

# COOL SMART

## QIV Quick Reference Guide

### For Charge, Air Flow and Paperless Requirements

This guide covers basic QIV passing requirements for the Honeywell Service Assistant and CheckMe.

#### Excerpts From COOL SMART QIV Requirements Document

**COOL SMART will only pay the QIV incentive when:**

1. The proper QIV related data is entered in the system as described in the steps below and in training handouts for the CheckMe or HSAT platform.
2. The QIV meets program requirements in one of two ways:
  - a. The data “**passes**” when both charge and airflow are within charge and air flow parameters below.
  - b. The data can also meet requirements when charge is correct but airflow falls outside the range of Program Requirements. This situation is called an “**exception**” which only applies in cases involving existing ductwork.
3. Data is complete according to QIV requirements document guidelines and matches up with the unit serviced.

#### Passing Parameters

##### **1. Charge**

TXV Systems – Subcooling shall be within 3 degrees of target subcooling found on the unit’s service manual or information plate. Fixed Orifice Systems – Superheat shall be within 5 degrees of Target Superheat Table.

##### **2. Air Flow**

Each QIV platform verifies air flow differently. A system will “pass” airflow if the calculated flow over the evaporator coil is between 350 and 450 cfm per ton, Contractors will verify the airflow, as required by the QIV procedure they are using, either CheckMe! or the Honeywell Service Assistant.

#### Exception Parameters

Equipment installed which uses **existing ductwork** and fails the air flow tests meets exception condition where at least charge with respect to air flow is within acceptable parameters and air flow improvements have been offered to customers and documented according to program requirements.

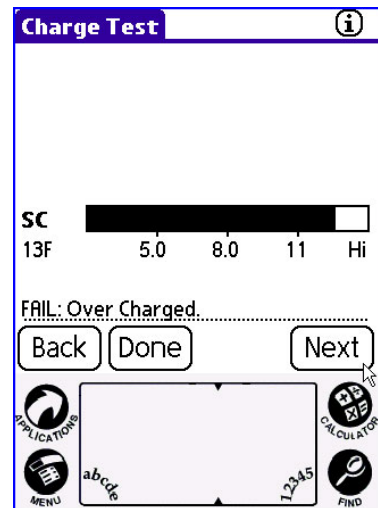
**IMPORTANT:** Please be sure all data inputs are complete, honest and accurate and that you use the information provided by this guide and HSAT and CheckMe to not only adjust or modify the system to COOL SMART standards but for optimal durability and maintenance of the system.

# FOR CONTRACTORS USING HONEYWELL SERVICE ASSISTANT

## Charge Testing

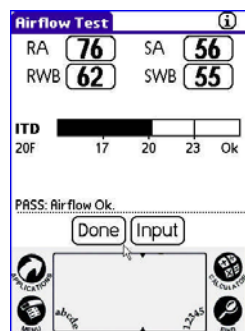
HSAT Charge Test is specific to evaluating charge for program purposes. This screen focuses on either SC = Subcooling for TxV units, or Superheat for fixed orifice systems. In addition to the previous screen Refrigeration Test showing “Safe and Reasonable”, the Charge Test screen must show PASS. If this screen shows “Over Charged” or “Under Charged” you will NOT earn an incentive. If there is NO indication on this screen, it is because there is a fault detected in the system on the Refrigeration Test Screen.

In this example, the Fault Detection screen showed no major faults, however this screen shows the system is not within manufacturers specifications for charge (this unit is specified to operate with 8 degrees of subcooling, but the tool shows the system has 13 degrees, indicating it is overcharged).

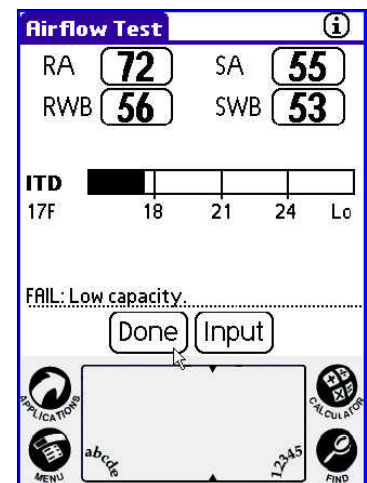


The technician should remove enough charge to return the **SC = subcooling to within 3 degrees +/- of goal**. That is the COOL SMART requirement which is in accordance with manufacturer’s specifications and other industry standards. You also can pick this up on the Refrigeration Test screen since **the target level is shown in the center of each bar** on both screens. Fixed orifice systems must be within 5 degrees +/- of SH = Superheat goal.

## Air Flow Testing



After all data is input into proper fields, it is important that the outcome is **within at most 3 degrees of the airflow goal which is indicated at the middle of the ITD bar**. If outcome is more than 3 degrees off the air flow test fails. In the example at right ITD (or Internal Temperature Difference) was 17F and target was 21F so the unit failed and HSAT indicates low capacity. This area must say “pass” like the example at the LEFT for systems involving new ductwork to pass QIV and get an incentive.



If the airflow test fails, the technician should try to perform additional testing to determine why the airflow is problematic and explain the benefits of air flow improvements to the customer. **Make sure you save data before you exit “Airflow Test.” or you will not be able to recall any of that data later.**

[This page is derived from Buck Taylor’s HSAT guide which provides complete training info on the screens at...[http://www.get-cool.info/html/acrx\\_support.html](http://www.get-cool.info/html/acrx_support.html)... or call Buck at (203) 672-1330]

If air flow fails, complete the appropriate series of questions about offering and installing air flow improvements described in the next section.

## Paperless QIV Requirements for Digital Check-Ups and Air Flow for New or Existing Systems

The matrix below is a guideline as of April 2007 for creation of screens. Screen functionality for these questions for MA and RI should be complete in CheckMe and in the HSAT by June 1, 2007. An updated quick reference guide will be sent when those screens become available.

<b>Digital Checkup: For Existing Equipment Only No New Equipment</b>			
For payment of incentive, responses to Questions 1 and 3 must always be <b>YES</b>			
<u>Question</u>	<u>Response</u>		<u>Rule</u>
1- Was the customer issued a \$100 instant credit on their invoice?	Yes/ No	Where Airflow = <b>PASS</b> Required Response: Must be YES	Where Airflow = <b>FAIL</b> Required Response: Must be YES
2- Was outside coil cleaned?	yes/no	No Response Needed	Required Response
3- If the system failed airflow, was the customer advised about why and how to repair system?	Yes/No/NA	No Response Needed	Required Response: Must be YES
4- Status of customer communications about air flow repair.	1) customer refused repair 2) technician will refer to sales dept 3) customer considering AF improvements 4) Customer Accepted Air Flow Improvement Offer	No Response Needed	Required Response
5- What was done to repair airflow problems?	1) added return or supply ducts 2) repaired or adjusted blower 3) increased register size 4) other	No Response Needed	If response to #4 = 4 Required Response
6 -Describe what other actions were taken to correct air flow	<i>Space for text</i>	No Response Needed	5 - If response to #5 = 4 "Other", Desired response, screen comes up
<b>QIV: For New Equipment Only</b>			
For incentive if Question 1 below = NO, Q. # 3 (above) must always be <b>YES</b>			
For payment of incentive if Question 1 = YES <b>AIR FLOW Must Pass</b>			
<u>Question</u>	<u>Response</u>		<u>Rule</u>
1- Was new duct work installed?	yes/no	All Cases  Response Needed if "New" to Q #1 Where <b>New Ductwork = NO</b> and Where Airflow = PASS No Response Needed	Where Airflow = <b>FAIL</b>  Where New Ductwork = Yes <b>NO Incentive</b> Where <b>New Ductwork = NO</b> and Where Airflow = FAIL  Questions #3 through 6 above apply

## **FOR CONTRACTORS USING CHECKME!**

The data collection form has been revised slightly to reflect the need to answer several questions regarding air flow and the customer incentive for a digital checkup. When you call in to the CheckMe call center you will provide the same data as always for the charge and air flow testing. Right at the end of the call the operator will ask you a series of questions about air flow repairs. These are the same questions that you will see on the data collection form on the **right hand side of the page**, as follows:

### **For Digital Checkup:**

1. Was the customer issued a \$100 instant credit on their invoice?  Yes  No
2. Was the outside coil cleaned?  Yes  No
3. If the system failed airflow, was the customer advised about why and how to repair the system?  
 Yes  No  Refer to sales department
4. What was done to repair airflow problems? (See Airflow Correction excerpt of CheckMe data form below)

### **For new equipment only**

5. Was new duct work installed  Yes  No

**Question #1** MUST ALWAYS BE “YES” FOR THE INCENTIVE TO BE PAID. This will be typically be handled in the office, as a matter of company policy. You may want to advise customers that “the QIV-Digital Checkup is being provided by the COOLSMART sponsoring utilities, at no charge to you”. or a similar phrase. This will be determined by your company policy.

**Question #3** may actually be answered both YES and REFERRED TO SALES DEPARTMENT for the incentive to be paid, as service techs usually explain service issues with customers but often do not quote repairs.

For **question #4** if it applies, you will need to go to the very bottom of the data form (see excerpt below) where it says “IF A REPAIR WAS MADE” to see a list of possible air flow repairs. If you made any of these repairs please tell the call center operator which ones. If you made a repair that is not on the list you can also inform the operator of that repair too, since the CheckMe database allows us to write in as much detail as necessary. This information is very important to us so we can continue to offer this program.

## **EXCERPT FROM BOTTOM OF CHECKME FORM**

**IF A REPAIR WAS MADE: Factory Stamped Refrigerant Charge:** Pounds \_\_\_\_\_ Ounces \_\_\_\_\_  Not Legible  
**Refrigerant Charge Adjustment:** Actual Ounces Added \_\_\_\_\_ Actual Ounces Removed \_\_\_\_\_  
**Airflow Correction:** (check all applicable)  Opened Registers  Cleaned/Replaced Filter  Changed Blower Speed  
 Repaired or Adjusted Blower  Increased Register Size  Added Return or Supply Ducts  Other

**Question 5** pertains to new installations ONLY. For the purposes of the COOLSMART program, any AC equipment installed after April 1, 2005 is a new installation. Any installation with New Duct Work must pass charge and air flow to be eligible for the incentive. Units with EXISTING DUCT WORK must pass charge and meet air flow exception conditions to receive the incentive.

**Please note that, as always, with any CheckMe call, if you have any technical questions or concerns when you are speaking to the call center, you should ask for the “tech on call” who will then give you immediate real time feedback on your testing unit or program questions.**

# CheckMe Data Collection Review Sheet

1-To analyze the CheckMe test, completely fill-in the Temperature/Pressures box on the top right of Data Form.

2-Number the T&P lines from 1 to 10

- 1-Condenser Entering Air
- 2-Return Air Wet Bulb
- 3-Return Air Dry bulb
- 4-Supply Air Dry Bulb
- 5-Suction Line Temperature
- 6-Evaporator Saturation Temperature
- 7-Condenser Saturation Temperature
- 8-Liquid Line Temperature
- 9-Suction (Low side) Pressure
- 10-Discharge (High Side) Pressure

3-Use Lines 1 and 2 plus Table 1 to find Target Superheat

4-Use Lines 2 and 3 plus Table 2 to find Target Temp. Split

5- Line 3 minus Line 4 = Actual Temperature Split

6- Line 5 minus Line 6 = Actual Superheat

7- Line 7 minus Line 8 = Actual Sub Cooling

8- Use Lines 9 and 10 plus T&P Chart to find Saturation Temperatures for Evaporator and Condenser, respectively.

## **PASS CHARGE**

- Non-txv If Actual S/H =Target S/H +/- 5 F
- Txv If Actual S/C =Target S/C +/- 3 F
- Lennox Txv if Actual Approach = Target Approach +/- 3 F

## **PASS AIR FLOW**

- If Actual Temp. Split = Target Temp. Split +/- 3 F

## **WEATHER CONDITIONS FOR PERFORMING CHECKME!**

- Condenser Air Entering (Line 1) must be 55F or higher
- Return Air Dry Bulb (Line 3) must be 65 F or higher IF Condenser Entering Air is < 65 F
- Liquid Line Temperature (Line 9) must be greater than Condenser Entering Air Temperature (Line 1)