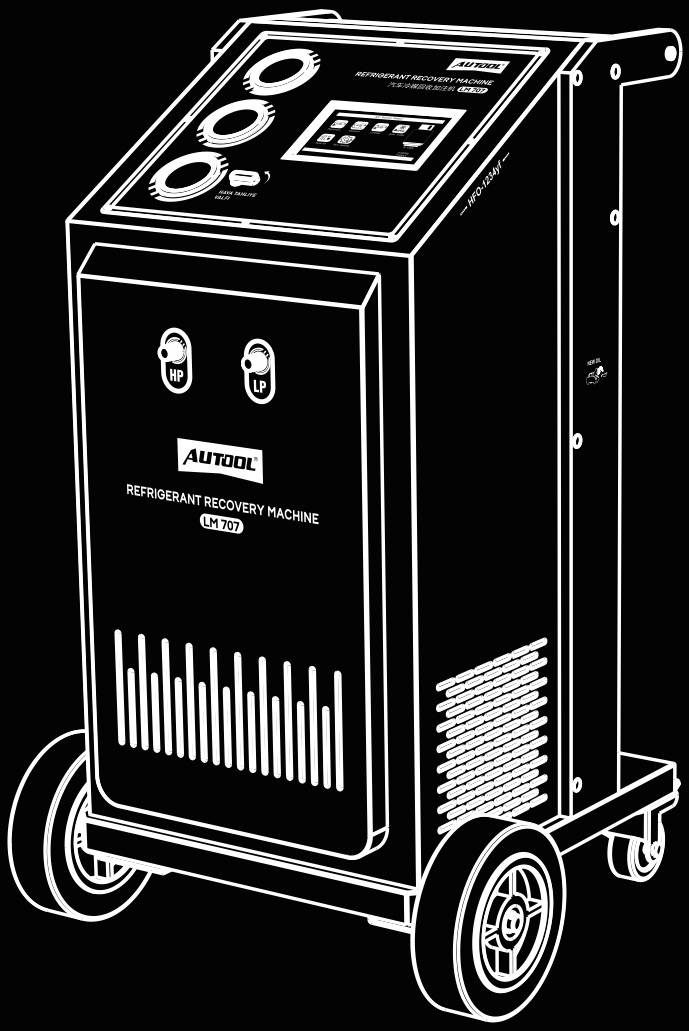
AUTOOL LM707

Refrigerant Recovery Machine

User Manual
用户手册



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AUTOOL®

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CAUTIONS

General safety

⚠ For the correct use of the instrument, please read the full text of this manual carefully before use.

- The storage cylinder in this unit contains liquid refrigerant. Overfilling of the cylinder can cause violent explosion. Do not disable the overfill safety feature. Always keep the cylinder on the load cell platform whenever operating the machine.
- The operator must carefully read the instruction manual before any operation is performed. Incorrect operations could cause serious consequences, such as, improper A/C service, damage to automotive A/C system or damage to equipment.
- Only use cylinders which are recommended by the manufacturer and supplied with this equipment.
- Avoid inhalation of refrigerant or oil vapor / mist, read material safety instructions on refrigerant and oil package.
- Switch off and disconnect power cable from main supply before removing any cover or servicing the equipment, to avoid electric shock which can be very dangerous or fatal.
- Never use compressed air for leak testing the unit or vehicle A/C system!
- Wear safety goggles and gloves, to protect eyes and skin from contact with refrigerant. Coming in contact with liquid refrigerant can cause frostbite and blindness. If accidental contact is made with liquid refrigerant, wash effected area with plenty of fresh water and contact a doctor.
- Avoid using extension power cable with copper core diameter less than 1.5mm².
- Keep gasoline or other flammable substances away from the equipment.
- Always operate unit in a well-ventilated area and away from artificial heat.

PRODUCT INTRODUCTION

Overview

- LM707 is an ideal option for workshops that have limited equipment investment budget. Even economic, the machine is robustly built, with luxurious features such as color touch screen, amply database and patented oil separator / manifold. The unique design has facilitated quick load cell unlock, easy and economic maintenance (DIY maintenance recommended), self troubleshooting and convenient USB upgrade etc.

Specifications

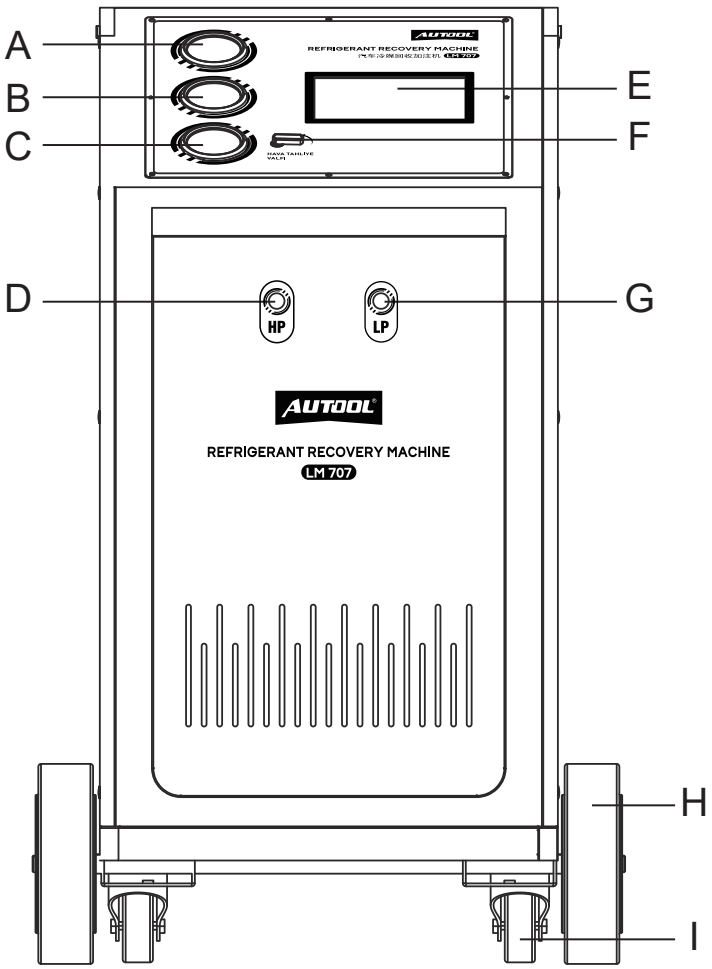
Input power	**AC 220V ±10% 50/60Hz, or AC 110V ±10% 60Hz**
Compressor power	**3/8HP**
Average gas state refrigerant recovery speed (through charge / suction port)	**0.25Kg/min**
Vacuum pump capacity	**60L/min, non-sparkle**
Recovery rate	**96%**
Accuracy of gas cylinder load cell	**±10g**
New oil bottle capacity	**250ml**
Used oil bottle capacity	**400ml**
Max. Pressure	**20bar**
Charge speed	**2Kg/Min(max.)**
High pressure gauge range	**-1bar~40bar**
Low pressure gauge range	**-1bar~22bar**
LCD display	**7-inch, touch screen**
Hand valves free	
A/C database included, update through SD card	
Flush: **Optional**, Flush time range: **10-60 minutes.** **For medium or small A/C (refrigerant volume at 500g) it is recommended to setflush time at 30 minutes;** **For large A/C (refrigerant volume at 1000g) it is recommended to setflush time at 60 minutes.**	

Function table

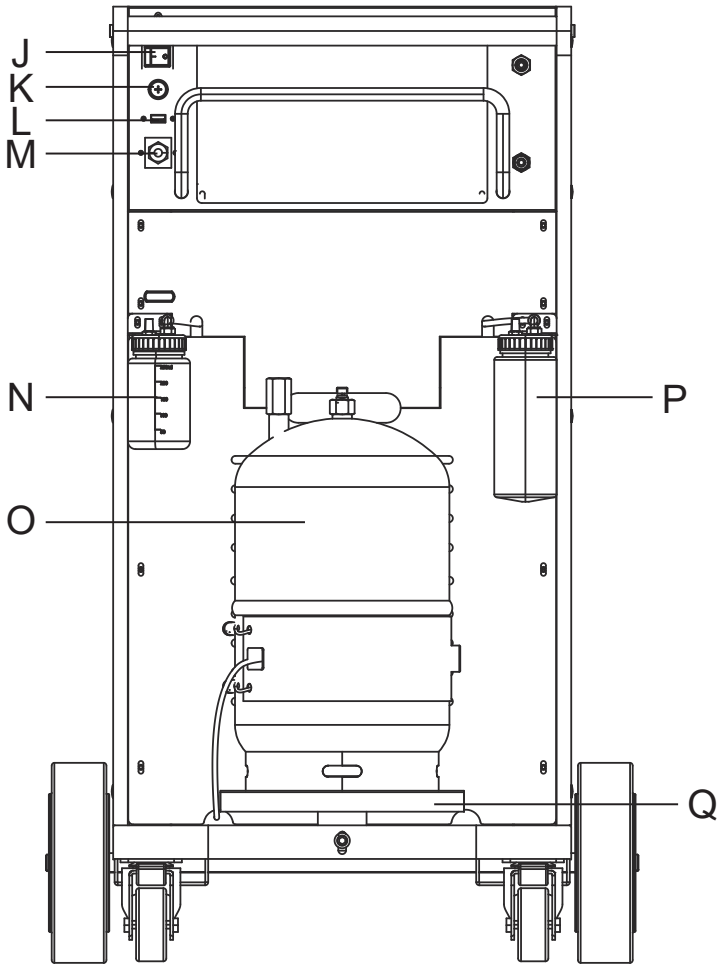
Main function	Recovery	Recovers and purifies refrigerant from automotive A/C to equipment tank.
	Vacuum	Evacuates air and moisture from the A/C system. Upon completion of vacuum, manual oil injection is prompted.
	Charge	Charge refrigerant from equipment gas cylinder to automotive A/C system.
	Tank fill	Transfer liquid refrigerant from an external refrigerant storage cylinder to equipment cylinder.
	Auto. mode	Performs the selected functions in a fully automatic sequence. The machine will stop automatically once all the selected functions have been completed.
Sys. setting	Language	Select operation language.
	Calibration	Calibration refrigerant gas cylinder load cells.
	Database	Enter automotive A/C database.
	Unit set	Select metric or imperial units.
	Empty container weight set	Set empty refrigerant gas cylinder.
	Component test	Test work status of solenoids, vacuum pump and compressor.

PRODUCT STRUCTURE

Structure diagram



A	HP Gauge	**B**	LP Gauge
C	TP Gauge	**D**	HP port
E	LCD Screen	**F**	Hava tahliye valfi
G	LP port	**H**	Front wheel
I	Rear wheel		

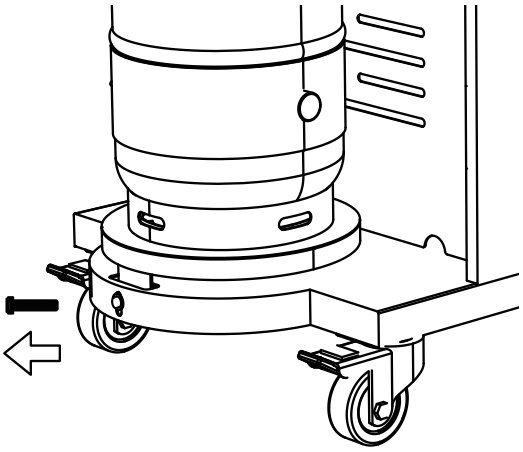


J	Power switch	**K**	Fuse
L	USB interface	**M**	Power cable
N	New oil bottle	**O**	Refrigerant gas cylinder
P	Used oil bottle	**Q**	Refrigerant gas cylinder support plate

OPERATIONS INSTRUCTION

Unlock load cells

- Remove the bolt that fix tank platform with chassis, to release tank load cell.

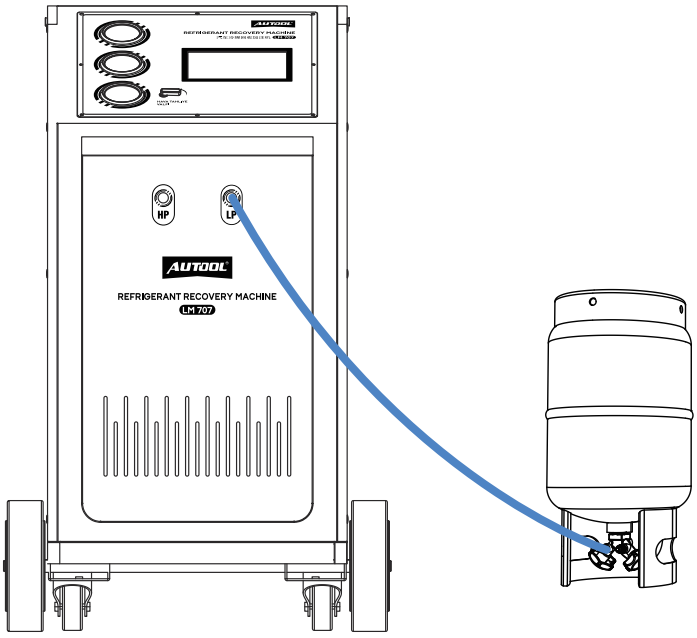


⚠ Warning

- Failure to remove the load cell lock bolts may cause wrong refrigerant processing amount.
- When you need transport the machine, please screw those bolts on.

Fill equipment with refrigerant

- New equipment is empty, you need to fill the equipment with refrigerant and refrigeration oil.



- Through tank fittings, connect either HP or LP hose with external refrigerant, and turn on the machine, select “Tank fill” function, set tank fill amount to fill tank with refrigerant.
- It is recommended to maintain refrigerant level of tanks at 4-6kg.

Air purge

- It is recommended to purge the air in equipment tanks every day before turning on the machine. Non-condensable purge manual valves and pressure-temperature chart can be found. Turn the valve to purge the non-condensable, strictly abiding by the pressure-temperature chart sticker.

Select refrigerant

- Each time the machine is turned on, it reminds to select refrigerant type. If the refrigerant type selected is different from the refrigerant handled at previous operation, the machine automatically recovers refrigerant inside machine pipelines, and makes extremely deep internal evacuation, and then shifts to the interface of the selected refrigerant. This process may take 10 minutes or more.

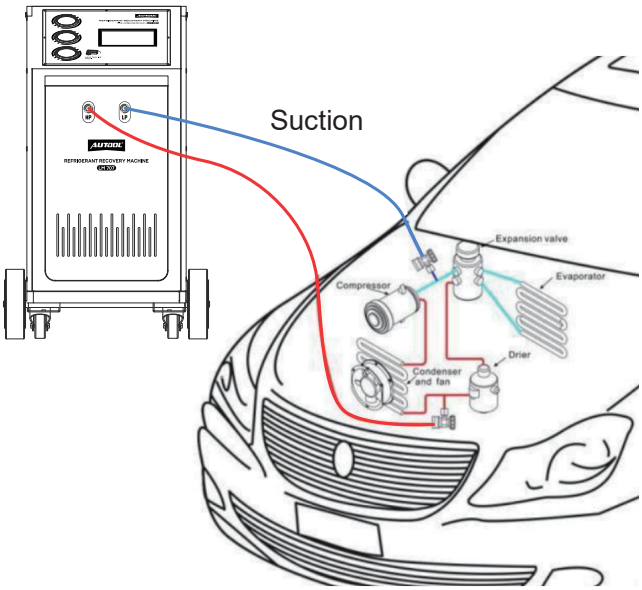
⚠ Notes

- Be sure you select same refrigerant type as what the vehicle contains, or serious contamination in equipment tanks will be caused.
- Anytime you desire to shift from the refrigerant which machine currently handles to another, turn the machine off and turn it on again, and then select refrigerant type.

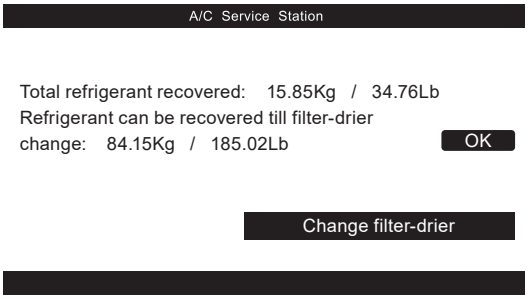
Equipment connection

⚠ Warning

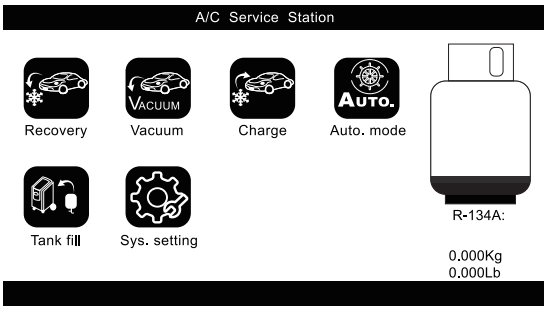
- Except the situations clearly stated in the manual, during all equipment operations, please maintain the vehicle engine and A/C off, otherwise unexpected damages may be caused.



- When machine is switched on, filter-drier life is displayed. Click OK to enter main menu.



- Main menu.



Recovery

- Empty used oil vessel before the recovery function is started.
- Select “Recovery” function icon and press ENTER to start the process.
- The recovery process recovers the refrigerant from vehicle A/C system, until vacuum degree is achieved in the vehicle A/C system. Moisture, oil and foreign particles are separated from the refrigerant before it is stored

in the internal refrigerant cylinder. The machine should be left connected on the vehicle for a minimum time of 3 minutes (longer in cold climates) for any pressure increase test. If after 3 minutes (or longer if possible) there is no pressure increase, the recovery can be acknowledged completed. If a pressure increase is detected recovery should be processed again.

Vacuum

- Select “Vacuum” icon in the main menu, set vacuum time and click OK to start the process.
- The Vacuum process evacuates system, and makes system ready for oil injection and refrigerant charge. Although it is up to users to determine vacuum time, a longer vacuum process is recommended.
- After vacuum, the machine prompts to inject oil by turning the new oil vessel hand valve at the machine side for fuel vehicles; For hybrid and electric vehicles, oil injection through the machine is prohibited, and it is recommended to inject oil with specialized oil injection tool.

⚠ Warning

▶ PAG oil for fuel vehicle is electricity-conductive. Very few PAG oil being injected into hybrid / electric vehicle could bring about serious consequence.

Charge

- Select “charge” icon and click OK to start the process.
- According the vehicle being serviced, select “Normal charging” (Fuel vehicles) or “High voltage charging” (Hybrid or electric vehicles).
- You can manually set charge amount with volume, or select “Charge by database” to set charge amount by car make and model.
- You can choose to charge through high side, low side or both sides.
- After charge and A/C performance is checked with engine started and A/C turned on. “Hose purge” is performed to help charge the refrigerant in service hoses into vehicle A/C system, to ensure better charge precision.

Tank fill

- Select Tank fill to fill or add refrigerant into machine storage cylinder. It is recommended to maintain 4-6 kg refrigerant in the machine internal cylinder at all time, to guarantee better charging operations. During the refrigerant cylinder filling process the machine will display to the technician to close hand valve on the external cylinder, the machine will then recover the rest of refrigerant left in the transfer service hose and internal pipelines.

- The minimum tank fill set value is 0.5kg.
- The maximum tank fill set value is the calculation result of 8kg (80% of tank allowable maximum weight) minus amount of refrigerant the tank contains (For example, if there is 2kg refrigerant in the equipment tank, the maximum tank set value is 6kg).

Auto. mode

- Empty used oil vessel before the process.
- You can select “Auto.mode” to do full cycle of recovery, vacuum, oil injection and charge.

- You can select “Auto.mode” to do full cycle of, recovery, vacuum and charge.
- According the vehicle being serviced, select “Normal charging” (Fuel vehicles) or “High voltage charging” (Hybrid or electric vehicles).
- In Auto. mode, the machine makes recovery, vacuum, oil injection (for fuel vehicles) and refrigerant charge in sequence automatically, with data preset by users.
- Empty used oil vessel before the process.

System setting

Select “system setting” icon and input PW 111111 (left and right arrow to move cursor, up and down arrow to increase / decrease number) to enter system setting menu. In system setting, “Language”, “Calibration”, “Database”, “Unit set”, “Empty container weight set” and “Component test” can be inquired or reconfigured.

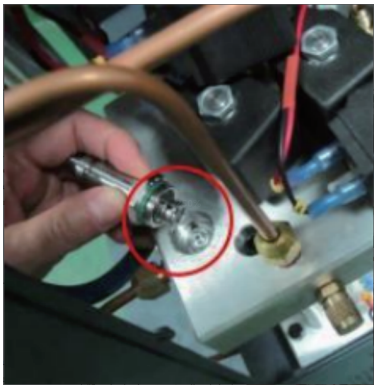
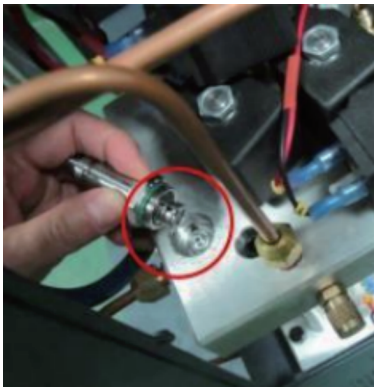
- **Language:**
  Can change operation system language.
- **Calibration:**
  It is suggested to have only professional technicians to do calibration of load cells. The load cell calibration is very simple and fast, with just one step, 1kg weight calibration step.

- **Warning:**
  Misoperation in calibration could bring about serious consequences to equipment or vehicle A/C system.
- **Database:**
  Users can access database of refrigerant / oil volume of different car makes and models.
- **Unit set:**
  To set metric or American imperial unit. The two numbers displayed in the bottom part of the interface are values of two tank load cells, for load cell diagnosis purpose.
- **Empty container weight set:**
  The total load cell reading equals the sum of empty container weight and net refrigerant content value. Thus, increase/decrease empty container weight, can correspondingly decrease / increase refrigerant value displayed in the main operation interface.
- **Component test:**
  Users can activate / dis-activate different electronic component of the machine. This is for quick and easy diagnosis for troubleshooting.
- **Altitude:**
  Set altitude, to ensure accurate refrigerant identification.

MAIN TROUBLESHOOTING

Remarks:
Regular maintenance by specialized technicians may largely reduce machine failure.

Malfunction	Reasons	Solution
Low vacuum degree.	• Insufficient vacuum pump oil. • Pump oil emulsion, dirty. • Pump oil inlet plugged. • Leakage in pump connection. • Components worn out.	• Add oil to central line. • Put new oil. • Clean oil inlet. • Check connection. • Maintain the machine, especially o-ring, washer and other sealing parts.
Vacuum pump inject oil.	• Excessive oil volume. • Entrance pressure too high.	• Discharge some oil to proper level. • Run Recovery function first.
No display.	• Fused (in Power cable connection box, or PCA). • PCA burnt. • Power cable loosened. • LCD not work.	• Change fuses. • Change PCA. • Connect power cable reliably. • Change LCD.
Recovery does not stop.	• Leakage in automotive A/C or equipment pipeline. • Compressor not work. • Pressure sensor does not work. **Remarks:** In winter, it is normal that recovery takes longer time.	• Make leakage test. Machine leakage test with reference to service manual. • Change compressor. • Fasten pressure sensor connection to PCA, or change the pressure sensor.
No change in recovery volume.	• No refrigerant in A/C. • Support screw of gas cylinder load cell not loosened. • Gas cylinder load cell not work or PCA failure.	• Stop recovery. • Unscrew the protection screw, as chapter “Operation preparations”. • Calibrate gas cylinder load cell, or change the load cell, or change PCA.
While auto A/C has refrigerant, equipment displays alarm 005.	• Low pressure switch plug disconnected from PCA socket.	• Fasten low pressure switch plug.

Malfunction	Reasons	Solution
High pressure alarm 004 but gas cylinder gauge does not show excessive pressure value.	• High pressure switch plug disconnected from PCA socket. • Pipeline connecting compressor exit blocked.	• Fasten high pressure switch plug. • Inspect the hoses and connections between compressor exit and tank blue hand vale.
No charge or slow charge.	• Insufficient refrigerant in equipment. • Charge line problem.	• Fill equipment tank with more refrigerant. • Check charge line, including tank red valve, tank red hose, solenoid #5, solenoid #9 (high side), solenoid #11 (long side), service hoses and HP/LP quick couplers.
During recovery, vacuum pump is pressurized. After period too much oil in vacuum pump.	• The contact between solenoid valve #8 and valve base is not well sealed.	• Remove solenoid #8 from valve base, clean the solenoid valve and valve base. 
During vacuum, there is suction in old oil bottle.	• The contact between solenoid valve #2 and valve base is not well sealed.	• Remove solenoid #2 from valve base, clean the solenoid valve and valve base. 

MAINTENANCE SERVICE

Our products are made of long-lasting and durable materials, and we insist on perfect production process. Each product leaves the factory after 35 procedures and 12 times of testing and inspection work, which ensures that each product has excellent quality and performance.

Maintenance

To maintain the performance and appearance of the product, it is recommended that the following product care guidelines be read carefully:

- Be careful not to rub the product against rough surfaces or wear the product, especially the sheet metal housing.
- Please regularly check the product parts that need to be tightened and connected. If found loose, please tighten it in time to ensure the safe operation of the equipment. The external and internal parts of the equipment in contact with various chemical media should be frequently treated with anti-corrosion treatment such as rust removal and painting to improve the corrosion resistance of the equipment and extend its service life.
- Comply with the safe operating procedures and do not overload the equipment. The safety guards of the products are complete and reliable. Unsafe factors are to be eliminated in time. The circuit part should be checked thoroughly and the aging wires should be replaced in time.
- Adjust the clearance of various parts and replace worn (broken) parts. Avoid contact with corrosive liquids.
- When not in use, please store the product in a dry place. Do not store the product in hot, humid, or non-ventilated places.

WARRANTY

From the date of receipt, we provide a three-year warranty for the main unit and all the accessories included are covered by a one-year warranty.

Warranty access

- The repair or replacement of products is determined by the actual break-down situation of product.
- It is guaranteed that AUTOOL will use brand new component, accessory or device in terms of repair or replacement.
- If the product fails within 90 days after the customer receives it, the buyer should provide both video and picture, and we will bear the shipping cost and provide the accessories for the customer to replace it free of charge. While the product is received for more than 90 days, the customer will bear the appropriate cost and we will provide the parts to the customer for replacement free of charge.

These conditions below shall not be in warranty range

- The product is not purchased through official or authorized channels.
- The product breakdown because the user does not follow product instructions to use or maintain the product.

We AUTOOL pride ourselves on superb design and excellent service. It would be our pleasure to provide you with any further support or services.

Disclaimer

- All information, illustrations, and specifications contained in this manual, AUTOOL resumes the right of modify this manual and the machine itself with no prior notice. The physical appearance and color may differ from what is shown in the manual, please refer to the actual product. Every effort has been made to make all descriptions in the book accurate, but inevitably there are still inaccuracies, if in doubt, please contact your dealer or AUTOOL after-service centre, we are not responsible for any consequences arising from misunderstandings.

RETURN & EXCHANGE SERVICE

Return & Exchange

- If you are an AUTOOL user and are not satisfied with the AUTOOL products purchased from the online authorized shopping platform and offline authorized dealers, you can return the products within seven days from the date of receipt; or you may exchange it for another product of the same value within 30 days from the date of delivery.
- Returned and exchanged products must be in fully saleable condition with documentation of the relevant bill of sale, all relevant accessories and original packaging.
- AUTOOL will inspect the returned items to ensure that they are in good condition and eligible. Any item that does not pass inspection will be returned to you and you will not receive a refund for the item.
- You can exchange the product through the customer service center or AUTOOL authorized distributors; the policy of return and exchange is to return the product from where it was purchased. If there are difficulties or problems with your return or exchange, please contact AUTOOL Customer Service.

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注意事项

安全规程

⚠ 在使用本仪器之前，请先仔细地通读一遍本手册，熟悉一下产品，避免造成人身伤害和仪器产品损坏事故。

- 本设备的冷媒罐内含有液态制冷剂。冷媒罐过度加注可能会引发剧烈爆炸。切勿关闭过度加注安全保护功能。操作设备时，制冷罐应始终放置在负载单元平台上。
- 操作前，请仔细阅读说明书。不正确的操作可能导致严重后果，例如空调系统损坏或设备损坏。
- 请只使用厂家推荐提供的专用冷媒罐。
- 请避免吸入制冷剂或油蒸汽/雾气，并阅读制冷剂和油包装上的物质安全说明。
- 在拆卸或维修设备之前，必须切断设备电源，从而避免致命的电击危险。
- 为了避免接触制冷剂，请必须佩戴安全眼镜和手套，保护眼睛和皮肤。如果接触液态制冷剂，请用大量清水冲洗受影响区域，并立即咨询医生，因为接触液态制冷剂可能导致冻伤和失明。
- 避免使用铜芯直径小于1.5mm^{2}的延长电源电缆。
- 设备周围不要存放汽油或其他易燃物质。
- 始终在通风良好的区域操作设备，并远离任何人工热源。

产品简介

概述

- LM-707能对车辆进行冷媒回收、抽真空、冷媒加注等操作。7英寸触摸屏设计，操作人员可以提前设定参数，设备按照设定的流程自动完成工作，大大提高了空调维护的工作效率。程序内设定车型数据库，可根据车型自动匹配冷媒加注量，基本覆盖市面常见的燃油车、新能源车、混合动力车。内部安装压缩机、电子秤、真空泵等高精度仪器，可实现高精度的冷媒回收及加注工作，此外，该设备还具有自我故障排除和方便的USB升级等功能。

产品规格

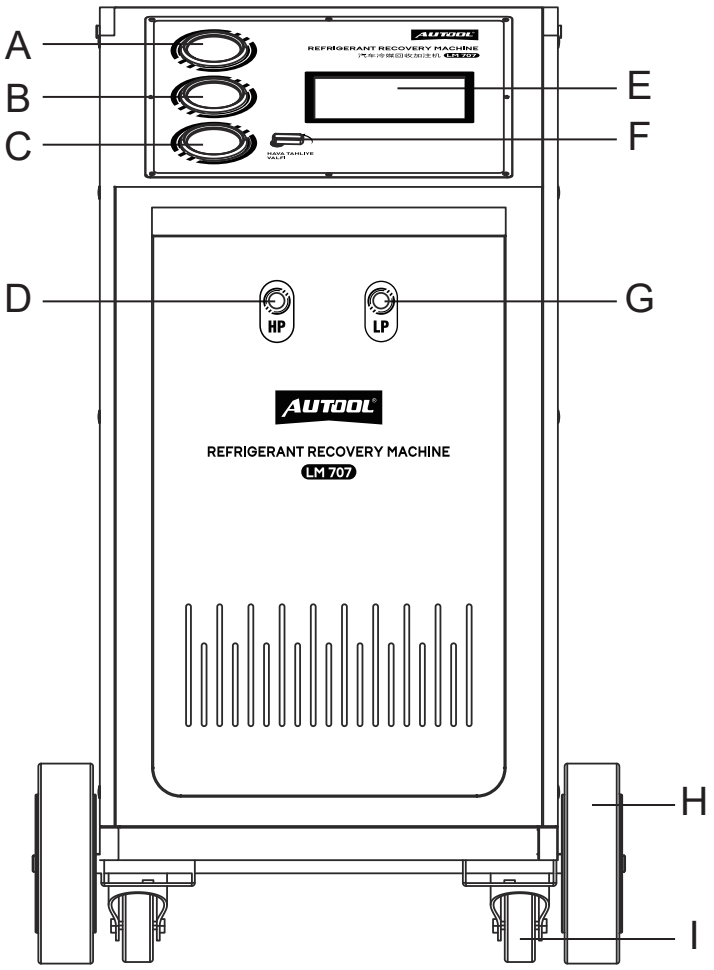
输入电源	**AC 220V ±10% 50/60Hz, or AC 110V ±10% 60Hz**
压缩机功率	**3/8HP**
平均气态制冷剂回收速度（通过加注/吸气口）	**0.25Kg/min**
真空泵容量	**60L/min, 无火花**
回收率	**96%**
钢瓶称重精度	**±10g**
新油瓶容量	**250ml**
旧油瓶容量	**400ml**
最大压力	**20bar**
填充速度	**2Kg/Min(最大)**
高压表范围	**-1bar~40bar**
低压表范围	**-1bar~22bar**
LCD显示	**7英寸, 触摸屏**
预排气	**在开启电源开关后，设备会进行30秒通风处理，然后才开始启动。**
自动服务提醒。 设备的干燥过滤器寿命设计为100KG制冷剂的干燥和回收。	
用于燃油车、混合动力车和电动车。	

功能表

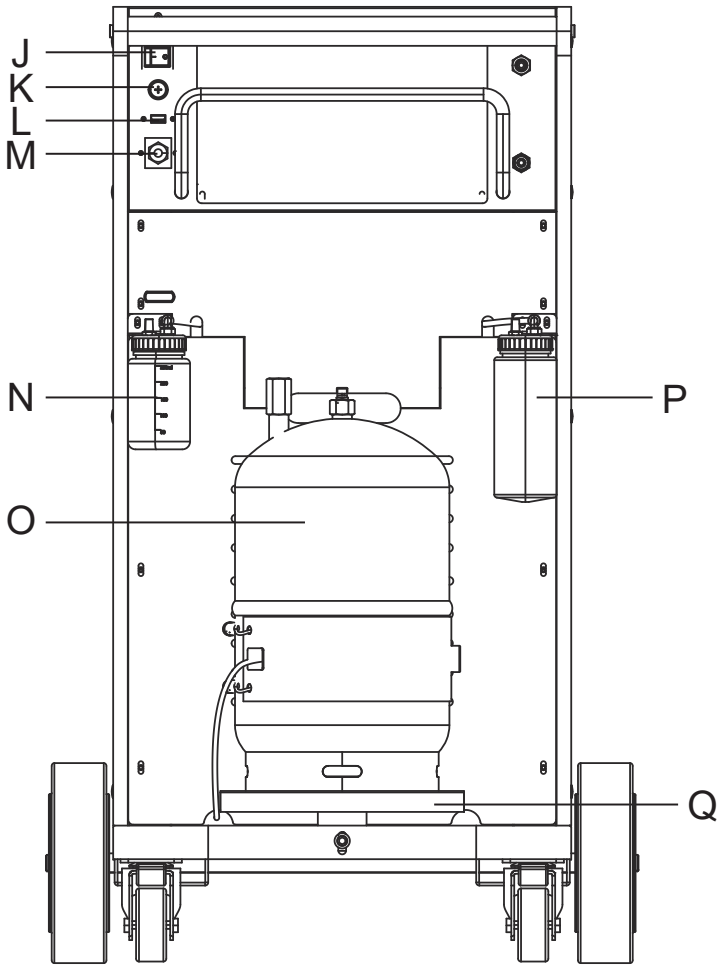
主要功能	回收	回收和净化从汽车空调到设备罐的制冷剂。
	抽真空	抽走A/C系统中的空气和湿气。完成抽真空后，提示手动注入油。
	冷媒加注	用设备的制冷剂罐给汽车空调系统加注制冷剂。
	冷媒补充	将液态制冷剂从外部制冷剂储存瓶转移到设备制冷剂罐内。
	自动模式	设备会自动按顺序执行所选功能。一旦所有选定的功能完成，机器将自动停止。
系统设置	语言	选择操作语言。
	标定	校准制冷剂罐的称重传感器。
	数据库	输入汽车空调数据库。
	单位设置	选择公制或英制单位。
	重量设置	设置排空制冷剂罐。
	元件测试	测试螺线管、真空泵和压缩机的工作状态。

产品结构

结构图



A	高压表	**B**	低压表
C	罐压表	**D**	高压接口
E	触摸屏	**F**	空气疏散阀
G	低压接口	**H**	前滑轮
I	后滑轮		

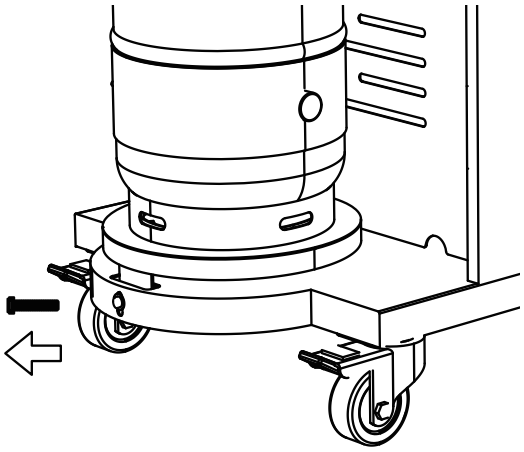


J	电源开关	**K**	保险丝
L	USB接口	**M**	电源线
N	新油瓶	**O**	制冷剂气瓶
P	旧油瓶	**Q**	制冷剂气瓶称重传感器

操作说明

解锁称重传感器

- 卸下锁紧的螺栓，释放制冷剂罐的称重传感器，并使其准备好工作。



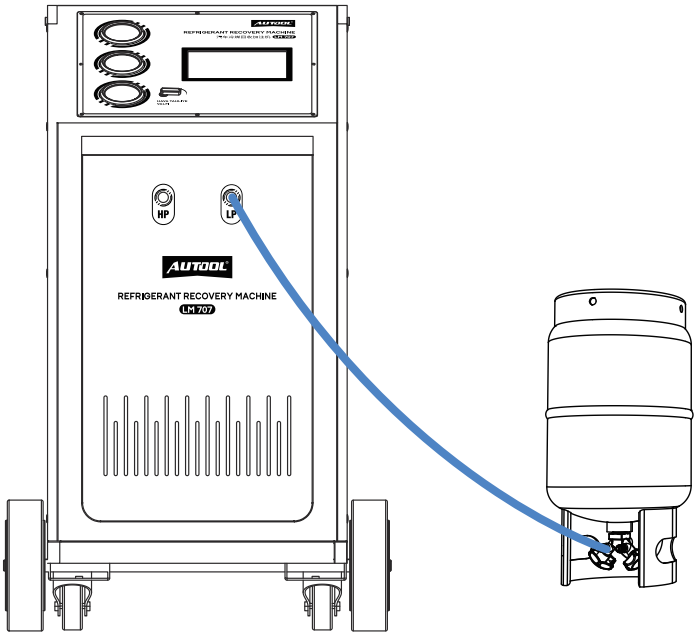
⚠ 警告

▶ 如果没有卸下称重传感器的锁紧螺栓，可能会导致制冷剂的量计算错误。

▶ 当您需要运输机器时，请将这些螺栓拧紧。

给设备填充制冷剂

- 新设备是空的，所以需要给设备注入制冷剂和冷冻油。



- 通过制冷剂罐接头，将高压或低压软管与外部制冷剂连接起来，并打开机器选择 “冷媒补充” 功能，设置冷媒补充量以加注制冷剂罐中的制冷剂。

- 建议将制冷剂罐的制冷剂量都保持在4-6公斤。

不凝性气体排空

- 建议每天在开机前对设备制冷剂罐内的空气进行排空。可以找到不凝性气体排空的手动阀门，转动阀门排空不凝性气体。

选择制冷剂

- 每次设备开机，它都会提醒选择制冷剂类型。如果选择的制冷剂类型与以前操作时处理的制冷剂不同，设备会自动回收管道内的制冷剂，并进行内部排空，然后再回到所选制冷剂的界面。这个过程可能需要10分钟或更长时间。

⚠ 注意

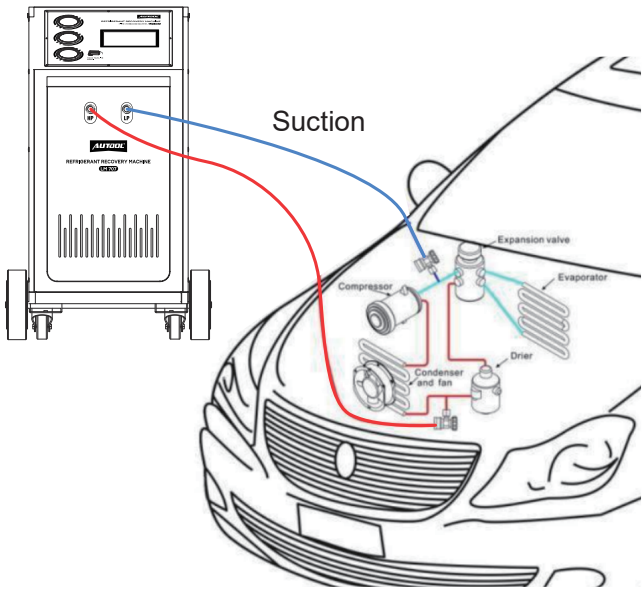
▶ 请确保选择与车辆相同的制冷剂类型，否则将造成设备制冷剂罐的严重污染。

▶ 如果你想从机器目前处理的制冷剂更改为另一种制冷剂，请关闭设备并再次打开，然后再选择制冷剂类型。

设备连接

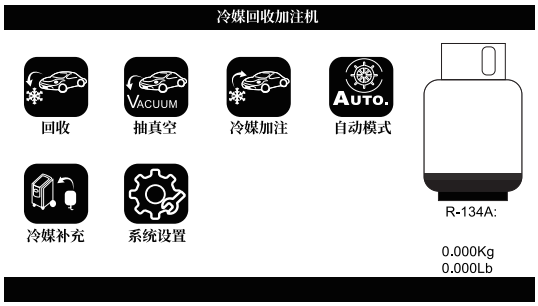
⚠ 警告

▶ 除手册中明确规定的情况外，在所有设备操作过程中，请保持车辆发动机和空调关闭，否则可能会造成意外的损失。



- 当机器开机时，会显示干燥过滤器的寿命。点击确定，进入主菜单。

- 主菜单。



回收

- 在回收功能开始之前，先清空废油瓶。
- 选择“回收”功能，启动该程序。
- 回收过程将从车辆空调系统中回收制冷剂，直到车辆空调系统达到真空状态。在存储到内部制冷剂罐之前，将水分、油和杂质与制冷剂分离。进行压力测试时，设备应最少连接车辆3分钟（在寒冷气候下应更长时间）。如果3分钟后（或更长时间）没有发现压力增加，可以确认回收已完成。如果检测到压力增加，则应重新进行回收处理。

抽真空

- 在主菜单中选择“抽真空”图标，设置抽真空时间，然后点击“确定”启动该过程。
- 对系统进行抽真空，并使系统为加注冷冻油和加注制冷剂做好准备。尽管用户可以随意决定抽真空时间，但是我们建议给抽真空过程设置合适的时间是非常必要的。
- 在抽真空处理后，设备会提示通过转动机器侧面的手动阀加注新冷冻油，适用于燃油车；对于混合动力和电动车辆，禁止通过设备进行注油，建议使用专用的注油工具进行注油。

⚠ 警告

▶ 燃油车用的冷冻油具有导电性。即使注入少量冷冻油到混合动力或电动车辆，也会可能会带来严重后果。

制冷剂加注

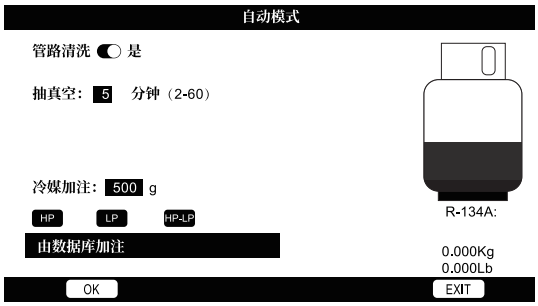
- 选择“冷媒加注”功能，并点击“确定”启动该过程。
- 您可以手动设置加注量，或选择“按数据库加注”，根据汽车品牌和型号设置加注量。
- 加注完成后，需要启动发动机并打开空调检查其性能，以确保加注精度更精确。

冷媒补充

- 选择“冷媒补充”功能，给设备制冷剂罐中补充制冷剂。建议在设备内部钢瓶中保持4-6公斤的制冷剂量，这样有利于加注操作。
- 在补充制冷剂的过程中，设备会向技术人员显示关闭外部钢瓶上的手控阀，设备将回收剩余的制冷剂。剩余的制冷剂将被回收到传输软管和内部管道中。然后，设备将回收留在传输软管和内部管道的剩余制冷剂。
- 制冷剂罐最小补充设定值为0.5kg。
- 制冷剂罐的最大设定值是8公斤（制冷剂罐允许最大重量的80%）的计算结果减去水箱中的制冷剂数量（例如，如果设备制冷剂罐中有2公斤制冷剂，则制冷剂罐的最大设定值是6公斤）。

自动模式

- 操作之前，请先清空废油瓶。
- 您可以选择“自动模式”来完成回收、抽真空、加注冷冻油和加注冷媒的整个循环。



- 在自动模式下，用户可以预设数据，设备会根据数据依次进行回收、抽真空加注冷冻油（用于燃油车）和制冷剂加注。

系统设置

选择“系统设置”图标并输入111111（左右箭头移动光标，上下箭头增加/减少数字），进入系统设置菜单。在系统设置中，可以被查询或重新配置“语言”、“标定”、“数据库”、“单位设置”、“重量设置”和“元件测试”这些功能。

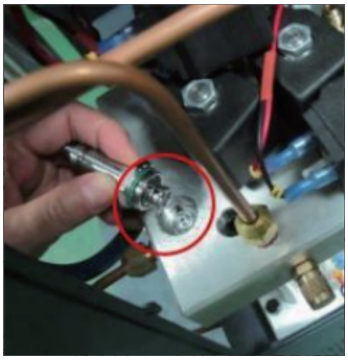
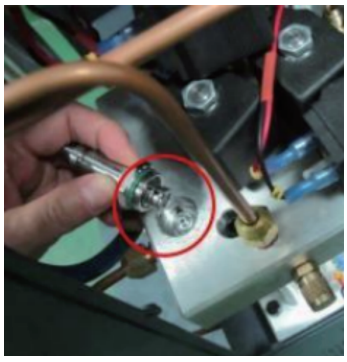
- **语言：**
  可以改变操作系统的语言。
- **校准：**
  建议请专业的技术人员来进行称重传感器的校准。称重传感器的校准非常简单和快速，只需一个步骤，即1公斤重量的校准步骤。
- **警告：**
  校准过程中的错误操作会给设备或车辆空调系统带来严重后果。
- **数据库：**
  用户可以访问不同汽车品牌和型号的制冷剂/油量数据库。
- **单位设置：**
  设置公制或美制单位。界面下方显示的两个数字是两个冷媒罐称重传感器的数值，供称重传感器诊断用。
- **重量设置：**
  称重传感器的总读数等于重量和净制冷剂含量值的总和。
- **重量集：**
  称重传感器的总读数等于重量和净制冷剂含量值之和。因此，增加/减少空箱重量，可以相应减少/增加主操作界面中显示的制冷剂值。
- **元件测试：**
  用户可以激活/禁用机器的不同电子元件。
  激活/关闭机器的不同电子元件。这是为了快速和方便的诊断，以排除故障。
- **海拔高度：**
  设置海拔高度，以确保制冷剂识别正确性。

主要故障排除

备注:

由专业技术人员定期维护可大大减少机器故障。

功能故障	原因	解决方案
真空度低	● 真空泵油不足。 ● 泵油乳化，变脏。 ● 泵的进油口堵塞。 ● 泵的连接处有渗漏。 ● 部件磨损。	● 给中心管路添加油。 ● 加入新油。 ● 清洁进油口。 ● 检查连接处。 ● 保养机器，特别是O型圈，垫圈和其他密封件。
真空泵注油	● 油量过大。 ● 入口压力过高。	● 适当排除一些油到合适的水平。 ● 先运行回收功能。
无显示	● 保险丝熔断了（在电源线连接盒内，或PCA）。 ● PCA烧毁。 ● 电源线松动。 ● LCD显示器无法工作不工作。	● 更换保险丝。 ● 更换PCA。 ● 确保电源线连接牢固 ● 更换LCD。
制冷剂回收无法停止	● 汽车空调或设备管道漏水。 ● 压缩机不工作。 ● 压力传感器不工作。 备注: 在冬季，正常情况下冷媒回收需要更长的时间。	● 进行泄漏测试。参照维修手册进行机器泄漏测试。 ● 更换压缩机。 ● 拧紧压力传感器与PCA的连接，或更换压力传感器。
制冷剂回收量没有变化	● 空调中没有制冷剂。 ● 气瓶称重传感器的支撑螺丝没有松动。 ● 气缸称重传感器不工作或PCA故障。	● 停止冷媒回收。 ● 拧开保护螺丝，如 “操作准备” 一章。 ● 校准气瓶的称重传感器、或更换称重传感器，或更换PCA。
当汽车空调有制冷剂时，设备显示警报005	● 低压开关插头与PCA插座断开。	● 拧紧低压开关插头。

功能故障	原因	解决方案
高压报警004，但气瓶表没有显示过高的压力值	● 高压开关插头与PCA插座断开。 ● 连接压缩机出口的管道被堵塞了。	● 紧固高压开关 插头。 ● 检查压缩机出口和油箱蓝色手阀之间的软管和连接处。
没有充电或充电缓慢	● 设备中的制冷剂不足。 ● 加注线路问题。	● 给设备冷媒罐加注更多的制冷剂。 ● 检查加注管路，包括冷媒罐的红色阀门、红色软管、5号电磁铁、9号电磁铁（高位）、11号电磁铁（长位）、维修软管和HP/LP快速接头。
冷媒回收过程中、真空泵是有压力的。过了一段时间真空泵内有太多的油。	● 电磁阀#8与阀座之间的接触密封不良。	● 从阀座上拆下8号电磁阀，清洗电磁阀和阀座。 
抽真空时，旧油瓶仍有吸力	● 电磁阀#2与阀座之间的接触密封不良。	● 从阀座上拆下电磁阀#2，清洁电磁阀和阀座。 

维修保养服务

您所拥有的AUTOOL产品选用持久耐用的材料，AUTOOL坚持精益求精的生产工艺，每一件产品出厂都经过35道工序及12次质检工作，从而确保每一件产品都拥有卓越的品质及性能。所以您的AUTOOL产品值得您定期维护保养，使其产品将能够长期稳定地工作。

维修保养

维护保养是为了保持产品性能和外观，我们建议您仔细阅读以下产品保养指南:

- 注意不要将产品与粗糙表面摩擦或揉搓产品，特别是钣金外壳。
- 对产品中需要紧固和连接的部位经常进行检查，如发现松动应及时紧固，以保证产品的安全运行。对与各种化学介质接触的产品外部和内部零件要经常进行除锈、喷漆等防腐处理，以提高产品的抗腐蚀能力，延长产品的使用寿命。
- 遵守安全操作规程，不超负荷使用产品。产品的安全防护装置齐全可靠，及时消除不安全因素。电路部分彻底检查，老化电线要及时更换。
- 定期清洗和更换易耗部件；调整各部位配合间隙和更换磨损（已坏）部件清洁时，避免产品接触带腐蚀性的液态物品。
- 不使用时，请将产品存放于干燥的位置。不要将产品存放在高温、潮湿或不通风的地方。

保修服务

AUTOOL主机自客户签收日起享有3年保修期。其所含附件自客户签收日起享有1年保修期。

保修方式

- 根据具体的故障情况对产品进行免费修理或更换;
- 我方保证所有更换的部件、附件或产品都是全新;
- 在客户收到产品90天内出现故障同时提供视频和图片，我方承担运费并免费提供相应配件给客户更换。收到产品超过90天，客户承担相应的费用，我方免费提供配件给客户更换;

以下情况不在免费保修范围:

- 非正规渠道购买AUTOOL的产品;
- 未按产品说明书要求使用和维护造成的损坏;

在AUTOOL，我们为精湛的设计和卓越的服务感到自豪。我们很乐意为您提供更多的支持或服务。

声明

- 偶然公司保留更改产品设计与规格的权利，届时恕不另行通知。实物外观与颜色可能与说明书中显示的有差别，请以实物为准。我们已尽最大努力力求使书中所有描述准确，但仍难免有不妥之处。如有疑问，请联系经销商或偶然售后服务中心。本公司对产品拥有最终解释权，不承担任何因误解而产生的后果。

退换货服务

退换货

- 如果您对从线上授权购物平台和线下授权经销商所购买的AUTOOL产品不满意，根据《AUTOOL全球销售条款》，您可以自收到产品之日起七日内退货；或者在产品交付之日起的30日内调换等值的其他产品。
- 退回及调换的产品必须处于完全可销售状态，并附上相关销售单单据，所有相关配件、纸质发票（如有）。
- AUTOOL将会对寄回退货的商品进行检查，以确保其处于完好无损的状态并且符合条件，相关条件详情请参阅《AUTOOL全球销售条款》。任何未通过检查的商品将退还给您，您将不会获得商品退款。
- 您可以通过客户服务中心或AUTOOL授权经销商调换产品；退换货原则为从哪里购买，就从哪里退换货。如果您退换货遇见困难或者阻碍，请联系AUTOOL客户服务中心。通过客户服务中心退换货时，我们建议您通过下面的方式进行：

中国区域致电	400-032-0988 / 18929303778
售后微信号	18929303778
海外区域致电	+86 0755 23304822
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Facebook	https://www.facebook.com/autool.vip
YouTube	https://www.youtube.com/c/autooltech

- 如您的退换货得到确认，您将收到确认信息和邮件。