COMPUTE-A-CHARGE®

CC220E

Refrigerant Charging Scale

OWNER'S MANUAL (English)

TO BE OPERATED BY QUALIFIED PERSONNEL ONLY

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OVERVIEW

The Compute-A-Charge CC220E is a battery operated, precision scale with a visual charge and recover alarm feature, for weighing, charging and recovering refrigerants used in HVAC/R systems.

KEY FEATURES

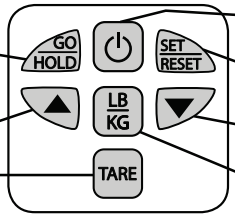
- **Weight Capacity -** 220 lb (100 kg)
- **Weight Accuracy -** 0.015% of reading [or +/- selected resolution, whichever greater]
- **Display Resolution (Selectable) -** User can select from 4 different increments (see specifications)
- **Continuous Battery Life -** One 9V = 75 hours; Two 9V (included) = 150 hours
- **7 Button Keypad -** Easy to navigate
- **Charge / Recover Visual Alarm Feature -** Alerts user when approaching *programmed charge amount* or *overfill limit*
- **Auto-Power Off (APO), -** To conserve battery power, and when not in use, the scale can be set to turn OFF after any of 5 different time increments (see specifications)
- **Smart Awake Feature -** Displays weight at time of Auto-Off

SCALE LAYOUT

Runs on one 9V battery (or 2 included)

Durable molded case

360˚ Swivel hook with magnetic back



Go/Hold: Start or pause charge or recover

Up: Increase weight

Tare: Zero's out the display

Power: Turn scale On / Off

Set/Reset: Input or reset modes

Down: Decrease weight

Units: Select Lb or Kg

7 BUTTON KEYPAD (FUNCTIONS & DEFINITIONS)

1. POWER KEY 
   a.Press to turn power ON or OFF.

2. UNITS KEY  - Press to select your desired weight unit (LB to KG, or KG to LB).

3. TARE KEY 
   a. While in WEIGH mode - Press to Tare ("zero out") the scale display.
   b. While in HOLD mode - Tare function is not active.
   c. While in CHARGE/RECOVER mode - Resets programmed amount to 0.

4. GO/HOLD KEY 
   a. Starts CHARGE or RECOVER modes (per data entered after pressing the Set key).
   b. While running in CHARGE or RECOVER modes, pressing this key will place the CC220E into HOLD (pause).

5. SET/RESET KEY 
   There are 5 modes to select and/or where information can be entered: Scale (Weigh), Charge, Recover, APO, Resolution
   a. Press to scroll through different modes
   b. Press while in any mode to terminate and return to SCALE mode.

6. UP KEY 
   a. Increases the weight displayed (one resolution unit) for every actuation, or if continuously pressed.

7. DOWN KEY 
   a. Decreases the weight displayed (one resolution unit) for every actuation, or if continuously pressed. *A visual reminder will flash if the display reaches 0.*

GENERAL SAFETY INSTRUCTIONS

Please read, follow and understand the contents of this entire manual, with special attention given to **Danger**, **Warning** and **Caution** statements.

FOR USE BY PROFESSIONALLY TRAINED AND CERTIFIED OPERATORS ONLY. MOST STATES, COUNTRIES, ETC., MAY REQUIRE USER TO BE LICENSED. PLEASE CHECK WITH YOUR LOCAL GOVERNMENT AGENCY.

DANGER: Overfilling a recovery tank may cause a violent rupture resulting in severe injury or even death. **As a minimum, please use a scale to continuously monitor recovery tank weight.**

WARNING: All hoses may contain liquid refrigerant under pressure. Contact with refrigerant may cause frostbite or other related injuries. Wear proper personal protective equipment such as safety goggles and gloves. When disconnecting any hose, please use extreme caution as high pressure refrigerant may be present.

WARNING: Avoid breathing refrigerant vapors and lubricant vapor or mist. Breathing high concentration levels may cause heart arrhythmia, loss of consciousness, or even cause suffocation. Exposure may irritate eyes, nose, throat and skin. Please read manufacturer's Material Safety Data Sheet for further safety information on refrigerants and lubricants.

WARNING: Make certain all safety devices are functioning properly before operating equipment.

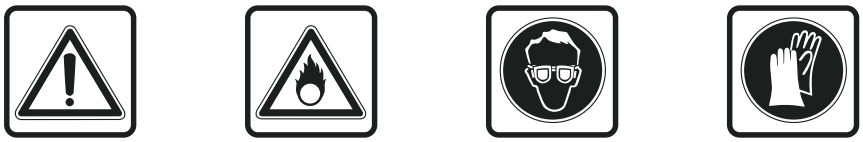
GENERAL SAFETY INSTRUCTIONS (CONT'D)

CAUTION: To avoid cross contamination of refrigerant and potential leakage to the atmosphere, proper hoses and fittings should be used and checked for damage.

CAUTION: To avoid overfilling refrigerant tank, read and follow manufacturer's recommended filling instructions for refrigerant being recovered and constantly monitor the scale display.

CAUTION: Mixing of different refrigerants will cause your recovered supply of refrigerant to become contaminated.

CAUTION: The user must monitor the scale display and turn ON/OFF manifold and/or tank valves at appropriate times so that the proper amount of refrigerant is recovered (into the tank) or removed (from the tank)



SPECIFICATIONS

Maximum Load:	220 lb (100 kg) capacity
Weight Accuracy:	0.015% of reading or +/- selected resolution, whichever greater
Display Resolution (Increments):	Selectable: 0.1 oz (2 g); 0.2 oz (5 g); 0.25 oz (10 g); or 0.50 (25 g)
Battery Life:	One 9V = 75 hrs.; Two 9V = 150 hrs.
Power Source:	One or two (included) 9V Alkaline batteries.
Battery Status Indicator:	3 segment symbol
Control Type:	Handheld LCD display
Control Mount:	Magnetic back, with 360˚ swivel hook
Cord:	6' (1.8 m) flexcord, extended
Auto Power Off (Enabled):	Default = Display Turns OFF After 10 Minutes Inactivity (Can re-set in increments of 5, 10, 15, 30, 60 mins or OFF)
Auto Power Off (Disabled):	Display shows "APO OFF" at power up [Display will be constant ON]
Smart Awake:	Displays weight at time of Auto-off
Weight Readout:	lb. / oz. or kg / g
Operating Temperature Range:	14°F to 122°F (-10°C to 50°C)
Overload Protection:	Mechanical and visual
Unit Weight (Including Case):	5.68 lb (2.6 kg)
Platform Dimensions:	8.75" x 8.75" (22.3 x 22.3 cm)
Calibration:	National Institute of Standards & Technology (U.S.)
Approvals	CE
Warranty:	2 years

LCD DISPLAY ABBREVIATIONS

	DISPLAY ABBREVIATIONS				
MODES TO SELECT	**SCL**= Scale	**CHg** = Charge	**rEC** = Recover	**rES** = Resolution	**APO** = Automatic Power OFF
WHEN IN CHARGE MODE	**c** = Charge (tracking) in process	**F** = Final programmed charge achieved			
WHEN IN RECOVER MODE	**t OFF**: Ensure tank NOT on scale	**t ON**: Place tank ON scale	**r** = Recovery (tracking) in process	**o** = Tank overfilled	**n** = Net gain of one or more tanks
WHEN IN CHARGE OR RECOVER MODE	**h** = Hold (pause) refrigerant tracking				
WHEN IN ANY MODE	**OL**= Overload (Reduce load immediately)				

SCALE SETUP

A. Remove scale from storage case and place on level, rigid surface.
B. Install one or two (included) 9V batteries in back of control.
C. Press power (icon) to turn scale ON.
D. APO (Automatic Power Off). 5 minutes = default setting [you may also select 10, 15, 30, 60 mins, or turn APO OFF].
E. DISPLAY RESOLUTION: Default is 0.2 Oz (5g). Press ▲ ▼ until desired value found. Press GO HOLD to select. See specifications table for other selectable values.
F. WEIGHT UNITS: Press LB KG to select.

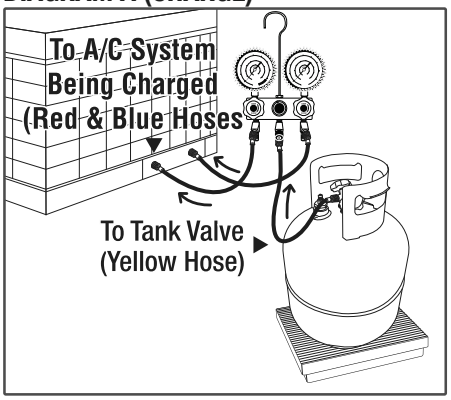
SCALE (WEIGH) MODE ("SCL")

1. Place refrigerant tank on scale
2. Default mode is "SCL" (weigh).
3. View GROSS weight on display.
4. Remove tank from platform after weight observed.
5. Display will flash if maximum weight capacity (220 Lb/100 kg) exceeded.

CHARGE MODE ("CHg")

1. Place refrigerant tank on scale
2. Connect equipment per **DIAGRAM A (CHARGE).**
3. Press SET RESET to scroll through the menu and choose CHARGE "Chg".
4. Use ▲ ▼ to input desired weight (charge amount to be tracked), then press GO HOLD .
5. Once tank and manifold valves are opened, the charge (tracking) session will begin. The display will show a small "c" indicating"charge" and how much refrigerant has been charged into your system (removed from the refrigerant tank).
6. During charging, screen characters will eventually flash at an increasing rate, showing that the programmed charge amount is closer to being reached.

DIAGRAM A (CHARGE)



- **HOLD -** Pressing GO HOLD while charging will **PAUSE** charge *tracking*, allowing the user tighten hoses, change tanks if necessary, but continue later without losing track of the **NET** amount charged.
- **SET/RESET -** Pressing SET RESET during charge operation will stop/cancel the charge from being *tracked*. The normal **WEIGH** Mode will resume.
  - **NOTE: So that the *actual charged* vs. tracked amounts align, remember to physically stop charging by closing tank and/or manifold valves before pressing HOLD.**
- **GO/HOLD -** After any adjustments are made, the accumulated amount being tracked can be resumed by pressing GO HOLD

CHARGE MODE (CONT'D)

7.When programmed charge amount (weight) has been reached, the screen will flash a large "F" (FINAL) **(Figure C-7)**. Quickly close tank and/or manifold valves.

8. **SHUT DOWN -** When **CHARGE** function done, turn off recovery machine, close valves, remove cylinder from platform. Press ⏻ to turn scale **OFF**.

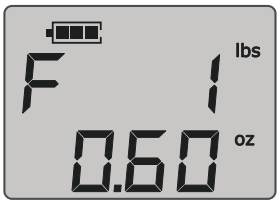


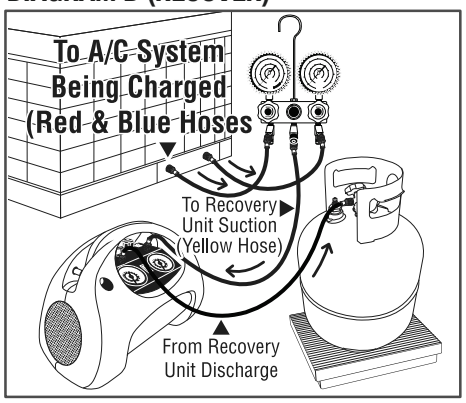
Fig. C-7
(Example Weight Shown)

RECOVER MODE ("rEC")

DO NOT PLACE TANK ON SCALE (AT THIS TIME)

1. Connect equipment per **DIAGRAM B (RECOVER)**
2. Press SET RESET to scroll through menu and choose Recovery "rEC".
3. For tank you will use, press ▲ ▼ to input tank maximum refrigerant weight capacity stamped on the tank collar (0.8 X WC + TW), then press GO HOLD .
   - WC = Water Capacity (weight);
   - TW = Tank Weight (of empty tank)

DIAGRAM B (RECOVER)



CAUTION: ***DO NOT*** PLACE TANK ON PLATFORM ***BEFORE*** STEP 5. DOING SO COULD LEAD TO OVERFILLING THE REFRIGERANT TANK. DANGER - THE RECOVERY TANK CONTAINS LIQUID REFRIGERANT. ***OVERFILLING*** OF THE RECOVERY TANK MAY CAUSE A VIOLENT EXPLOSION RESULTING IN SEVERE INJURY OR EVEN DEATH.

4. **TANK OFF**
   When "t OFF" appears **(See Figure R-6)** ensure tank is **NOT** on scale, press GO HOLD.

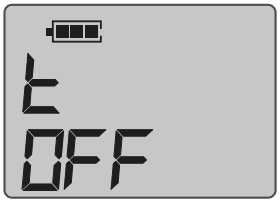


Fig. R-6

5. **TANK ON**
   When "t ON" **(Figure R-7)** appears, place tank on scale, press GO HOLD, open valves and turn ON Recovery Machine (follow manufacturer's instructions) to start recovery.

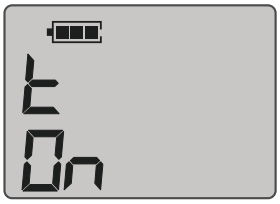


Fig. R-7

6. **REMAINING CAPACITY OF TANK**
   Display will show "r" **(Figure R-8)** indicating recovery in process, alongside the remaining tank refrigerant weight capacity (until full.) Display will count backwards from remaining tank capacity (indicating decreasing capacity of tank)

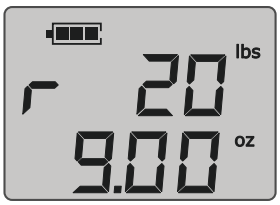


Fig. R-8
(Example Weight Shown)

7. **TANK FILL LIMIT REACHED (OR EXCEEDED)**
While recovering refrigerant, be ready to turn OFF recovery machine and/or CLOSE valves, while constantly monitoring the display so that the tank will NOT be overfilled. Characters will flash if tank overfill has occurred and a "negative" symbol will appear next to the "o" symbol, **(Figure R-9)** indicating the tank has been overfilled by the amount indicated on the display.

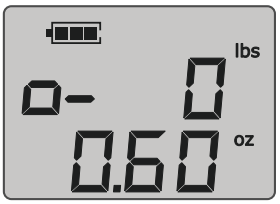


Fig. R-9
(Example Weight Shown)

7.1 If characters flash, the user may press GO/HOLD once to stop the flashing. Turn OFF recovery machine and/or CLOSE valves. The user may change tanks then press GO/HOLD again to restart recovery tracking.

8. **HOLD FUNCTION**
At any point during recovery, pressing GO/HOLD will activate the **HOLD** function. During **HOLD** indicated by "h" **(Figure R-10)**, the remaining tank capacity will update if the weight is changed, but the net gain will not account for any additional recovery during hold.
NOTE: Remember to physically stop recovering refrigerant by closing tank and/or manifold valves while activating HOLD.

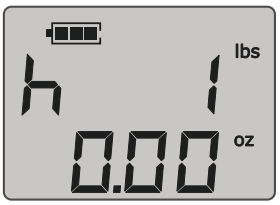


Fig. R-10

9. **NET GAIN**
At any point during refrigerant recovery, pressing and holding ▲ will show the net gain indicated by "n" **(Figure R-11)** The recovery feature will track the net gain during the recovery session (except during Hold), including even after overfill is reached, so that the exact total net gain will be known.

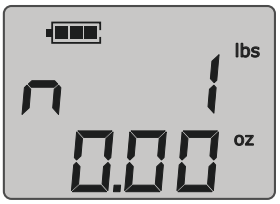


Fig. R-11
(Example Weight Shown)

10 **IF RECOVERING REFRIGERANT INTO MORE THAN ONE TANK**
If recovering refrigerant into more than one tank, of the same capacity, without reaching overfill, press GO/HOLD during recovery, turn off recovery machine and close valves. Then change the tank, then press GO/HOLD again to restart recovery tracking.

10.1 The NET Gain will continue to track the recovery of this session, until SET/RESET is pressed.

11. **SHUT DOWN** - When RECOVER function complete, close valves, turn OFF recovery machine (follow manufacturer's instructions) and remove tank from scale. Press ⏻ until display turns off.

APPENDIX A (BATTERY LEVEL INDICATOR)

The battery indicator is shown on the LCD as a battery shape with a 3 segment icon


(3) segments on bar graph: Battery level higher than 66%


(2) segments on bar graph: Battery level between 33% to 66%


(1) segments on bar graph: Battery level between 10% to 33%


(0) segments on bar graph: Battery level between 3% to 10%


(0) segments on bar graph, blinking: Battery level below 3%
LO CELL displayed on LCD: Battery depleted, powering down

APPENDIX C (CERTIFICATE OF CALIBRATION COMPLIANCE)

CPS Compute-a-Charge® Refrigerant Charging Scales have been individually calibrated to respond to the published minimum accuracy levels using one of the following NIST traceable standards:

- Class F 50 lb weight S/N's TP3060, 7816, 0JOH
- Class F 100 lb weightS/N's 2390, 1QNZ

WARRANTY

CPS Products, Inc. guarantees that all products are free of manufacturing and material defects to the original owner for one year from the date of purchase. If the equipment should fail during the guarantee period it will be repaired or replaced (at our option) at no charge. This guarantee does not apply to equipment that has been altered, misused or solely in need of field service maintenance. All repaired equipment will carry an independent 90 day warranty. This repair policy does not include equipment that is determined to be beyond economical repair.