



MODEL:
TER-100-A2L

VELO-X

TWIN RECOVERY UNIT

Safety Instructions & Operation Manual



VELO-X TWIN RECOVERY UNIT

Thank you for purchasing a TEKEDGE Velo-X Twin recovery Unit.

Thank you for purchasing a TekEdge Refrigerant Recovery Machine.

The device combines an innovative refrigerant gas compression system with a rugged, blow molded case that is designed to offer maximum protection from damage during transit and normal handling. With normal use and with care as prescribed in this Manual, your machine will give you years of troublefree operation

SAFETY FIRST

This international symbol is intended to alert the user to the presence of important operating, safety and maintenance (servicing) instructions in this Manual. As used in the manual, it is intended to draw your attention to critical items.

It is important to read this entire manual and be familiar with its contents before using the machine.

The TekEdge Velo-X must only be operated by a Qualified Technician who has been properly trained in the care and use of such equipment. Use of this equipment by unqualified personnel is potentially dangerous and should not be attempted.

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1.0 GENERAL SAFETY INSTRUCTIONS

WARNING THAT FAILURE TO EXACTLY FOLLOW ALL THE STEPS IN THIS PROCEDURE MAY LEAD TO SERIOUS INJURY OR DEATH

ADDITIONAL SAFETY INSTRUCTIONS FOR REFRIGERATION SYSTEMS CONTAINING CLASS A2, A2L & A3 REFRIGERANTS:

The following are additional safety recommendations when servicing refrigeration equipment that contain Class A2L, A2 or A3 refrigerants. These instructions do not replace existing occupational hazard procedures or other regulations that may be required by local, state or federal agencies.

Technicians working on Class A2L, A2 and A3 systems should have detailed knowledge of and skills in handling flammable refrigerants, personal protective equipment, refrigerant leakage prevention, handling of cylinders, charging, leak detection and proper disposal. Additional knowledge of legislation, regulations and standards relating to flammable refrigerants may also be required. **Special Certification or licensing may be required on Class A2L, A2, and A3 and refrigerant handling. Check your local occupational safety codes.**

The area of service should be marked as **Temporary Flammable Zone**. This will be 9ft (3m) perimeter around the refrigeration equipment being serviced and should have NO SMOKING and other hazardous signs posted. Local supervisor should be notified of the zone's existence.

- A flammable gas detector should be used to monitor air in the **Temporary Flammable Zone**
- A dry powder or CO² fire extinguisher must be available at service location
- Vacuum pump exhaust may contain harmful vapors. Provide adequate ventilation
- A suitable ventilation fan should be used to maintain in the work space at a minimum of 5 air changeovers per hour
- Ensure the refrigeration equipment's power has been discontinued
- All potential ignition sources within temporary flammable zone must be disabled
- When connecting service equipment (such as vacuum pumps, scales, recovery units) to a power source, the connection must be made outside the **Temporary Hazardous Zone**
- Check the system to ensure the refrigerant has been properly removed from the refrigeration system being serviced
- Before evacuating a Class A2 or A3 system, the system should be purged with 100% Nitrogen. **DO NOT USE AIR**



DANGER-EXPLOSION RISK: Do not mix Class A2L, A2 or A3 refrigerants with air. All precautions must be taken to eliminate mixing of air with flammable refrigerants including monitoring Recovery Cylinder for air content.

2.0 REFRIGERANT STORAGE CYLINDER SAFETY

Check with your federal and/or state regulations on the proper vessel to store refrigerant. In the USA DOT CFR 40 is required when filling and transporting refrigerant storage vessels.

This machine is design to be used with 400 PSIG rated storage vessels. In the USA and Mexico, this is denoted by a DOT rating of 4ABA400 or 4BW400. For Transport Canada rating is 4BAM28 or 4BWM28.

When recovering or filling a refrigerant storage vessel, never fill beyond 80% of its water capacity (WC). Filling a cylinder at 70F to 90% and then putting it in a hot service van will cause the liquid to expand until it becomes 100% full. The hydrostatic force of the refrigerant could rupture the cylinder causing rapid venting or explosion. See illustration in the diagram below.

To calculate the maximum weight of a storage cylinder you will need to get two ratings from the cylinder. One is WC (water capacity) and the other is TW (empty cylinder weight). The maximum cylinder weight (MTW) is calculated as follows:

$$\text{MTW} = .8 \times \text{WC} + \text{TW}$$

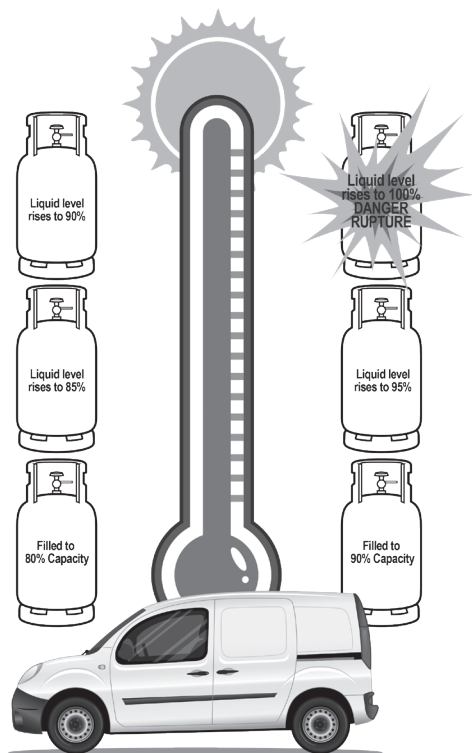
Turn on the scale and tare to Zero. Place storage cylinder on scale. Read the weight. Compare that to the MTW calculated above. If the scale weight is below MTW, which is the amount of storage capacity you have in the cylinder. If the scale weight is above MTW, you have a cylinder that is overfilled.

If an overfill condition does exist on a storage cylinder, place in a cool area and transfer some of the refrigerant into another storage cylinder until the weight is below MTW.

Always use a calibrated scale to monitor the total weight of the cylinder when recovering or filling refrigerant into a storage cylinder. Devices such as cylinder overfill floats should stop the recovery machine, but do not stop the flow of refrigerant to the storage cylinder.

If the scale or an overfill device does detect cylinder full condition, the recovery machine should be turned off and the storage cylinder valves closed.

DANGER: Overfilled storage containers may explode due to liquid refrigerant expanding when heated.



Transportation of refrigerant storage cylinders more than 80% full is a DOT violation.

3.0 UL VERIFIED AHRI740-2016 PERFORMANCE DATA

Refrigerant	Direct Vapor	Final Recovery Vacuum Level	Direct Liquid	Push-Pull Liquid	High Temp. Vapor Rate
R22	0.71 lb/min	10 inHg	9.03 lb/min	12.39 lb/min	0.71 lb/min
	0.32 Kg/min	33.9 KPa	4.10 Kg/min	5.58 Kg/min	0.32 Kg/min
R134a	0.57 lb/min	10 inHg	6.61 lb/min	9.66 lb/min	
	0.26 Kg/min	33.9 KPa	3.00 Kg/min	4.38 Kg/min	
R410a	0.71 lb/min	10 inHg	9.70 lb/min	14.02 lb/min	
	0.32 Kg/min	33.9 KPa	4.40 Kg/min	6.36 Kg/min	



Evaluated for performance in accordance with
Sec. 608 of the Clean Air Act (Feb 29, 1996)
using AHRI-740-2016

THIS EQUIPMENT HAS BEEN CERTIFIED BY UL LLC. TO MEET USEPS'S MINIMUM
REQUIREMENTS FOR RECOVERY EQUIPMENT INTENDED FOR USE WITH ALL
SYSTEMS CONTAINING ASHRAE CLASS A1 REFRIGERANTS FROM AHRI740-2016
CATEGORIES III, IV, AND V: UL CONTROL NO: SA45800

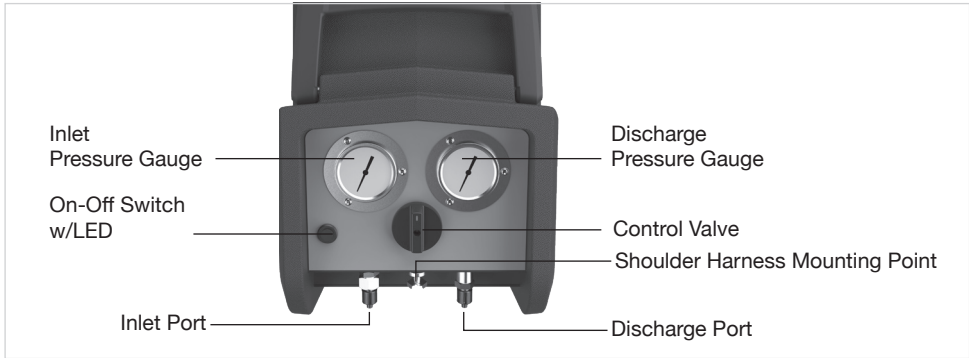
4.0 FEATURES

- 1.25HP BLDC (Brushless DC) motor driven Oil-less Compressor with matching universal voltage and frequency PCB
- For use on CFC, HCFC, HFC, and HFO with Class A1, A2, A2L and A3
- Auto voltage and frequency selection, no voltage selection switch required.
- 2 Cylinder Oil-less Piston Seal Design
- Single Valve operation for Recovery and Purge functions
- Mechanical High & Low Gauges
- 1/4 SAE 45D Male INLET and OUTLET ports
- Inlet port particle filter
- Blow molded case
- Metal Base with 4 Rubber Feet
- Cooling system: High Air Flow Fan (direct drive) with a Micro-channel Condenser
- Auto Reset High Pressure 550 PSIG Cutout Switch
- Auto Reset Vacuum Pressure Shut-Off Switch, 10'hg vac
- START switch with unit Status 2 color illumination
- Detactable 10' locking IEC320 power cord with NEMA 5-15P Plug
- IEC320 unit mounted electrical socket
- Shoulder Strap
- Ignition Proof design tested and reviewed to UL1963 SB Supplement using test provision from ANSI/ISA12.12.01:2016 Ed.7
- Optional Tank Overfill Cord provision

5.0 UNIT LAYOUT



6.0 CONTROL PANEL INTERFACE



LED Signal	Unit Status
Flashing GREEN	Ready to start
GREEN Solid	Unit is running
RED Solid	Unit shut off on vacuum pressure
RED Flashing	See below

RED LED Signal	Fault Indicated	Possible Solution
2 Flashes	Optional tank Overfill Sensor has been activated	Tank equipped with overfill sensor, recovery tank is full and needs to be replaced.
		Tank overfill sensor cord not connected. Either connect to a recovery tank equipped with overfill sensor or install a shorting plug on the end of the Tank Overfill Sensor cord.
3 Flashes	High Pressure Switch has been activated	Pressure on the discharge of the unit exceeded 517 PSIG. Check to make sure all valves in the discharge pathway are open. Once corrected, the pressure switch will reset.
		Excessive pressure in recovery tank. Replace recovery tank.
4 Flashes	Motor Protection system has been activated	Let cool down for 15 minutes and restart.
		Compressor Mechanism is jammed. Repair will be required to fix the compressor mechanism.
5 Flashes	Low Voltage Detected	Check to see if power source is in the range of the nameplate rating.
6 Flashes	High Voltage Detected	Check to see if power source is in the range of the nameplate rating.

7.0 AGENCY APPROVALS

For **TER-100-A2L TekEdge Velo-X**, USA
 AHRI740-2016 Certified via UL Verified Listing.
 This is a USEPA requirement for recovery units sold in USA.

NOTICE: The unit is compatible for use on ASHRAE Class A2, A2L, and A3 refrigerants, but has not been performance evaluated for these Classes per AHRI740-2016.

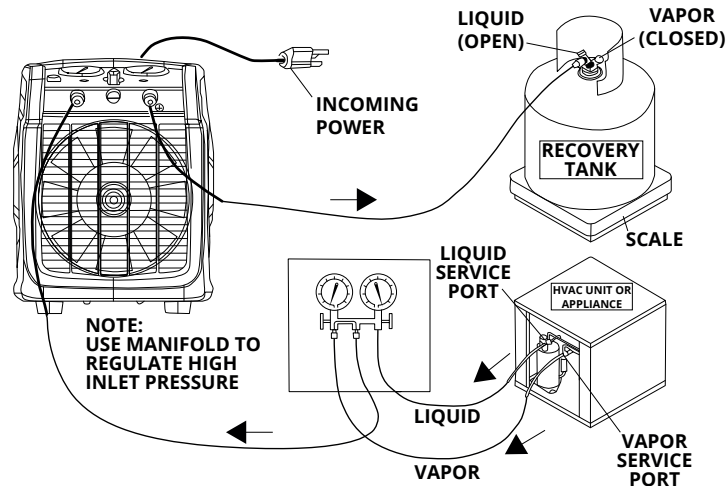
8.0 SPECIFICATIONS (1 of 2)

TER-100-A2L TEKEDGE VELO-X		
A1 Refrigerants	AHRI740 Class III (120 - 169 PSIG @ 105°F Liquid Saturation)	R12, R134a, R401C, R406A, R500
	AHRI740 Class IV (170 - 269 PSIG @ 105°F Liquid Saturation)	R22, R401A/B, R402B, R407C/D/E/F, R408A, R409A, R411A/B, R412A, R502, R509A
	AHRI740 Class V (270 - 355 PSIG @ 105°F Liquid Saturation)	R402A, R404A, R407A/B, R410A/B, R507A
A2 Refrigerants	A2L Refrigerants (120 - 355 PSIG @ 105°F Liquid Saturation)	R1234yf, , R32, R447A, R454A/B/C, R455A, R452A/B
A3 Refrigerants	A3 Refrigerants (120 - 355 PSIG @ 105°F Liquid Saturation)	R600, R290 compatible

8.0 SPECIFICATIONS (2 of 2)

Suitable for	A1, A2, A2L, and A3 Refrigerants
Power Supply	100-240VAC 1ph 50/60Hz
Motor Power	1.25 HP
Motor Type	Variable Speed Brushless DC, 1500-3000 RPM
Maximum Current	12.0 amps
Compressor Type	2 Cylinder Oil-less Reciprocating, Air Cooled
High Pressure Cutout (Manual Reset)	550 PSIG
Operating Temperature Range	32°F (0°C) to 120°F (49°C).
Dimensions	14 9/16" x 9 5/8" x 12 13/16" (370mm x 245mm x 325mm)
Weight	29.9lbs (13.6kg)
Carton Dimensions	18 7/8" x 10 5/8" x 14 15/16" (480mm x 270mm x 380mm)
Shipping Weight	35.4lbs (16.1kg)

9.0 DIRECT LIQUID OR VAPOR RECOVERY HOOK UP DIAGRAM

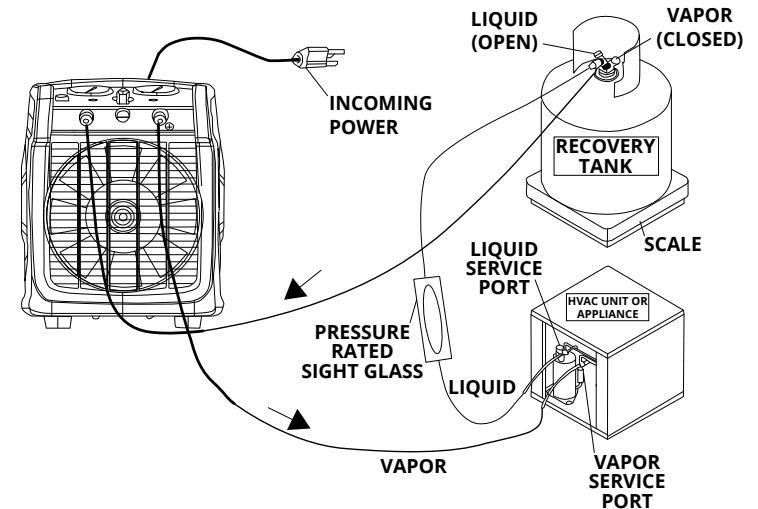


1. Make sure control valve is in OFF position, connect refrigerant hoses as shown in the diagram in the operations manual.
2. Open the Refrigerant storage tank's Vapor Valve.
3. Plug the unit into a grounded power source. The status indicator LED will flash green.
4. Push the START button.
5. After pushing the Start Button, turn selector knob to RECOVER.
6. The unit will automatically shut off when the INPUT pressure drops below 10" hg vacuum. Turn selector knob clockwise to PURGE. Push START button.
7. When the unit stops, turn selector knob to OFF, secure the system and unplug the machine.

The following is recommended to maximize recovery rates:

1. Use the shortest length of 3/8" ID refrigeration hose on the suction side of the unit.
2. If the refrigeration is clean, remove all suction side filters, screens, etc.
3. Remove all Schrader type valve cores and any valve depressors from the hoses and service valves.
4. Use an evacuated DOT tank.
5. If the unit trips off on High Pressure, change the recovery cylinder.

10.0 LIQUID PUSH-PULL HOOK UP DIAGRAM



1. Make sure the control valve is in the OFF position, connect refrigerant hoses and sight glass as shown in Liquid Push-Pull diagram.
2. Open the refrigerant storage tanks Vapor and Liquid valves.
3. Plug unit into grounded power source. The status LED will flash GREEN.
4. Push the START button.
5. Once the unit has started, turn the Control Valve to the Recovery position.
6. Monitor both the liquid sight glass and storage tank weight (Caution, do not overfill storage tank)
7. Once liquid is no longer present in sight glass, turn Control Valve to OFF. Push START button to turn off.
8. Go to the Direct Liquid or Vapor recovery instructions to complete the recovery of residual vapors in the system being recovered.

11.0 WARRANTY

If your C&D product incurs a fault or a warranty issue, please register your claim directly on the C&D website www.C&D.com. Our technical service team will then issue next steps pending the outcome of the claim review.

For other queries please speak to your supplier for further information.

TEKEDGE



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