

**MODEL'S CAST TYPE
CT-4KW-C & CT-8KW-C
CT-15KW-C & CT-28KW-C
CT-45KW-C & CT-60KW-C
CT-90KW-C**

CARBON DIOXIDE PRESSURE BUILD VAPORIZER

OPERATION MANUAL

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PLEASE READ !!

CARBO TECH CARBON DIOXIDE PRESSURE BUILD VAPORIZERS ARE NOT A COMPLEX PIECE OF EQUIPMENT. HOWEVER, KNOWLEDGE OF THE HAZARDS ASSOCIATED WITH CARBON DIOXIDE SYSTEMS IS ESSENTIAL FOR SAFE INSTALLATION AND OPERATION OF THE UNIT.

THE INFORMATION PROVIDED IN THIS MANUAL IS INTENDED TO BE USED BY A QUALIFIED CARBON DIOXIDE EQUIPMENT SERVICEMAN.

WE STRONGLY SUGGEST THAT ONLY QUALIFIED PERSONNEL INSTALL AND MAINTAIN THIS EQUIPMENT.

REFER THE APPROPRIATE COMPRESSED GAS ASSOCIATION PAMPHLET FOR THE PROPER MATERIALS USED IN THE INSTALLATION OF CARBON DIOXIDE EQUIPMENT.

REFER TO THE NATIONAL ELECTRIC CODE AND CONSULT A QUALIFIED ELECTRICIAN FOR PROPER ELECTRICAL SUPPLY AND HOOKUP.

**CAUTION: THIS EQUIPMENT IS OPERATED UNDER HIGH PRESSURE.
"EXERCISE EXTREME CAUTION"**

**CAUTION: THIS EQUIPMENT IS OPERATED UNDER HIGH VOLTAGE.
"EXERCISE EXTREME CAUTION"**

CAUTION: IT IS IMPERATIVE THAT LINE SAFETIES BE INSTALLED BETWEEN BLOCK VALVES.

CAUTION: CARBON DIOXIDE EQUIPMENT SHOULD ALWAYS BE INSTALLED IN WELL VENTILATED AREAS.

DISCLAIMER

THE MATERIALS IN THIS MANUAL IS FOR INFORMATION PURPOSES ONLY. THE CONTENTS AND THE PRODUCT IT DESCRIBES ARE SUBJECT TO CHANGE WITHOUT NOTICE. CARBO TECH MAKES NO REPRESENTATIONS OR WARRANTIES WITH RESPECT TO THIS MANUAL. IN NO EVENT SHALL CARBO TECH BE LIABLE FOR ANY DAMAGES, DIRECT OR INCIDENTAL, ARISING OUT OF OR RELATED TO THE USE OF THIS MANUAL.

CARBO TECH ALUMINUM CAST PRESSURE BUILD VAPORIZER

INSTALLATION AND OPERATION INSTRUCTIONS

- 1. The vaporizer should be installed on a level concrete pad. Anchor holes provided in base angles. For best operation install the vaporizer as low as the bottom of liquid in the storage tank.**
- 2. Connect process lines to inlet and outlet connections as labeled. CAUTION: PROPER CONNECTION OF THESE PIPES IS IMPERATIVE TO PROPER OPERATION. THE INLET MUST BE CONNECTED TO THE SOLENOID VALVE. Improper connection of the lines will void the warranty.**
- 3. Connect the pressure switch (es) to the tank instrument lines. DO NOT CONNECT TO VAPORIZER RETURN LINE.**
- 4. Connect electric power to line terminals of contactor. CAUTION: Be sure voltage agrees with name plate rating on equipment. Make sure unit is grounded per code requirements.**
- 5. Temperature controllers are set at the factory at approximately the correct setting for normal operation (70 degrees F).**
- 6. Normal casting temperature when solenoid valve is closed is 50 degrees F. Higher temperature will not increase capacity.**
- 7. The pressure switch is set to open the solenoid valve on pressure decrease (fall) at about 275 PSIG. Valve will close at 285 PSIG. If a different operating pressure is desired the pressure switch may be adjusted. See operating instructions on pressure switch.**
- 8. The pipe from the vaporizer outlet to the top of the tank must be sloped upward to avoid liquid trapping which will retard the free flow of gas and limit the capacity of the vaporizer.**
- 9. An actuated ball valve is used to insure positive shut-off when the vaporizer is not in use. Note: The valve requires power to open and to close. If power is removed from the vaporizer while the valve is open, it will remain open until power is reapplied.**
- 10. A high temperature safety shutoff switch is mounted on top of each heater casting. This switch is set at 200 degrees F and will shutoff power to heaters**

anytime casting temperature exceeds 200 degrees F. This switch will reset automatically when casting cools to approximately 165 degrees F. The high temperature limit switch is a “back-up” safety device only and must not be used for normal operation.

11. Various heater circuits are available for different voltages and power ratings. The equipment should never be operated at a power level greater than the nameplate rating.

ELECTRICAL TROUBLE SHOOTING

CONTACTOR COIL:	WITH POWER OFF, DISCONNECT 1 COIL LEAD WIRE AND CHECK COIL WITH OHM METER. IT MUST SHOW CONTINUITY. IF NOT REPLACE.
HI TEMP CUT-OUT SWITCH:	WITH POWER OFF AND CASTINGS COOL, REMOVE 1 LEAD WIRE FROM EACH SWITCH AND CHECK CONTINUITY. HI TEMP. CUT-OUT (HTCO) SWITCHES ARE SET AT APPROXIMATELY 200 DEGREES F. THEY SHOULD SHOW CONTINUITY BELOW THIS TEMPERATURE. IF NOT REPLACE.
HONEYWELL TEMP CONTROLLER:	WITH POWER "ON", TURN POTENTIOMETER DIAL ALTERNATELY CLOCKWISE AND COUNTER CLOCKWISE. CONTACTOR SHOULD ENERGIZE AS POTENTIOMETER IS TURNED CLOCKWISE AND DE-ENERGIZE AS POTENTIOMETER IS TURNED COUNTER CLOCKWISE. IF NOT REPLACE.
LOOSE CONNECTIONS:	WITH POWER OFF, MOVE CONTROL WIRES AT TERMINALS TO OBSERVE LOOSENESS OR REACTION FROM OTHER CIRCUIT COMPONENTS AS TERMINALS OR MOVED. TIGHTEN ANY LOOSE CONNECTIONS.
HONEYWELL BULB INSTALLATION IN CASTING:	THE BULB FOR THE TEMPERATURE CONTROL SYSTEM MUST BE INSTALLED AT THE CASTING, IN THE PROVIDED WELL. THE BULB MUST BE POTTED WITH A WATERPROOF POTTING COMPOUND (RTV) SO THAT THE BULB IS IN DIRECT CONTACT WITH THE CASTING. IF BULB DOES NOT TOUCH THE CASTING, OR IF IT IS IMPROPERLY SEALED AGAINST MOISTURE, THE TEMPERATURE CONTROL WILL NOT WORK PROPERLY. RESET AND REPOT IF NECESSARY.

CARBON DIOXIDE CAST TYPE PB VAPORIZER LIMITED WARRANTY

Carbo Tech warrants to the original purchaser that the vaporizer will be free of defects in materials and workmanship in normal use and service for a period of 180 days from date of invoice. This Limited Warranty is not transferable.

This Limited Warranty covers failures due to defects in material or workmanship. It does not cover failures due to damage which occur in shipment or failures which result from accident, misuse, abuse, neglect, mishandling, misapplication, alteration, faulty installation, modification or damage attributable to acts of God.

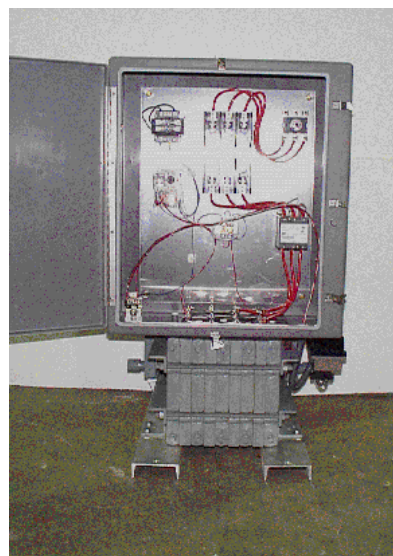
Carbo Tech's obligation under this Limited Warranty is limited to repairing or replacing, at its option, any covered part that is returned freight prepaid to Carbo Tech and shows evidence of defect. Carbo Tech assumes no responsibility for the expense of labor or materials necessary to remove a defective part or install a repaired or new part. Parts judged defective will be repaired or replaced and returned freight prepaid. Credit will be issued on incoming freight at the lowest appropriate tariff rates. Claims must be made within 30 days after the defect is discovered.

CARBO TECH, INCORPORATED MAKES NO WARRANTY OF MERCHANTABILITY AND NO WARRANTY OF FITNESS FOR ANY PARTICULAR PURPOSE, NOR DOES IT MAKE ANY WARRANTY, EXPRESSED OR IMPLIED, OF ANY NATURE WHATSOEVER WITH RESPECT TO PRODUCTS SOLD BY CARBO TECH TO USE THEREOF EXCEPT AS IS SPECIFICALLY SET FORTH ON THE FACE HEREOF, EVEN THOUGH IT MAY HAVE BEEN DILIGENT. CARBO TECH SHALL IN NO EVENT BE LIABLE FOR DIRECT, INDIRECT, SPECIAL, INCIDENTAL, CONSEQUENTIAL OR PENAL DAMAGES RESULTING FROM ANY CLAIM OR BREACH OF WARRANTY. CARBO TECH MAKES NO WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED TO "CONSUMERS" AS THAT TERM IS DEFINED IN THE MAGNUSON-MOSS WARRANTY-FEDERAL TRADE COMMISSION IMPROVEMENT ACT.

Carbo Tech assigns to the purchaser warranties of equipment not manufactured by Carbo Tech.

THE FOREGOING IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, NOT WITHSTANDING THE PROVISION OF THE UNIFORM COMMERCIAL CODE, THE MAGNUSON-MOSS WARRANTY-FEDERAL TRADE COMMISSION IMPROVEMENT ACT, OR ANY OTHER STATUTORY OR COMMON LAW, FEDERAL OR STATE.

CARBON DIOXIDE VAPORIZERS ELECTRIC PRESSURE BUILD (CAST TYPE)



MODEL	CT-15KW-C	CT-28KW-C	CT-45KW-C	CT-60KW-C
CAPACITY	15KW	28 KW	45 KW	60 KW
FLOW RATE (lbs./hr)	400	800	1200	1600
WEIGHT (lbs.)	110	170	190	230
CONNECTION SIZE (inlet) (outlet)	3/4" 1"	1" 1-1/2"	1" 2"	1" 2"

The ideal solution to your vacuum jacket tank low pressure problem.

*Carbon Dioxide Equipment
Call for current prices and availability*



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AMP DRAW FOR CAST TYPE PBU VAPORIZERS

MODEL	AMPS @ 240 VOLTS	AMPS @ 460 VOLTS
CT-15C	36	18
CT-30C	72	38
CT-45C	109	54
CT-60C	145	72
CT-90C	217	108

Ohms per Heater

Casting Type	Maximum Ohms	Normal Ohms	Minimum Ohms
“C”	12.7	11.5	10.9
“D”	16.8	15.2	14.5

Note: 3 elements per heater

“C” castings used in 30, 60 and 90 kw units, dual voltage

“D” castings used in 15 and 45 kw units, 460/480 voltage only

“C” castings used in 15 and 45 kw units, 220/230 voltage only

