

# LO-LINE RC & LO-LINE RC HEATER/COOLER FAN CONVECTOR

MODELS: 6-4, 9-6, 14-10, 19-15.

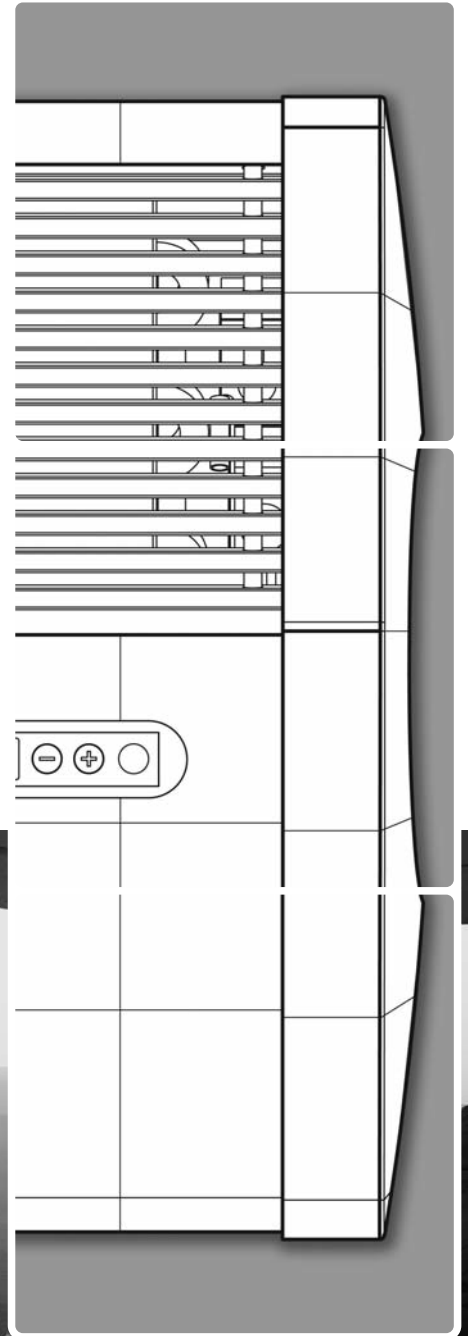
## INSTALLATION, OPERATING, MAINTENANCE & AFTER SALES MANUAL

Product Serial Number:

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Please leave this manual with the end user.

Part Number: 1371053



heatingthroughinnovation.



Tested to UL & CSA Standards

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**1.0 General Information**

- This MYSON LO-LINE fan convector is designed for wall mounted installation with a minimum installation height of 6 inches to the underside of the unit.
- The LO-LINE should only be used on closed circulation, two pipe, pump assisted central heating systems (LO-LINE), on heating and cooling systems (LO-LINE Heater/Cooler), or as a stand alone zone.
- The LO-LINE Heater and Heater/Cooler can be used on low water temperature systems.
- The minimum side clearance is 4 inches.
- In rooms with ceiling heights above 10ft a ceiling fan or other means of heating stratification should be considered.
- Before proceeding with the installation, the heating system design must be considered and the unit correctly sized to meet the heat loss requirements of the room at normal fan speed.

- This unit is supplied with an infra red remote control system and has 3 operating modes:  
 Automatic – the desired room temperature is programmed in to the unit and the fan speed is automatically adjusted until the desired room temperature is achieved.  
 Fan only – allows user selection of any of the 3 available fan speeds irrespective of room temperature or water temperature in the coil.  
 Fan only with water temperature control – allows the user to select any of the available fan speeds, which will operate only if the water temperature in the coil is above 90°F. This enables control of the unit via an externally mounted room thermostat if desired.

1.0  
2.0  
3.0  
4.0

**2.0 Heating System Design**

This fan convector can be fitted on a series loop with mono-flo or venturi Tees, on a two pipe system, or on a stand alone zone. For optimum fan convector heating performance the system must be capable of providing sufficient hot water through the heat exchanger. This means that:

1. Care must be taken in sizing both the pump and the piping.
2. The minimum pipe size from boiler to fan convector must be 1/2 inch copper tube.
3. Where the unit is fitted on to a system with other emitters a separate circuit for the fan convector should be considered to provide adequate water flow.

4. The system water must be above 90°F for heating mode.
5. **Optimum performance of this unit will require effective balancing of the whole system.**
6. This unit must not be used to replace a radiator in an existing system unless an adequate flow of water through the unit can be guaranteed.
7. The loop must be pumped. LO-LINE fan convectors are not suitable for gravity circulation systems.

**3.0 Unit Selection/Sizing**

Heat output performance is given in the Technical Data section of this manual. Outputs are shown for the three fan speeds, however, it is important to size the unit to match the calculated heat loss requirements of the room with the unit operating on the normal fan speed. The higher fan speeds are used in automatic mode when the room temperature is significantly lower than the preset temperature.

When establishing the temperature difference, i.e. entering water to room temperature, allowance should be made for temperature drop in the system. It is the water temperature at the unit that dictates the output.

**4.0 Location**

- This LO-LINE unit may be fitted to any convenient wall at a height from floor level that suits the application, providing an unimpeded flow of warm air into the area to be heated.
- The minimum distance from the underside of the unit to floor level is 6 inches.

- Prior to installation the wall should be checked to make sure it is straight and flat, to avoid twisting the unit.
- For cooling applications, the need for disposal of condensate may influence the position of the unit.

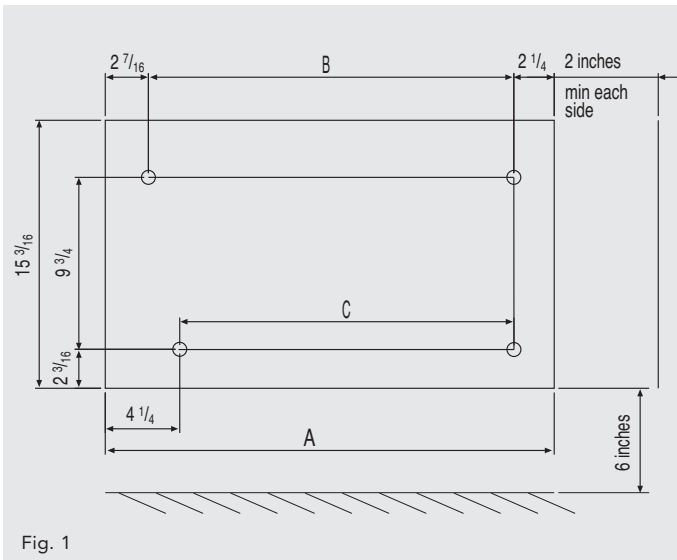
## 5.0 Preparation

Before proceeding with the installation, unpack the carton contents and check against the checklist below:

1. LO-LINE or LO-LINE Heater/Cooler unit.
2. Instruction manual.
3. Fixing kit (rubber mounts and cable gland).
4. Remote control handset.

## 6.0 Fixing

- Using the fixing dimensions (see fig. 1), mark the fixing hole positions on the wall.
- Plastic or metal anchors suitable for No.8 wood screws should be used for mounting the convector to the wall.
- Remove the backing from the self-adhesive washers and place on screws with adhesive side towards the point.
- Tighten the screws into the wall leaving about  $\frac{3}{8}$  inch projecting.
- Press adhesive washers to the wall.



Unit	Dimensions (inches)		
	A	B	C
19-15	$44\frac{13}{16}$	$40\frac{1}{16}$	$38\frac{3}{8}$
14-10	$33\frac{5}{8}$	$29\frac{7}{8}$	$26\frac{13}{16}$
9-6	$25\frac{3}{8}$	$20\frac{11}{16}$	$18\frac{15}{16}$
6-4	$20\frac{5}{8}$	$15\frac{15}{16}$	$14\frac{1}{8}$

Remove the outer casing as follows:

- Remove the 2 screws from the underside of the unit (see fig. 2).
- Lift off the outer case.
- Fit chassis on to mounting screws and tighten.

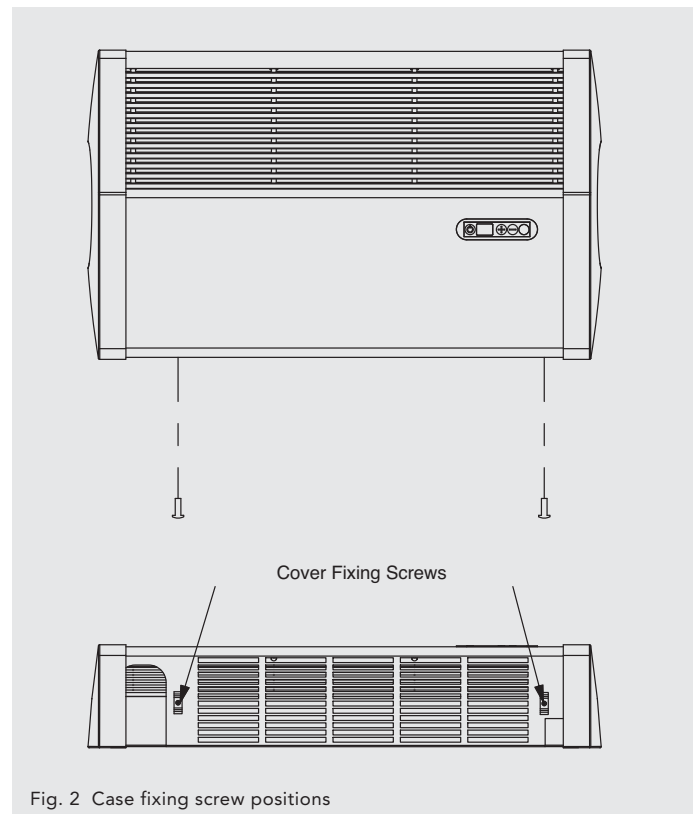


Fig. 2 Case fixing screw positions

**7.0 Water Connections**

- Connect unit to system flow and return pipes. It is recommended that two 1/2 inch isolating valves are fitted. This will enable isolation of the unit for maintenance activities.

**Note:** To ensure effective venting of the heat exchanger the supply pipe should be connected to the bottom connection of the heat exchanger.

**Note:** For LO-LINE installations pipe-work must not be routed directly underneath the unit as this will adversely affect the operation of the integral room thermostat. **If this cannot be avoided, the pipe-work must be boxed to prevent heat rise.**

- Ensure system is flushed in accordance with recognised best practice and a suitable inhibitor is added to the system as necessary.
- Open valves fully, check pipe connections for leaks and vent the heat exchanger - see Commissioning Procedure.

LO-LINE Heater/Cooler installations with chilled water will require provision for condensate disposal in accordance with any local regulations.

A drain tray is fitted for condensate collection within the unit. This should be connected to a 15mm drain pipe.

**Note:** External pipe-work carrying chilled water must be insulated. Use a suitable sealant as necessary to ensure that condensate does not spill or leak. Once connection to the system supply and return pipes is made, any exposed internal 1/2 inch pipework and isolating valves must be insulated.

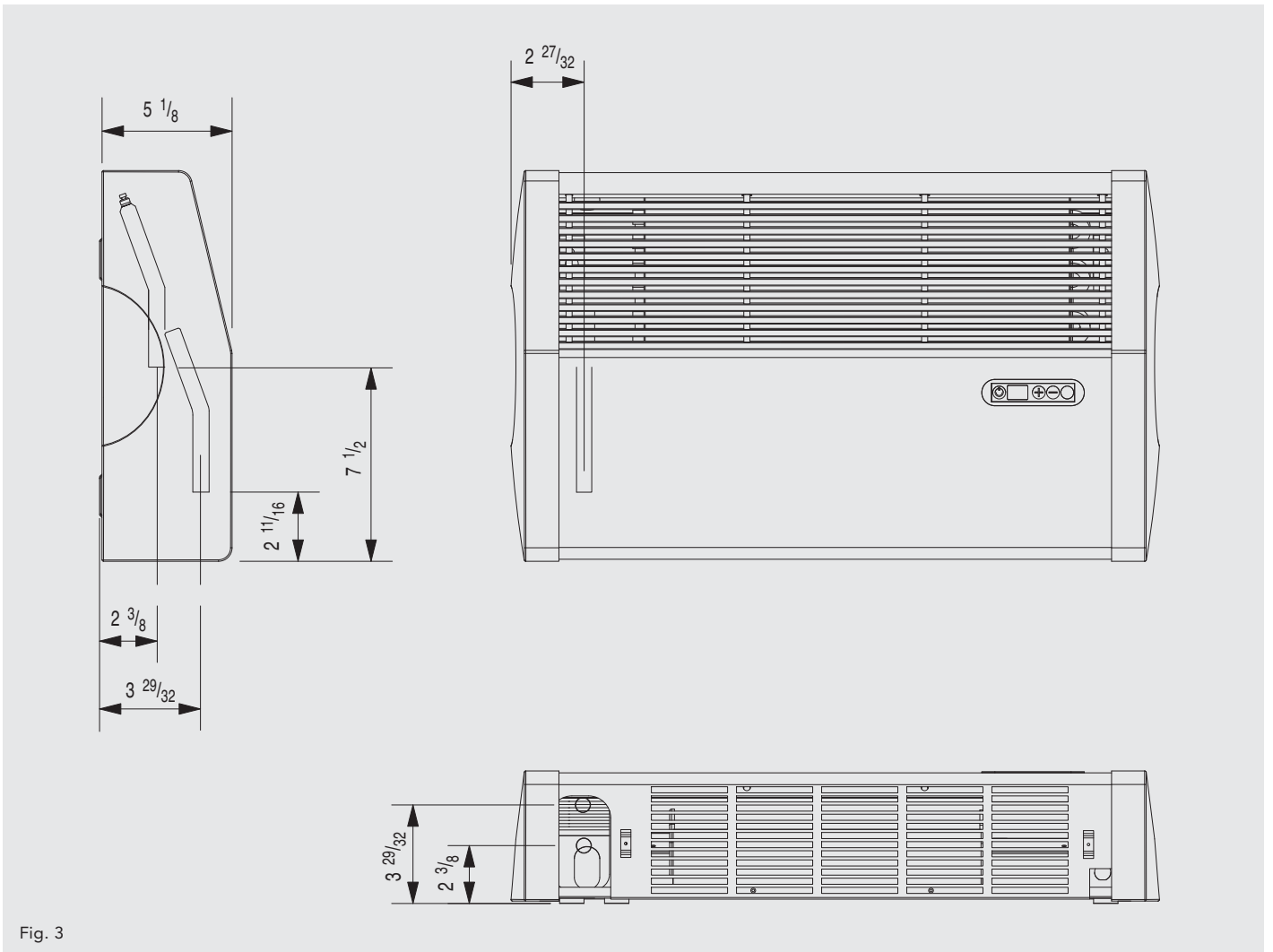


Fig. 3

8.0 Electrical Connection

**WARNING:** This appliance must be grounded. The electrical installation must comply with state or local codes.

- This unit is supplied with a factory fitted 3 core cord, 6ft in length with moulded plug.

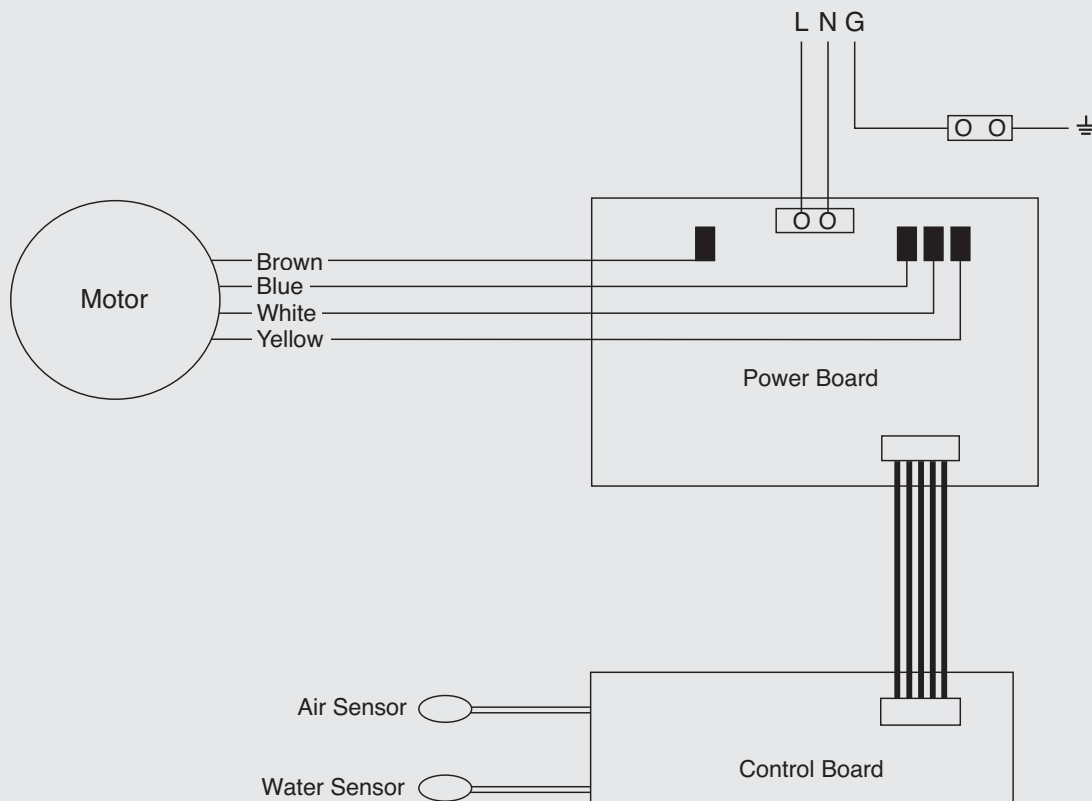


Fig. 4 Wiring diagram

**9.0 Commissioning Procedure**

- Fill and vent the system.
- Open both valves fully and vent air from the heat exchanger by unscrewing the air bleed valve situated above the valves in the angled top of the chassis.
- Check for leaks at pipe connections.
- Refit the outer case and secure using the 2 fixing screws.
- Check the operation of the unit by following the operating instructions.
- When installation and commissioning are complete, hand over instruction manual to end-user.

- Refit outer cover.
- Switch on electrical supply.

**Fan Pulse**

Fan pulse mode causes room air to be drawn over the air temperature sensor periodically to maintain room temperatures more effectively. In certain circumstances, for example when units are over-sized in relation to the heat loss of the room, it may be necessary to turn off this function. Use dipswitch 3 according to requirements.

**Displayed Temperature Calibration**

Depending on the location of the unit there may be a difference between the temperature at the unit and the temperature in the middle of the room being heated.

The displayed temperature calibration function enables calibration in heating mode of the displayed temperature to the actual room temperature using the following procedure:

- Run the fan convector until room conditions stabilise.
- Press the 'On/Off' key and '+' key for 5 seconds (the display will flash, alternating between 'ro' and the calibration temperature).
- Calibrate the displayed room temperature by using the '+' and '-' keys with the fan running.
- Press the 'On/Off' key to finish.

**Heat Pump and Low Water Temperature Systems**

In heating mode, the control system brings the fan on when the water in the coil reaches 90°F. For low water temperature systems, e.g. heat pump systems, it is possible to switch off the boost speed option in automatic mode so that the unit runs in medium or normal fan speeds depending on demand. This means low outlet air temperatures from the unit are avoided when the room temperature is low in relation to the set temperature.

This facility can be switched on or off by following the instruction below:

- Isolate electrical supply.
- Remove outer cover.
- Change switch 1 position according to requirements (see fig. 4).

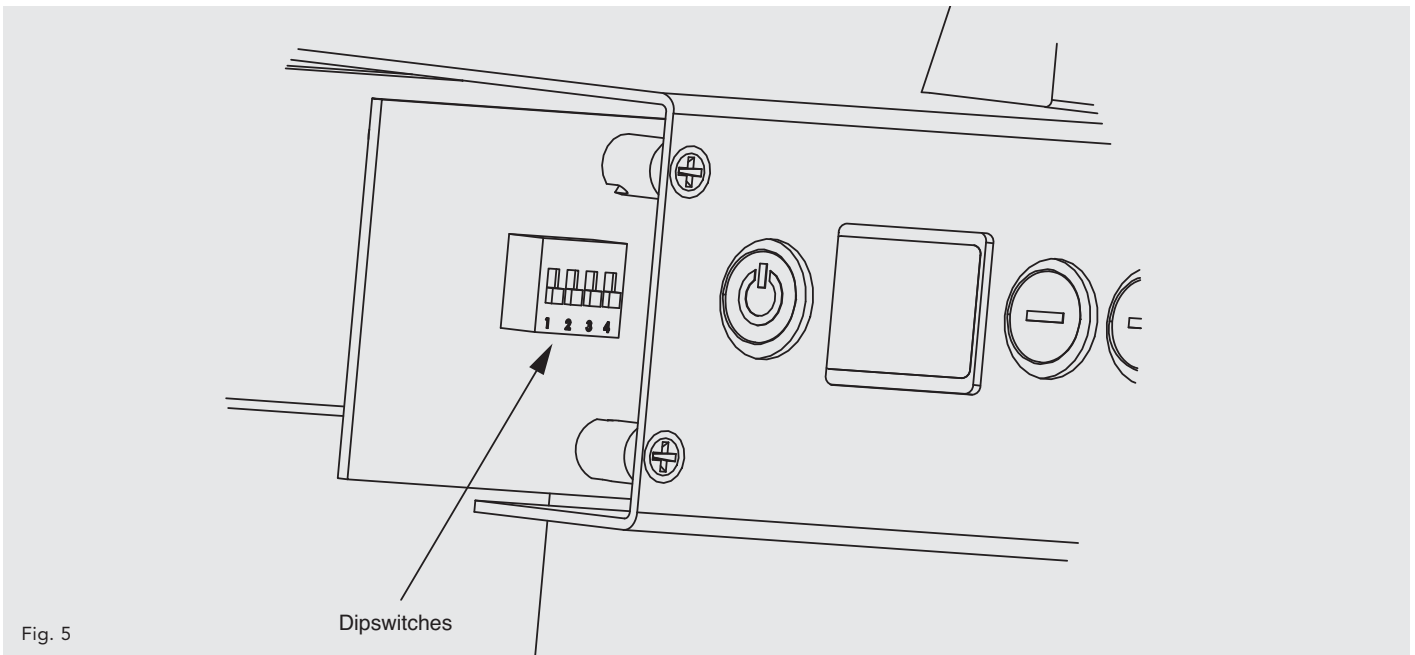


Fig. 5

Switch		Switch Down	Switch Up
1	Auto Fan Speed Selection	2 Speed	3 Speed
2	Heating / Cooling	Heating	Heating & Cooling
3	Fan Pulse	Off	On
4	Temperature Display	°F	°C

**10.0 Technical Data**

**Heating Performance Data**

Model	Fan Setting	Flowrate (GPM)	Heat Output (Btu/h)									
			Entering Water Temperature (°F), entering air temperature 65°F									
			110	120	130	140	150	160	170	180	190	200
19-15	Boost	3	7997	9691	11372	13042	14702	16354	17999	19637	21269	22895
	Medium		7224	8753	10270	11777	13275	14766	16250	17728	19200	20667
	Normal		6374	7722	9060	10389	11710	13024	14333	15636	16933	18227
14-10	Boost	3	6137	7435	8723	10002	11274	12539	13798	15052	16301	17546
	Medium		5247	6356	7457	8550	9636	10717	11793	12864	13931	14994
	Normal		4316	5227	6132	7030	7922	8810	9694	10574	11450	12324
9-6	Boost	3	4081	4942	5797	6645	7489	8328	9163	9994	10822	11647
	Medium		3274	3964	4649	5329	6005	6678	7347	8013	8676	9337
	Normal		2525	3058	3586	4111	4633	5151	5668	6182	6694	7204
6-4	Boost	3	2668	3231	3790	4344	4895	5443	5988	6531	7072	7611
	Medium		1954	2366	2775	3181	3584	3985	4385	4782	5178	5572
	Normal		1724	2087	2447	2804	3159	3512	3863	4213	4561	4908

Note: Performance figures for heating and cooling based on a flow rate of 3 GPM. For a flow rate of 1 GPM multiply by 0.87.

Test Pressure: 290psi  
 Max working pressure: 145psi  
 Water connections: 1/2 inch sweat  
 Electrical Supply: 110V 60Hz

**Approximate Hydraulic Resistance through Fan Convectors**

GPM	ft wg			
	6-4	9-6	14-10	19-15
3	6.7	6.4	9.4	13.1
1	0.6	0.8	1.0	1.4

**Cooling Performance Data** (figures @ 50% RH)

Model	Fan Setting	Flowrate (GPM)	Cooling Performance (Btu/h)					
			Air-Mean Water Temperature Difference (°F)					
			25°		35°		45°	
			Tot.	Sens.	Tot.	Sens.	Tot.	Sens.
19-15	Boost	3	5128	4366	8203	5929	11650	6425
	Medium		4896	4024	7832	5412	11124	6077
	Normal		4482	3693	7169	4816	10181	5407
14-10	Boost	3	4108	3519	6570	4823	9330	5315
	Medium		3451	2937	5522	3986	7843	4317
	Normal		2934	2523	4691	3469	6660	3851
9-6	Boost	3	2376	1943	3799	2757	5394	3564
	Medium		2007	1696	3208	2288	4555	2439
	Normal		1669	1414	2669	1916	3790	2059
6-4	Boost	3	1659	1328	2653	1884	3769	2435
	Medium		1308	1121	2093	1535	2973	1691
	Normal		1074	927	1718	1277	2440	1427

Cooling performance tested in accordance with BS 4856 Part 2. Flow rate 340 ltr/h. Relative humidity 50%.

**Noise Levels**

Model	Sound Pressures at 2.5m (dBA)		
	Normal	Medium	Boost
19-15	27.2	31.8	38.6
14-10	23.1	28.5	40.1
9-6	21.6	29.6	38
6-4	23.7	31.7	40.7

Noise levels tested in accordance with EN 23741.

**Weight, Water Content and Motor Power**

Model	Motor Power (W)	Water Content (pints)	Unpacked Weight (lbs)
19-15	80	1.6	34.6
14-10	62	1.2	28
9-6	35	0.7	20
6-4	35	0.6	17

Test Pressure: 20bar (2 MPa) Maximum working pressure: 10bar (1MPa)  
 Water connections: 15mm Electrical supply: 230V - 50Hz



11.0 Operating Instructions

**Description**

This LO-LINE unit is fitted with a control system that provides either automatic or manual control of the unit. In automatic mode the desired temperature set point is selected and the unit will adjust the fan speed according to the difference between the actual room temperature and the set point. When the room temperature reaches the set point the fan will switch off and thereafter will continue to cycle on and off to maintain the room temperature. The temperature set point range is 59 - 95°F.

In manual mode the automatic temperature control is overridden and any of the three fan speeds can be operated irrespective of the water temperature in the unit. This means

that air circulation can be provided in summer for example, or that heating performance can be controlled manually.

In manual mode, with water temperature control, any of the 3 fan speeds can be selected and the fan will operate when the water temperature in the coil is greater than 90°F. This means that heating performance can be controlled manually, and the unit could be controlled via an external room thermostat.

The unit can be controlled using the infra red remote control handset supplied with the unit (see fig. 6) and also using the control panel on the unit (see fig. 7). If necessary, however, the control panel can be locked electronically to prevent tampering once the controls have been set (see over).



Fig. 6

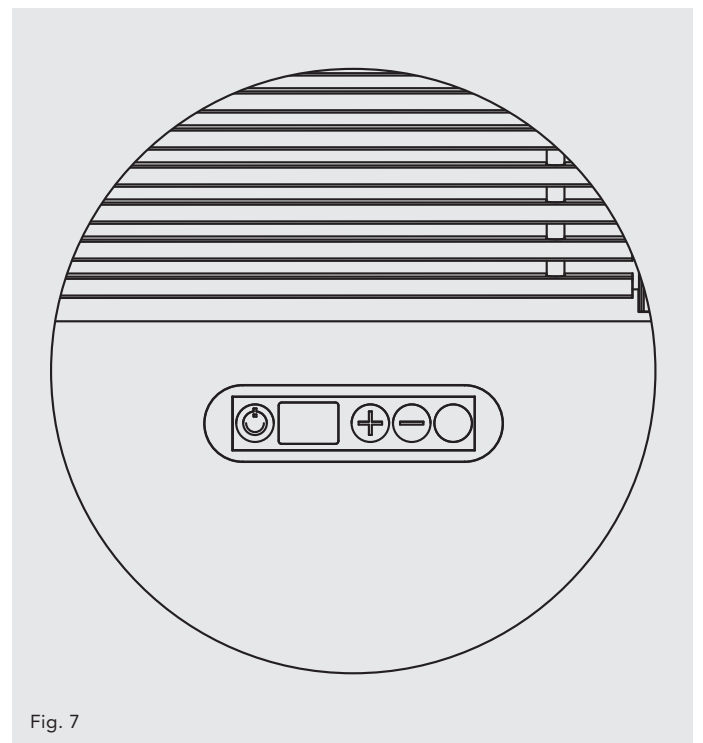


Fig. 7

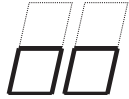
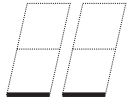




The remote control hand set takes 2 AAA batteries (not supplied).

Controls	Display
Power button	Switches unit on & off
'+/-' button	Adjust temperature set point from 59 - 95°F
	Scrolls into F1, F2, F3, A1, A2 or A3 manual mode.

**Heating**

Heating will only be provided when the central heating boiler is on, the pump is running and the system water temperature is greater than 90°F. Ensure the boiler is on, and set timer, boiler controls and room thermostats as necessary.

**11.0 Operating Instructions (continued...)**

Operation	Display
Power off	No Display
Switch on supply to unit (unit off)	 for 30 seconds
	 Supply on / unit off
Switch on unit	 Set point flashes for approx 5 secs, then
	 Ambient temperature displayed
Use '+/-' to adjust set point	 Set point flashes for approx 5 secs, then
	 Ambient temperature

The ambient temperature is always displayed unless the water temperature falls below 110°F\*, or if the set point is being adjusted.

Water temp <110°F	 Shows both power & unit on
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\*110°F in normal heating system, 90°F for heat pumps and above 68°F in cooling.

**Manual**

Manual mode can be used for air circulation without heat or for manual control of the heating function.

Use '+' to scroll beyond 95°F  
Or use '-' to scroll below 59°F

Selected fan speed displayed



Scrolling back out of manual using the '+' or '-' button will revert the unit back to last temperature set point.

**Cooling Mode**

- Close the heating system and isolate any other heat emitters.
- Open the cooling water system.
- Ensure cooling is on, and set cooling unit timer and controls as necessary.

Cooling operation works in exactly the same way as heating. Follow the procedure above to set the unit controls.

**Locking Unit Controls**

The control panel on the main unit can be locked electronically to prevent interference once the controls have been set. After setting the unit to the desired temperature setting and with the unit in running mode, press the On/Off button on the main unit for about 6 seconds until the two middle horizontal bars appear on the display. The horizontal bars will disappear after about 6 seconds and the unit is in key lock mode.

If any of the unit controls are pressed the horizontal bars will reappear to show the key lock mode is activated, however, during this mode the handset controls remain functional.

To unlock the system press the On/Off button for about 6 seconds until the horizontal bars disappear.

**12.0 Troubleshooting**

Once installed this fan convector becomes part of a complete heating system that will generally include a boiler, pump, other emitters such as radiators and fan convectors, and a number of heating controls, dependent on system complexity. An apparent problem with this unit may be the result of system controls being incorrectly set and can be solved easily without calling out your installer or MYSON. Before calling your installer or MYSON, please carry out the checks listed opposite.

**12.0 Troubleshooting (continued...)**

Problem	Possible Causes	Remedy
Heating Mode - No Fan	Unit switched off	Turn on
	Temperature set point reached	Increase temperature set point
	Unit not switched on at breaker panel	Switch on breaker
	Breaker tripped at panel	Check all wiring and reset breaker
	Unit isolating valves shut	Open valves
	Water temperature reaching fan convector below 110°F (Heater model only)	Check boiler - Programmer ON  Boiler ON and set to high with central heating pump running  Note: Operation of fan convector can be checked by switching to manual fan setting
Heating Mode (Heater model only) poor heating performance and/or unit cycles on water sensor	Low water temperature to unit	Turn up boiler thermostat
	Poor water flow	Vent air from heating system

If the fan convector is still faulty after checking the above, call your installer or MYSON.

**Common Installation Faults**

For optimum performance, this unit must be correctly sized to match the heat loss requirements of the space it is required to

heat, and the heating system must be correctly designed to provide adequate flow of hot water to the unit (refer to section 2). If the recommendations in section 2 are not followed, problems may arise as detailed below.

Problem	Possible Causes
Poor heating performance (Heater model only)	Unit incorrectly sized for heat loss of room
Heating Mode (Heater model only) poor heating performance and/or unit cycles on water sensor	Boiler thermostat set too low
	Lack of flow to fan convector -
	Pump set on low setting
	Isolating valves not fully open
	System incorrectly balanced with unit starved of hot water flow
	Pipe sizing to unit too small

**13.0 Maintenance**

Before undertaking any maintenance activity isolate the electrical supply.

with warm water and mild detergent taking care to avoid water entering the grille areas.

Maintenance should be restricted to occasional removal of dust and lint around the unit. The outer surface may be wiped over

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