System Evacuation

Hose Flow Demo
Setup Guide

We talk a lot about how big of a difference a larger hose will make to the speed of an evacuation. Have you ever wondered what the **real-world difference** between a 1/4" Hose with a Valve Core (~0.2CFM of flow) and a 1/2" Hose (~3CFM) is? You can setup a simple test to show how big the difference is between the two.

Tools Required for Setup

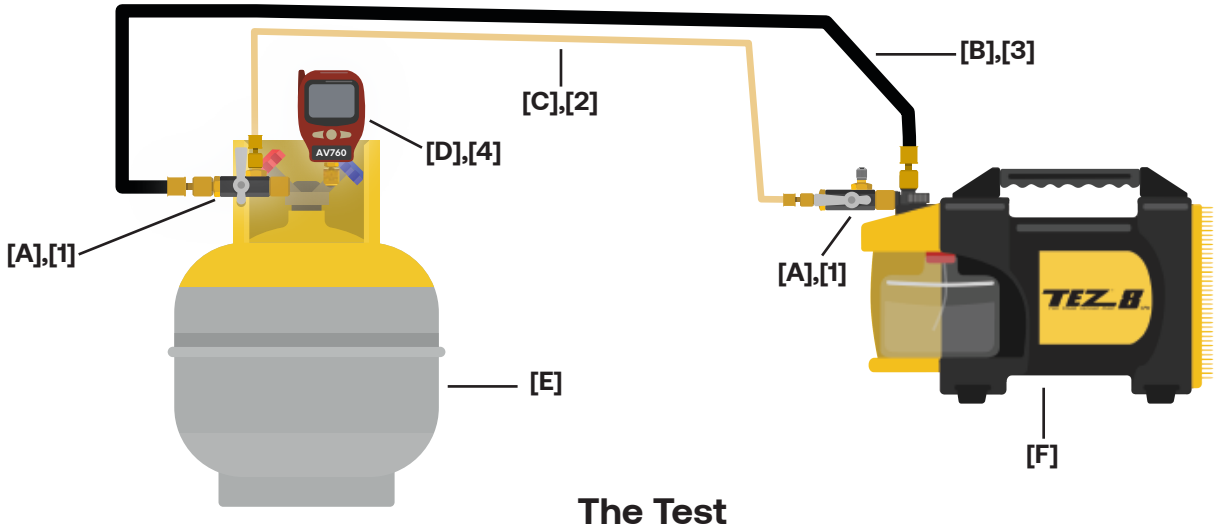
Ref.	Description	Part No.
A	Vacuum-Rated Valve Core Removal Tools **(QTY. 2)**	MGAVCT *(1/4")*
B	1/2" Vacuum-Rated Hose	MH120006EAK
C	1/4" Charging Hose	**Contact Wholesaler**

Ref.	Description	Part No.
D	Full Range Vacuum Gauge *	AV760
E	Empty 30lb. Recovery Tank	**Contact Wholesaler**
F	Vacuum Pump	TEZ8

How to setup

[1] Connect one Valve Core Removal Tool ***(VCRT)*** to the pump, and one to the tank.
[2] Connect the 1/4" hose to the open port on the pump VCRT and to the SIDE port of the tank VCRT (with a core depressor).
[3] Connect the 1/2" hose directly to the pump, and to the open port on the tank VCRT.
[4] Connect your Full Range Vacuum Gauge* to the other port on the tank so you can watch the flow effects in real-time.

***Note:** A Full Range Vacuum Gauge is *highly recommended* in order to effectively see the difference in flow at all points during the test.



The Test

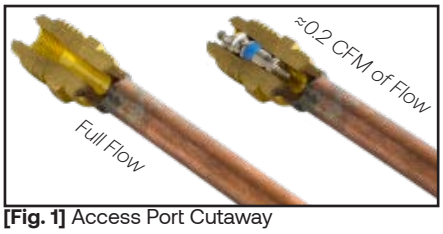
Using the ball valves on the VCRTs, you can isolate each hose so that there is only one pulling down the tank at a time. Turn on the pump and watch the effects of Full Flow as you switch between the two hoses. Take note of how big the difference becomes as the depth of the vacuum increases. ***Hose diameter is even more critical in a deep vacuum!***

Scan the QR Code with your phone to see it in action:

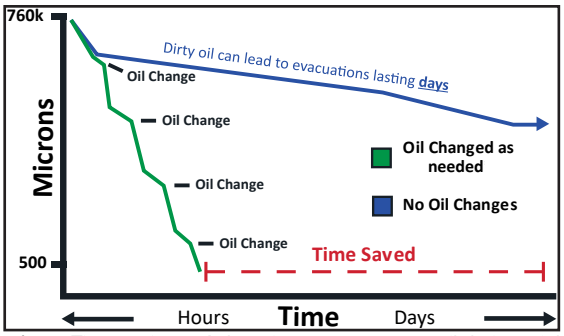
See Reverse for Evacuation Tips

Evacuation Tips

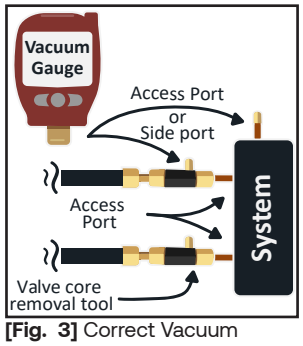
- **Remove valve cores before evacuation** - Valve Cores & Core Depressors block up to **90%** of all flow and will limit the flow of **any** vacuum pump to ≈0.2 CFM. **[Fig. 1]**
- **Use as many 1/2" vacuum-rated hoses during evacuation as possible**- Larger hoses have greater flow and will result in faster evacuation when used correctly.
- **Connect hoses directly to the Vacuum Pump** - Direct connections to the pump have better flow and less chance to leak compared to being connected to a manifold.
- **Monitor condition of the oil during evacuation** - Vacuum pump oil is one of the biggest influences on the speed of an evacuation. Clean oil will allow the system to be evacuated to a much deeper vacuum than contaminated oil. Stalled evacuations are often the result of dirty, contaminated oil. A vacuum pump can only pull a vacuum as deep as the vapor pressure of its sealing oil. As the oil collects contaminants & moisture during evacuation, this vapor pressure rises. Clean oil restores vacuum pump efficiency & can save hours or days on an evacuation. Oil should be changed early & as needed for fast evacuation. **[Fig. 2]** ***This could be multiple times on one job!***
- **Use a Digital Vacuum Gauge to monitor progress** - The only way to verify a complete evacuation is with a digital vacuum gauge. A Full Range gauge is recommended for complete visibility.
- **Connect the Vacuum Gauge to the system as far from the pump as possible** - For a system to be adequately dehydrated a deep vacuum must be achieved throughout the entire system, not just the point where the vacuum pump is connected. Unlike pressure, vacuum will not quickly equalize across all points of the system. For the most accurate reading of vacuum depth throughout the system, connect the vacuum gauge at an access port on the system that is farthest from the Vacuum Pump. **[Fig. 3]** It is possible for one end of the system to be evacuated to 1,000 microns while another end - far from the vacuum pump - can still be at *10,000 microns.*
- **Do Not use 1/4" hoses & charging manifolds for evacuation** - A standard 1/4" hose & manifold are not meant for evacuation and will limit the flow of **any** vacuum pump to ≈1 CFM (w/ valve core removed). **[Fig. 4]**
- **Do Not run the Vacuum Pump for multiple jobs without changing the oil** - Dirty oil = slow evacuation and *can* damage the pump. Oil should be changed when needed!
- **Do Not tighten hoses & port caps with tools** - Gaskets can be damaged if overtightened, creating a leak. Hand tight only!



[Fig. 1] Access Port Cutaway



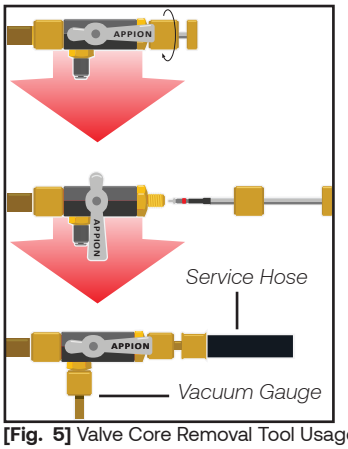
[Fig. 2] Time savings of changing vacuum pump oil during a job



[Fig. 3] Correct Vacuum Gauge Placement

6ft, 1/4" hose through valve core	40 Min	≈0.2 CFM
6ft, 1/4" hose with core removed	19 Min	≈ 1 CFM
6ft, 1/2" hose with core removed	3 Min	≈ 3 CFM

[Fig. 4] Evacuating 10-ton system to 500 Microns



[Fig. 5] Valve Core Removal Tool Usage

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