



WORKSHEET 4-1 (ON-CAR)
Refrigerant Identification

Vehicle:	Year/Prod. Date:	Engine:	Transmission:

Worksheet Objectives:

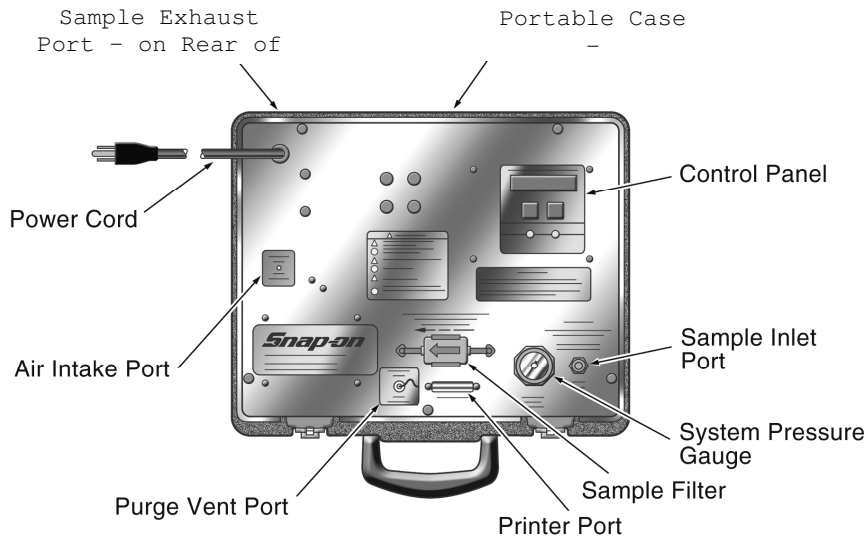
After completing this worksheet you will be able to accurately operate the Neutronics Refrigerant Tester which will allow you to identify contaminants in refrigerants.

Background:

Identifying the refrigerant type prevents storage contamination and potential damage to the A/C system and to recharging and recycling equipment.

Tools and Equipment:

- Neutronics Diagnostic Tool
- Toyota Vehicle
- Safety Equipment



Section 1

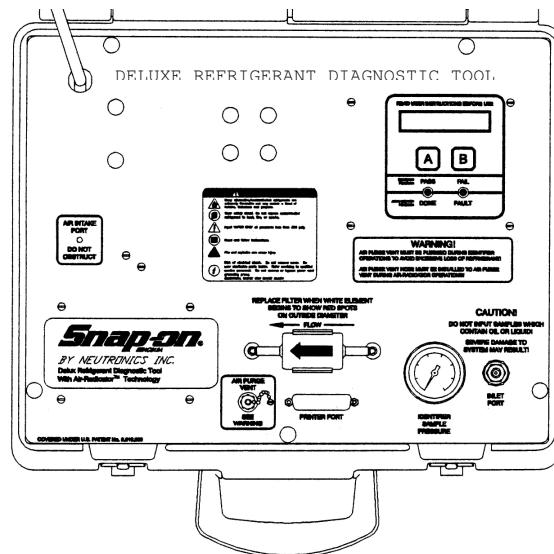
1. Open the Neutronics Case and inspect the sample filter for discoloration or red spots anywhere on the outside diameter of the filter element. If any problems are found with this filter it must be replaced.
2. Select the HFC-134a sample hose from the storage panel in the case cover. Install the sample hose onto the inlet port of the test instrument **(Finger tighten only)**.

3. Inspect the air intake port, the sample exhaust port, and the case vent ports for any obstructions.

4. Verify that the purge vent cap is securely installed onto the port.
5. Locate and identify the low-pressure fitting on the test vehicle.

NOTE: Do not connect the identifier to the vehicle yet.

6. Connect the power cord to 110 VAC and wait. The system display should read, "Cold."
7. During the warm-up period, the system allows the operator to change the local elevation calibration.
8. To change the elevation setting on the tester, Press the "A" and "B" buttons simultaneously. The display should read "ELE," then a number. This is the factory setting. Press the "A" and "B" buttons separately to increase or decrease the elevation setting.



9. Once the correct elevation is set, allow the instrument to sit for 20 seconds and the elevation value will be accepted. The tester will return to the warm-up cycle.
10. After the warm-up cycle the tester will self calibrate at which time the display will read: "READY:CON.HOSE, PRESS A TO START" – the green LED will be flashing.
11. Connect the service end of the test hose to the low-pressure service fitting, then open the valve.
12. Check the pressure on the tester gauge. It should read approximately 10 psig.
13. Press the "A" button to begin testing.

Note: For optimal results it is recommended that the tester be allowed to run an additional five minutes during the warm-up cycle before pressing the "A" button

to begin the test. This additional time allows the instrument to stabilize.

14. The tester display should read, **"GAS SAMPLING IN PROGRESS."**

15. Once the sampling is complete, the unit will display the results.

- a. If a printer is connected, press the **"A"** button to print the results.
- b. Press the **"B"** button to exit if no air is present or to purge any air present in the system.
- c. Record your test results in the form below:

Printout from unit parallel port

REFRIGERANT IDENTIFIER	
Refrigerant Analysis	
Refrigerant HFC-134a =	
Refrigerant R-12 =	
Refrigerant R-22 =	
Hydrocarbons =	
Conclusion: >>PASS<<	
Air: =	
Date:	
Technician:	
Car Model:	
VIN:	

Note: This printout can be obtained if you have access to a printer with a parallel port. It is useful when contaminated refrigerant is found in a customer vehicle and proof is required.

Section 2

Air Purging Operation

- 16. If the test unit determines that there is air in the system the unit will prompt the operator. At this point, press **"A"** to begin system purging and **"B"** to cancel purging.
- 17. Adjust the purge limit by pressing **"B"** when prompted by the equipment display. Pressing **"A"** or **"B"** adjusts the purge limit up or down, respectively.

18. After reaching the desired purge limit, allow the system to adjust for 15 seconds without pressing any buttons.
19. The test equipment will automatically store the purge setting.

Purge Cycle

- 20. When the tester is ready to purge you will see the message, **"REMOVE PURGE CAP, CON. HOSE, PRS.A."**

- 21. Remove the purge cap from the purge vent port.

- 22. Install the purge vent hose onto the vent and point the free end of the hose away from the tester.

- 23. After connecting the hose, press the **"A"** button to begin the process.

- 24. The display will read, **"NOW AIR IS XX.X%, PURGING TO XX.X%."** Purge times will vary depending on applications. For example, a 50-pound storage cylinder that is 50 percent liquid will require approximately one hour to purge. The purge process can be stopped at any time by pressing buttons **"A"** and **"B"** simultaneously.

- 25. When the process is complete the display will read, **"DONE, AIR IS X.X%. PRESS 'B' TO EXIT."**
The green LED will flash.

Error Codes

- 26. Refer to the manufacturer's operating manual to describe the meaning of the following error codes:

ERR. 1
_____.

ERR. 2
_____.

ERR. 3
_____.

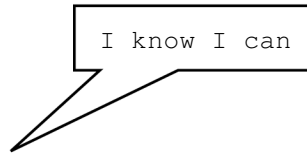
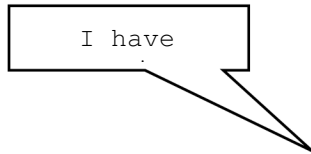
- 27. Return the station to its original condition.

Instructor Sign Off: _____

Refrigerant Identification

Name: _____ Date: _____

Check each category after participating in the classroom discussion and complete this sheet as you are completing Worksheet 4-1 using the Refrigerant Identification worksheet in the classroom. Ask the instructor if you have any questions regarding the topics provided below:



Topic			Comment
Purpose of Refrigerant Identification			
Set up and calibration			
Connecting hose to vehicle			
Reading % HFC-134a			
Reading % air			
Air purging			



Notes