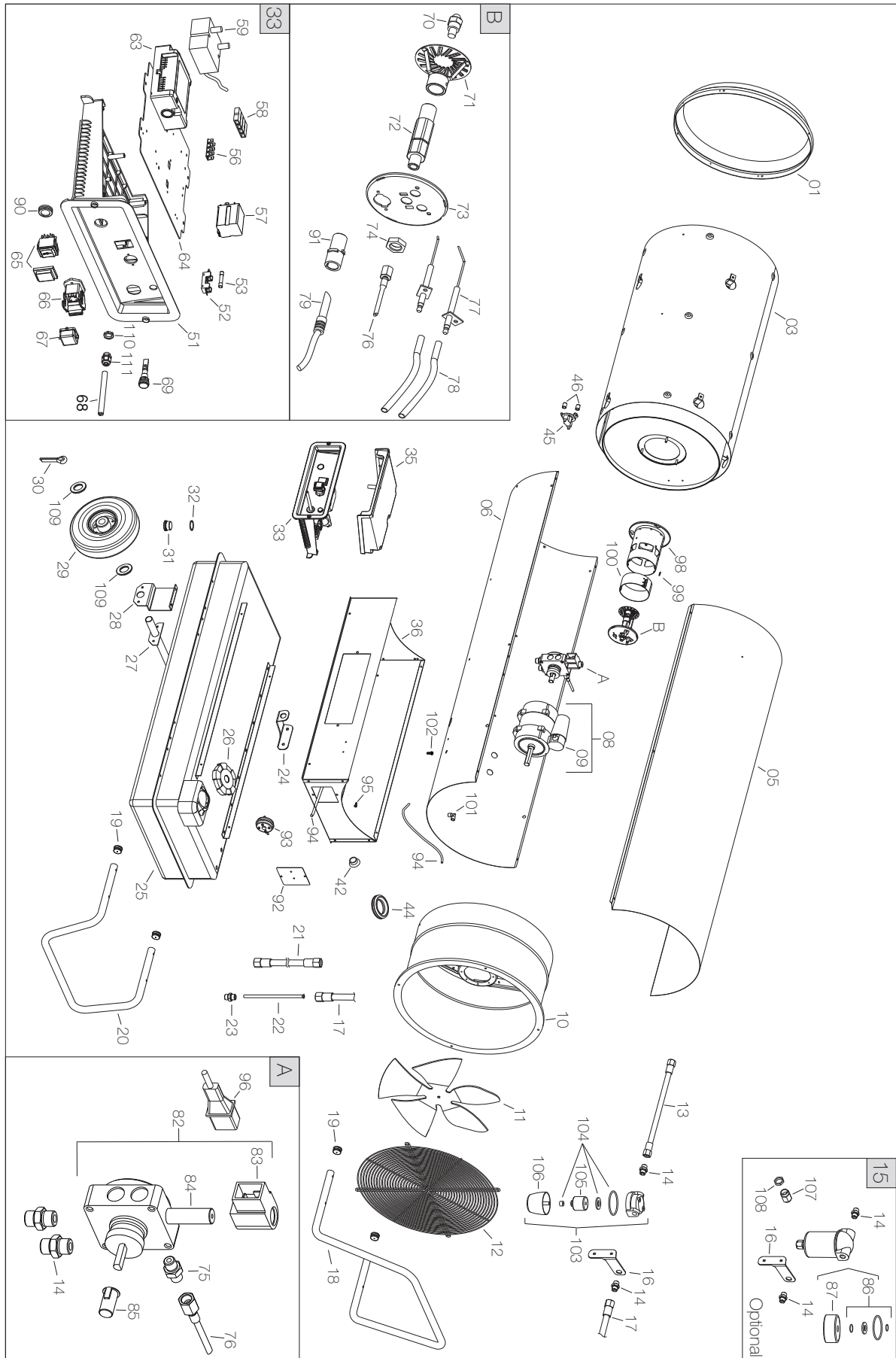
6000 SERIES MODELS



DRAWING LEGEND

FU	Fuse 20A	RV	Control
IT	Transformer H.V.	TA	Room Thermostat
LI1	Overheat Thermostat	RE	Relays
EV1	Solenoid Valve 1°	AP	Control Box
FO	Photocell	PA	Air pressure control
CO	Condenser	RF	Heater Filter
MV	Fan Motor	FUA	Fan thermostat
ST	Electric pilot	PE	Ground

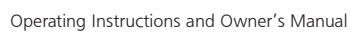
3500DF Series Direct-Fired Portable Heater



3500DF Series Direct-Fired Portable Heater

POS	P/N	ALT #	DESCRIPTION
01	40494	G06408-9010	Outlet cone
03	50446	G06230	Combustion chamber
05	50447	G06233-9010	Upper body
06	40495	G06409-9010	Lower body
08	50160	E10678-110	Motor AACO
09	50161	E11230	Capacitor AACO
08		E10771	Motor SIMEL
09		E10771-1	Capacitor SIMEL
10	50163	G06125-9010	Air conveyor
11	50165	T10260	Fan
12	50167	P30169	Inlet grill
13	50051	I40330	Flex diesel pipe
14	50729	I20104	Iron fitting
15	50410	O2AC513	Diesel pre-heaters filter kit
16	50054	G06104-9005	Filter support bracket
17	50055	I40329	Flex diesel pipe
18	50451	P20176-9005	Handle
19	40477	C30355	Pipe cap
20	50058	P20177-9005	Support
21	50060	I40331	Flex diesel pipe
22	50061	I30696	Suction pipe
23	50063	I30737	Brass fitting
24	50064	G06068-9005	Power cord support
25	50170	G06127-9005	Fuel tank
26	50070	C30367	Tank cap
27		G06465-9005	Wheel axle
28		G06106-9005	Wheels axle support bracket
29		C10510	Wheel
30	50513	M20507	Cotter pin
31	40532	I25020	Drain cap
32	40479	C30375	O-ring
33	50434	G00248	El. control box
35	50077	P50127	Control box cover
36	40496	G06410-9010	Base
42	50057	C30319	Hole cap
44	50411	C30372	Cable protection
45	50085	E50102	Safety thermostat
46		G06072	Spacer
51	50246	G06153	El. control box panel
52	50093	E20508	Fuse holder
53	50092	E10313	Fuse
56		E20319	Ground terminal board
57	50097	E11125	Relay
58	50731	E20305	Terminal board

59	50319	E10930	H.T. Transformer
63	50320	E40124	Flame control box
64		G06073	Support plate
65	50013	E10102-P	Switch
66	50012	E20640	Thermostat plug
67	50011	E20665	Thermostat plug cover
68	50009	E30443-1	Power cord
69	50008	E11030	Lamp
70	50321	T20357	Nozzle
71	50126	G01077	Diffuser ring
72	50440	I33005	Nozzle support
73	50425	G06228	Burner support disc
74	50131	I31034	Brass lock nut
76	50133	I40192	Micropipe
77	50134	E10215	Ignition electrode
78	50322	G02078	H.T. Cable connect.
79	50323	E50334	Photocell
82	50442	T20410-1	Diesel pump
83	50140	T20118	Solenoid coil
84	50141	T20117	Solenoid valve body
85	50195	E10513	Motor-pump coupling AACO
85	50237	E10698	Motor-pump coupling SIMEL
86	50144	T20241	Filter seal kit
87	50145	T20242	Filter cartridge
90	50325	E20418	Stop button protection
91	50336	E50327-50	Photoresistor support
92	40492	G06406-9010	Pressure switch support bracket
93	50337	E50441	Pressure switch
94	40501	I40335	Silicone pipe
95	50429	I31131	Brass hose connection
96	50433	T20442	Solenoid valve cable
98	50450	G06266	Blast tube
99	50413	E20671	Terminal board
100	50419	G06183	Air adjustment shutter
101	50081	I20325	Fitting
102	50079	I31130	Brass hose connection
103	50024	T20201	Diesel filter
104	50025	T20234	Filter seal kit
105	50030	T20206	Filter cartridge
106	50251	T20212	Filter container
107	50082	E20953	Cable fastener
108	50083	E20954	Cable fastener nut
109	40533	M20111	Washer
110		E20965	Cable fastener nut
111		E20964	Cable fastener



6000DF Series Direct-Fired Portable Heater

POS	P/N	ALT #	DESCRIPTION
01	50027	G06139-9010	Outlet cone
03	50460	G06232	Combustion chamber
04		G06143-9010	Panel
05	50461	G06235-9010	Upper body
06	50462	G06238-9010	Lower body
07	40519	G06397	Air conveyor
08	50454	E10704-110	Motor AACO
09		E11249	Capacitor AACO
08		E10772	Motor SIMEL
09	50455	E10772-1	Capacitor SIMEL
10	50463	G06239-9010	Air conveyor
11	50049	T10263	Fan
12	50050	P30129	Inlet grill
13	50051	I40330	Flex diesel pipe
14	50729	I20104	Iron fitting
15	50053	T20239	Diesel pre-heated filter
16	50054	G06104-9005	Filter support bracket
17	50055	I40329	Flex diesel pipe
18	50541	P20176-9005	Handle
19	40477	C30355	Pipe cap
20		P20180-9005	Support
21	50060	I40331	Flex diesel pipe
22	50466	I30698	Suction pipe
23	50063	I30737	Brass fitting
24	50064	G06068-9005	Power cord support
25	50457	G06146-9005	Fuel tank
26	50070	C30367	Tank cap
27		G06465-9005	Wheel axle
28	50456	G06107-9005	Wheels axle support bracket
29		C10510	Wheel
30		M20507	Cotter pin
31	40532	I25020	Drain cap
32	40479	C30375	O-ring
33	40481	G00251	El. control box
35	50077	P50127	Control box cover
36	40497	G06411-9010	Base
42	50453	C30323	Cable protection
44	50411	C30372	Cable protection
45	50085	E50102	Safety thermostat
46		G06072	Spacer
51	50246	G06153	El. control box panel
52	50093	E20508	Fuse holder
53	50092	E10313	Fuse
56		E20319	Ground terminal board

57	50097	E11125	Relay
58	50731	E20305	Terminal board
59	50099	E10917-2	H.T. Transformer
63	50320	E40124	Flame control box (BRAHMA)
64		G06073	Support plate
65	50013	E10102-P	Switch
66	50012	E20640	Thermostat plug
67	50011	E20665	Thermostat plug cover
68	50009	E30443-1	Power cord
69	50008	E11030	Lamp
70	50006	T20327	Nozzle
71	50465	G07025	Diffuser ring
72	50440	I33005	Nozzle support
73	50459	G06229	Burner plate
74	50131	I31034	Brass lock nut
76	50133	I40192	Micropipe
77	50134	E10215	Ignition electrode
78	50135	G02076	H.T. Cable connect.
79	50323	E50334	Photocell
82	50388	T20411-1	Diesel pump
83	50140	T20118	Solenoid coil
84	50141	T20117	Solenoid valve body
85	50143	E10514	Motor-pump coupling AACO
85	50237	E10698	Motor-pump coupling SIMEL
86	50144	T20241	Filter seal kit
87	50145	T20242	Filter cartridge
90	50325	E20418	Stop button protection
91	50336	E50327-50	Photoresistor support
92	40492	G06406-9010	Pressure switch support bracket
93	50337	E50441	Pressure switch
94	40501	I40335	Silicone pipe
95	50429	I31131	Brass hose connection
96	50433	T20442	Solenoid valve cable
98	50235	G06412	Blast tube
99	50413	E20671	Terminal board
100	50419	G06183	Air adjustment shutter
101	50081	I20325	Fitting
102	50079	I31130	Brass hose connection
103	40533	M20111	Washer
104		E20965	Cable fastener nut
105		E20964	Cable fastener
107	50082	E20953	Cable fastener
108	50083	E20954	Cable fastener nut
109	40533	M20111	Washer
110		E20965	Cable fastener nut
111		E20964	Cable fastener