

Air Conditioning Troubleshooting & Repair CACT-01

Module 4 Refrigerant Recovery Tank Information & Safety

Refrigerant Recovery Tank Info.

Type of Cylinder

Use only authorized, refillable, refrigerant storage cylinders. Federal regulations require refrigerant to be transported only in containers meeting DOT specs. 4BW or 4BA.

NEVER use a standard disposable 30 lb. (13.6 kg) cylinder (the type of container in which new refrigerant is sold) to recover refrigerant.

Working Pressure

Recovery cylinders are designed for different working pressures. Robinair strongly recommends the use of 400 psi (27.6 bar) cylinders.

⚠ WARNING: To prevent personal injury, do not exceed the rated working pressure of the cylinder. At minimum, the RG6 requires the use of a 350 psi (24.1 bar) recovery cylinder.

NOTE: The use of a 400 psi (27.6 bar) cylinder is mandatory when recovering R-410A refrigerant. Refer to the Parts and Accessories section of this manual for more information.

If you expect temperatures in excess of 135° F (57° C), consult the refrigerant supplier.

Capacity

Safety codes state that closed cylinders should not be filled with liquid over 80% of volume. (The remaining 20% is called head pressure room.)

Do not exceed 80% of cylinder capacity. Robinair recommends the use of the TIF9010A Refrigerant Scale for monitoring cylinder capacity.

Refrigerants

Cylinders and filter / driers should each be designated for only one type of refrigerant.

If you must use a cylinder previously used for a different refrigerant, prepare the cylinder by completely emptying it, perform an evacuation, purge it using dry nitrogen, and then perform another evacuation.

Storage

Store refrigerant cylinders in a cool, dry place.

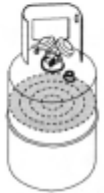

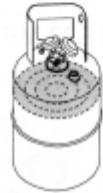
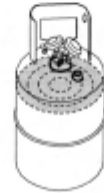
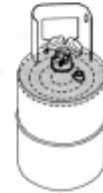
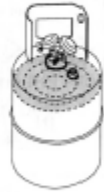




Leakage

Some cylinders have valves that were not correctly seated when manufactured. Keeping caps on the valves will guard against refrigerant leakage.

From Robinair RG6 Refrigerant Recovery Machine Operating Manual

Refrigerant Recovery Tank Safety

⚠ WARNING : To prevent personal injury, never transport an overfilled cylinder. Refrigerant expands when it gets warm and may cause an overfilled cylinder to explode.

Storage Cylinder Temperature	60°F 15.6°C	70°F 21.1°C	100°F 37.8°C	130°F 54.4°C	150°F 65.6°C
STARTING WITH CYLINDER 80% BY VOLUME					
Space Occupied by Liquid	80%	81%	83%	90%	94%
STARTING WITH CYLINDER 90% BY VOLUME					
Space Occupied by Liquid	90%	92%	96%	100%	

From Robinair RG6 Refrigerant Recovery Machine Operating Manual



Refrigerant Recovery Tank Design



HVAC 123 Recovery Tanks Part 1 YouTube video link: <https://youtu.be/-jYqtxVHgPA>



We help our customers build better communities

DO NOT TRUST Recovery Cylinder Valve Color!!!

Connect;
“Liquid” Valves
To the RED
High Side
& “Vapor or Gas”
to Blue Low Side



HVAC 123 Recovery Tank; Part 2

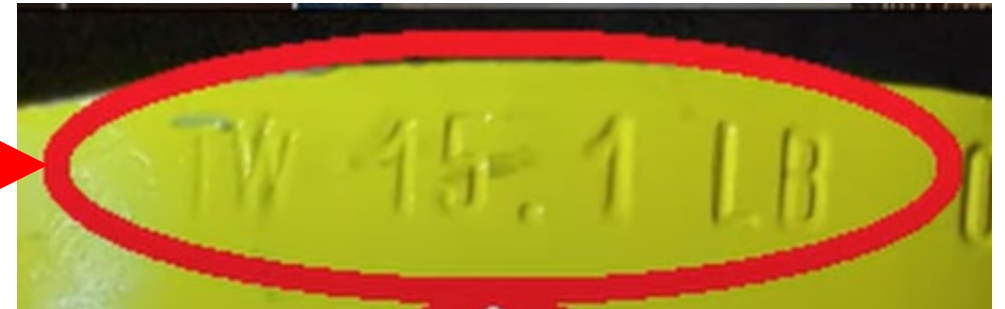
DO NOT OVERFILL

YouTube video link:

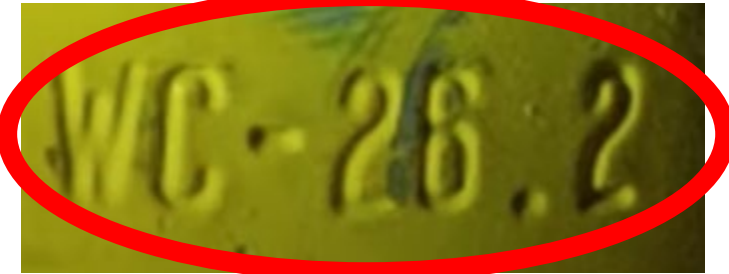
<https://youtu.be/NffG74Lvu0Q>

You MUST know: TW = Tare Weight
WC = Water Capacity
Along with Refrigerant Type to calculate
Maximum Capacity

TW = Tare Weight or Tank Weight




WC = Water Capacity (in Pounds)
or the weight of the volume of water that will fill in the tank



Refrigerant Recovery Tank

Safe Capacity = 80%



WC x 80% = _____

26.2 x 80% = 20.96

26.2 x .8 = 20.96

Safe Capacity = (WC = Maximum Water Capacity of a cylinder, in pounds) multiplied by 80% or 0.8

Download "HVAC School" App

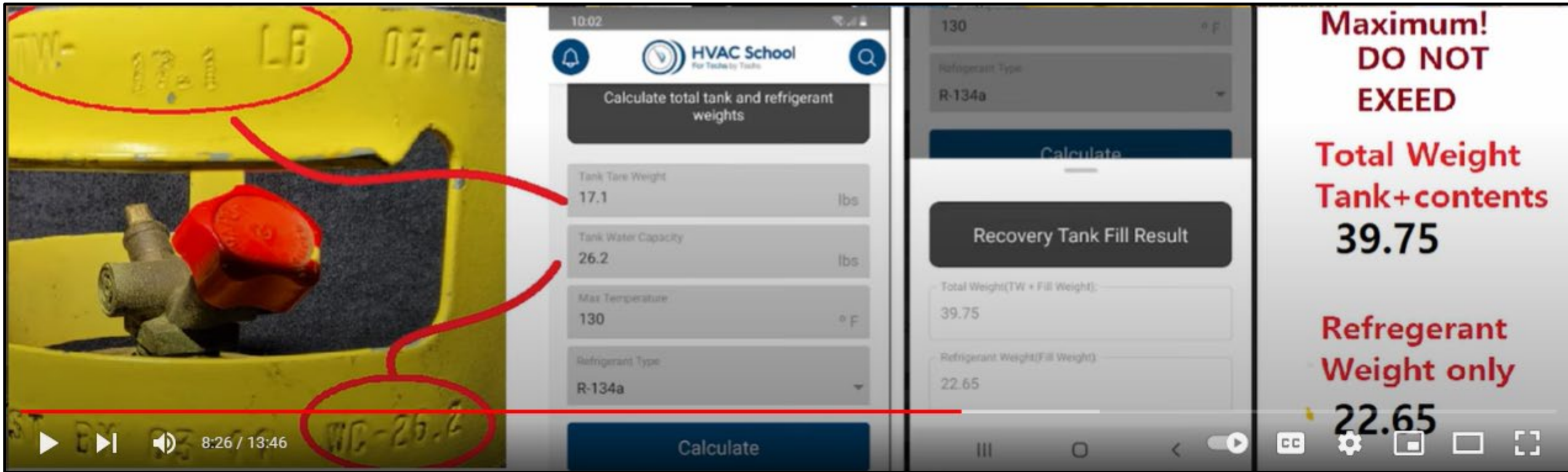
The image shows the HVAC School app download page on an app store. The app icon, which is a blue circle with a white gauge, is circled in red. The app name "HVAC School" and the text "HVAC School Contains ads" are also circled in red. The app has a 4.2 star rating from 188 reviews and over 50,000 downloads. The age rating is "Everyone".

The app's interface is shown in three panels. The first panel shows the app's main menu with options for Tech Tips, Podcasts, Tools, and Checklists. The "Tools" option is circled in red. The second panel shows the "Tools" menu with a wrench icon and the text "Tools". The "Tools" option is circled in red. The third panel shows the "Recovery Tank Fill" tool, which is used to calculate total tank and refrigerant weights. The tool has input fields for Tank Tare Weight, Tank Water Capacity, Max Temperature (set to 130), and Refrigerant Type (set to R-22). A blue "Calculate" button is at the bottom. The "Recovery Tank Fill" tool is circled in red.

Below the app interface, there are several promotional cards for other HVAC-related content, including "Heat Rise", "Recovery Tank Fill", and "Additional Charge".

An app for users to engage with tech tips and podcast episodes from HVAC School

Using “HVAC School” App To Find Maximum Capacity



This tank **sold as a 30# tank**, will safely hold a maximum amount of 22.65 Pounds of R134a Refrigerant
FYI: 80% of 30# is 24#. **If you over-filled this “30#” tank with 24# of R134a it will explode at 125 F!!!!!!!!!!!!!!**
The maximum total weight **NOT TO BE EXCEEDED** of tank and R134a Refrigerant is 37.75 Pounds

This Recovery Tank and R134a Refrigerant Contents Total Weight is 20.25 Pounds

**Maximum!
DO NOT
EXCEED**

**Total Weight
Tank+contents
39.75**

**Refrigerant
Weight only
22.65**

**39.75 max
-20.25 now
19.50
Pounds
Available**

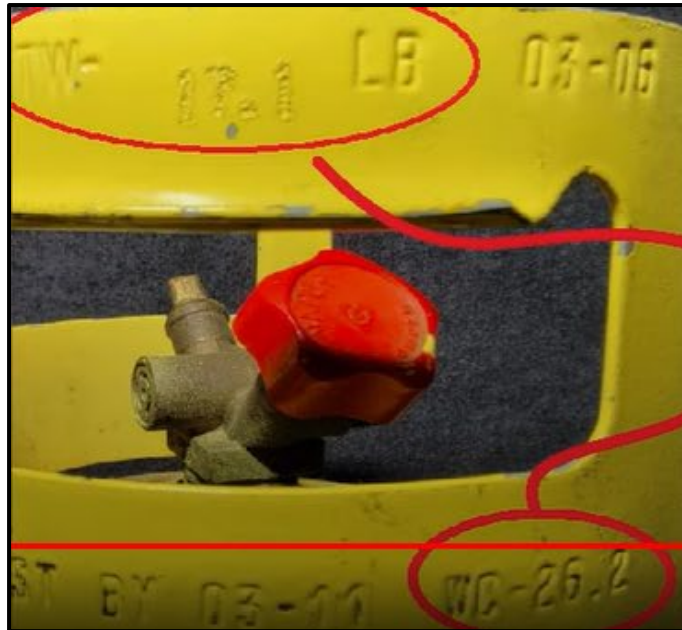
**20.25
Pounds**

This Recovery Tank Safely has room for 19.5 more Pounds of R134a Refrigerant before it will need to be exchanged for a empty purged recovery tank.

ALL Recovery Tanks should be labeled with Refrigerant Type & Maximum Safe Capacity Total Weight!!!!

Always Mark Recovery Tanks

With the type of refrigerant you are recovering



R134a Max	HCFC R22	HFC R410A	HFC 404A	CFC R 12
Total Weight Tank+contents 39.75	Total Weight Tank+contents 39.37	Total Weight Tank+contents 35.47	Total Weight Tank+contents 34.96	Total Weight Tank+contents 42.15
Refrigerant Weight only 22.65	Refrigerant Weight only 22.27	Refrigerant Weight only 18.37	Refrigerant Weight only 17.86	Refrigerant Weight only 25.05

Different Refrigerants have different Specific Gravities or Weights per Volume.

NEVER MIX DIFFERENT REFRIGERANTS

Refrigerant Tank Explosion



YouTube video link: <https://youtu.be/dEB1qJIm00A>



Refrigerant cylinder explodes while driving down a road In China!!

The driver walked away!

But can he hear anything now?



YouTube video link:

<https://dai.ly/x7w0g3o>

Refrigerant Tank Explosion



Missing Refrigerant Cylinder



How Full is Your Refrigerant Recovery Tank

