BLACKMAX®
PREMIUM RECOVERY MACHINES

cps®

TR700 Series
Refrigerant Recovery Machines

OWNER'S MANUAL (English)

Français, Español, Deutsch and latest updates: www.cpsproducts.com

Series: TR700C/E/J/JUK/S; TR710C/S

TO BE OPERATED BY QUALIFIED PERSONNEL ONLY

UL VERIFIED — Evaluated for performance in accordance with Sec. 608 of the Clean Air Act (Feb 29, 1996) using ARI-740-98 test methods.

CE N11445

THIS EQUIPMENT HAS BEEN VERIFIED BY UNDERWRITERS LABORATORIES INC. TO MEET EPA'S MINIMUM REQUIREMENTS FOR RECOVERY EQUIPMENT INTENDED FOR USE WITH ALL SYSTEMS CONTAINING REFRIGERANTS FROM ARI740-98 CATEGORIES III, IV, AND V. UL CONTROL NUMBER 2HA5.

CONTENTS

KEY FEATURES

- Powerful two cylinder 2/3 oil-less reciprocating compressor and twin fans
- Exceptional compressor, condensing and cooling systems allow fast recovery in high temperature environments
- Automatic low pressure shut-off feature turns unit off when recovery is complete
- Rugged high density, double-wall, contemporary plastic housing with easy-view top mounted controls
- Designed with high temperature resistant materials
- Compact design with easy four bolt access
- Ergonomic well balanced design for easy transport (includes 2" wide, adjustable shoulder pad/strap)
- 4 skid resistant rubber feet
- Twin fan design for ultra cool operation
- 2-1/4" (44 mm) diameter Suction and Discharge gauges, utilizing extra strength stainless steel bourdon tube. (0 to 55 bar/800 psi) to handle R-410A
- Externally serviceable valves and gauges
- Built-in, removable, replaceable suction filter located under suction port
- Powder coated, internal aluminum chassis with integrated component mounts for quiet operation and extended performance life
- Optional tank overfill sensor cord kit available
- 6 ft (1.82 m) detachable power cord
- Worldwide patents pending
- 1 year warranty
- Designed and assembled in U.S.A. with U.S. and globally sourced components

GENERAL SAFETY INSTRUCTIONS

Please read, follow and understand the contents of this entire manual, with special attention given to Danger, Warning and Caution statements.

FOR USE BY PROFESSIONALLY TRAINED AND CERTIFIED OPERATORS ONLY. MOST STATES, COUNTRIES, ETC., MAY REQUIRE THE USER TO BE LICENSED. PLEASE CHECK WITH YOUR LOCAL GOVERNMENT AGENCY.

DANGER- EXPLOSION RISK!!! DO NOT RECOVER FLAMMABLE REFRIGERANTS!!

DANGER: The recovery tank used with this contains liquid refrigerant. Overfilling of the recovery tank may cause a violent rupture resulting in severe injury or even death. As a minimum, please use a scale to continuously monitor the recovery tank weight.

DANGER: **ELECTRICAL SHOCK HAZARD:** Always disconnect power source when servicing this equipment.

WARNING: Do not use this equipment in the vicinity of spilled or open containers of gasoline or other flammable substances.

WARNING: All hoses may contain liquid refrigerant under pressure. Contact with refrigerant may cause frostbite or other related injuries. Wear proper personal protective equipment such as safety goggles and gloves. When disconnecting any hose, please use extreme caution.

WARNING: **TO REDUCE THE RISK OF FIRE:** Avoid the use of an extension cord because the extension cord may overheat. However, if you must use an extension cord, the cord shall be 10 awg minimum.

WARNING: Avoid breathing refrigerant vapors and lubricant vapor or mist. Breathing high concentration levels may cause heart arrhythmia, loss of consciousness, or even cause suffocation. Exposure may irritate eyes, nose, throat and skin. Please read the manufacturer's Material Safety Data Sheet for further safety information on refrigerants and lubricants.

WARNING: Make certain that all safety devices are functioning properly before operating the equipment.

CAUTION: To avoid cross contamination of refrigerant and potential leakage to the atmosphere, the proper hoses and fittings should be used and checked for damage.

CAUTION: To avoid overfilling the refrigerant tank, read and follow the manufacturer's recommended filling instructions for the refrigerant being recovered.

CAUTION: This equipment is intended for use of one refrigerant at a time until the Self-Clearing feature is used. Mixing of different refrigerants will cause your recovered supply of refrigerant to become contaminated. Note: It is very expensive to destroy mixed or damaged refrigerants.

SPECIFICATIONS

Model #		TR700	TR710	TR700C	TR710C	TR700JUK	TR700J	TR700S	TR710S	TR700E
Voltage (Hz)		115V (60 Hz)				115V (50 / 60 Hz)	100V (50/60 Hz)	220-240V (50 Hz)		
Motor Size		2/3HP								
Overload Protection		15Amp		13Amp		15Amp		10Amp		
Power Consumption		1000 Watts								
Tank Overfill Switch		✗	✓	✗	✓	✗			✓	✗
High Pressure Reset Button		✗	✗	✗	✗	✗	✗	✗	✗	✓
Suction Pressure Gauge	Outer Scale	-30" hg to 500 psig				-1 to 20 bar	-0.1 to 3.5 MPA	-30" hg to 500 psig		-1 to 20 bar
	Inner Scale	-76 cm hg to 35 kg/cm				-100 to 2000 kPa		-76 cm hg to 35 kg/cm		-100 to 2000 kPa
Discharge Pressure Gauge	Outer Scale	0 to 1000 psig				0 to 70 bar	0 to 5.5 Mpa	0 to 1000 psig		0 to 70 bar
	Inner Scale	0 to 70 kg/cm				0 to 7000 kPa		0 to 70 kg/cm		0 to 7000 kPa
High Pressure Shut Off		550 psig		450 psig		38 bar	3.8Mpa	550 psig		38 bar
		38 kg/cm		31 bar				38 kg/cm		
Refrigerants		R-12, R-22, R-134A, R-401A/B/C, R-402A/B, R-404A, R-406A, R-407A/B/C/D/E/F, R-408A, R-409A, R-410A/B, R-411A/B, R-412A, R-500, R-502, R-507A, R-509A See CPS website for updated refrigerant listing.								
Operating Temperature Range		32°F to 120° (0°C to 49° C)								
Power Cord Length, Type		6' (1.82 m) Detachable								
Dimensions (W x L x H)		Inch: 9.75" x 21" x 14.0" (Cm: 24.7x 53.3x 35.6)								
Weight		32 lb (14.5 kg)								
Approvals		UL (AHRI 74-98) CE, CSA, TUV								
Warranty (Years)		1								

Verified UL Flow Rate @ 60Hz (Reduce 15% for all 50Hz models)*

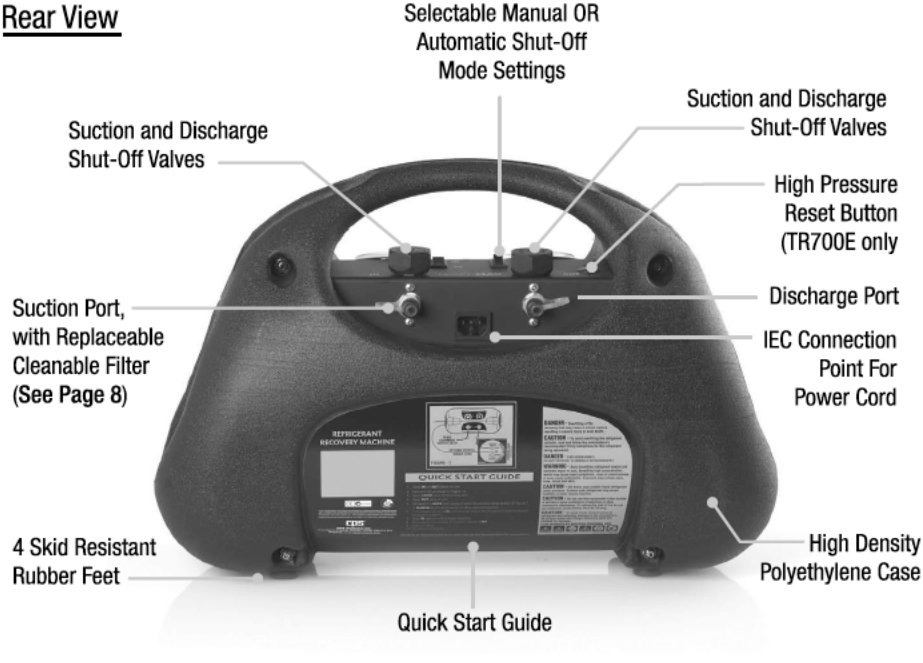
Refrigerant	Direct Vapor	Direct Liquid	Push - Pull Liquid	High Temp Vapor Rate
R-410a	0.703 lb (.319 kg)	11.95 lb (5.42 kg)	31.70 lb (14.38 kg)	0.816 lb (0.370 kg)
R-22	0.597 lb (.271 kg)	8.86 lb (4.02 kg)	31.53 lb (14.30 kg)	0.860 lb (0.390 kg)
R-134a	0.503 lb (.228 kg)	7.80 lb (3.54 kg)	25.66 lb (11.64 kg)	----
R-407c	0.536 (.243 kg)	9.50 lb (4.31 kg)	29.14 lb (13.22 kg)	----

**Evaluated for performance in accordance with Sec. 608 of the Clean Air Act (Feb 29, 1996) using AHRI-740-98 test methods.*

CONTROLS AND FEATURES

Front View

Rear View



DIRECT VAPOR OR LIQUID RECOVERY

The following is recommended to maximize recovery rates:

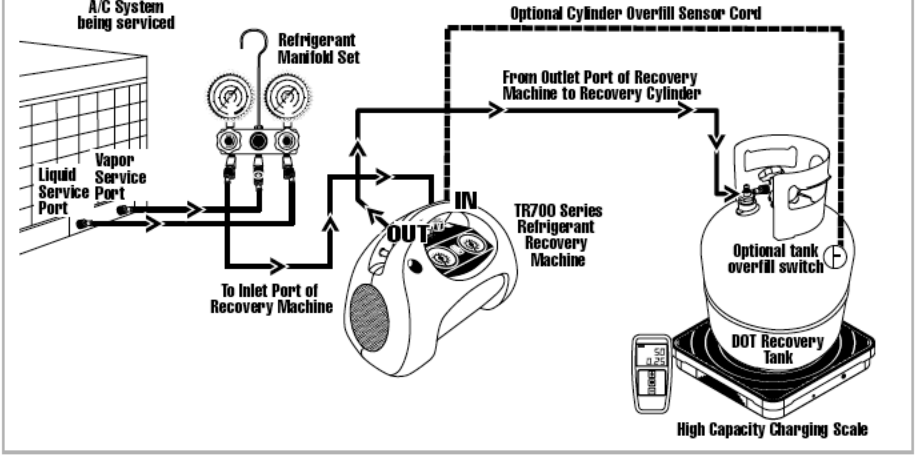
A. Use shortest length 3/8" (Inside Diameter) refrigeration hose on suction side of TR700 series.
B. If refrigerant is clean, remove all suction side filters, screens, etc.
C. Remove all Schrader type valve cores and any valve depressors from hoses and service valves.
D. Use an evacuated DOT recovery tank.
E. If unit trips off on high pressure, change recovery cylinder.
F. When recovering large amounts of R410A, or if recovering under very high ambient temperature, we suggest using the CPS brand MT69 Molecular Transformator.

1. Connect unit as shown in **Diagram 1**.
   EU Note: *Recovery tank must be rated for 38 bar.*
2. Open **Vapor Valve** on **Recovery Tank**.
3. Open **OUT Valve** on unit (Do **NOT Open IN Valve** at this time).
4. Set **Auto-Manual** switch to **MANUAL**.
5. Push **Main Power** Switch "**ON**".
6. When unit starts, open **IN Valve** on unit to start refrigerant flow.
7. For automatic shut off, set **Auto-Manual Switch** to **AUTO**
8. Monitor amount of refrigerant in **Recovery Tank**. **WARNING: Do not over fill Recovery Tank**.

Note: *The unit is designed to handle large amounts of liquid refrigerant. If during direct liquid recovery the compressor begins to make a slugging or hammering noise, meter incoming liquid by closing IN valve until noise subsides.*

9. In **AUTO** position, unit will shut off when suction pressure falls to 10" hg vac, and **RED LP Light** will energize. In **MANUAL** position, unit will run continuously.
   - Monitor **IN Gauge**
   - Set **Main Switch** to **OFF** once required vacuum level is reached.
10. The following instructions are to reduce the amount of residual refrigerants:
    - Open IN and OUT Valves. Select **AUTO** on **Auto-Manual Switch**.
    - Disconnect service hose(s) from equipment being serviced.
    - Reconnect this hose to the **Recovery Tank Vapor Port**.
    - Set **Main Switch** to **ON**.
    - Slowly open **Recovery Tank Vapor Port** so **IN Gauge** reads 60-70 PSIG. Run for 30 seconds.
    - Close **IN Valve**. Unit will automatically shut off when vacuum is reached. The **RED LP Light** will energize.
11. **RECOVERY PROCEDURE IS NOW COMPLETE. CLOSE ALL VALVES AND DISCONNECT HOSES**

Diagram 1 - Direct Vapor Or Liquid Recovery



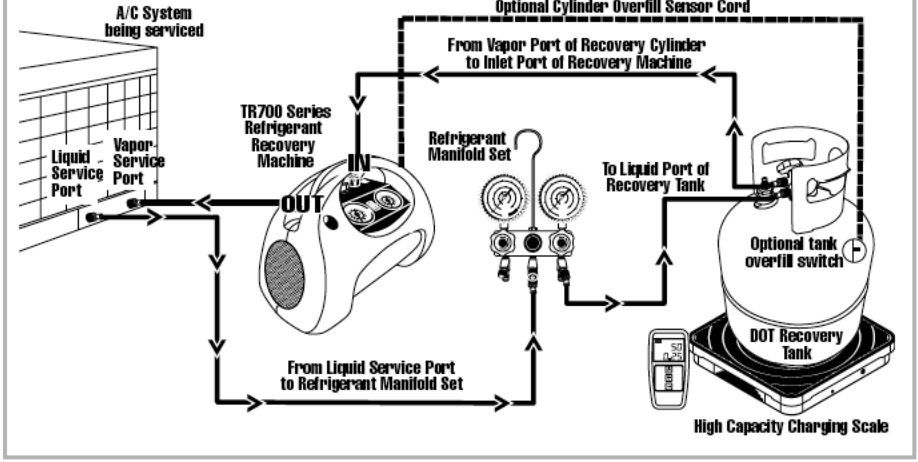
PUSH-PULL LIQUID RECOVERY

The following is recommended to maximize recovery rates:

A. Use shortest length 3/8" (Inside Diameter) refrigeration hose on suction side of unit to vapor port on tank.
B. Use 3/8" (Inside Diameter) refrigerant hoses from system liquid service valve to liquid port on tank.
C. If refrigerant is clean, remove all suction side filters, screens, etc.
D. Remove all Schrader type valve cores and any valve depressors from hoses and service valves.
E. Use 90 lb DOT recovery tank or larger to minimize tank change over.

1. Connect unit as shown in **Diagram 2**
   EU Note: Recovery tank must be rated for 38 bar
2. Open **Liquid and Vapor Valve** on **Recovery Tank**
3. Open **OUT Valve** on unit.
4. Set **Auto-Manual Switch** to **MANUAL**.
5. Set **Main Power Switch** to **ON**.
6. When unit starts, open **IN Valve** on unit to start refrigerant flow.
7. Monitor weigh scale for increase of weight in the Recovery Tank, or view sight glass for liquid refrigerant flow. **WARNING: Do not over fill Recovery Tank**.
8. Once the weight gain subsides or liquid refrigerant is no longer present in the sight glass, close **Recovery Tank Vapor** Valve. Set **Main Power Switch** to OFF once the **IN Gauge** pulls in to a vacuum.
9. **LIQUID PUSH-PULL PROCEDURE IS NOW COMPLETE. PROCEED TO DIRECT LIQUID OR VAPOR OPERATION**

Diagram 2 - Push-Pull Liquid Recovery



ROUTINE MAINTENANCE

Filter Maintenance: The TR700 Series is equipped with a 100-mesh screen filter. Check periodically. A partially clogged filter will slow down rate of unit.
To check filter:

- Use 5/8" socket or box end wrench to loosen suction port (Figure 1)
- Remove filter (Figure 2)
- Clean filter or replace with new
- Inspect O-ring. Re-lubricate with compressor oil or equivalent
- Place filter back into suction port fitting
- Hand tighten assembly back onto TR700 unit
- Use 5/8" socket or box end wrench to tighten 1/8 of a turn. Do not over tighten, damage to O-ring may occur
- Check connection for leaks

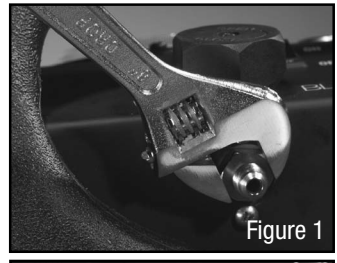


Figure 1

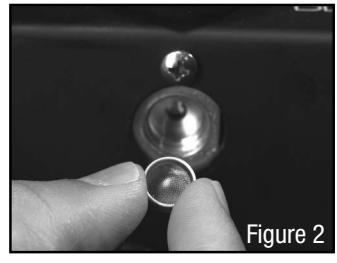


Figure 2

WARRANTY

CPS Products, Inc. guarantees that all products are free of manufacturing and material defects to the original owner for one year from the date of purchase. If the equipment should fail during the guarantee period it will be repaired or replaced (at our option) at no charge. This guarantee does not apply to equipment that has been altered, misused or solely in need of field service maintenance. All repaired equipment will carry an independent 90 day warranty. This repair policy does not include equipment that is determined to be beyond economical repair. **WARRANTY DISCLAIMER:** Use this device to recover only HVAC/R refrigerants from sealed HVAC/R systems. **WARRANTY VOIDED IF USED FOR ANY OTHER PURPOSE.**

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