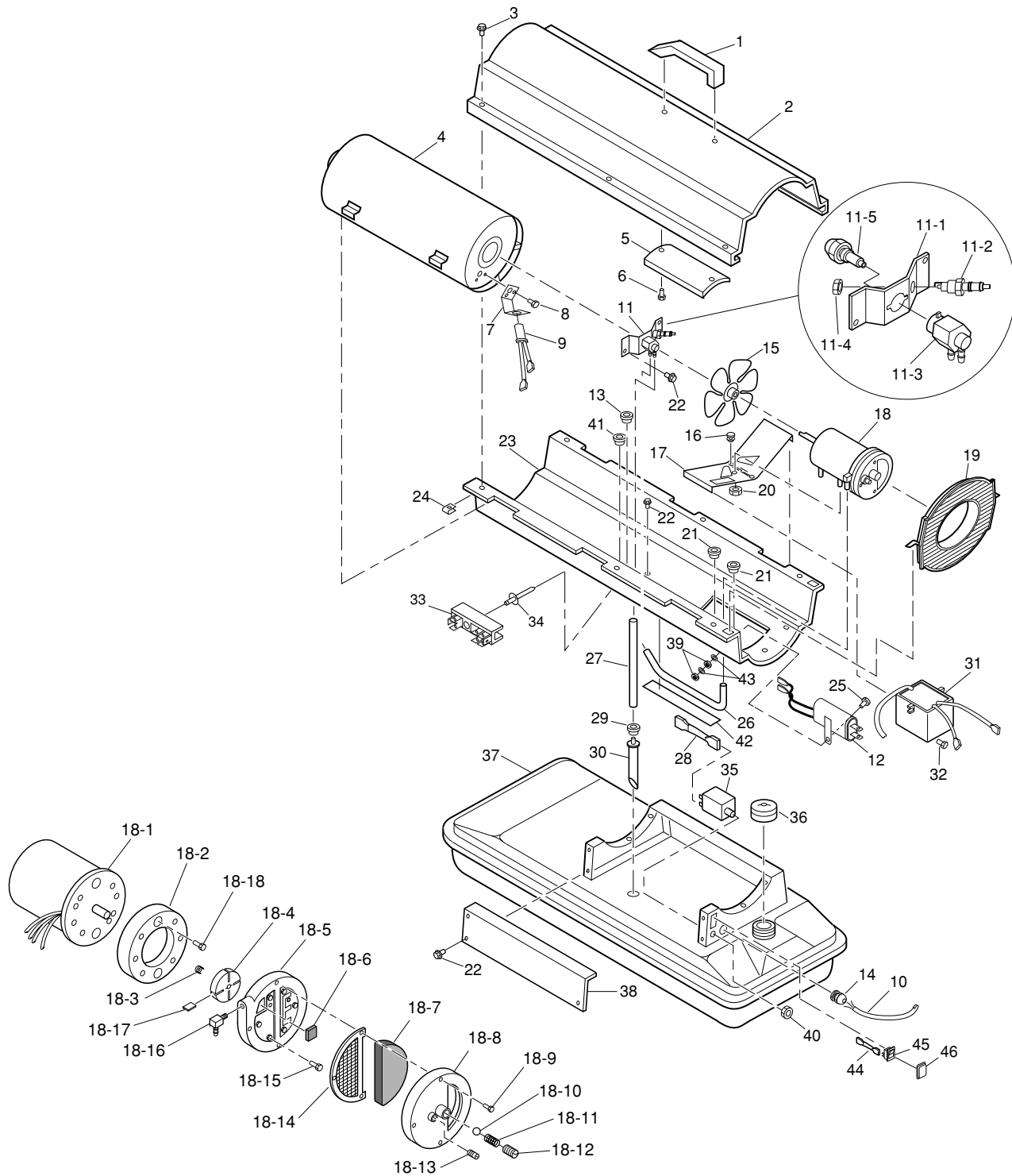


MASTER DIRECT OIL HEATERS

MODEL 35 CED 10 kW Model

ILLUSTRATED PARTS BREAKDOWN



Motor and Pump Assembly

MASTER DIRECT OIL HEATERS

MODEL 35 CED 10 kW

PARTS LIST

Key No.	Part Number	Description	Qty.	Key No.	Part Number	Description	Qty.
1	4110.130	Handle	1	18-17	4101.666	Blade	4
2	4110.535	Upper Shell	1	18-18	4108.590	Screw, #10-32 x 3/4"	2
3	4109.590	Screw/Lockwasher, 1/2"	6	19	4103.685	Fan Guard	1
4	4110.115	Combustion Chamber	1	20	4108.486	Hex locknut	2
5	4100.671	Heat Shield	1	21	4101.152	Bushing (wires)	2
6	4160.602	Screw, #10-16 x 3/4"	2	22	4110.124	Screw/Lockwasher, 1/2"	11
7	4100.658	Photocell Bracket	1	23	4110.122	Lower Shell	1
8	4103.529	Screw, #6-32 x 3/8"	2	24	4104.170	Clip Nut	6
9	4110.564	Photocell Assembly	1	25	4110.133	Screw, #10-32 x 3/4"	1
10	4110.563	Power Cord	1	26	4104.147	Rubber Airline	1
11	**	Burner Strap Assembly	1	27	4109.567	Fuel Line	1
11-1	4110.092	Bracket	1	28	4110.195	Wire Assembly (red)	1
11-2	4109.526	Spark Plug	1	29	4100.541	Rubber Bushing	1
11-3	4100.664	Nozzle Adapter	1	30	4110.135	Fuel Filter Assembly	1
11-4	4109.518	Nut, 14mm	1	31	4110.609	Electronic Ignitor	1
11-5	4100.648	Nozzle	1	32	4108.510	Screw, #10-16 x 3/4"	2
12	4105.287	Power Line RFI Filter	1	33	4106.110	Terminal Board	1
13	4101.151	Bushing	1	34	4110.571	Rivet	1
14	4150.528	Strain Relief Bushing	1	35	4104.196	Flame-Out Control	1
15	4100.662	Fan	1	36	4103.891	Fuel Tank Cap	1
16	4150.553	Rubber Bumper	2	37	4110.136	Fuel Tank	1
17	4110.187	Motor Bracket	1	38	4104.175	Side Cover	1
18	**	Motor and Pump Assembly	1	39	4110.134	Nut, #10-32	3
18-1	4110.042	Motor (230V/50Hz)	1	40	4109.592	Hex Nut	1
18-2	4101.532	Pump Body	1	41	4101.151	Bushing	1
18-3	4108.635	Insert	1	42	4110.075	Vinyl Foam Gasket	1
18-4	4103.441	Rotor	1	43	4160.613	Lock Washer, #10	2
18-5	4109.724	End Pump Cover	1	44	4110.165	Wire Assembly (black)	2
18-6	4109.716	Lint Filter	1	45	4106.179	ON/OFF Switch	1
18-7	4109.690	Intake Filter	1	46	4104.336	Switch Cover	1
18-8	4109.674	End Cover	1	PARTS AVAILABLE - NOT SHOWN			
18-9	4108.528	Screw, #10-32 x 1"	3				
18-10	4108.379	Steel Ball (1/4" Dia.)	1		4105.292	Filler Neck Screen	1
18-11	4102.141	Pressure Relief Spring	1				
18-12	4102.133	Adjusting Screw	1				
18-13	4102.125	Plug	1				
18-14	4109.708	Output Filter	1				
18-15	4108.536	Screw, #10-32 x 1 1/8"	6				
18-16	4100.661	Elbow, 90° (Barb Fitting)	1				

** Parts not available as an assembly, order parts separately.

MODEL 70 CED 20 kW Model

This technical diagram illustrates the exploded view of a gas furnace assembly. The main components are shown in their relative positions, with dashed lines indicating the assembly path. The parts are numbered as follows:

- 1-5:** Upper cabinet and trim components.
- 6-11:** Gas control valve and associated wiring and connectors.
- 12-17:** Burner assembly components, including the burner head, orifice, and mounting hardware.
- 18-19:** Blower motor and fan assembly.
- 20-28:** Igniter and safety components, including the flame sensor and limit switch.
- 29-34:** Gas valve assembly and associated wiring.
- 35-38:** Electrical control components, including the thermostat and wiring.
- 39-45:** Lower cabinet and base components.

A detailed sub-diagram titled **Burner Head Assembly** is located on the left side of the main diagram. It shows the following parts:

- 10-1:** Burner head assembly.
- 10-2:** Burner head mounting bracket.
- 10-3:** Burner head mounting screw.
- 10-4:** Burner head mounting nut.
- 10-5:** Burner head mounting plate.
- 10-6:** Burner head mounting screw.
- 10-7:** Burner head mounting nut.

8

MASTER DIRECT OIL HEATERS

MODEL 70 CED 20 kW

PARTS LIST

Key No.	Part Number	Description	Qty.	Key No.	Part Number	Description	Qty.
1	4110.130	Handle	1	18-16	4101.156	Elbow, 90° (Barb Fitting)	1
2	4110.535	Upper Shell	1	18-17	4101.200	Blade	4
3	4109.590	Screw/Lockwasher, 1/2"	6	18-18	4108.588	Screw, #10-32 x 5/8"	2
4	4104.090	Combustion Chamber	1	19	4103.685	Fan Guard	1
5	4160.602	Screw, #10-16 x 3/4"	2	20	4108.486	Hex locknut	2
6	4100.658	Photocell Bracket	1	21	4101.152	Bushing (wires)	2
7	4103.529	Screw, #6-32 x 3/8"	2	22	4105.287	Power Line RFI Filter	1
8	4110.564	Photocell Assembly	1	23	4110.535	Lower Shell	1
9	4110.563	Power Cord	1	24	4104.170	Clip Nut	6
10	**	Burner Head Assembly	1	25	4106.179	ON/OFF Switch	1
10-1	4103.486	Nozzle	1	26	4104.336	Switch Cover	1
10-2	4100.525	Nozzle Seal Washer	2	27	4110.133	Screw, #10-32 x 3/4"	1
10-3	4100.533	Nozzle Seal Spring	1	28	4109.633	Rubber Airline	1
10-4	4101.622	Nozzle Seal Sleeve	1	29	4109.567	Fuel Line	1
10-5	4109.351	Burner Head Body	1	30	4110.195	Wire Assembly (red)	1
10-6	4106.071	Barb Fitting	2	31	4100.541	Rubber Bushing	1
10-7	4101.846	Spark Plug	1	32	4103.875	Fuel Filter Assembly	1
11	4110.124	Screw/Lockwasher, 1/2"	12	33	4110.609	Electronic Ignitor	1
12	4101.151	Bushing	1	34	4108.510	Screw, #10-16 x 3/4"	2
13	4150.528	Strain Relief Bushing	1	35	4106.110	Terminal Board	1
14	4100.662	Fan	1	36	4110.571	Rivet	1
15	4150.553	Rubber Bumper	2	37	4103.891	Fuel Tank Cap	1
16	4110.165	Wire Assembly (black)	2	38	4104.196	Flame-Out Control	1
17	4110.187	Motor Bracket	1	39	4110.140	Fuel Tank	1
18	**	Motor and Pump Assembly	1	40	4110.560	Side Cover	1
18-1	4110.079	Motor with capacitor	1	41	4110.134	Nut, #10-32	3
18-2	4101.317	Pump Body	1	42	4109.592	Hex Nut	1
18-3	4108.635	Insert	1	43	4101.151	Bushing	1
18-4	4108.627	Rotor	1	44	4110.075	Vinyl Foam Gasket	1
18-5	4109.724	End Pump Cover	1	45	4160.613	Lock Washer, #10	2
18-6	4109.716	Lint Filter	1	PARTS AVAILABLE - NOT SHOWN			
18-7	4109.690	Intake Filter	1				
18-8	4109.674	End Cover	1		4105.292	Filler Neck Screen	1
18-9	4108.528	crew, #10-32 x 1"	3				
18-10	4108.379	Steel Ball (1/4" Dia.)	1				
18-11	4102.141	Pressure Relief Spring	1				
18-12	4102.133	Adjusting Screw	1				
18-13	4102.125	Plug	1				
18-14	4109.708	Output Filter	1				
18-15	4108.528	Screw, #10-32 x 1"	6				

** Parts not available as an assembly, order parts separately.

MODEL 100 CED 29 kW Model

This exploded view diagram illustrates the components of a gas furnace, organized into two main sections:

- Burner Head Assembly (Top Left):** This section includes parts numbered 8-1 through 8-7. It features a burner head (8-5) with associated valves, springs, and mounting hardware.
- Motor and Pump Assembly (Bottom Left):** This section includes parts numbered 13-1 through 13-12. It shows the motor (13-1), pump housing (13-2), and various internal components like the control valve (13-7) and wiring harness (13-10).
- Main Furnace Body (Center and Right):** The central part of the diagram shows the main furnace body (1) with its front panel (2). Other visible components include the gas control valve (9), fan (12), blower wheel (14), and various mounting brackets and screws (e.g., 10, 11, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46).

The diagram uses dashed lines to indicate the assembly path and alignment of the various components.

MASTER DIRECT OIL HEATERS

MODEL 100 CED 29 kW

PARTS LIST

Key No.	Part Number	Description	Qty.	Key No.	Part Number	Description	Qty.
1	4104.006	Upper Shell	1	16	4103.850	Edge Liner	1
2	4109.590	Screw/Lockwasher, 1/2"	8	17	4110.186	Motor Bracket	1
3	4101.180	Combustion Chamber	1	18	4160.613	Lock Washer, #10	2
4	4100.658	Photocell Bracket	1	19	4110.134	Nut, #10-32	3
5	4110.564	Photocell Assembly	1	20	4108.486	Hex locknut	2
6	4100.632	Drain Plug	1	21	4110.609	Electronic Ignitor	1
7	4103.529	Screw, #6-32 x 3/8"	2	22	4108.510	Screw, #10-16 x 3/4"	2
8	**	Burner Head Assembly	1	23	4106.110	Terminal Board	1
8-1	4103.559	Nozzle	1	24	4110.571	Rivet	1
8-2	4100.525	Nozzle Seal Washer	2	25	4101.112	Bushing	1
8-3	4100.533	Nozzle Seal Spring	1	26	4101.112	Bushing	1
8-4	4101.622	Nozzle Seal Sleeve	1	27	4160.646	Bushing	2
8-5	4109.352	Burner Head Body	1	28	4110.070	Button Plug	1
8-6	4104.118	Barb Fitting	2	29	4105.287	Power Line RFI Filter	1
8-7	4101.846	Spark Plug	1	30	4110.566	Lower Shell	1
9	4110.124	Screw/Lockwasher, 1/2"	13	31	4104.170	Clip Nut	8
10	4104.147	Air Line	1	32	4110.133	Screw, #10-32 x 3/4"	1
11	4110.032	Fuel Line	1	33	4100.630	Fuel filter	1
12	4105.062	Fan	1	34	4100.541	Rubber Bushing	1
13	**	Motor and Pump Assembly	1	35	4110.147	Fuel Line	1
13-1	4110.080	Motor with capacitor	1	36	4110.149	Fuel Tank	1
13-2	4101.317	Pump Body	1	37	4103.891	Fuel Tank Cap	1
13-3	4108.588	Screw, #10-32 x 5/8"	2	38	4110.195	Wire Assembly (red)	1
13-4	4108.635	Insert	1	39	4104.196	Flame-Out Control	1
13-5	4108.627	Rotor	1	40	4150.528	Strain Relief Bushing	1
13-6	4101.325	End Pump Cover	1	41	4110.563	Power Cord	1
13-7	4101.358	Intake Filter	1	42	4110.062	Side Cover	1
13-8	4108.643	End Cover	1	43	4109.592	Hex Nut	1
13-9	4108.379	Steel Ball (1/4" Dia.)	1	44	4104.336	Switch Cover	1
13-10	4102.141	Pressure Relief Spring	1	45	4110.164	Wire Assembly (black)	2
13-11	4102.133	Adjusting Screw	1	46	4106.179	ON/OFF Switch	1
13-12	4102.125	Plug	1	PARTS AVAILABLE - NOT SHOWN			
13-13	4108.528	Screw, #10-32 x 1"	4		4105.292	Filler Neck Screen	1
13-14	4101.341	Output Filter	1				
13-15	4108.528	Screw, #10-32 x 1"	6				
13-16	4101.333	Lint Filter	1				
13-17	4104.118	Barb Fitting	1				
13-18	4101.200	Blade	4				
14	4103.695	Fan Guard	1				
15	4150.553	Rubber Bumper	2				

** Parts not available as an assembly, order parts separately.

MODEL 150 CED 44 kW Model

This exploded view diagram illustrates the assembly of a gas furnace. The main components are shown in a disassembled state to show their relative positions and assembly sequence. The parts are numbered as follows:

- Main Assembly Parts:** 1 (Top Cover), 2 (Screw), 3 (Burner Tube), 4 (Bracket), 5 (Wiring), 6 (Cap), 7 (Screw), 8 (Valve), 9 (Screw), 10 (Screw), 11 (Screw), 12 (Fan), 13 (Control Box), 14 (Filter), 15 (Screw), 16 (Front Panel), 17 (Screw), 18 (Screw), 19 (Screw), 20 (Screw), 21 (Wiring), 22 (Wiring), 23 (Bracket), 24 (Screw), 25 (Screw), 26 (Screw), 27 (Screw), 28 (Screw), 29 (Wiring), 30 (Burner Head), 31 (Screw), 32 (Wiring), 33 (Screw), 34 (Screw), 35 (Screw), 36 (Screw), 37 (Screw), 38 (Screw), 39 (Screw), 40 (Screw), 41 (Wiring), 42 (Screw), 43 (Screw), 44 (Screw), 45 (Screw), 46 (Screw), 47 (Screw).
- Burner Head Assembly Sub-diagram:** This sub-diagram shows the detailed assembly of the burner head, including parts 8-1 through 8-8. It includes a burner tube (8-1), a spring (8-2), a bracket (8-3), a screw (8-4), a screw (8-5), a screw (8-6), a screw (8-7), and a screw (8-8).
- Control Box Assembly Sub-diagram:** This sub-diagram shows the detailed assembly of the control box, including parts 13-1 through 13-12. It includes a control box (13-1), a screw (13-2), a screw (13-3), a screw (13-4), a screw (13-5), a screw (13-6), a screw (13-7), a screw (13-8), a screw (13-9), a screw (13-10), a screw (13-11), and a screw (13-12).

MASTER DIRECT OIL HEATERS

MODEL 150 CED 44 kW

PARTS LIST

Key No.	Part Number	Description	Qty.	Key No.	Part Number	Description	Qty.
1	4104.006	Upper Shell	1	15	4150.553	Rubber Bumper	2
2	4109.590	Screw/Lockwasher, 1/2"	8	16	4103.850	Edge Liner	1
3	4110.595	Combustion Chamber	1	17	4110.186	Motor Bracket	1
4	4100.659	Photocell Bracket	1	18	4160.613	Lock Washer, #10	2
5	4110.564	Photocell Assembly	1	19	4110.134	Nut, #10-32	3
6	4100.632	Drain Plug	1	20	4108.486	Hex locknut	2
7	4103.529	Screw, #6-32 x 3/8"	2	21	4110.609	Electronic Ignitor	1
8	**	Burner Head Assembly	1	22	4108.510	Screw, #10-16 x 3/4"	2
8-1	4103.898	Nozzle	1	23	4106.110	Terminal Board	1
8-2	4100.525	Nozzle Seal Washer	2	24	4110.571	Rivet	1
8-3	4100.533	Nozzle Seal Spring	1	25	4101.112	Bushing	1
8-4	4101.622	Nozzle Seal Sleeve	1	26	4101.112	Bushing	1
8-5	4105.187	Burner Head Body	1	27	4160.646	Bushing	2
8-6	4104.118	Barb Fitting	2	28	4110.070	Button Plug	1
8-7	4101.846	Spark Plug	1	29	4105.287	Power Line RFI Filter	1
8-8	4100.526	Wave Spring Washer	1	30	4110.566	Lower Shell	1
9	4110.124	Screw/Lockwasher, 1/2"	13	31	4104.170	Clip Nut	8
10	4104.156	Air Line	1	32	4110.133	Screw, #10-32 x 3/4"	1
11	4110.032	Fuel Line	1	33	4100.630	Fuel filter	1
12	4105.062	Fan	1	34	4100.541	Rubber Bushing	1
13	**	Motor and Pump Assembly	1	35	4110.147	Fuel Line	1
13-1	4110.080	Motor with capacitor	1	36	4110.149	Fuel Tank	1
13-2	4101.532	Pump Body	1	37	4103.891	Fuel Tank Cap	1
13-3	4108.590	Screw, #10-32 x 3/4"	2	38	4110.195	Wire Assembly (red)	1
13-4	4108.635	Insert	1	39	4104.196	Flame-Out Control	1
13-5	4103.441	Rotor	1	40	4150.528	Strain Relief Bushing	1
13-6	4101.325	End Pump Cover	1	41	4110.563	Power Cord	1
13-7	4101.358	Intake Filter	1	42	4110.062	Side Cover	1
13-8	4108.643	End Cover	1	43	4110.041	Vinyl Foam Gasket	2
13-9	4108.379	Steel Ball (1/4" Dia.)	1	44	4104.336	Switch Cover	1
13-10	4102.141	Pressure Relief Spring	1	45	4109.592	Hex Nut	1
13-11	4102.133	Adjusting Screw	1	46	4110.164	Wire Assembly	2
13-12	4102.125	Plug	1	47	4106.179	ON/OFF Switch	1
13-13	4108.528	Screw, #10-32 x 1"	4	PARTS AVAILABLE - NOT SHOWN			
13-14	4101.341	Output Filter	1		4105.292	Filler Neck Screen	1
13-15	4108.536	Screw, #10-32 x 1 1/8"	6				
13-16	4101.333	Lint Filter	1				
13-17	4104.118	Barb Fitting	1				
13-18	4101.666	Blade	4				
14	4103.695	Fan Guard	1				

** Parts not available as an assembly, order parts separately.