

MASS CLEAN ENERGY CENTER

MODULE 9 • REFRIGERANT SYSTEM CHARGING

Completing a Refrigerant Recovery and System Charging Record

Contextualized ESOL Support Activity

ACTIVITY

Collaboration,
Initiative

45

minutes

ACTIVITY OVERVIEW

Objective	Students will demonstrate their ability to accurately measure and record the information needed to complete a Refrigerant Recovery and System Charging Record.
Durable Skill	Collaboration, Initiative
Student Interacts With Hypothetical	Not Applicable in this Activity
When to Use	This activity assumes students have experience performing refrigerant recovery and system charging. This activity is to be done while they are finishing Amatrol Module 9: Refrigerant System Charging. It assumes students have completed Amatrol Module 7: Refrigerant Recovery Preparation and Amatrol Module 8: Refrigerant Recovery and Recycling.
Activity Type	Pairs work
Time Needed	45 minutes

STUDENT MATERIALS

- Handout 1: Module 9 - Vocabulary Definitions

- Handout 2: Refrigerant Recovery and System Charging Record

Instructor Preparation

Activity Location

- Space with access to trainer or heat pump

Pre-Work

- Set up heat pump training equipment with refrigerant. All equipment will have a refrigerant, and the tools needed to make measurements as noted below:
 - Scale (accurate to +/- 0.25 oz)
 - Gauge manifold set
 - Vaporizer
 - Recovery hose
 - Refrigerant tank (See MassCEC Equipment Agnostic Lab Toolkit, Lab 7.2 for guidance on A2L Refrigerant considerations.)

Material Preparation

- Review the student handouts and make one copy per student. For Handout 2: Refrigerant Recovery and System Charging Record, the instructor may decide to reference a specific manufacturer chart instead of the chart provided. For reference, the data chart in Handout 2 is from [AC Service Tech, Refrigerant Weights](#).
- This activity helps students understand how to fill out the refrigerant forms required by law.
- For background information on this topic, see Video Resources below.
- **Best Practice**
Identify any key vocabulary terms from Handout 1: Module 9 - Vocabulary Definitions that students should be referencing as part of the activity. Be prepared to reference these terms during the activity.

VIDEO RESOURCES

Video Title	Time	Description
Charging Practices & Common Mistakes	1:40:52 min.	HVAC School – This video discusses charging considerations and mistakes. It primarily discusses residential equipment, but many of the principles apply to commercial equipment as well.
Refrigerant Recovery - Full Training	1:32:27 min.	EPA 608 exam preparation and proper recovery techniques

ACTIVITY DIRECTIONS

1. Tell students:
 - Now that they have some hands-on experience with refrigerant recovery and system charging, they will practice how to complete the paperwork needed when they perform this at a job site.
 - Accurately completing paperwork is an essential part of the job of a service technician.
2. Ask students why accurately completing paperwork is important. If not identified, list the points below:
 - It provides evidence that the work was performed correctly and safely according to industry/manufacture standards.
 - If another service technician performs a job at the same work site in the future, they have accurate background information on what was done previously.
 - This information is submitted to the employer.
3. Distribute and review Handout 2: *Refrigerant Recovery and System Charging Record*.
4. Explain that students will work in pairs with their equipment. (See Instructor Preparation, Pre-Work for details.)
5. Allow 15 minutes for pairs to take and record the measurements and complete Handout 2: *Refrigerant Recovery and System Charging Record*.
6. Debrief by leading a class review of each response in the *Refrigerant Recovery and System Charging Record* handout. Use these guiding questions:
 1. What parts were easy to complete? Why?
 2. What parts were challenging? Why?
 3. What questions do you have about how to fill out the form?
7. Encourage students to review the vocabulary identified by the instructor at the beginning of class. Suggest that students can find a vocabulary partner and take turns defining the vocabulary and then using it in a sentence. Also, suggest that students view the Video Resource, [Charging Practices & Common Mistakes](#) from HVAC School.
8. Wrap-up the discussion by reminding students of the importance of accurately completing paperwork identified in number 2 above.

ESOL Strategy Note

Since this activity centers on completing a written form, pair each student with a partner to read the field labels on Handout 2 aloud together before they begin taking measurements — this confirms unfamiliar terms (such as “estimated” or “expected” or “quality”) are understood before they are needed under time pressure.

Because the paperwork in this activity mirrors forms required by law on the job, consider allowing multilingual learners to keep a bilingual glossary or their annotated Handout 1 open for reference while completing Handout 2, rather than relying on memory alone.