*Bacchus*
CELLAR SYSTEMS

BCS 1000-1500 Ceiling Mount
Installation Manual

SUPPLIES NEEDED FOR INSTALLATION

1. Double insulated refrigerant line set
2. 1/4" copper water supply and saddle valve
3. 1/4" condensate vinyl drain tube/tube clamps
4. Provide 120v 15A circuit for indoor evaporator, and 120v/230v 30A, single or three phase (dependent upon your condensing unit) for outdoor condensing unit. Check local codes.
5. 18-2 stat wire; to be used to extend temperature sensor, humidity sensor cable, and keyboard
6. Condensing unit pad
7. Double gang box with a blank plate

CONDENSING UNIT SET UP

1. Place a (suggested model) on a firm level location (pad) for outdoor applications, or add 4 anti-vibration pads to each corner of the condensing unit for indoor use. Place in an area with adequate ventilation.
2. Braze in suction and liquid lines to condensing unit.
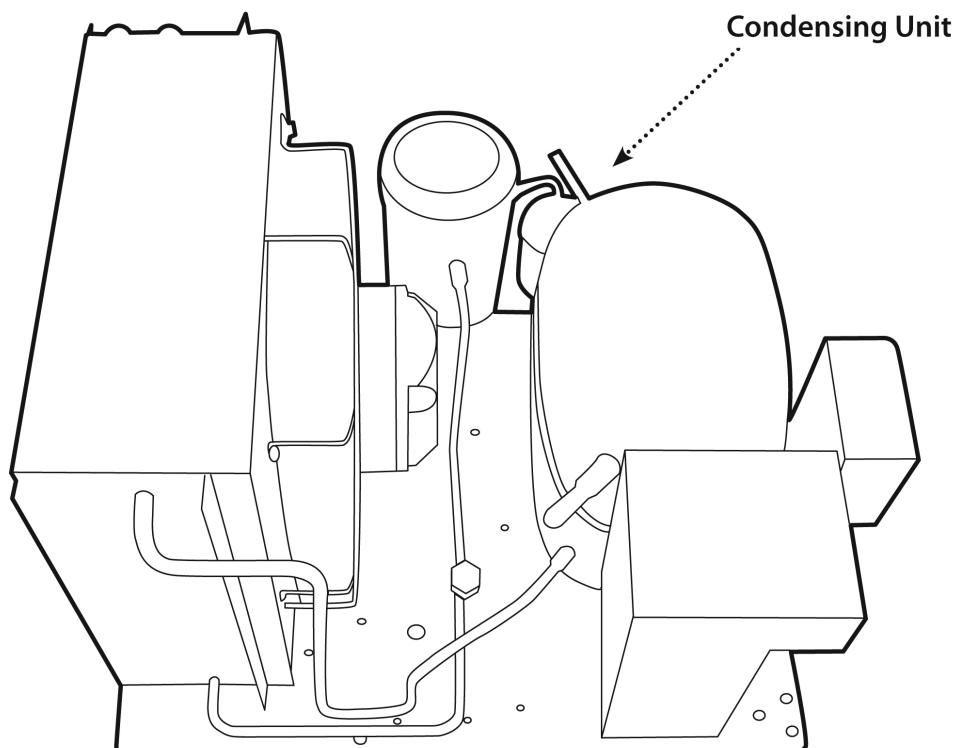
Condensing Unit

CONDENSING UNIT SET UP, continued

3. Run the recommended double insulated line set from the condensing unit to the evaporator opening (50 foot max).
4. Power from disconnect (recommended) 12-2/with ground to the condensing unit.
5. Check low pressure control for the correct 20 psi setting, with a 15 psi differential.
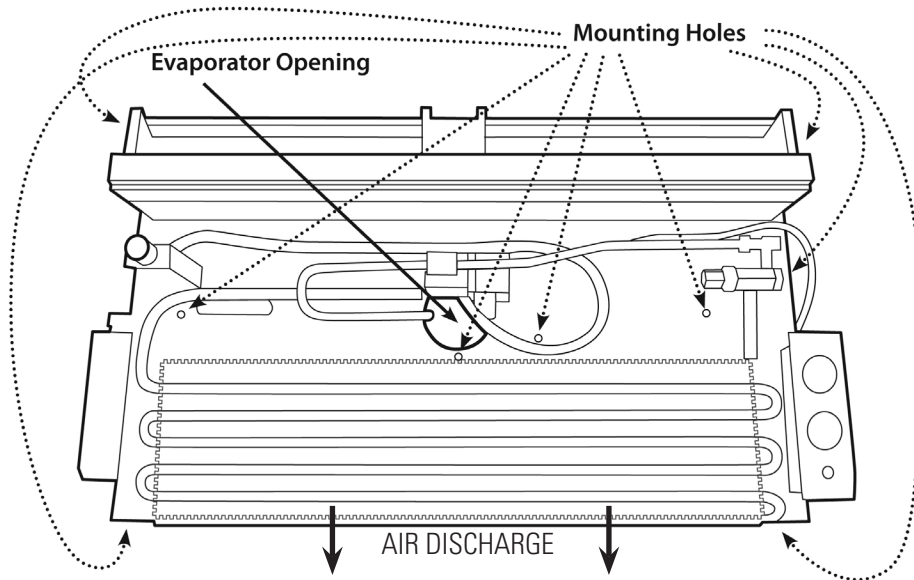

Mounting Holes

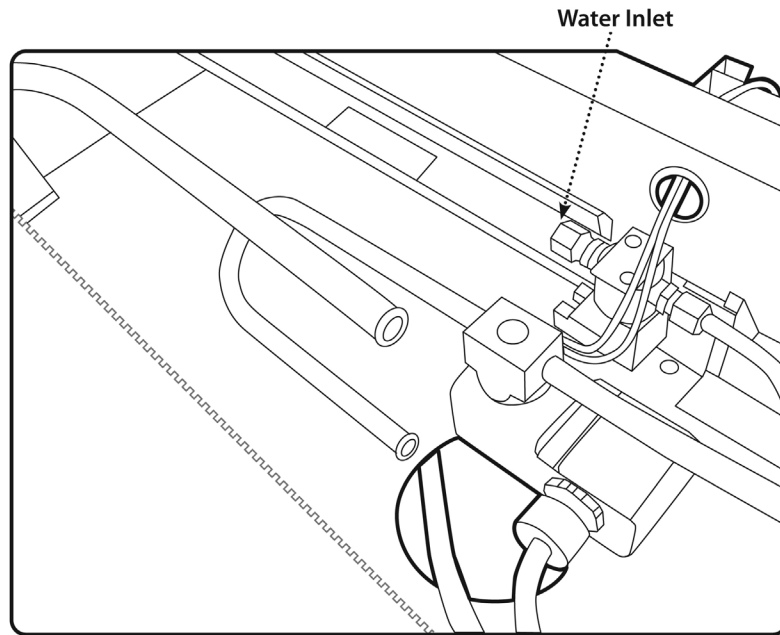**Evaporator Opening**

DIAGRAM #1

AIR DISCHARGE

EVAPORATOR SET UP

1. Locate a suitable ceiling mount location, as close to the middle of the room as possible. Allow for at least 24 inches from the back of the evaporator (coil side) to the back wall for adequate air distribution.
1a. Air flows out the back through the coil.
2. Run the wire harness (14-2/ground) and 18-6 stat wire through the appropriate holes in the ceiling cap.
3. Run the 1/4″ drainline from the pump in the evaporator through the ceiling cap and out to a suitable location. Heat tape any portion susceptible to freezing. Max lift is 8 feet or 50 feet horizontal run. Pitch drainline downhill.
4. Bring in power (14-2/with ground) to an approved box and connect to wire harness outside evaporator.
5. Attach template to the ceiling. Remove the stainless steel outer enclosure from the base of the unit. Remove temp sensor. Humidity sensor keyboard and water filter. Attempt to locate any mounting holes below ceiling joists for secure attachment with (#8) wood screws. Use moly bolts for all other mounting locations. Attach base securely to the ceiling. (diagram 1) Minimum 7 mounts.


Suction Line
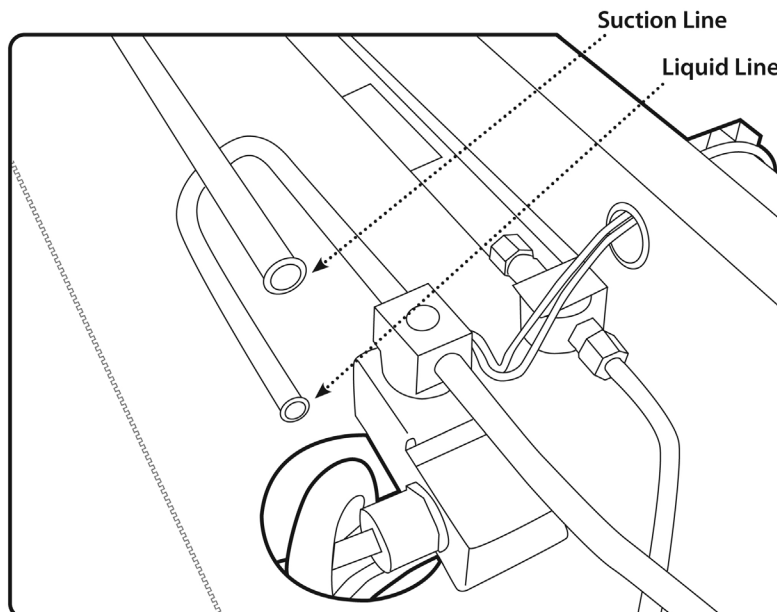
Liquid Line

EVAPORATOR SET UP, continued

6. Wrap the TXV and refrigerant solenoid with ESP Heat block (#HB34) or comparable product. Braze the refrigerant solenoid to the liquid line. Remove the txv bulb and braze in the suction line to the line exiting the evaporator. Re-attach the bulb when cool.

Water Inlet

7. Locate the nearest water supply. Use a saddle valve with compression fitting connection or similar valve and connect the water filter to the fitting. Run ¼" copper from the filter thru the evaporator ceiling opening and cap, and attach to the water solenoid inlet.

Condensate Pump Outlet
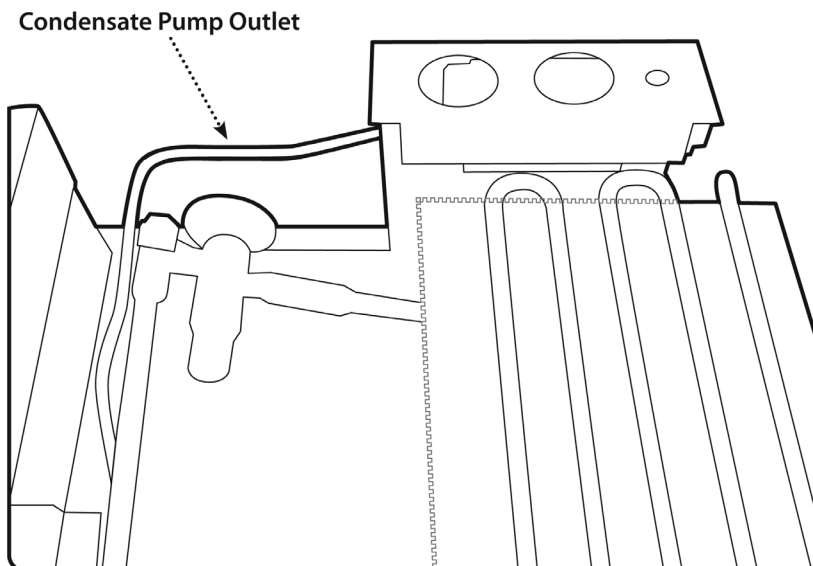
8. Attach the 1/4" vinyl hose drain tube to the outlet of the condensate pump.
9. For indoor applications, run 1/4" vinyl condensate drain tube from the pump to a suitable location.
10. Do not replace cover until unit test is complete.

CONTROLLER DISPLAY SET UP

1. Install double gang box and cut out the blank plate to accept the Bacchus Temp/Humidity Keyboard (VH620). A stainless steel custom plate is available. The keyboard can be mounted inside or outside of the room. Run 18-2 stat wire from the monitor back to the evaporator above the ceiling opening, and attach to the yellow and green lead wires indicated. The keyboard can be mounted up to 75 feet from the microprocessor inside the evaporator.

2. Mount the humidity sensor (XH10P) to a discreet side wall location @ 6ft. from the floor. Bring the two lead wires from the sensor, and attach to the + and – lead wires indicated. White lead to the #2 terminal, and Red lead to the #1 terminal on the sensor. Do not mount in the air discharge (coil side) of the evaporator. Polarity sensitive.

3. Mount the temp sensor adjacent to the humidity sensor, and run the lead wires back to the wire harness. It is best to place both sensors in a location where they cannot be touched by the end user, and are not in the air discharge of the evaporator.

4. Check supply voltage before connecting to the controller/power board.

5. Do not expose to water or moisture: use the controller only within the operating limits avoiding sudden temperature changes with high atmospheric humidity to prevent formation of condensation.

6. Warning: disconnect all electrical connections before any kind of maintenance

7. Ensure that the wires for probes leads and the power supply are separated and are not intertwined or crossed

8. The microprocessor has been preprogrammed for 55F degrees, and 50% RH. To change either setting:
   A. Push the Temp or Humidity Set Key for 3 seconds and immediately release
   B. Use the up^ and down v keys to change the value
   C. Hold down the set key again and the display will go back to ACTUAL

9. There is no reason to change temperature or humidity set point depending upon the end users preference.

10. IMPORTANT> If actual humidity is above set point (often is during start up), the system will go into de-humidification mode. Humidity setting is over- riding temp setting. The unit will pull down below temp set point. This is short term, and is fixed by resetting humidity setpoint to ACTUAL. After the system equalizes out, it can be reset to a lower preference.
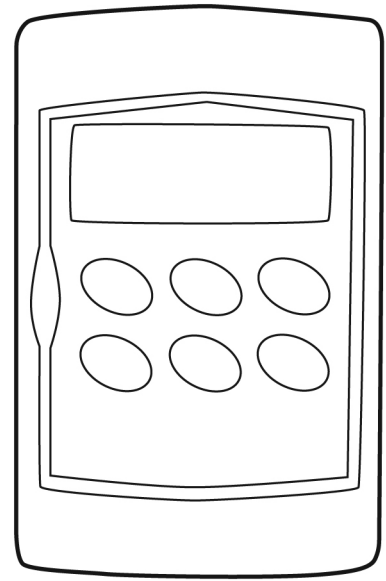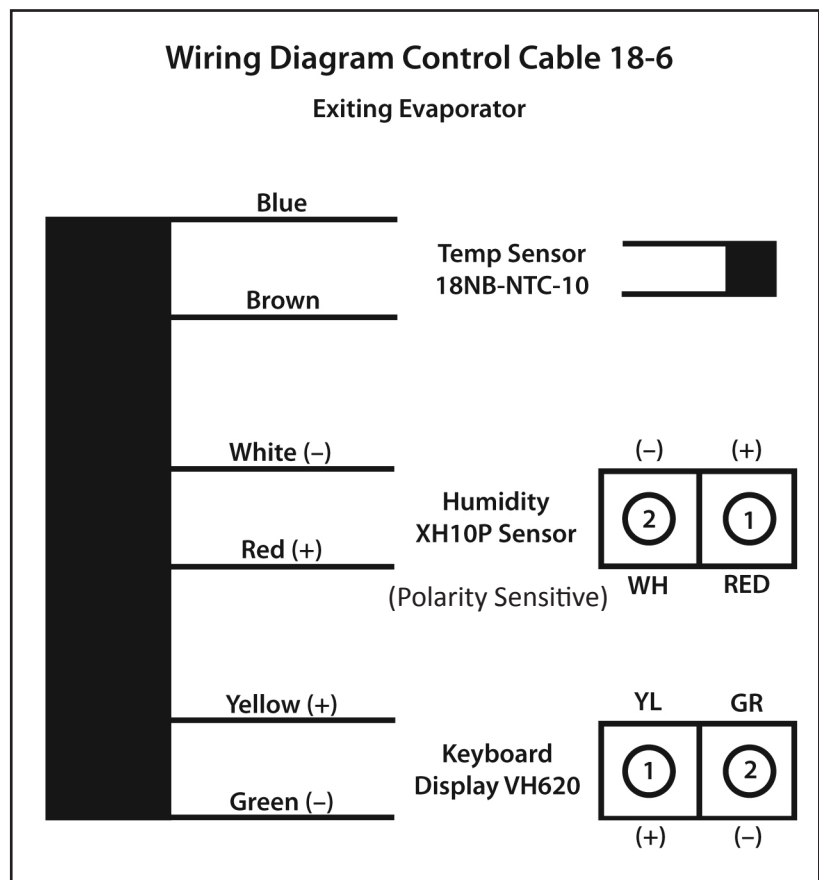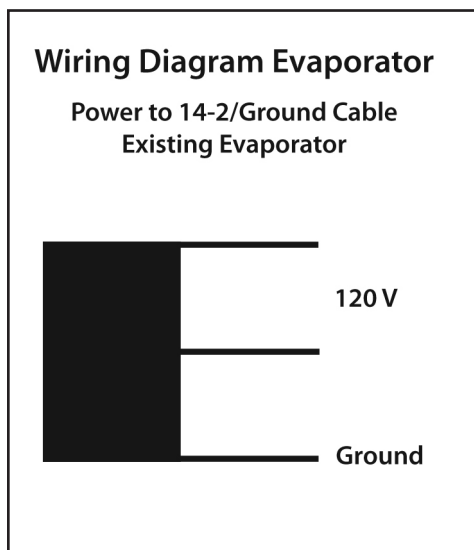

VH620 Keyboard
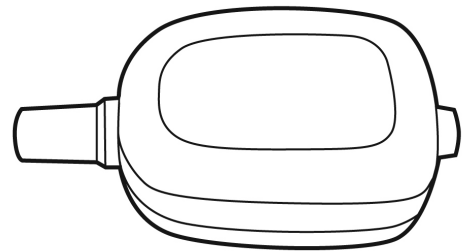
XH10P Humidity Sensor
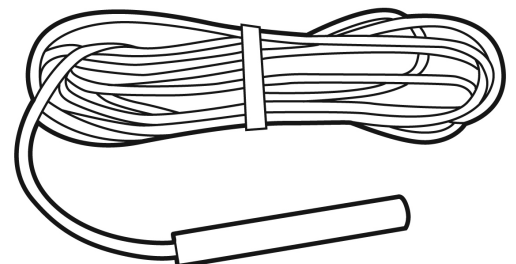
18NBI

11. Alarm Signaling

Message	Cause	outputs
"P1"	Thermostat probe failure	compressor and heating outputs off (on dehumidification system only)
"P3"	Humidity probe failure	humidity regulation off
"HA"	High temp alarm	outputs unchanged
"LA"	Low temperature alarm	outputs unchanged
"HHA"	High humidity alarm	outputs unchanged
"HLA"	Low humidity alarm	outputs unchanged

In the instance of any of these alarms, call Bacchus Tech Services, or your installation contractor

POWER TO THE EVAPORATOR

1. Bring in 14-2 conductor wire with ground to the evaporator, and connect to the 14-2 with ground wire harness exiting the evaporator . Make sure the line has adequate amp rating for the circuit.

Wiring Diagram Evaporator

Power to 14-2/Ground Cable Existing Evaporator

120 V

Ground

Wiring Diagram Control Cable 18-6

Exiting Evaporator

Blue

Brown

Temp Sensor 18NB-NTC-10

White (–)

Red (+)

Humidity XH10P Sensor

(Polarity Sensitive)

(–) (+)
② ①
WH RED

Yellow (+)

Green (–)

Keyboard Display VH620

YL GR
① ②
(+) (–)

CHARGING THE SYSTEM

1. Evacuate and pressure test the system. This can be accomplished by charging with nitrogen to 75 lbs and checking your gauges for any sign of a leak. Evacuate the system to 500 microns.

2. Charge the system out with R134A until the sight glass goes clear. It is very important not to overcharge this system. As soon as the bubbles in the sight glass disappear, discontinue charging. Overcharge will result in an ice block in the evaporator.

3. System Start up. Before replacing stainless steel enclosure cover, power up the system to make sure water solenoid is opening correctly. The misting nozzle will be open. Remove power and replace the cover. Power up the evaporator, and let the system pull down. At temp set point the refrigerant solenoid will close and the system will pump down and shut off the condensing unit.

4. Check level of safety float.

Breakers. We recommend a 30a fused disconnect.

Safety Shut Off Float
Solenoid Water Level Control Float
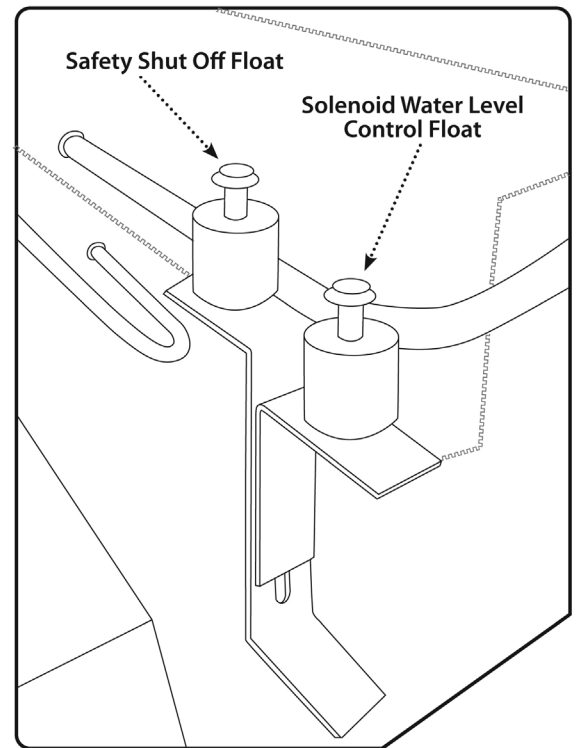
MAINTENANCE AND TROUBLESHOOTING

Have your system checked each year by a certified refrigeration technician. He should:

1. Clean the indoor and outdoor coils

2. Change the water filter on the Humidification models, and change out the humidification mister head

3. Drain the Stainless steel sump and clean it if necessary. This will prevent any possible mold build up .

4. Check the operation of the condensate pump, and make sure the water misting fitting is working properly, by allowing water to flow thru it. Clean with vinegar if clogged and change the water filter.

5. Check the electronic controller for any alarm conditions

6. Check the refrigerant level and system operating pressures.

7. Clean the water solenoid on a yearly basis, and replace it every two years. Warning: If the water solenoid sticks open, overflow can result.

Sump Drain Cap
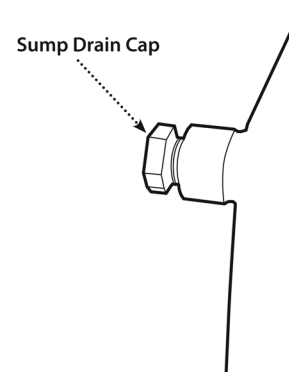
TROUBLESHOOTING

Alarm conditions on the electronic controller Call BCS Tech Services at 937-665-0424

Unit will not reach temperature	Call your installation contractor to Determine proper refrigerant charge. Dirty condenser?
Unit has shut off	Call BSC tech services or field Service; could be bad Compressor, fans, controller or Pump

ALARM SIGNALING		
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DIMENSIONAL /ELECTRICAL						
	BCS1000 Cond. Unit	BCS1000 Evap	BCS1500 Con. Unit	BCS1500 Evaporator	BCS2000 Con. Unit	BCS3000 Con. Unit
Dimensions	17"D x 13.3"W x 11.8"H	18"D x 29.25"W x 6.5"H	19"D x 16.2"W x 14"H	18"D x 29.25"W x 6.5"H	19"D x 21'W x 16.5"H	25" D x 20"W x 16"H
Weight	51 lbs.	49 lbs.	62 lbs.	51 lbs.	81 lbs.	135 lbs.
Refrigerant connection	3/8" suc. 1/4" dis.	3/8"sw	3/8" suc 1/4" dis	3/8"sw x 1/2"sw	3/8"suc 5/16" dis	1/2"suc 3/8" dis
Water Supply connection		1/4" compression		1/4" compression		
Condensate connection		1/4" mpt		1/4" mpt		
compressor HP/voltage	1/2 hp 115v		.65 hp 115v		1 hp 115v	1 1/2 hp 208/230-1v
Electrical						
compressor rla	10A		11A		8A	12.1A
compressor lra	53A		51A		43A	49A
cond. Unit MFS	20A		30A		15A	17.6A
cond. Unit mca	13.4A		13.4A		11.3A	12.1A
BTU capacity 40F suc, 110 amb.	4857		6250		10200 (100f amb)	12,185
Refrigerant	134A	134A	134A	134A	134A	134A

Phone: 937-665-0424
Fax: 937-890-6664