*Please refer to the Lancer web site (**www.lancercorp.com**) for information relating to Lancer Installation and Service Manuals, Instruction Sheets, Technical Bulletins, Service Bulletins, etc.*

INSTALLATION AND SERVICE MANUAL

FOR

TURBO-CARB HIGH CAPACITY CARBONATOR

Part Number 85-2000, 115 Volts, 60 Hz
Part Number 85-2000-06, 115 Volts, 60 Hz

SPECIFICATIONS

DIMENSIONS	
Width	12 1/4 inches (31.11 cm)
Depth	15 1/4 inches (38.74 cm)
Height	11 1/2 inches (29.21 cm)
WEIGHT	
Shipping	33.5 pounds (15.2 kg)
Empty	31.1 pounds (14.1 kg)
Operating	45.3 pounds (20.5 kg)
ELECTRICAL	
Operating Voltage	115
Hertz	60
Amps	6.2
MOTOR	1/3 Horsepower (HP)
PUMP	125 Gallons Per Hour (GPH) [473 Liters Per Hour (LPH)]
WATER INLET	3/8 inch S.A.E. Male Flare
CO_2 INLET	1/4 inch S.A.E. Male Flare
CARBONATED WATER OUTLET (TWO)	3/8 inch S.A.E. Male Flare
TANK OPERATING CAPACITY	215 Ounces (6.4 L)

This Manual supersedes 28-0432, dated 05/05/00

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FAX SALES

• NORTH AMERICA – 210-310-7245 • INTERNATIONAL SALES – 210-310-7242 • CUSTOMER SERVICE – 210-310-7242 •
• LATIN AMERICA – 210-524-9567 / 210-310-7245 • EUROPE – 32-2-755-2399 • PACIFIC – 61-8-8268-1978 •

FAX ENGINEERING: • 210-310-7096

DATE: 08/08/00
P.N. 28–0432/01

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THEORY OF OPERATION

A carbonator is a device designed to dissolve carbon dioxide gas (CO_2) in water, producing carbonated water. CO_2 gas is delivered through a regulator to the carbonator tank. Simultaneously, plain water is pumped into the tank. The CO_2 gas, under pressure, dissolves in the water and the result is carbonated water. When the level of carbonated water reaches a pre-determined point, the liquid level sensing device (inside the tank) signals the liquid level control module which, in turn, shuts off the pump motor. As carbonated water is drawn from the tank, the level of carbonated water will drop. At a certain point, the liquid level sensing device recognizes that drop in the level and turns on the pump motor which replenishes the amount of carbonated water that has been taken out of the tank.

1. INSTALLATION

1.1 RECEIVING

A. Each unit is completely tested under operating conditions and thoroughly inspected before shipment. At the time of shipment, the carrier accepts the unit and any claim for damage(s) must be made with the carrier. Upon receiving units from the delivering carrier, carefully inspect carton for visible indication(s) of damage. If damage exists, have carrier note same on bill of lading and file a claim with the carrier.
B. Open the top of the carton. Remove interior packing. Carefully lift the Carbonator out of carton.
C. Inspect for concealed damage(s) and if damages are detected, notify delivering carrier and file claim.

1.2 SELECTING LOCATION

A. Select a level, well ventilated, accessible location convenient to water and electric supply. The selected location should be able to withstand a load of 100 pounds (45.5 kg).

1.3 CONNECT WATER LINE TO PUMP

A. Connect Flexible Pressure Tubing, 3/8 inch ID or larger, from water supply to Pump Inlet using a 3/8 inch SAE Female Swivel Nut (PN 01-0232) and Flare Seal Washer (PN 05-0017).
B. A Shutoff Valve should be installed in water line to Carbonator.
C. Water supply must provide a minimum flow rate of 125 GPH (473 LPH), and have a minimum pressure of 25 PSIG (1.83 kg/cm^2) and a maximum of 80 PSIG (5.62 kg/cm^2). If water pressure exceeds 80 PSIG (5.62 kg/cm^2), install a Regulator (Lancer models are available) and adjust to 50 PSIG (3.51 kg/cm^2).
D. Off tastes and excessive silt, sand, or iron require that a water filter be installed in the water supplying the Carbonator. The water filter should be checked periodically, as required by local conditions.

NOTE

Do not connect to a heated (hot) water source or a water source supplying soft water. This will cause excessive foaming.

1.4 CONNECT CO_2 LINE TO TANK

A. Connect Flexible Pressure Tubing, 1/4 inch ID or larger from CO_2 Regulator to the Tank Inlet using a 1/4 inch SAE Female Swivel Nut and Flare Seal Washer.
B. CO_2 supply must have a Regulator (Lancer models are available) and Gauge (Lancer models are available) adjustable from 0 to 150 PSIG (3.5 kg/cm^2) minimum.

1.5 CONNECT CARBONATED WATER TO DISPENSING SYSTEM

A. Connect Flexible Pressure Tubing, 3/8 inch ID or larger, from Dispensing System to Outlet on Tank, using a 3/8 inch SAE Female Swivel Nut and Flare Seal Washer.
B. If only one Carbonated Water Outlet on the Tank is used, the other Outlet must be capped with a Stainless Steel Cap Nut (PN 01-0212) and Flare Seal Washer (PN 05-0017).

1.6 ELECTRIC POWER SUPPLY

WARNING

THIS UNIT MUST BE PROPERLY ELECTRICALLY GROUNDED TO AVOID POSSIBLE FATAL ELECTRICAL SHOCK OR SERIOUS INJURY TO THE OPERATOR. THE POWER CORD IS PROVIDED WITH A THREE PRONG GROUNDED PLUG. IF A THREE HOLE GROUNDED ELECTRICAL OUTLET IS NOT AVAILABLE, USE AN APPROVED METHOD TO GROUND THE UNIT.

A. The electric power supply must be a three prong, ground convenience outlet having the same configuration as the power cord.
B. Outlet must have proper voltage, cycles and ampere ratings. See Carbonator Name Plate for ratings.

NOTE

Do not plug into electrical outlet unless ratings on name plate agree with local current available.

2. START UP

2.1 START UP PROCEDURE

A. Turn water supply ON, and start filling Tank.
B. Pull UP on Pressure Relief Valve Yellow Lever to allow air to escape.
C. Hold Pressure Relief Valve OPEN, until Tank is full and water spurts out of Valve.
D. Check for water leaks.
E. Turn on CO_2 supply and set Regulator at 100 PSIG (7.03 kg/cm^2).
F. Check for CO_2 leaks (see Section 3.1).

WARNING

THIS UNIT MUST BE PROPERLY ELECTRICALLY GROUNDED TO AVOID POSSIBLE FATAL ELECTRICAL SHOCK OR SERIOUS INJURY TO THE OPERATOR. THE POWER CORD IS PROVIDED WITH A THREE PRONG GROUNDED PLUG. IF A THREE HOLE GROUNDED ELECTRICAL OUTLET IS NOT AVAILABLE, USE AN APPROVED METHOD TO GROUND THE UNIT.

G. Plug in power supply.
H. Open a Dispensing Valve. Allow water to flow until Pump Motor turns on.
I. Close Dispensing Valve and allow Pump Motor to cycle off.
J. Repeat steps H and I several times, until carbonated water flows freely from Valve.
K. Check for leaks (see Section 3.2).
L. Check CO_2 Regulator to ensure that CO_2 pressure has not changed.

3. CLEANING AND REPLACEMENT

3.1 CO_2 CHECK VALVE

A. UNPLUG Power Cord.
B. Shut water supply OFF to Pump.
C. Turn CO_2 supply OFF and set CO_2 pressure regulator at 0 PSIG.
D. Disconnect CO_2 supply line from CO_2 Check Valve.

CAUTION

DO NOT PROBE VALVE WITH ANY OBJECT.

E. Cover end of Check Valve with soap suds. If Check Valve is defective, gas bubbles will appear. If a leak is detected, continue with the following steps.
F. Release pressure in Tank, using Relief Valve.
G. Disassemble Check Valve Body and components. Inspect Spring and O-Rings. Replace as required.
H. Reassemble and reinstall Check Valve.
I. Reconnect CO_2 supply line to CO_2 Check Valve.
J. Follow start up procedure (see Section 2.1) to put Carbonator back into operation.

3.2 INLET WATER CHECK VALVE

CAUTION

A LEAKING INLET WATER CHECK VALVE WILL ALLOW CARBONATED WATER TO FLOW BACK THROUGH THE PUMP (WHEN IT IS SHUT OFF), AND CONTAMINATE THE WATER SUPPLY.

A. UNPLUG Power Cord.
B. Shut water supply OFF to Pump.
C. Set CO_2 pressure at 100 to 125 PSIG (7.0 to 8.8 kg/cm^2).
D. Disconnect Stainless Steel Water Line from Water Inlet Check Valve. *Do not loosen Check Valve Assembly.*

CAUTION

DO NOT PROBE VALVE WITH ANY OBJECT.

E. Cover end of Check Valve with soap suds. If Check Valve is defective, gas bubbles will appear. If a leak is detected, continue with the following steps. If no leak is detected, proceed to Step J below.
F. Turn CO_2 pressure OFF. Release pressure in Tank, using Relief Valve.

G. Disassemble Check Valve Body and components. Inspect Spring and O-Rings. Replace as required.
H. Reassemble and reinstall Check Valve.
I. Reconnect Stainless Steel Line to water inlet Check Valve.
J. Follow start up procedure (see Section 2.1) to put Carbonator back into operation.

3.3 PUMP STRAINER SCREEN

A. UNPLUG Power Cord.
B. Shut water supply OFF to Pump.
C. Unscrew Brass Plug on Pump, and remove Strainer from Pump.
D. Inspect and clean, or replace, Strainer Screen.
E. Reinstall Strainer, and tighten Brass Plug.
F. Turn water supply ON.
G. Check for leaks. If a leak is detected, carefully tighten Brass Plug.

WARNING

THIS UNIT MUST BE PROPERLY ELECTRICALLY GROUNDED TO AVOID POSSIBLE FATAL ELECTRICAL SHOCK OR SERIOUS INJURY TO THE OPERATOR. THE POWER CORD IS PROVIDED WITH A THREE PRONG GROUNDED PLUG. IF A THREE HOLE GROUNDED ELECTRICAL OUTLET IS NOT AVAILABLE, USE AN APPROVED METHOD TO GROUND THE UNIT.

H. Plug Power Cord into electrical outlet.

3.4 REPLACING LIQUID LEVEL CONTROL (LLC)

A. UNPLUG Power Cord.
B. Shut water and CO_2 gas supplies OFF.
C. Pull lever on Pressure Relief Valve to relieve CO_2 pressure on Tank.
D. Remove three (3) screws securing existing LCC to top of Tank and remove LLC.
E. Install new LLC into top of Tank and secure with three (3) screws removed in previous step. *Ensure O-Ring (PN 02-0464) is properly installed to ensure a water tight seal is obtained.*
F. Follow start-up procedure (see Section 2.1) for putting Carbonator back into operation.

4. TROUBLESHOOTING

TROUBLE	CAUSE	REMEDY
4.1 Motor fails to start (Motor hums).	A. Pump binding. B. Open Winding infield.	A. Loosen Pump Clamp and rotate Pump slightly to free binding, If this fails, replace Pump. B. Replace Motor.
4.2 Motor fails to start (Motor does not hum).	A. Cutout due to overloading by Pump binding. B. Blown Fuse, or Circuit Breaker tripped. C. Defective Motor. D. Defective LLC.	A. Let Motor cool and follow Pump binding remedy. B. Replace Fuse or reset Circuit Breaker. C. Replace Motor. D. Replace LLC.
4.3 Motor runs continuously.	A. Water supply shut off. B. Water supply pressure less than 25 PSIG (1.86 kg/cm^2). C. Restriction in Water Supply Line. D. Restriction in Inlet Water Check Valve. E. Restriction in Pump. F. Defective LLC.	A. Reestablish water supply. B. Connect Pressure Gage to Pump Tee and increase Pump By-Pass pressure to 200 PSIG (14.1 kg/cm^2). C. Locate restriction and establish proper flow. D. Disassemble Inlet Water Check Valve and clean. E. Remove and clean Pump Strainer. If Pump is still restricted, replace Pump. F. Replace LLC.

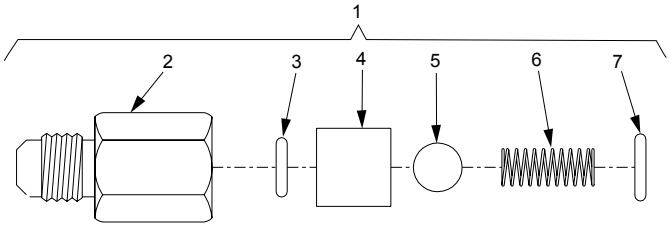
(Troubleshooting continued next page)

TROUBLE	CAUSE	REMEDY
4.4 Water is released from Pressure Relief Valve.	A. Defective seal in Pressure Relief Valve. B. Defective Spring in Pressure Relief Valve.	A. Replace Pressure Relief Valve. B. Replace Pressure Relief Valve.
4.5 Low Carbonation.	A. Low CO_2 pressure. B. Leaking CO_2 Supply Line.	A. Increase CO_2 pressure or replace CO_2 tank. B. Locate leak and repair.
4.6 Foamy Product.	A. Over carbonation. B. Dirty Product Valve. C. Product temperature too high.	A. Reduce CO_2 pressure. B. Disassemble and clean Product Valve. C. Product temperature must be below 42°F (5.5°C). Check cooling system.

5. ILLUSTRATIONS, PARTS LISTINGS, AND WIRING DIAGRAMS

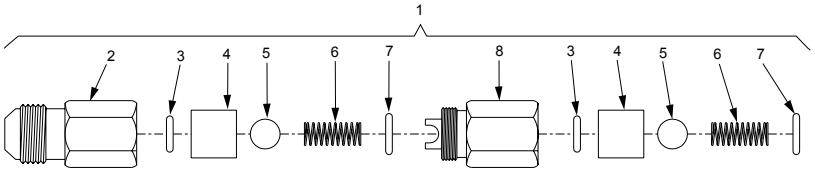
5.1 CO_2 CHECK VALVE ASSEMBLY

ITEM	PART NO.	DESCRIPTION
1	17-0342	CO_2 Check Valve Assy
2	01-0669	Body
3	02-0025	O-Ring
4	01-0689	Sleeve
5	01-0674	Ball
6	03-0021	Spring
7	02-0003	O-Ring



5.2 CHECK VALVE ASSEMBLY

ITEM	PART NO.	DESCRIPTION
1	17-0341	Check Valve Assy
2	01-0673	Body
3	02-0025	O-Ring
4	01-0689	Sleeve
5	01-0674	Ball
6	03-0021	Spring
7	02-0003	O-Ring
8	01-0670	Body

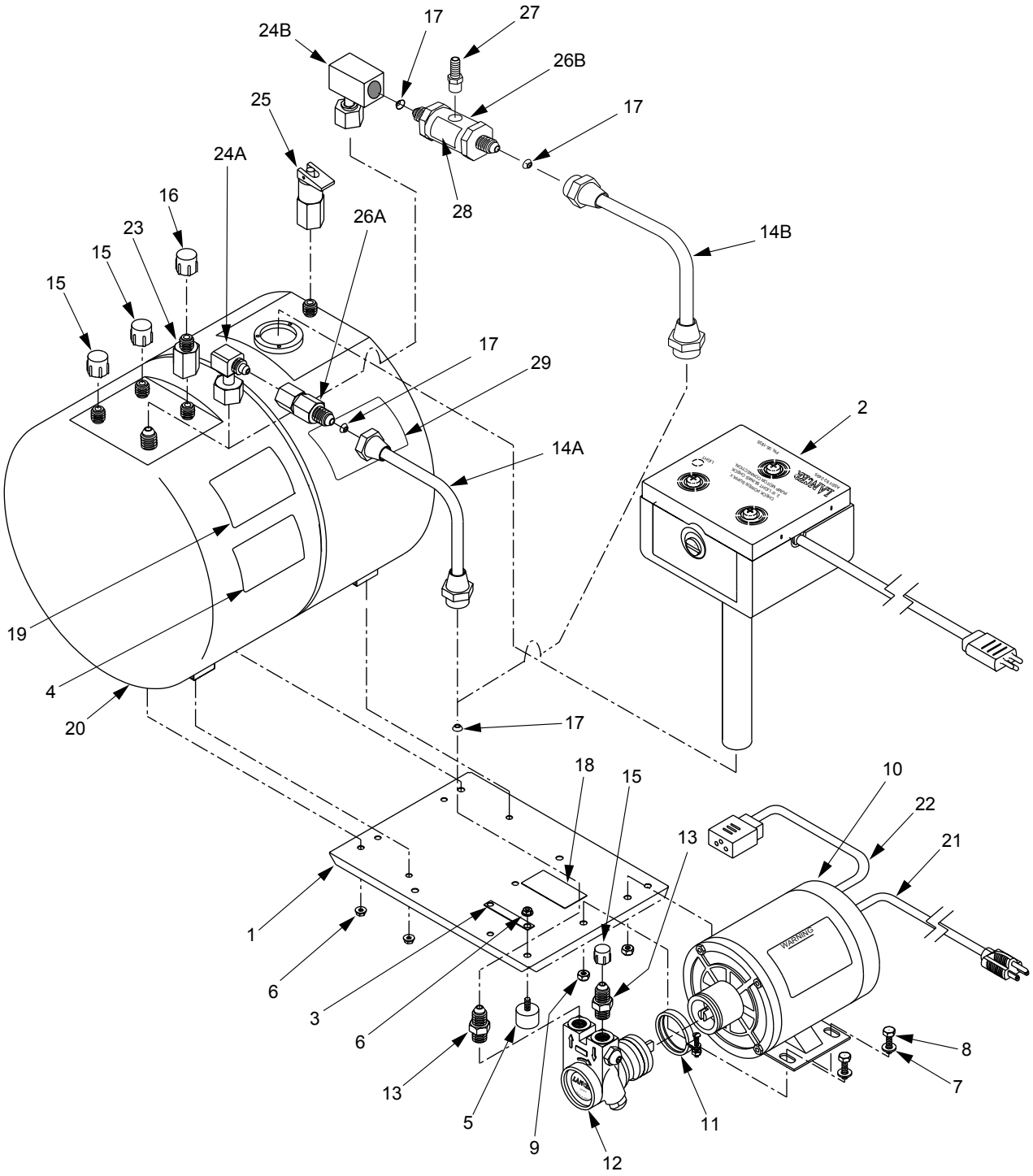


5.3 LARGE CARBONATOR TANK

ITEM	PART NO.	DESCRIPTION
1	07-0199/01	Base
2	82-2495	Uniprobe Assy (Liquid Level Control)
3	11-0004	Connector
4	06-1134	Label, CO_2 Pressure
5	04-0247	Foot, Isolator
6	04-0034	Nut, Lock
7	04-0033	Washer
8	04-0520	Bolt, Hex, 1/4 - 20 x 1/2
9	04-0032	Nut, NYLOCK, 1/4 - 20
10	91-0008	Motor, 115 VAC
11	07-0017	Clamp
12	86-0085	Pump, Assy, REPL Bypass
13	01-0111	Adaptor
14A	48-1449	Tube Assy (For 85-2000)
R 14B	48-0507	Tube Assy (For 85-2000-06)
15	04-0045	Cap, Protector
16	04-0044	Cap, Protector
17	05-0017	Seal, Flare
18	06-0003/02	Name Plate
19	06-0039	Label, WARNING
20	23-1176	Tank, Carbonator Assy
21	52-2159	Power Cord, Assy, 100”
22	52-2153	Power Cord, Carbonator, Uniprobe
23	17-0342	Check Valve Assy, CO_2
24A	17-0083	Fitting Assy (For 85-2000)
24B	01-2013	Fitting Assy (For 85-2000-06)
25	54-0066	Relief Valve Assy
26A	17-0341	Check Valve Assy (For 85-2000)
R 26B	17-0556	Vented Backflow Preventer (For 85-2000-06)
R 27	01-1877	1/4 Barb
R 28	06-2251	Label, Check Valve
R 29	06-2014/01	Label, WARNING CO_2

R in margin indicates change or revision

5.3 LARGE CARBONATOR TANK (CONTINUED)



5.4 PUMP ASSEMBLY

ITEM	PART NO.	DESCRIPTION
1	86-0085	Pump Assy
2	10-0175	Housing
-	10-0176	Housing, Stainless Steel
-	10-0395	Housing, Replaceable Bypass
3	54-0152	Bypass Seat Sub Assy
4	02-0115	O-Ring
5	17-0438	Bypass Valve Assy
-	17-0439	Bypass Valve Assy, Stainless Steel
-	10-0396	Bypass Valve Assy, Replaceable Bypass
6	81-0103	Bypass Valve Filter
7	03-0132	Spring Relief Valve
8	02-0192	Gasket, Acorn Nut
9	01-1771	Acorn Nut, Relief Valve
-	01-1198/01	Acorn Nut, Relief Valve, Stainless Steel
10	10-0394	Relief Valve, Adjustment Screw
-	10-0183	Relief Valve, Adjustment Screw, Stainless Steel
-	10-0397	Relief Valve, Adjustment Screw, Replaceable Bypass
11	02-0181	O-Ring, Adjustment Screw
12	82-0415	Strainer
13	02-0185	O-Ring, Strainer Nut
14	01-1196/01	Cap Nut, Strainer