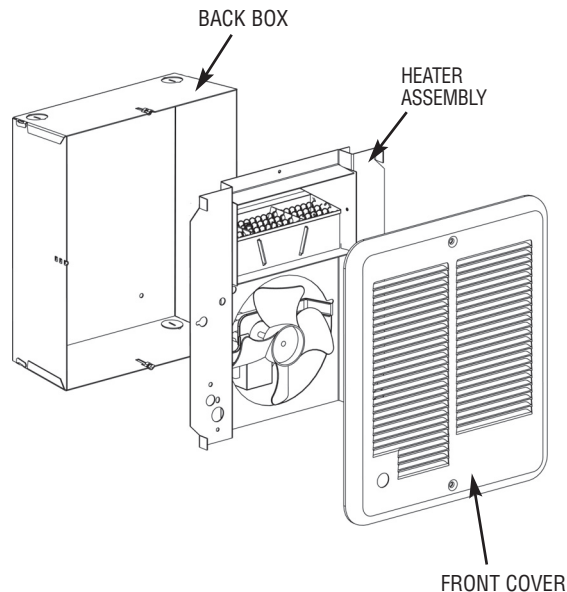




**C Series  
B Model  
Fan-Forced Wall Heaters with  
Clip'n'Fit® Board**

US Patent No. 6,172,343



# Installation & Maintenance Instructions

Dear Owner,

*Congratulations! Thank you for purchasing this new heater manufactured by Marley Engineered Products. You have made a wise investment selecting the highest quality product in the heating industry. Please carefully read the installation and maintenance instructions shown in this manual. You should enjoy years of efficient heating comfort with this product from Marley Engineered Products... the industry's leader in design, manufacturing, quality and service.*

... The Employees of Marley Engineered Products

## WARNING

**Read Carefully** - These instructions are written to help you prevent difficulties that might arise during installation of heaters. Studying the instructions first may save you considerable time and money later. Observe the following procedures, and cut your installation time to a minimum. **CAUTION - TO REDUCE RISK OF FIRE AND ELECTRIC SHOCK:**

1. Disconnect all power coming to heater at main service panel before wiring or servicing.
2. All wiring must be in accordance with the National and Local Electrical Codes and the heater must be grounded.
3. Verify the power supply voltage coming to heater matches the ratings printed on the heater nameplate before energizing.
4. This heater is hot when in use. To avoid burns, do not let bare skin touch hot surfaces.
5. Do not insert or allow foreign objects to enter any ventilation or exhaust opening as this may cause an electric shock, fire, or damage to the heater.
6. Grille and discharge air are hot when in use. Do not install or use heater in any area where airflow from heater may be blocked or obstructed. Do not install behind doors, furniture, towel racks, curtains, or boxes. Hot air may damage certain fabrics and plastics. Always keep electrical cords, beddings, crates, drapes, and other combustibles away from heater. Do not install heater in ceiling.
7. A heater has hot and arcing or sparking parts inside. Do not use it in areas where gasoline, paint, or flammable liquids are used or stored.
8. Use this heater only as described in this manual. Any other use

not recommended by the manufacturer may cause fire, electric shock, or injury to persons.

9. This heater is not approved for use in corrosive atmospheres such as marine, green house, or chemical storage areas.
10. When wall mounted, heater must only be installed in a vertical direction (motor below element) as shown in this manual. Do not install sideways, upside down.
11. Heater must be installed with CBB (Type CO2-BB) Back Box.
12. The following minimum clearances must be maintained:
  - Wall Mounting:
    - Heater to floor - 4.5 in. (114 mm)
    - Heater to adjacent wall - 4.5 in. (114 mm)
    - Heater to ceiling - 12 in. (305 mm).
  - Ceiling Mounting (Max 1000 Watts)
    - Heater to any wall - 12" (305mm)
13. When wiring, power supply must enter through knockouts in left side of back box. Do not use the knockouts in right side back box. Refer to Fig. 1.  
To determine which side is left or right:
  - 1.) Orient the back box so the "TOP" marking and arrows are visible and upright; and 2.) Ensure that the fan deck is oriented with the element side on the "TOP" side of the back box.
14. Do not operate heater without grille installed.
15. Do not use heater for dry out. Paint, plaster, sawdust, and dry-wall sanding dust will damage heater and must be kept out of heater.
16. Keep heater clean. See maintenance and cleaning instructions on page 3.

**SAVE THESE INSTRUCTIONS**

**GENERAL**

**Wall Mounted**

•The C series heaters are designed for recessed installation in 2 X 4 stud or larger wall using the model CBB (Type CO2-BB) back box. The heater may be wired using standard building (60 degrees C minimum) wire.

•The optimum mounting height for this heater is 18" to 24" (457mm to 610mm) from floor to bottom of back box. In any case, do not install closer than 4.5" (114mm) from the floor or adjacent wall.

**Ceiling Mount**

•The C Series heaters are designed for ceiling mount provided the wattage does not exceed 1000 watts. In order for your heater to be rated for ceiling application, the heater must be trimmed back to 1000 watts or less. (See Change Wattage Output below)

•The optimum clearances to any wall surface are 12 inches. Do not mount heater in the ceiling if these clearances are not met.

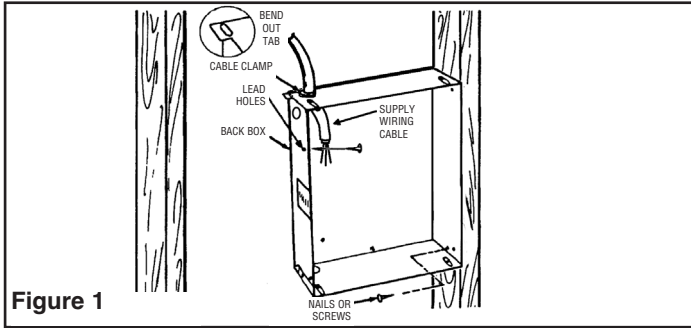
•Ceiling heaters can be recessed or surfaced mounted.

Heaters are also approved for semi-recessed or surface mounting on walls. Refer to instructions for installations of the CSM Surface Mounting frame.

**INSTALLATION OF BACK BOX IN NEW CONSTRUCTION**

**NOTE:** If the finished wall surface is already up, follow instructions for "INSTALLATION OF BACK BOX IN EXISTING CONSTRUCTION".

1. Allow for the thickness of the finished surface when installing the back box. The edge of the back box must be installed flush with the finished surface. Markings on the side of the back box for 1/2" or 5/8" finishing wall are provided.



**Figure 1**

2. Determine which side of the back box is to be mounted against a stud or joist and **bend the tabs at the rear corners out 90 degrees so that the back box will be square with the stud after installation.**
3. Remove one of the knockouts on left side of the back box and install a cable or conduit connector. (See warning 13)
4. Position back box against side with studs or ceiling joist and secure with nails or screws as shown in Figure 1.

**NOTE:** The back box must be installed to a wall stud or ceiling joist and secured using nails or screws as shown in Figure 1.

5. Run power supply cable through the connector, leaving about 6" of wire inside the box.
6. Connect the supply cable ground wire to green ground wire provided.

**NOTE:** Lead holes for a #8 sheet metal screw have been provided in the sides of the back box. After the finished wall or ceiling has been put up, drive a #8(m4) sheet metal screw (recommended 1"(25mm) long) through the side of the box not mounted to the stud. This will prevent the back box from pulling out when installing the heater assembly. (See Figure1)

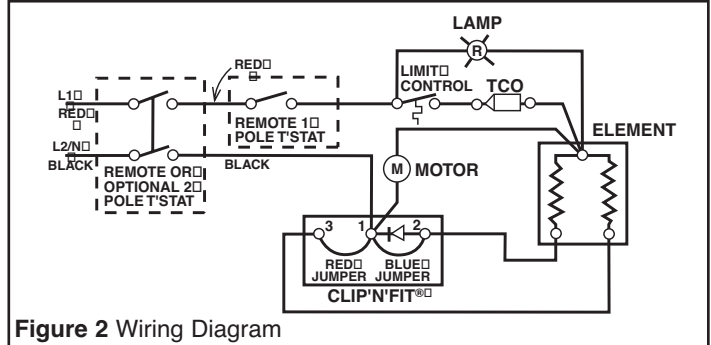
**INSTALLATION OF BACK BOX IN EXISTING CONSTRUCTION**

1. The edge of the back box must be installed flush with the finished surface. Determine which side of the back box is to be mounted against a stud or joist and **bend the tabs at the rear corners out 90 degrees so that the back box will be square with the stud after installation.** (See Figure 1).
2. Carefully cut a hole measuring 9-3/8"(239mm) wide by 11-1/8"(284mm) long. One edge of the hole must be cut along edge of the wall stud.
3. Bring power supply cable to heater mounting location leaving at least 10"(255mm) of cable for wiring.
4. Remove desired knockout on left side of back box.
5. Install cable clamp to cable and install into back box, leaving at least 6"(152mm) of cable in box for wiring.
6. Connect the supply cable ground wire to green ground wire provided.
7. Fit back box into mounting hole in wall by first inserting cable end of box then rotating box into position.
8. Secure box to wall stud or ceiling joist using nails or screws.

**CAUTION**

TO PREVENT POSSIBLE WIRING DAMAGE CUT EXCESS SUPPLY WIRE INSIDE BACKBOX TO PROVIDE APPROXIMATELY 6 INCHES FOR CONNECTION TO HEATER LEADS. AFTER CONNECTIONS ARE MADE, MAKE SURE CONNECTIONS ARE TIGHT AND ALL WIRING IS POSITIONED AWAY FROM FAN BLADE AND HEATING ELEMENT.

**NOTE:** Lead holes for a #8 sheet metal screw have been provided in the sides of the back box. After the finished wall or ceiling has been put up, drive a #8(m4) sheet metal screw (recommended 1"(25mm) long) through the side of the box not mounted to the stud.(joist) This will prevent the back from pulling out when installing the heater assembly. (See Figure 1)



**Figure 2** Wiring Diagram

**NOTE:** Heaters are factory wired per nameplate, voltage and wattage. Refer to Table1, page 3 for details. See "TO CHANGE WATTAGE OUTPUT" section if lower wattage is desired and make change before installing heat deck.

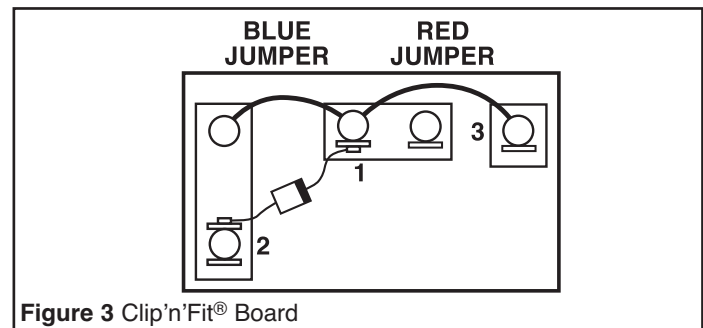
**INSTALLATION AND WIRING OF HEATER / FAN ASSEMBLY**

1. Following wiring diagram (Figure 2) connect supply wires to heater lead-wires in back box using appropriate wire connectors.

**NOTE:** For 120 volt heaters connect the white neutral supply lead to the heater's white or red with white flag marker pigtail lead, and connect the black supply lead to the black pigtail lead.

2. Secure supply ground wire under green ground screw in back box (or green ground wire if provided).
3. Fit heater/fan assembly into back box making sure all wiring is positioned away from fan and heating element and secure in place with (2) screws provided through the center slots in the sides of the fan assembly.

WATTAGE								Jumper 1 Blue Jumper	Jumper 2 Red Jumper
C1512IF C1512T2 @120V	C1524T2 @208V	C2028IF @240V	C2028IF @208V	C2024IF C2024T2 @208V	C2024IF C2024T2 @240V	C2224IF C2224T2 @208V	C2224IF C2224T2 @240V		
1500	1125	1500	2000	1500	2000	1688	2250	Leave In	Leave In
1125	844	1125	1500	1125	1500	1266	1688	Clip Out	Leave In
750	563	750	1000	750	1000	844	1125	Leave In	Clip Out
375	281	375	500	375	500	422	563	Clip Out	Clip Out



**Figure 3** Clip'n'Fit® Board

**TO CHANGE WATTAGE OUTPUT**

The chart below shows the wattages available by model. Each heater is factory wired for its maximum wattage. The last two columns in the chart refer to the jumpers on the CLIP'n'FIT® Board. To change wattage, clip out jumper 1 and/or jumper 2 as shown in the chart below. Completely remove jumpers by clipping at both ends as close to the board as possible.

### INSTALLATION OF FRONT COVER (GRILLE) AND THERMOSTAT KNOB

1. Fasten front cover to heater assembly using the (2) long screws supplied.
2. Fit the thermostat knob onto the thermostat shaft (if provided) and push into place.

### HEATER CHECKOUT AND OPERATION

(If internal thermostat provided)

1. After heater is completely assembled, rotate thermostat knob counterclockwise until control stops. This is the minimum heat setting.
2. Turn power supply to heater "ON" at main switch panel.
3. Heater should not operate. If it operates disconnect power and recheck wiring.
4. Rotate thermostat clockwise until it stops (maximum heat setting).
5. Heater and fan should come on. If heater and fan do not come on, disconnect power and check wiring.
6. Allow heater to continue to operate until room temperature reaches desired comfort level. Then rotate thermostat knob counterclockwise slowly until thermostat clicks off.
7. If may be necessary to readjust thermostat a time or so until exact comfort level is attained. Rotation in the clockwise direction will increase the amount of time the heater will produce heat. Rotation in the counterclockwise direction will reduce the amount of time the heater is on.

**NOTE:** For best results, the heater should be left "ON" constantly during the heating season as the thermostat, when properly set, will maintain the desired temperature. In the full counter-clockwise position the heater will remain off until the room temperature drops well below freezing.

### MAINTENANCE



### CAUTION

TO REDUCE RISK OF FIRE AND ELECTRIC SHOCK, DISCONNECT ALL POWER COMING TO HEATER AT MAIN SERVICE PANEL BEFORE SERVICING OR PERFORMING MAINTENANCE.

**TO CLEAN HEATER:** The heater should be cleaned annually for maximum efficiency. Before cleaning be sure power is off and heater is cool. First, remove knob by pulling straight out, then remove front grille and clean blower wheel using a vacuum cleaner with a brush attachment. The grille may be cleaned with a slightly damp rag if desired.

### OPERATIONAL NOTICE

Your heater is equipped with an automatic reset limit control that will automatically turn the heater OFF to prevent overheating. Should this occur, the red warning light will illuminate and will continue to shine until the limit resets. Your heater is also equipped with a backup "one shot" thermal protection fuse that will permanently disable the unit, to prevent a fire, if the reset limit fails. If the red warning light illuminates and the heater never restarts, the "one shot" thermal protection fuse has been activated and you should consult the factory.

**TABLE 1**

MODEL	VOLTS	WATTS/AMPS	WATTS/AMPS	WATTS/AMPS	WATTS/AMPS
C1512IF	120	1500W/12.5	1125W/9.4	750W/6.3	375W/3.1
C1512T2					
C1524T2	240	1500W/6.3	1125W/4.7	750W/3.1	375W/1.6
	208	1125W/5.4	844W/4.1	563W/2.7	281W/1.4
C2028IF	208	200W/9.6	1500W/7.2	1000W/4.8	500W/2.4
C2024IF	240	2000W/8.3	1500W/6.3	1000W/4.2	500W/2.1
C2024T2	208	1500W/7.2	1125W/5.4	750W/3.6	375W/1.8
C2224IF	240	2250W/9.4	1688W/7.0	1125W/4.7	563W/2.3
C2224T2	208	1688W/8.1	1266W/6.1	844W/4.1	422W/2.0

**NOTE: "IF" Inner Frame models must be used with CBB (Type CO2-BB) Back Box. "T2" Thermostat Models include integral thermostat.**

**NOTE:** For installations over 7500 ft. above sea level we recommend to use heaters with wattages under 1500 watts.

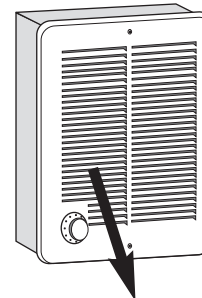
**TABLE 2**

TOTAL AMPS	WIRE SIZE (COPPER)	CIRCUIT BREAKER OR FUSE SIZE
0 thru 12	#14	15 Amps
12.1 thru 16	#12	20 Amps

### CAUTION



THE ILLUMINATED INDICATOR LIGHT SIGNIFIES THE HEATER HAS BEEN SUBJECTED TO SOME ABNORMAL CONDITION CAUSING IT TO OVERHEAT. CHECK HEATER TO INSURE THAT IT HAS NOT BEEN BLOCKED IN ANY MANNER (IF SO, REMOVE BLOCKAGE). IF THERE IS NO INDICATION OF BLOCKAGE IT IS RECOMMENDED THE HEATER BE CHECKED BY A REPUTABLE ELECTRICIAN OR REPAIR SERVICE TO INSURE THE HEATER HAS NOT BEEN DAMAGED. DO NOT CONTINUE TO USE HEATER IF LIGHT IS ON.



### NAMEPLATE

MODEL NO. **C2224IFB** DATE CODE **0403**

FAN FORCED WALL HEATERS  
CALEFACTOR DE PARED CON VENTILADOR  
APPAREL MURAL À AIR PULSE POUR

240/208 2250/1688/1125/563  
VOLTS AC 1688/1266/844/422  
9.4/7.0/4.7/2.3 WATTS  
8.1/6.1/4.1/2.0 60HZ1PH  
AMPS

**UL** US  
774G LISTED  
ROOM HEATER  
TYPE  
CO2

USE ONLY WITH CO2-LEBA BOX.  
DO NOT OPERATE WITH FRONT GRILLE IN PLACE.

SÓLO DEBE USARSE CON LA CAJA POSTERIOR CO2-BB.  
NO DEBE ENCENDERSE SIN LA REJILLA.

UTILISER SEULEMENT AVEC UN BOÎTIERIER ARRIÈRE CO2-BB.  
NE PAS UTILISER SE LA GRILLE N'EST PAS EN PLACE.

MARLEY ENGINEERED PRODUCTS  
BENNETTSVILLE, SC 29512 USA

4104-2218-005

### LIMITED WARRANTY

All products manufactured by Marley Engineered Products are warranted against defects in workmanship and materials for one year from date of installation, except heating elements which are warranted against defects in workmanship and materials for five years from date of installation. This warranty does not apply to damage from accident, misuse, or alteration; nor where the connected voltage is more than 5% above the nameplate voltage; nor to equipment improperly installed or wired or maintained in violation of the product's installation instructions. All claims for warranty work must be accompanied by proof of the date of installation.

The customer shall be responsible for all costs incurred in the removal or reinstallation of products, including labor costs, and shipping costs incurred to return products to Marley Engineered Products Service Center. Within the limitations of this warranty, inoperative units should be returned to the nearest Marley authorized service center or the Marley Engineered Products Service Center, and we will repair or replace, at our option, at no charge to you with return freight paid by Marley. It is agreed that such repair or replacement is the exclusive remedy available from Marley Engineered Products.

THE ABOVE WARRANTIES ARE IN LIEU OF ALL OTHER WARRANTIES EXPRESSED OR IMPLIED, AND ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE WHICH EXCEED THE AFORESAID EXPRESSED WARRANTIES ARE HEREBY DISCLAIMED AND EXCLUDED FROM THIS AGREEMENT. MARLEY ENGINEERED PRODUCTS SHALL NOT BE LIABLE FOR CONSEQUENTIAL DAMAGES ARISING WITH RESPECT TO THE PRODUCT, WHETHER BASED UPON NEGLIGENCE, TORT, STRICT LIABILITY, OR CONTRACT.

Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above exclusion or limitation may not apply to you. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

For the address of your nearest authorized service center, contact Marley Engineered Products in Bennettsville, SC, at 1-800-642-4328. Merchandise returned to the factory must be accompanied by a return authorization and service identification tag, both available from Marley Engineered Products. When requesting return authorization, include all catalog numbers shown on the products.

#### HOW TO OBTAIN WARRANTY SERVICE AND WARRANTY PARTS PLUS GENERAL INFORMATION

- |                                |   |
|--------------------------------|---|
| 1. Warranty Service or Parts   | <b>1-800-642-4328</b>   |
| 2. Purchase Replacement Parts  | <b>1-800-654-3545</b>   |
| 3. General Product Information | <b><a href="http://www.marleymep.com">www.marleymep.com</a></b> |

**Note:** When obtaining service always have the following:

1. Model number of the product
2. Date of manufacture
3. Part number or description



**Marley**  
Engineered Products

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