Carrier

Installation, Start-Up and Service Instructions

32LT
50/60 Hertz

Carrier Corporation • Syracuse, N.Y. 13221

Motormaster®

Solid-State Head Pressure Control

NOTE: Use this booklet plus the base unit Wiring Diagrams booklet for all base units produced after 1981. For pre-1981 base units, refer to Motormaster publication 32LT-5SI (60 Hz), 32LT-CIC-3SIC (50 Hz).

SAFETY CONSIDERATIONS

Installation, start-up and servicing of this equipment can be hazardous due to system pressures, electrical components and equipment location (roofs, elevated structures, etc.).

Only trained, qualified installers and service mechanics should install, start-up and service this equipment.

Untrained personnel can perform basic maintenance functions of cleaning coils, cleaning and replacing filters. All other operations should be performed by trained service personnel.

When working on the equipment, observe precautions in the literature, tags, stickers and labels attached to the equipment and to any other safety precautions that apply.

- Follow all safety codes.
- Wear safety glasses and work gloves.
- Use care in handling, rigging and setting bulky equipment.

⚠ WARNING

ELECTRIC SHOCK HAZARD. Open all remote disconnects before servicing this equipment.

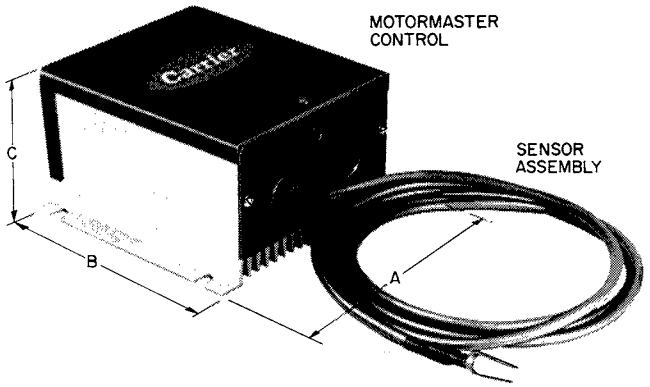
INTRODUCTION

The 32LT Motormaster solid-state head pressure control (Fig. 1) is a fan speed control device activated by a temperature sensor. It is specifically designed for use on Carrier equipment to control condenser fan motor speed in response to the saturated condensing temperature. For outdoor temperatures down to –20 F, it maintains condensing temperature at 100 ± 10 F.

The Motormaster control consists of a solid-state circuit on a printed circuit board encased in an aluminum extrusion. The control must be fastened to a panel on the unit, and the sensor assembly (Fig. 1) mounted to a return bend on the unit's condensing coil (Fig. 2). A wire from the sensor is connected to the circuit board control box with wire nuts.

The Motormaster control is available in 2 one-hp models; one is rated at 200/230 volts; the other at 460 volts.

Parts necessary for mounting control and sensor are included in the package. When unpacking control, should any damage to the printed circuit board or components be observed, return for replacement. If sensor assembly is damaged, it can be replaced separately.



UNIT NO.	VOLTS	AMPS	A	B	C
32LT900300	200-230	8.0	5⅞	6 3/16	3⅜
32LT900610	460	4.0	5⅞	7⅜	3⅜

Fig. 1 — Motormaster Solid-State Head Pressure Control (32LT)

BEFORE INSTALLATION

The Motormaster control maintains the proper head pressure at any ambient temperature down to –20 F on Carrier-approved equipment. No field adjustments or calibrations are required.

Prior to installing the control, modifications must be made to the base unit. For a detailed description of these modifications, refer to the base unit Wiring Diagrams book.

The following must be observed:

- If *special fan motors, run capacitors* or *transformers* are required, install where necessary.
- Make sure that *power wiring* is as specified.
- Make sure all units are modified for *winter start control.*
- Check that the *control location* is as specified.
- Check that the *sensor location* is as specified.
- Make sure that *sensor wire routing* is as specified.
- Make sure *wind baffles* are installed if required.

INSTALLATION

Mounting Control Assembly

1. *Make sure all power to unit is turned off, otherwise an electrical shock may occur.*
2. To determine location for the control, refer to base unit Wiring Diagrams book. Remove template (Fig. 3) from this instruction and tape to panel. Drill pilot holes as indicated.
3. Fasten control to unit with 4 no. 10 sheet metal screws provided. To ensure electrical ground with condensing unit, insert *star lockwashers* under heads of screws.

NOTE: When properly positioned (wall mounted vertically with leads protruding from bottom of extrusion), control is weathertight.

Mounting Sensor — Mount sensor on a condenser coil return bend as shown in Fig. 2.

1. Determine sensor location by referring to base unit Wiring Diagrams book.

CAUTION: The sensor assembly is delicate. Handle with care.

2. Route sensor wire as indicated in base unit Wiring Diagrams book.
3. Secure sensor on coil return bend with no. 4-40 screw, 2 plate washers and nut (supplied) as shown in Fig. 2.

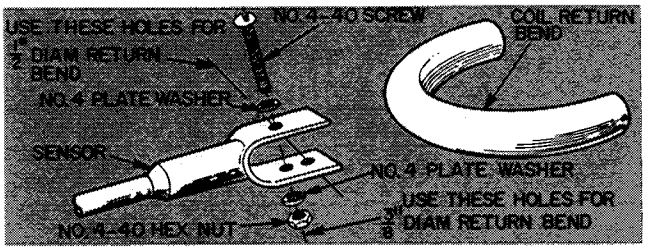


Fig. 2 — Sensor Installation

4. Coil up excess wire and secure it near sensor or next to controller.
5. Provide sensor wire with protection from physical damage or wind movement where necessary.

Power Wiring

WARNING: The Motormaster® control must be wired in series with the fan motor.

Power wiring must comply with all local and National Electrical Code (NEC) requirements. Refer to base unit Wiring Diagrams book for Motormaster power wiring connections.

Winter Start Control — All units must be modified for winter start control. The recommended methods of winter start control are described in the base unit Wiring Diagrams book.

Wind Baffles — Coils mounted vertically in most condensers and condensing units require field-fabricated baffles to prevent cross currents from causing abnormal operation. For those units requiring baffles, fabrication details are described in base unit Wiring Diagrams book.

START-UP

To start units equipped with the accessory Motormaster speed control:

1. Turn on power to unit.
2. Set thermostat below room temperature.
3. Wait at least 5 minutes if unit is equipped with Time Guard® circuit. Fan motors start 15 seconds before compressors when standard Time Guard circuits are used and may:
   a. Not operate when ambient is below 50 F.
   b. Run at slow speed when ambient is between 70 F and 80 F.
   c. Run at or near full speed when ambient is above 80 F.

When compressors start, fan speed will modulate smoothly to proper controlled speed based on condensing temperature. After system has run and settled out, this temperature is approximately 100 ± 10 F if outdoor ambient is below 60 F.

SERVICE

No field repairs are to be made on this device. If either the sensor or the control fails, it should be replaced. Either assembly may be replaced independently. Refer to Carrier Specified Parts.

To Check Control

If fan motor does not turn:

1. Check power to condensing unit. Is it turned on?
2. Check for voltage across fan motor relay contacts (or transformer output when one is used).
3. Check for loose sensor wire connections in Motormaster control splice compartment.
4. Short power wires together in Motormaster splice compartment.
   a. If fan does not turn, make sure motor is wired into circuit properly and run capacitor is not defective. Replace motor if necessary.
   b. If fan motor turns, make sure the motor is wired in series with the Motormaster control. Refer to base unit Wiring Diagrams book.
5. If motor runs when connected to the single-phase voltage supply but does not run when connected in series with the Motormaster control, when the return bend on which the sensor is mounted is warm, replace Motormaster control and sensor assembly.

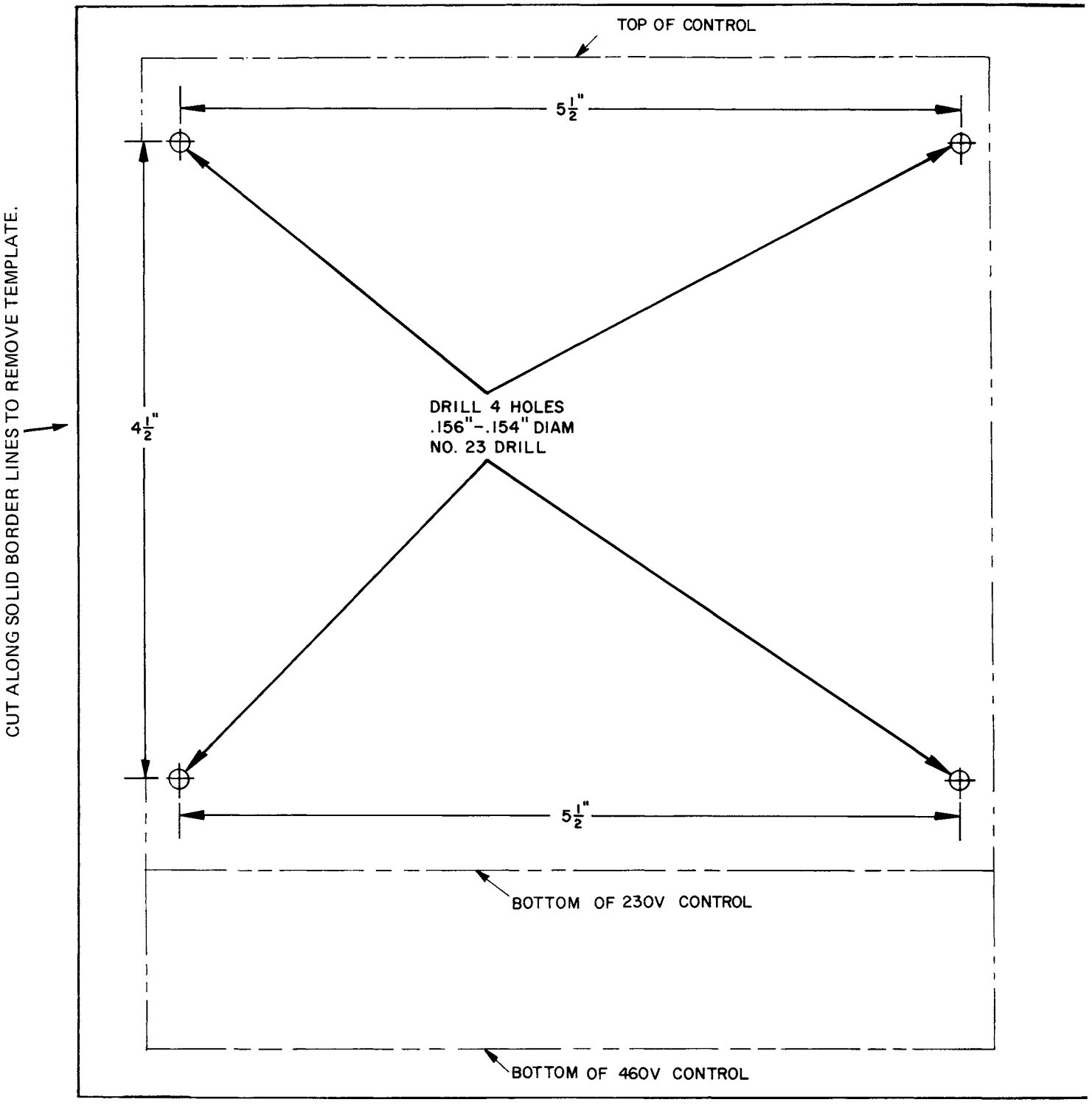


Fig. 3 — Mounting Template (32LT Motormaster® Control)