Refrigerant Management System Automatic for R-134a and R-1234yf

YELLOW JACKET®

User's Manual

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WARNING! CAUTION!

Before operating this unit, please read this manual thoroughly. You must understand the procedures outlined in this manual. Failure to follow these procedures could void all warranties.

Before handling refrigerants, read the material safety data sheet (MSDS) from the refrigerant manufacturer.

Inhalation of high concentration of refrigerant vapors is harmful and may cause heart irregularities, unconsciousness, or death. Deliberate inhalation of refrigerants is extremely dangerous. Death can occur without warning. Vapors reduce oxygen available for breathing and are heavier than air. Decomposition products are hazardous. Liquid contact can cause frostbite. All refrigerant containers, equipment, and hoses are under pressure.

37840, 37860 Refrigerant Management System

Specifications

Refrigerants:	37840 – Factory set for R-134a 37860 – R-1234yf
Electrical:	
Compressor:	Single 1/2 HP Hermetic Compressor
Power Source:	120V AC 60Hz for US Models
Amperage:	10 amps
Auxiliary Outlets:	10 amps maximum 2 amps during recovery
Size:	
Height:	45 inches
Width:	22 inches
Depth:	29 inches
Weight:	Maximum 265 lb. with full tank
Pressure:	
Low side:	Factory tested 186 psig
High side:	Factory tested 350 psig

General Safety Instructions

Know your equipment. Read and understand the operation manual and labels affixed to the unit. Learn its application and limitations as well as the specific potential hazards of your equipment.

ALWAYS WEAR SAFETY GOGGLES.

Ground all equipment. This unit is equipped with an approved 3 prong grounding-type plug. The green ground wire should never be connected to a live terminal.

Use the Proper Extension Cords. Use the following guide for choosing the proper extension cord and keep such cords at a minimal length.16 Ga. Minimum.

Cord Gauge – Maximum Length
16 Ga. - 25 feet
14 Ga. - 50 feet
12 Ga. - 100 feet

Avoid Dangerous Environments. Do not use this unit in damp locations or expose it to rain. This equipment should be used in a location with mechanical ventilation that provides at least four air changes per hour. This equipment should not be used near open containers of flammable liquids.

Disconnect Unit from Power Supply Before Servicing. An electrical shock hazard is present when the unit is disassembled or the cowling is removed.

Repair Damaged Parts. Do not operate the unit with a defective part. Have unit repaired to proper operating conditions. Only use factory authorized parts. Any service to the machine not outlined in this manual should only be done by factory authorized service personnel. Ritchie Engineering is not responsible for any lost refrigerant.

Use Recommended Accessories. Follow the instructions that accompany all accessories. Improper use of accessories may damage equipment or create a hazard.

Use Caution When Connecting or Disconnecting. Improper usage may result in refrigerant burns (frostbite). If a major refrigerant leak occurs, proceed immediately to a well ventilated area. The hoses included with this unit are supplied with couplers that, when closed, prevent refrigerant vapors from venting when disconnecting from the automobile.

Only Use the 37840 and 37860 with the Correct Refrigerants. The 37840 and 37860 approved for use only with R-134a and R-1234yf. Take care to only use the refrigerant for which the machine is currently configured.

CAUTION! The 37840 and 37860 are designed to handle multiple refrigerants but not concurrently. Only service systems containing the refrigerant for which the machine is currently configured to run.

Operate the Unit within the Design Environment. The 37840 and 37860 are designed to operate in a temperature range from 40°F to 120°F. The unit should also not be operated in a wet location.

WARNING! Refrigerant, in liquid and vapor form, is a potentially hazardous material. Please consult the manufacturer's Material Safety Data Sheet for additional information and adhere to the following safety guidelines:

- Avoid breathing high concentrations of vapors.
- Use with sufficient ventilation to keep operator exposure below recommended limits, especially in enclosed and low lying areas.
- Avoid contact of liquid refrigerant with the eyes and prolonged skin exposure.
- Wear goggles and protective gloves.
- Do not attempt to operate this unit above 120°F ambient temperature.
- Do not allow refrigerants to contact open flame. Refrigerant decomposition in a flame results in phosgene gas. Breathing phosgene gas can be fatal.

FIRST AID: If high concentrations of refrigerant are inhaled, immediately remove the victim to fresh air. Call a physician or emergency medical technician. Keep calm. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Do not give epinephrine or similar drugs.

EYE: In case of liquid contact, immediately flush eyes with plenty of water. Call a physician.

SKIN: Flush with water and if necessary, treat for frostbite gently warming affected area.

CAUTION! All refrigerant hoses, recovery tanks, refrigerant lines, and other vessels containing refrigerants should be handled as if under high pressure.

CAUTION! Improper use or handling of equipment could lead to damage increasing the risk potential of leaks. Always use care when transporting equipment and when servicing components to avoid damaging refrigerant tubing.
CAUTION! This machine should only be operated by certified personnel.

CAUTION! Avoid breathing A/C refrigerant and lubricant vapor or mist. Exposure may irritate eyes, nose, and throat. To remove refrigerant from the A/C system, use only equipment certified for the type of refrigerant being removed. Additional health and safety information may be obtained from refrigerant and lubricant manufacturers.

CAUTION! Do not pressure test or leak test equipment and/or vehicle air conditioning systems with compressed air. Some mixtures of air and refrigerant have been shown to be combustible at elevated pressures. These mixtures, if ignited, may cause injury or property damage. Additional health and safety information may be obtained from refrigerant and lubricant manufacturers.

WARNING! R-1234yf is classified as an A2L flammable refrigerant. Caution should be taken when working with this refrigerant. See refrigerant manufacturers SDS for more information.

Component Diagram

1. Tablet (Control Panel)
2. Auto High Side Hose (Red)
3. Auto Low Side Hose (Blue)
4. Tank Vapor Hose (Red)
5. Tank Liquid Hose (Blue)
6. Oil Drain Bottle
7. Tool Trays
8. Main Power Switch
9. Refrigerant Storage Tank
10. Vacuum Pump
11. Tank Temperature Clamp
12. Auxiliary outlets

App Install and Configuration

Periodic updates to the App for running the machine are released for improved user information and for optimized system performance. Before operating the machine it is recommended to contact Ritchie Engineering to guarantee that the latest software version is installed. If the software is current proceed with setup otherwise tech support will assist in updating the software.

Note: For tech support to assist in updating the tablet software the tablet needs to be connected on a local Wifi connection. The machine does not need to be present to update the tablet software.

Note: All versions of released software will allow the user to accurately and safely perform service. Updates to the software are made, for example, to improve user workflow within the software.

Note: App updates will be pushed to both the Google Play Store, and the Amazon App Store. Your device will update itself automatically.

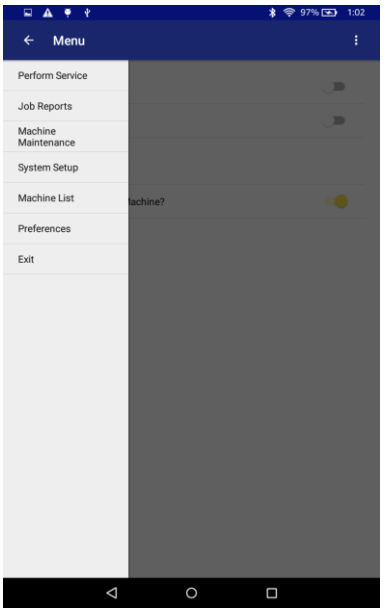
https://play.google.com/store/apps/details?id=com.yellowjacket.android&hl=en
https://www.amazon.com/Ritchie-Engineering-Inc-RMS/dp/B078XJ8NNV

Tablet Display Overview

Tablet display provides the unit operator with continual updates of the status of the machine while allowing the operator to move away from the machine. In addition, the display will prompt the technician for the user input needed to continue operation. The display also shows error codes for rapid diagnosis of abnormal conditions.

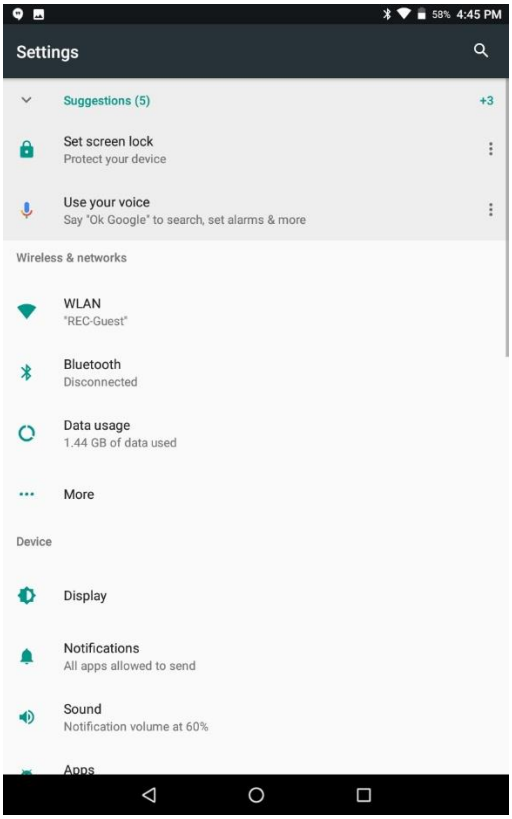
App Menu

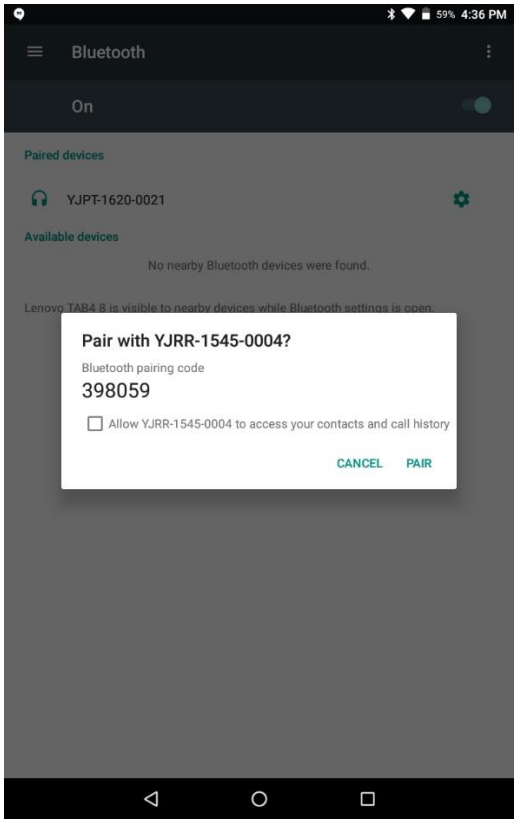
To access the main app menu, click the menu icon in the upper left corner of the app.



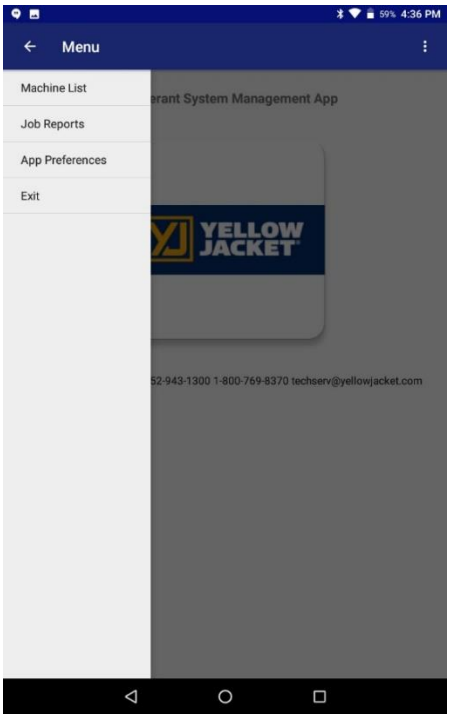
CONNECTING ANDROID TO RMS MACHINE

Tablet settings> Wireless> Tap on Bluetooth-Turn on if not already on
Turn on RMS machine> Tap on Available devices>Pair Bluetooth device-Choose (Prefix YJRR)
Exit Wireless settings

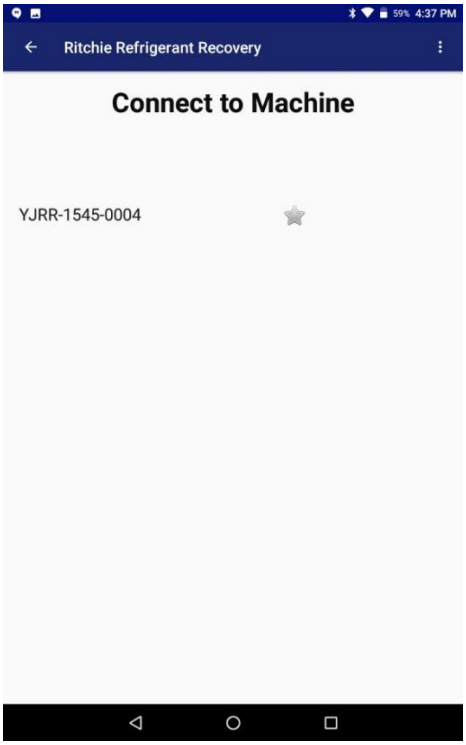


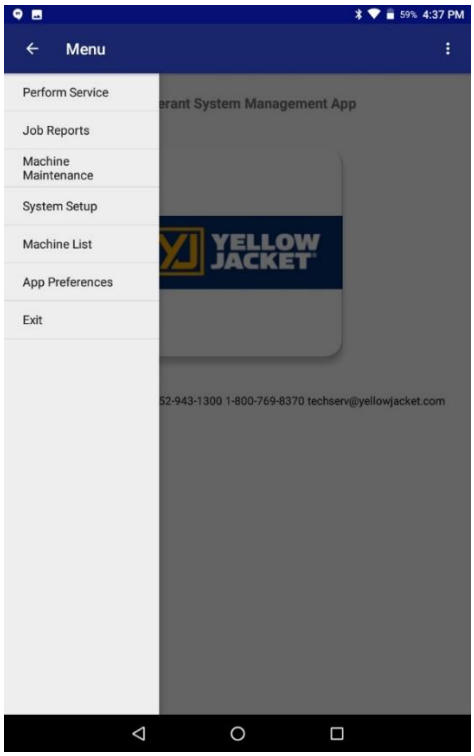


Open the RMS app>Click on the arrow in the upper left corner>Machine list



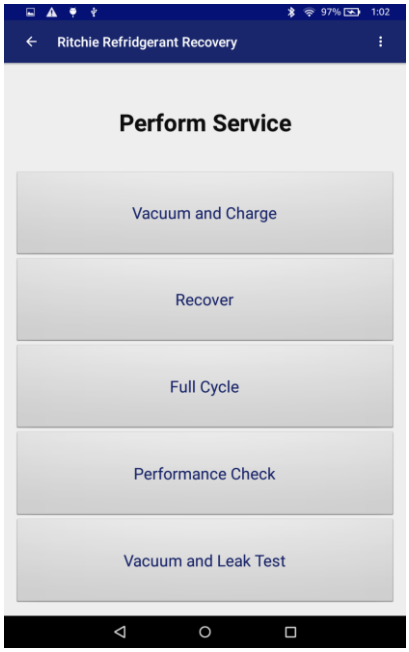
Select your RMS machine (Prefix YJJR)>Tap on the name. Choose your function.





Perform Service

The Perform Service screen has all the options you will need to provide service on a vehicle after the diagnostic has been completed.



Vacuum and Charge

Vacuum and Charge Operational Steps:

1. Verify that the vehicle and its air conditioning system are off.
Note: Before attempting any charging operation go to SYSTEM SETUP to see how much Chargeable Weight of refrigerant is available. Must be a minimum of 10 lbs.

2. From the Main Menu select PERFORM SERVICE.

3. If desired enter a unique job name. This name will be tied to this job can help you keep track of AC jobs on specific vehicles.

4. Fill out the job form as it pertains to the vehicle being serviced and hit NEXT.

Note: The minimum vacuum time is 5 minutes and a 10 - 15 minute minimum vacuum time is recommended to ensure full evacuation of the system and accurate charging for normal sized systems.

Note: Due to SAE regulations the charge amount must be displayed to the user in KILOGRAMS, so we provide a real-time conversion (read-only) showing the charge amount, if your preferences are set to Lbs.

For hybrid vehicles it may be necessary to perform a hose flush. If necessary perform a hose flush.

7. The display should read “CONNECT SERVICE HOSES TO THE VEHICLE. PRESS START TO BEGIN.”

8. Connect the high and low side auto service hoses to the respective high and low side service ports on the automobile A/C system.

9. Open the service hose valves by tightening the knob on the top of the service hose coupler and push START.

10. The machine will now go through the vacuum and leak test procedure required before charging per SAE J2843 as outlined in the Vacuum and Leak Check section.

11. After the vacuum and vacuum hold time the display will read “STABILIZING PLEASE WAIT” The unit will then automatically start the charge cycle. The display will show the charging process progress. The unit will beep when the desired charge amount has been transferred to the A/C system.

NOTE: The last 3 oz. of refrigerant charge will be metered in by the charging solenoid. It is normal to hear a clicking sound while charging.

12. Verify the message on the display reads “CHARGE COMPLETE.”

13. Close the service valves and disconnect the high and low side auto service hoses from the automobile.

14. After disconnecting the service hoses from the vehicle press the RESET key and allow the machine to complete its automatic hose clearing procedure.

15. If any lubricant was pulled out of the system during service replace it with the same amount of only new lubricant using an oil injector such as the YELLOWJACKET 37842.

Recover

The Recovery Option should be used to fully recover and recycle all refrigerant from an air conditioning system. For instance, if the system needs to be opened to atmosphere to replace a part, all refrigerant must be removed before opening the system.

RECOVER Operational Steps

1. Verify that the vehicle and its air conditioning system are off.

2. From the main menu select PERFORM SERVICE.

3. Fill out the job form as it pertains to the vehicle being serviced and hit NEXT.

4. The live display box should read “CONNECT SERVICE HOSES TO VEHICLE ENTER TO CONTINUE.”

5. Connect the high and low side auto service hoses to the respective high and low side service ports on the automobile A/C system.

6. Open the service hose valves by tightening the knob on the top of the service hose coupler.

7. Press START to begin recovery operations.

WARNING

DO NOT RECOVER CONTAMINATED REFRIGERANT WITH THIS UNIT. RECOVERING CONTAMINATED REFRIGERANT WILL VOID ALL WARRANTIES AND MAY CAUSE DAMAGE TO OTHER AUTOMOBILES SERVICED IN THE FUTURE.

8. During the recovery operation, refrigerant is removed from both the high and low side of the automobile air conditioning system. The tablet will display the amount of refrigerant currently recovered during the cycle and the status window will read “RECOVERING REFRIGERANT

Full Cycle

The Full Cycle function is designed to remove, clean, and recharge all refrigerant in an A/C system by transferring the refrigerant to the storage tank, filtering out contaminants, removing any moisture in the system by pulling a vacuum, and charging the system backup with a precise amount of refrigerant.

Operational Steps

1. Verify that the vehicle and its air conditioning system are off.

Note: Before attempting any charging operation go to SYSTEM SETUP to see how much Chargeable Weight of refrigerant is available. Must be a minimum of 10 lbs.

2. From the Main Menu select PERFORM SERVICE

3. Select FULL CYCLE.

4. Fill out the job form as it pertains to the vehicle being serviced and hit NEXT.

Note: Due to SAE regulations the charge amount can only be entered in grams/kilograms. However there is a real-time Lbs. conversion box on the screen, if your settings are set to Lbs.

Note: The minimum vacuum time is 5 minutes and a 10 - 15 minute minimum vacuum time is recommended to ensure full evacuation of the system and accurate charging for normal sized systems.

Note: On the 37840 machine configured for R-134a the Vacuum Hold Time can be bypassed if the time is set to zero.

5. The display should read “CONNECT SERVICE HOSES TO VEHICLE”.

6. Connect the hoses to the vehicle and press START to begin full cycle operations.

7. The unit will begin to recover as outlined in the Recover Only cycle. Once the refrigerant has been recovered, the machine will automatically begin evacuating the system with the same procedure as Vacuum and Leak Check and will beep to indicate the end of the Vacuum Time and after the Vacuum Hold if Vacuum Hold is used.

8. After the Vacuum and Vacuum Hold Time the display will read “STABILIZING PLEASE WAIT” The machine will then start the charge cycle.

9. The display will show the charging process progress. The unit will beep when the desired charge amount has been transferred to the A/C system.

NOTE: The last 3 oz. of refrigerant charge will be metered in by the charging solenoid. It is normal to hear a clicking sound while charging.

10. Verify the message on the display reads “CHARGE COMPLETE.”

11. Close the service valves and disconnect the high and low side auto service hoses from the automobile.

12. After disconnecting the service hoses from the vehicle press the RESET key and allow the machine to complete its automatic hose clearing procedure.

13. If any lubricant was pulled out of the system during service replace it with the same amount of only new lubricant using an oil injector such as the YELLOWJACKET 37842 for R-134a or 37862 for 1234yf.

Performance Check

To check the performance of the vehicle’s AC system before or after servicing the system use the included ManTooth pressure gauges and the performance check to get an accurate reading of the vehicle’s running pressures. Using the included ManTooth gauges to measure system pressures helps to ensure that the most accurate charge possible is going into each vehicle as well as minimizing refrigerant loss and reducing unnecessary recoveries.

System Performance Check Steps

1. Do not turn the vehicle on until ready. Before turning the vehicle’s air conditioning system on verify that the ManTooth is securely connected to the vehicle and that the Recovery Machine is not connected to the to the system.

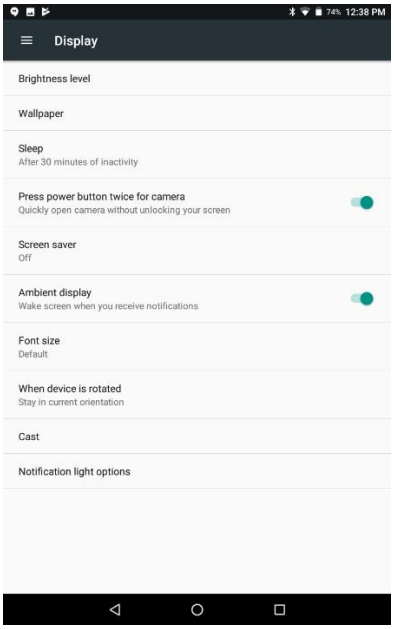
2. From the main menu select PERFORM SERVICE.

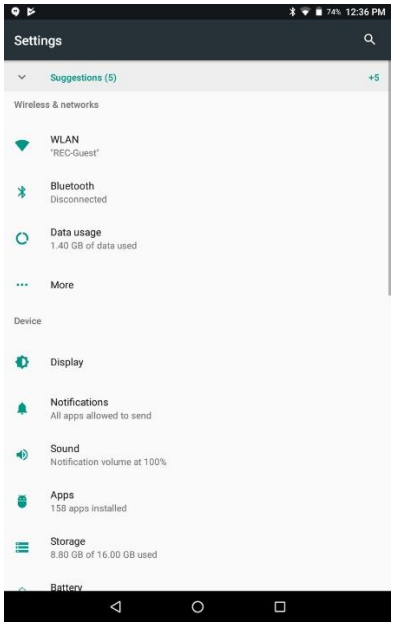
3. Select PERFORMANCE CHECK.

4. If the ManTooth App has already been installed, it should launch. If not, it will bring you to the Google Play store location where it can be installed.

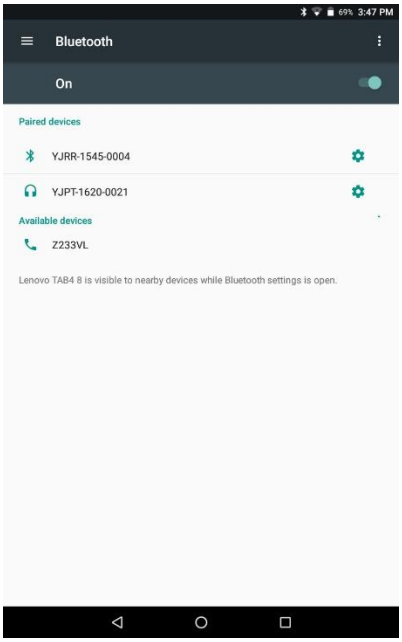
5. Ensure that the ManTooth is turned on and connect with it. This demonstrates how to set up your Mantooth connection:

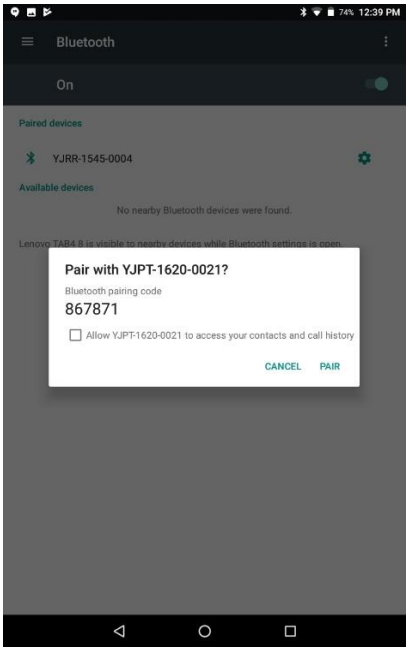
Tablet settings (GEAR)>Display>Find when device is rotated- Choose “Stay in current orientation”>Set Sleep to 30 minutes> Tap on arrow Back soft key on bottom tool bar



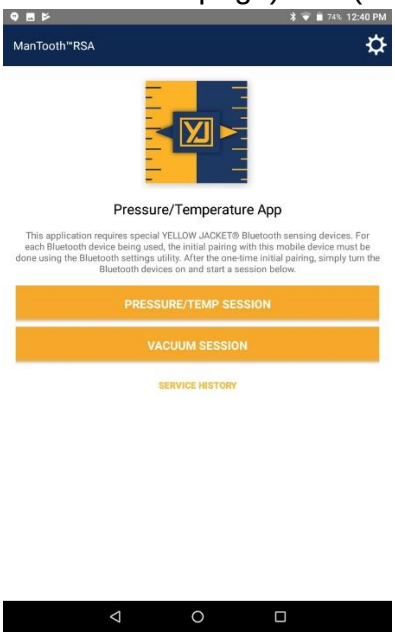


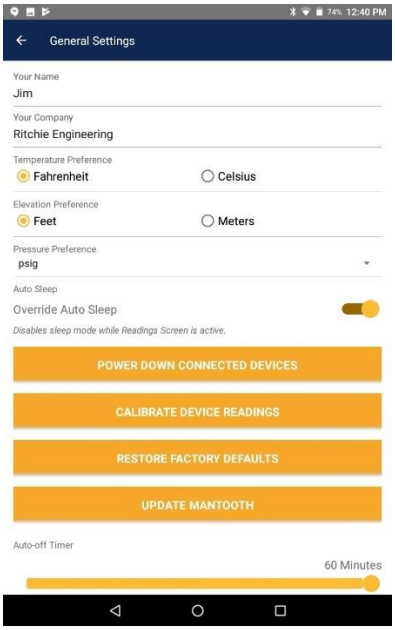
Tablet Settings> Wireless>Tap on Bluetooth-Turn on if not already on
Turn on Mantooth-Tap on Available devices> >Pair Bluetooth Device-Choose Mantooth(Prefix YJPT) > Exit Wireless Settings(Tap on bottom soft key circle)



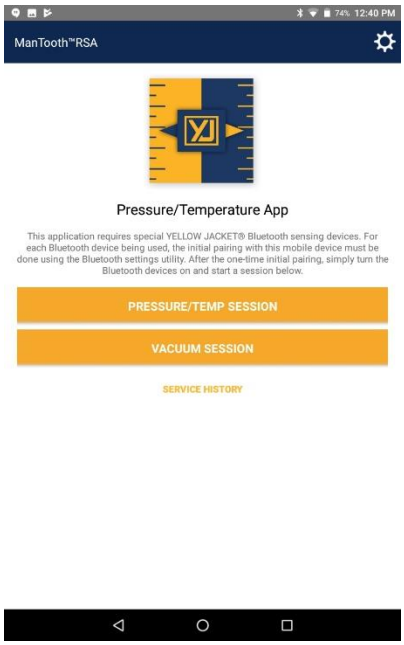


Open ManTooth App> Go to Settings (upper right corner GEAR) Choose temperature and elevation preferences> Turn Override Auto Sleep ON> Or Adjust Auto off Timer scale to 60 minutes (On the bottom of the page) Exit (Tap on arrow in upper left)

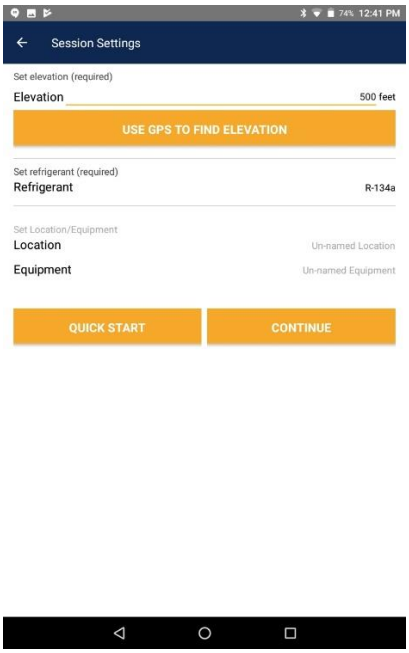




Choose Pressure/Temp session

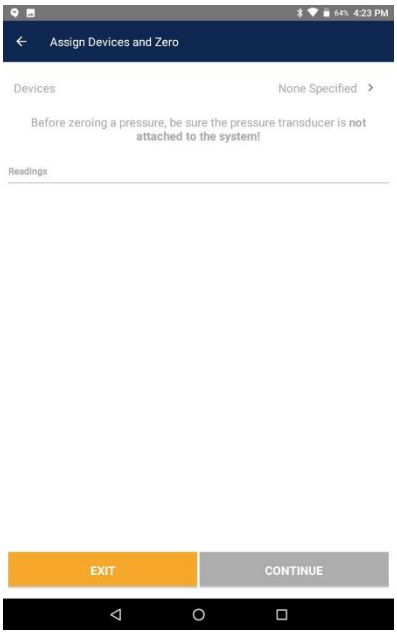


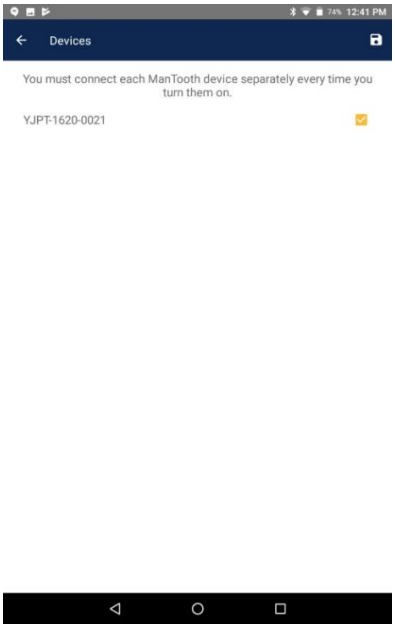
Select Elevation & Type of Refrigerant



Tap on Continue

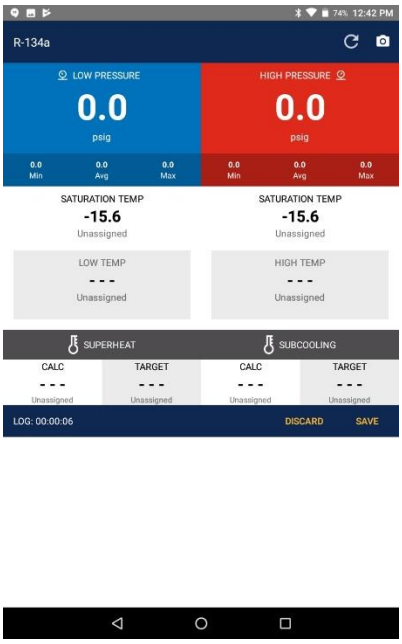
Devices-Tap on none specified> Tap on box next to appropriate Mantooth serial # (Make sure Mantooth blue light is on)> Tap save (Upper Right Corner) The blinking blue light will turn solid blue when connected.

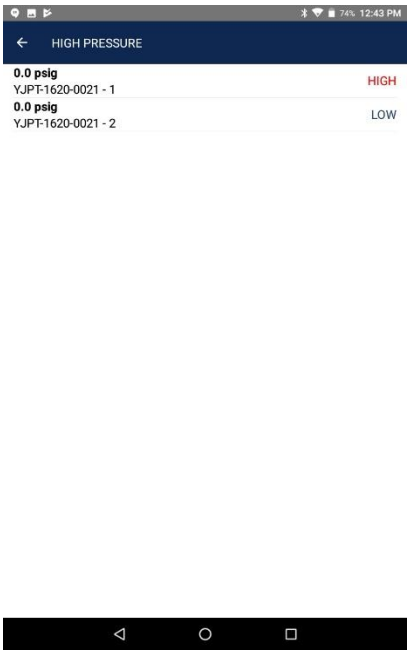




Make sure pressure readings are 0 (If not release pressure in AC couplers)
Zero ManTooth 1 & then ManTooth 2 by tapping on the word zero one at a time>Continue

Tap on high pressure gauge>Tap on whichever module you assigned to HIGH- Tap on low pressure gauge> Tap on the other module and assign LOW (1 is the PT Module-2 is the PT Tether)





Tapping on the circle on the bottom tool bar will hide the ManTooth App. Tapping on the square will show your open sessions.

6. Once the app has connected to the ManTooth recall the high and low side gauges.

7. Turn on the vehicle's AC system to read the running pressures on the tablet screen. The needles on the gauges will point to the correct pressures and the digital readout will provide a more accurate pressure reading.

8. After analyzing the running pressures hit the Exit Application button to close the gauges and return to the main app.

Alternate Startup

Another way to start the Performance Check is to directly start the ManTooth app directly. Starting the Performance Check this way enables the user to check the running pressures of a vehicle without having to bring the entire Recovery Machine over to the vehicle. This will require reconnecting to the ManTooth once the RMS app is launched.

Vacuum and Leak Check

The vacuum function of this machine is designed to remove air/moisture from the automobile A/C system by pulling a deep vacuum. This mode is most often used after completing a repair that required opening the A/C system to the atmosphere. Moisture in an A/C system can cause erratic operation and/or damage and must be removed before recharging the system with refrigerant.

VACUUM Operational Steps

1. Verify that the vehicle and its air conditioning system are off.

2. From the main menu select PERFORM SERVICE

3. Select VACUUM AND LEAK TEST.

4. Fill out the job form as it pertains to the vehicle being serviced and hit SUBMIT.

Note: The default minimum vacuum time is 5 minutes and a 10 - 15 minute minimum vacuum time is recommended to ensure full evacuation of the system and accurate charging for normal size vehicles.

Note: On the 37840 machine configured for R-134a the Vacuum Hold Time can be bypassed if the time is set to zero.

5. The display will read “CONNECT SERVICE HOSES TO THE VEHICLE. PRESS START TO BEGIN”.

6. Connect the high and low side auto service hoses to the respective high and low side service ports on the automobile A/C system.

7. Open the service hose valves by tightening the knob on the top of the service hose coupler.

8. Press the START key to begin the vacuum operation.

Note: If the automobile A/C system has pressure in it, the unit will automatically begin a recovery cycle to ensure that no refrigerant is released into the atmosphere.

9. The machine will begin to evacuate the A/C system and will beep to indicate the end of the vacuum time.

10. Following the Vacuum Time the unit will begin the vacuum hold automatically. The current vacuum level and the vacuum level at the start of vacuum hold will be shown on the display. The hold time will count down on the display and the unit will beep at the end of the hold time.

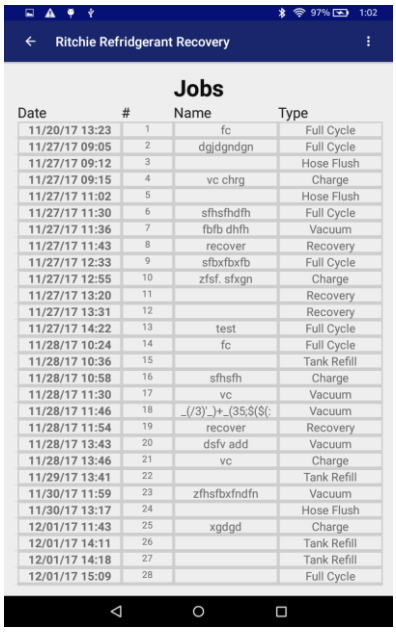
11. Note the final vacuum level shown on the display and the starting vacuum level. If the two recorded vacuum levels are different, the A/C system may have a leak and might not retain refrigerant when charged.

12. Verify the message on the display reads “VACUUM COMPLETE.”

13. Close the service valves and disconnect the high and low side auto service hoses from the automobile.

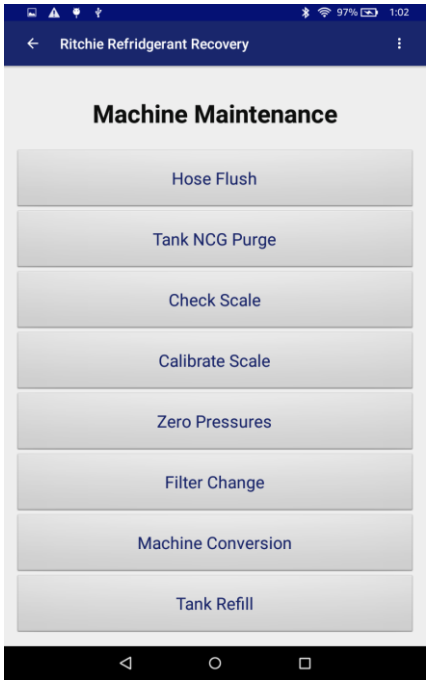
Job Reports

Choose this option to view service history. Here you can view previous jobs to show customer history or e-mail the information.



Machine Maintenance

Here you will be able to check the scale calibration, re - zero the pressure transducers, and find the procedure to change the filter drier. Additionally, if your machine is a 37840 this is the location to begin the one-time changeover procedure to change the configuration of the machine from R-134a to R-1234yf.



Hose Flush

The Hybrid Hose Flush feature is used to remove residual oil and contaminates from the unit and hoses. The SAE J2788 standard for R-134a require that the unit remove the residual oil so there isn't a risk of cross contaminating the oil in a hybrid A/C system. Failure to perform this function before working on a hybrid A /C system can cause serious issues with the electrical system. Having too much of the wrong type of oil in a hybrid A/C system can cause damage to the compressor as well as conduct the electricity to the outside of the A/C compressor creating the risk of shock.

SERVICING HIGH VOLTAGE A/C SYSTEMS.

Due to issues with oil contamination in High Voltage A/C systems, the 37840 have a unique flushing feature that reduces cross contamination of oil to a level below specifications set by SAE and OEMs.

It is therefore necessary to perform the following procedure before working on a High Voltage A/ C system.

1. After submitting a job name select HOSE FLUSH.

2. When the display reads “PLEASE CONNECT FLUSH ADAPTER ” connect the supplied flush adapter between the high and low side hoses. ((Replacement part numbers 38132 for R-134a, 19245 FOR 1234yf)

3. Press the ENTER key to begin the process.

4. The display will then read “FLUSHING HOSES PLEASE WAIT”.

5. When the process is complete press the BACK key to return to the main menu to continue with the vehicle service.

Purging Non-Condensable Gases

The 37840 is designed to automatically purge Non-Condensable Gases (NCGs) such as air present in the storage tank. The machine uses an algorithm based on the temperature and pressure of the tank and the refrigerant inside to determine if there are NCGs present. When it is determined that there are NCGs in the onboard tank, the unit will purge the excess NCGs.

The unit will automatically check for NCGs at the beginning of any job cycle that includes charging of refrigerant into a vehicle, such as a full cycle. You can also have the machine check for NCGs at other times. To manually check for and purge NCGs, from the home screen go into Machine Maintenance and select TANK NCG PURGE. This will tell the machine to check for NCGs, perform a purge if necessary, and then clear the system.

The maximum purge time is set to 15 seconds to minimize potential refrigerant loss. If you suspect that a purge cycle was insufficient to remove all NCGs from the recovery tank you can repeat the purge cycle by pressing the TANK NCG PURGE button again. If after multiple purge cycles the machine continues to purge, there may be an error in the system. Check the pressure in the tank to determine if the system is purging unnecessarily.

Check Scale

NOTE: Before doing any Scale calibration procedure, check this first:

1. Remove tank from machine scale. You may have to take both tank hoses off. Close the tank valves first.
2. In the MAIN SCREEN tap on SYSTEM SETUP.
3. With no weight on the scale read the scale ADC line:
4. This reading should be under 10,000. The best numbers should be 3000-8000. If close to 10,000 or above the scale will need to be replaced. If ADC reading is good proceed to either CHECK SCALE or CALIBRATE SCALE.

The Check Scale process will start by asking the user to place a small weight on the scale to verify whether the scale is reading accurately. The user is then given a choice to proceed on to Scale Calibration if they are unsatisfied with the scale accuracy.

Scale Calibration Check

1. With the tank still connected and on the scale s elect MACHINE MAINTENANCE in the main menu.

2. Select CHECK SCALE.

3. Press the “START” key to stabilize.

4. After stabilizing, machine will display “PLACE THE TEST WEIGHT ON THE TANK” (calibration check weight supplied).

5. Press the “START” key.

6. Check to see if the displayed weight and value of the test weight are within 0.005Kg.

7. If out of calibration follow the steps displayed on the display to calibrate the scale.

Example:

Test weight = 500g (0.500 kg)

Machine reading: 0.494 k g = Out of Calibration
Machine reading: 0.500 kg = Good
Machine reading: 0.506 k g = Out of Calibration

Note: 500g = 1.1 lb.

If the scale calibration changes, a message reading “WARNING SCALE CALIBRATION” may appear on the screen. To reset the warning message follow the on screen instructions or do the following:

1. Select MACHINE MAINTENANCE in the main menu.

2. Select CALIBRATE SCALE.

3. The display will then read “REMOVE TANK FROM SCALE”.

4. Disconnect the hoses and remove the tank from the scale.

5. Once the tank is removed and there is nothing on the scale press the START key.

6. The display will then read “CALIBRATING PLEASE WAIT”.

7. When the display reads ATTENTION! Put the 20lb. weight on the scale and press ENTER-**DO NOT PRESS ENTER UNLESS YOU HAVE A CALIBRATED 20LB. WEIGHT-Press RESET.**

8. Carefully place the tank back on the scale and reconnect the hoses, temperature clamp, and ground wire and turn the main power switch back on.

Zero Pressure Transducers

1. Select MACHINE MAINTENANCE in the main menu.

2. Next select ZERO PRESSURE TRANSDUCERS.

3. Follow the onscreen instructions and install the hose flush adapter into the Low Side (blue) vehicle hose coupler and open the coupler by turning the knob clockwise and press START.

4. The machine will automatically check the pressure transducers and rezero them if necessary.

Filter Change

NOTE: You **MUST** have your filter code before continuing.

1. Select FILTER CHANGE from the Machine Maintenance menu.

2. The app will instruct you to power down the machine and perform the physical filter change.

3. Power on the machine when complete, the app should automatically reconnect to the machine. If it does not, you might need to select the machine from the “Machine List” menu option to connect.

4. Upon reconnecting to the machine, the app will bring you to the FILTER CODE ENTRY screen. Per SAE requirements, enter the code on the filter to reset the filter memory on the app and machine.

Tank Refill

In order to use the charging mode, you must have at least ten (10) pounds of refrigerant in the storage tank. Follow this procedure to add refrigerant to the storage tank. When adding refrigerant to the onboard storage tank you will need to use the tank refill adapter (Part Number 36211 for R-134a and 19244 for 1234yf) supplied in the accessory kit. The adapter connects the low side vehicle hose to the tank of new refrigerant. It should be stored in the tool tray on the top of the unit.

1. Select TANK REFILL from the Machine Maintenance menu.

2. Connect the blue low side auto service hose to the new refrigerant source tank and open the tank valve. Turn the source tank upside down to enable all of the refrigerant is transferred to the storage tank on the unit. Press the ENTER button.

3. Press the START button. Refrigerant will transfer to the storage tank. The unit will shut off automatically when either the supply tank is empty or the storage tank is full.

4. Press the BACK button to return to the main menu.

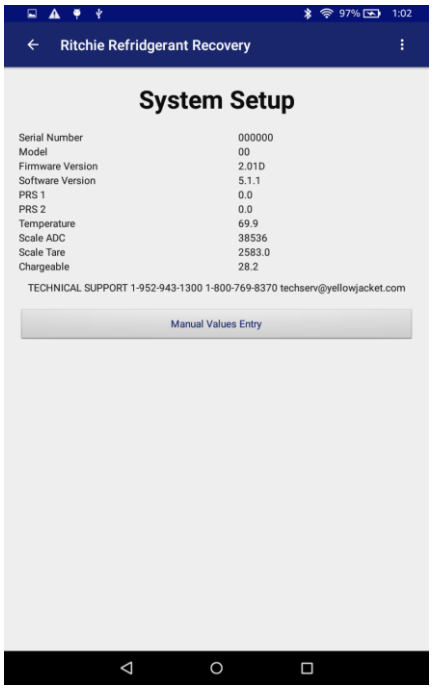
5. Remember to remove the tank fill adapter from the refrigerant source tank before disposing of the empty cylinder. Save adapter for future use.

It is recommended that every two months the pressure transducers and the scale be checked for accuracy. After extended use the 37840 may require the pressure transducers to be re-zeroed and or the scale to be recalibrated.

System Setup

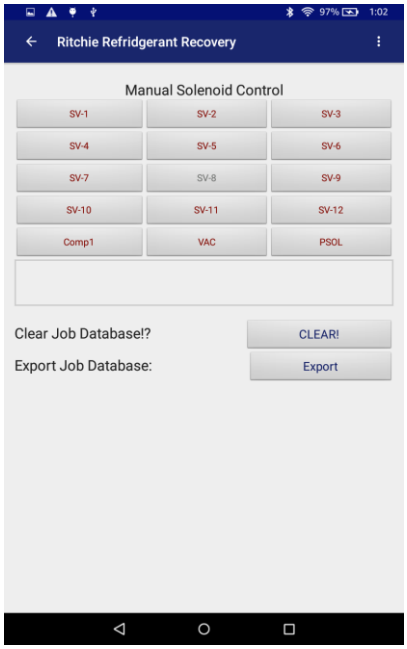
This view shows real-time values coming from a connected machine and also has a keypad to allow technicians to access real-time administrative settings.

- Typing 1234 and Enter into the keypad should bring you to the “administrative” screen.
- At the administrative screen you can clear or export the job database.



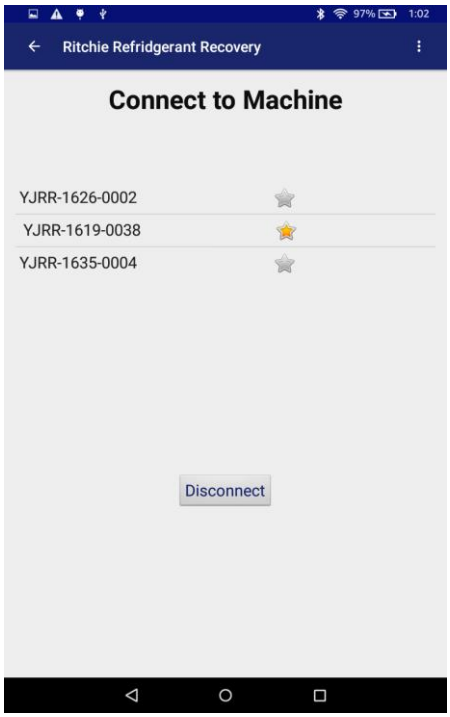
Manual Solenoid Setup

(Admin Screen)



Machine List

This view gives you the option of connecting or disconnecting to any paired machine.

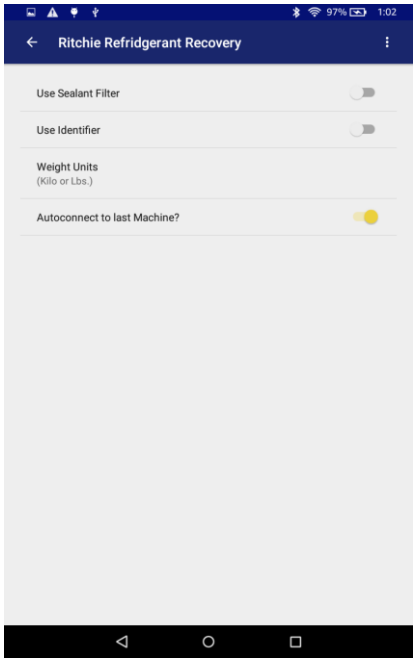


Exit

Disconnects from a machine if needed and closes out of the app.

Preferences

Preferences are saved automatically and immediately.



Use Sealant Filter

The sealant filter is an aftermarket add-on to the R-134a machine. If you have added one, this setting needs to be turned on so the machine is notified.

Change Weight Units

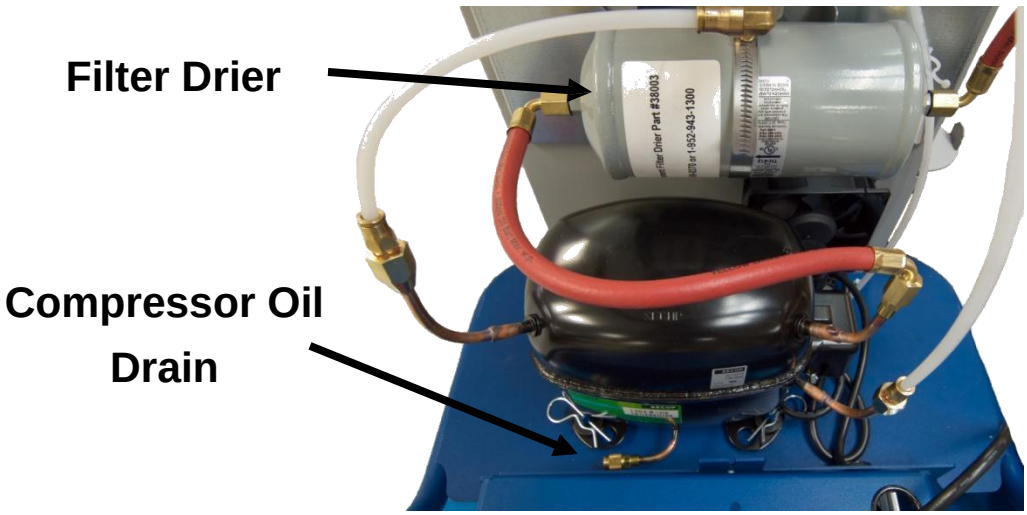
The user has the option of changing the weight units from KILOGRAMS to POUNDS. Based upon what the user selects, the weights should display accurately in the selected units, and there should be a label next to the value stating either Kilos or Lbs. The following screens are affected:

- Live Data
- Job Parameters
- Job Details Report

Auto-Connect to Last Machine

This setting (when turned on) will cause the app to attempt to connect automatically to the last machine it was connected to.

Regular Maintenance



Filter Drier

MAINTENANCE WARNING! CHANGE FILTER DRIER

The 37840 and 37860 have a unique filter system which ensures the refrigerant transferred to the storage cylinder is clean and moisture-free. The filters must be changed after they have processed 150lbs of refrigerant to ensure that the refrigerant being processed meets purity requirements. A maintenance reminder will prompt you when to change your filter. All refrigerant must be removed from the old filter before it is removed. Follow the filter change procedures carefully to minimize refrigerant loss and to ensure only clean, moisture-free refrigerant is transferred into the storage tank.

SAE standards require that the further function of the machine is disabled (locked out) if the filter drier is not replaced at the proper interval. The unit will prompt you when the filter is near the end of its life. When the filter drier has processed 100 lbs (45.36 kg) of refrigerant it will warn the user that it is nearing the end of its life. When the filter drier has processed 150 lbs (680.4 kg) of refrigerant, the machine will lock the user out and will require a filter change before the unit can be used again. The filter driers are marked with a unique code that will be required to unlock the unit. Each filter and filter code may only be used once.

Filter Change Procedure

Follow these steps to change the filter drier

1. From the main menu enter MACHINE MAINTENANCE.
2. Select filter change.
3. The machine will now go through a clearing procedure to prevent refrigerant loss.
4. When prompted, turn off and unplug the unit.
5. Remove front covers of unit (2 bolts and 2 wing nuts).
6. Slowly loosen and detach the hoses from the old filter.
7. Write down the filter code as printed on the new filter.
8. Install the new filter and attach the hoses making sure it is in the proper orientation (the arrow should point towards the compressor) and that the fittings are tight.
9. Replace the front covers.
10. Plug the machine in and power it on.
11. When prompted enter the filter code as printed on the new filter.
12. The display should read “FILTER LIFE CLEARED PRESS RESET TO CONTINUE”.
13. The machine is now ready to continue service.

Compressor Oil

It is recommended to change the compressor oil regularly. The machine automatically keeps track of the run time of the compressor and will pop up the following alert after a set interval.

MAINTENECE WARNING! CHANGE COMPRESSOR OIL

The oil in the compressor should be checked for contamination and proper oil level when the compressor oil maintenance reminder is displayed. Select RESET to turn reminder off until the next time you start the unit. Select ENTER when the oil has been changed

Instructions for Compressor Oil Maintenance

Oil Level Check

1. Place unit on a level surface
2. Run a recovery cycle with the unit not connected to a vehicle.
3. Turn off and unplug the unit.
4. Remove front covers of unit.
5. **SLOWLY** remove oil port cap on compressor.

Note: High pressure may be present, remove cap slowly.

6. Place an oil pan or similar method for collecting the oil under the oil drain port.
7. Place rear wheels of unit on a 2 x 4.
8. Oil should drip out of oil drain port.
9. If oil runs out of port rapidly, allow the oil to drain until it is slowly dripping out.
10. Replace oil port cap and cover.
11. Replace the side covers.
12. Discard used lubricant per applicable federal, state and local requirements.

Compressor Oil Replacement Procedure

1. Place unit on a level surface
2. Run a recovery cycle with the unit not connected to a vehicle.
3. Turn off and unplug the unit.
4. Remove front covers of unit.
5. Carefully disconnect and remove the onboard tank.
6. **SLOWLY** remove oil port cap on compressor.

Note: High pressure may be present, remove cap slowly.

7. Place an oil pan or similar method for collecting the oil under the oil drain port.
8. Lock the front wheels and carefully tilt unit at 45° angle towards oil drain port and allow all oil to be drained.

Warning! Unit is heavy. Take care when tilting unit to prevent injury or damage.

9. Replace the oil drain cap.
10. With the unit back on level ground refill with proper amount and type of oil through the compressor suction port. The proper oil charge is 16.0 ounces of 150 VISCOSITY (SUS) POE oil. If you are unsure of the amount of oil added to the compressor follow the instructions for an Oil Level Check to ensure a proper oil fill.
11. Reconnect the compressor suction hose and replace the front covers.
12. Discard used lubricant per applicable federal, state and local requirements

An alternative method to changing the compressor oil is to remove the compressor from the machine for service

1. First, place the unit on a level surface.
2. Run a recovery cycle with the unit not connected to a vehicle.
3. Turn off and unplug the unit and remove the front covers.
4. Next, slowly unscrew the red hose from the filter to the compressor and disconnect the 2 plastic hoses at the quick connectors.
5. Remove the electrical cover by inserting a standard screw driver into the slots and prying inward until the cover comes loose.
6. After noting the position of the white, black, and green wires, disconnect them.
7. Now, remove the 4 clips holding the compressor to the frame and remove the compressor.
8. Place the compressor on a bench with an oil drain pan below. Remove the oil drain cap and drain the oil from the compressor by tilting it forward at a 45 degree angle.
9. Then place the compressor on a flat surface and fill it with 16 ounces of POE oil or until it's just dripping from the oil drain.
10. And, finally, reinstall the compressor.

Note: Failure to perform oil maintenance can cause the compressor to overfill with oil and severely damage the compressor.
Another method is to remove the compressor from the machine and service it on a bench and then reinstall the compressor.

Vacuum Pump Oil
It is recommended to change the vacuum pump oil regularly. The machine automatically keeps track of the run time of the vacuum pump and will pop up the following alert after a set interval.
MAINTENANCE WARNING! CHANGE VACUUM PUMP OIL.

Select ENTER to turn the reminder off until the next time you start the unit. Select RESET when the oil has been changed. For additional vacuum pump care see the vacuum pump manual that was included with the machine.

Vacuum Pump Oil Level Check
While the vacuum pump is running the normal oil level should be 1/2 to 5/8 up in the sight glass. This level is necessary for proper operation.

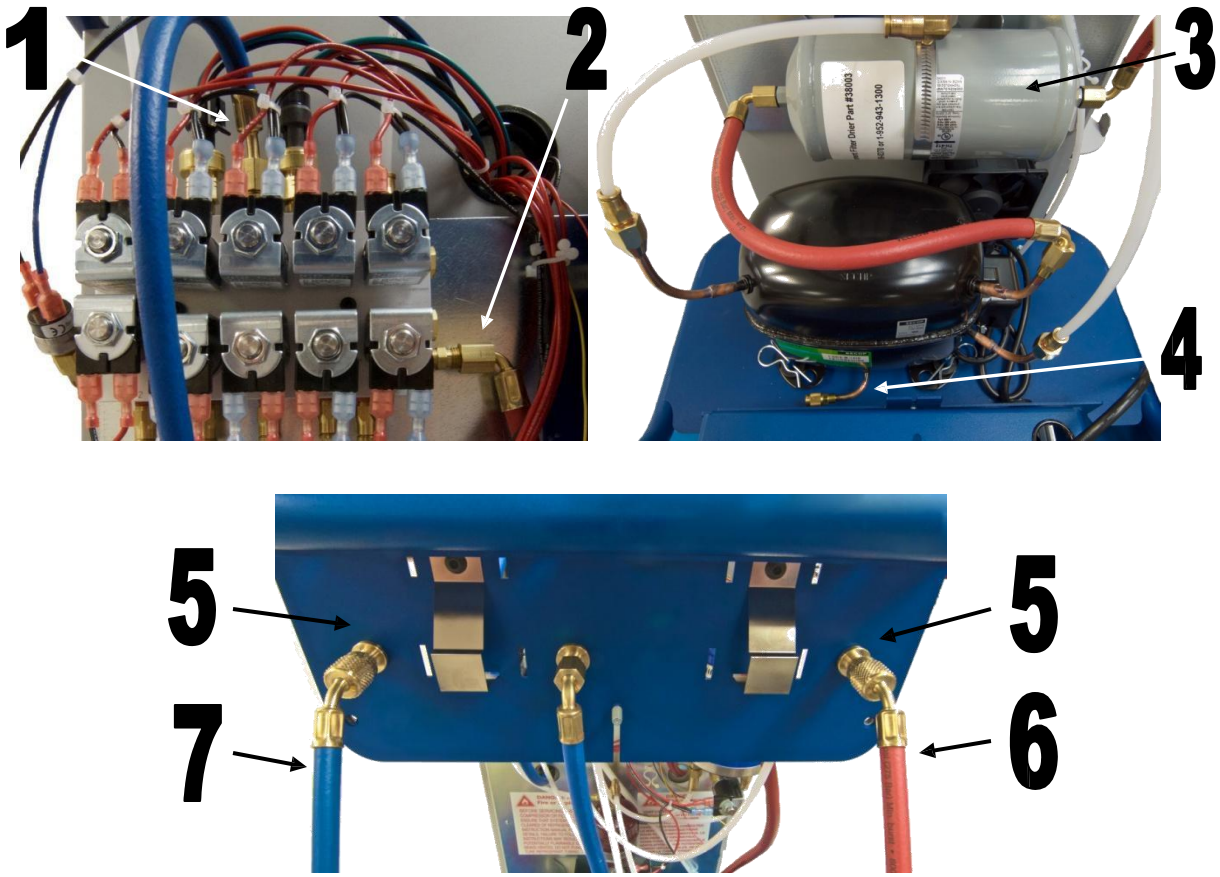
Vacuum Pump Oil Replacement Procedure
This maintenance is best performed when the oil is warm.

1. Remove thumb screws under vacuum pump platform and the vacuum pump hose.
2. Tilt the vacuum pump at a 45° angle towards the drain plug.
3. Place a container under the oil drain plug and remove the oil drain plug.
4. Drain oil into a container.
5. Discard used lubricant per applicable federal, state and local requirements.
6. Replace the oil drain plug and refill the vacuum pump with YELLOW JACKET Vacuum Pump oil 93192 to the correct level.
7. Replace the vacuum pump to its original position and reinstall the thumb screws and hose.

Changeover Procedure

The 37840 has been designed to meet SAE J3030 requirements such that the machine can undergo a **one-time** changeover procedure that will enable the 37840 to change from only being able to service R-134a to only being able to service R-1234yf. To perform the change over, conversion kit PN 37845 is needed which will contain the parts necessary to convert the machine from a R-134a unit to a R-1234yf unit. Compressor oil not included. Reminder SAE standards require the use of a refrigerant identifier for units running R-1234yf.

1. Tank liquid hose
2. Tank vapor hose
3. Filter Drier
4. Compressor Oil Drain
5. Vehicle Hose Bulkhead Fittings
6. Vehicle High Side Hose
7. Vehicle Low Side Hose



To change a factory default 37840 unit from the setting of R-134a to R1234yf the following procedure is to be performed.

1. Select MACHINE CONVERSION from the Machine Maintenance menu.
2. When prompted connect the hose flush adapter to the vehicle service hoses and press ENTER to start a hose flush.
3. When prompted close the tank liquid valve.
4. After the hose flush, the machine will now confirm that you wish to change refrigerants. REMEMBER THIS CAN NOT BE UNDONE.
5. Follow the onscreen instructions to perform a hose flush and system clearing procedure.
6. After the hoses have been flushed, turn off the machine and close the vapor valve on the tank then remove the tank from the machine.

7. Use a separate refrigerant recovery machine on the tank hoses to remove any remaining refrigerant from the tank hoses such as the YELLOWJACKET LTE 95730.

CAUTION: Failure to recover the refrigerant from the tank hoses may result in high pressure being present in these hoses which could lead to user injury or damage to the machine.

Note: During the mechanical portion of the changeover procedure the tablet and App do not need to be on. The App will automatically pick up where it left off when reconnected.

8. Unplug the machine then remove the 4 bolts to remove the top console and the 2 bolts and 2 wing nuts to remove the front shrouds.
9. Carefully disconnect the red and blue tank hoses from the manifold block.
10. Disengage the black hose retainers and remove the two tank hoses.
11. Disconnect and remove the two plastic hoses running from the Vehicle Hose Bulkhead Fittings and from where they connect to the manifold. To disconnect the hoses push the hose into the fitting then push the fitting collar into the fitting before pulling the hose free.
12. Remove the vehicle hose bulkhead fittings.
13. Remove the filter drier hoses and filter drier.
14. Remove any additional aftermarket refrigerant filters.
15. Dispose of all removed hoses in an environmentally friendly manner and according to local laws.
16. Drain and replace the compressor oil by following the Compressor Oil Replacement Procedure on page 29.
17. Write down the filter code as printed on the new filter.
18. Install the new filter and filter drier hoses making sure the filter drier is in the proper orientation (the arrow should point towards the compressor) and that the fittings are tight.
19. Install the new R-1234yf vehicle hose bulkhead fittings.
20. Install the new plastic hoses into the bulkhead fitting and back into the corresponding manifold location.

Note: Make sure to firmly push the plastic hose all the way into the fitting and give a gentle tug to make sure the hose is properly installed and engaged.

21. Feed the tank hoses through the plumbing panel snapping the hose retainers into place.
22. Connect the tank hoses to the manifold and ensure the ball valves on the ends of the hoses are closed.
23. Connect the new R-1234yf vehicle hoses.

Note: Remember to check all of the hose connections and make sure that they are secure and will not leak before reassembling the machine. Also remember to properly reconnect any electrical components you may have disconnected as well.

24. Make a note of the filter drier code then replace the front shrouds and top console.
25. Plug the machine back in and turn it on.
26. The machine will now ask to confirm that all the necessary hoses have been changed.
27. After you have confirmed that the necessary changes have been performed, the machine will go into a 30 minute vacuum cycle to ensure that there is no cross contamination between the refrigerants.
28. After the vacuum cycle, the machine will ask for the new filter drier code. Enter the new filter drier code.
29. Install the new R-1234yf tank

Note: R-1234yf tank fittings use left-hand-threaded fittings.

30. Perform a tank refill before beginning service.

Troubleshooting Information

The 37840 and 37860 have a number of sophisticated features which make it easy to perform fast and efficient service. Although these units are manufactured with high quality components, a component failure could cause it to operate incorrectly.

The following section is designed to provide you with additional information to help diagnose the system. If a problem occurs, please read this section thoroughly prior to calling technical support. This will reduce the time needed to restore your system to normal operation. Please call technical support number at (800)769-8370.

Common Problems and Potential Solutions

Problem	Possible Causes	Possible Solutions
Unit cannot pull automobile A/C system into a vacuum.	Automobile A/C system has a leak. Service valves on hoses not properly installed. Service ball valve seals are worn. Hoses on unit are loose or leak. Vacuum pump is not turned on.	Find and repair leak in A/C system. Check valve seals and threads and replace if needed. Replace valve seals and Schrader core depressor. Tighten or replace hoses on unit. Turn on vacuum pump.
High side gauge readings above normal.	Restriction in A/C system or Schrader core. Service hose ball valve closed. Incorrect charge amount entered in unit.	Check hose connection and fix restriction. Replace Schrader core. Open the valve. Recover, check scale calibration, and recharge system.
Refrigerant not being transferred during Tank Refill.	Valve on supply tank closed. Ball valve on blue service hose closed or hose is constricted. Wrong hose installed on new refrigerant tank. Storage tank is full.	Open valve. Open valve or straighten hose. Install blue service hose on refrigerant tank. Close valve on new supply. Disconnect service hose.
Unit will not accept commands.	App is frozen. The machine is not connected to the tablet/app. The tablet became unpaired from the machine. Machine is not powered on. Control board malfunction.	Close out of the App and restart. Restart the machine and the app then wait to hear the beep from the machine confirming connection Open Bluetooth settings in the tablet and re-pair the tablet with the machine. Turn on machine. Call Technical Support.
Fan not running/fan lockout.	Loose power wire to fan. Fan airflow is blocked or fan blades stuck. Control board malfunction. Fan malfunction.	Locate loose fitting and reconnect. Remove obstruction from fan. Call Technical Support. Call Technical Support.
Unit will not turn on.	Power cord is not plugged into a 120 Volt outlet. Tablet battery is dead. Circuit breaker tripped on shop power panel. Bad Main Power switch. Loose wire.	Plug into outlet. Charge tablet. Reset circuit breaker. If circuit breaker immediately trips, do not reset. Consult a qualified electrician. Call Technical Support. Repair loose wire.

	Malfunction of control board.	Call Technical Support.
Unit will not recover refrigerant from A/C system.	Valves on service hoses shut. Service hose is constricted. Unit storage tank valve is closed. Tablet is not connected to the unit. Compressor not operating.	Open valves. Straighten hose. Open tank valves. Make Bluetooth connection between the tablet and the unit. Call Technical Support.
Unit will not charge refrigerant into vehicle.	Valves on service hoses shut. Service hose is constricted. Unit storage tank valve is closed. Hoses to unit storage tank not connected to the correct tank valves	Open valves Straighten hose Open tank valves Make sure the blue tank hose is connected to the tank liquid port and the red tank hose is connected to the tank vapor port.
Refrigerant leaking during charging.	Service valves on hoses not properly installed on A/C system. Service ball valve seals are worn. Hoses on unit are loose or leak. Automobile A/C system has a leak	Check valve seals and threads and replace if needed. Replace valve seals and Schrader core depressor Tighten or replace hoses on unit Find leak in A/C system and repair.
Weight measurements from unit are not correct.	Tank hoses improperly installed. Scale calibration has drifted. Scale is damaged and cannot be calibrated.	Ensure tank hoses are not pinched or rubbing on the machine frame. Check scale calibration and recalibrate if necessary. Call Technical support

Error Messages

ERROR NUMBER	MESSAGE	DESCRIPTION	TROUBLESHOOTING
ERROR 1	HIGH PRESSURE	HIGH PRESSURE SWITCH IS TRIPPED (NORMALY CLOSED SWITCH)	MAKE SURE TANK VALVE IS OPEN TEST HIGH PRESSURE SWITCH CHECK SV AND CHECK VALVE OP CHECK TANK PRESSURE
ERROR 2	TANK FULL	TANK WEIGHT OVER 80% OF CAPACITY	CHECK SCALE CALIBRATION REMOVE SOME REFRIGERANT FROM STORAGE TANK
ERROR 3	RECOVERY TIME OUT	RECOVERY PROCESS HAS EXCEEDED 1 HR FACTORY DEFAULT	IF AC SYSTEM CONTAINS MORE THAN 3 LBS OF REFRIGERANT INCREASE DEFAULT TIME CHECK FOR LEAKS (HOSES, FITTINGS AND AUTO AC SYSTEM)

ERROR 4	CHARGING TIME OUT	CHARGING PROCESS HAS EXEEDED 20 MIN FACTORY DEFAULT	OPEN TANK VALVES OPEN SERVICE COUPLERS SWITCH TO LOW SIDE CHARGING CHECK TANK WEIGHT (10 LB MIN) INCREASE VACUUM TIME
ERROR 5	NO TANK ON SCALE	SCALE NOT READING TANK WEIGHT	PLACE TANK ON SCALE CHECK SCALE CALIBRATION
ERROR 6	TANK EMPTY	REFRIGERANT AMOUNT BELOW 5 % OF TANK CAPACITY	REFILL TANK CHECK SCALE CALIBRATION
ERROR 7	NOT ENOUGH REFRIGERANT	UNIT IS LOW ON REFRIGERANT (10 LB MIN)	REFILL ONBOARD REFRIGERANT TANK
ERROR 8	TANK REFILL TIME OUT	TANK REFILL HAS EXCEEDED DEFAULT TIME	RUN TANK REFILL MODE AGAIN CHECK FOR LEAKS
ERROR 10	SYSTEM EQUALIZED	PRESSURE EQUALIZED DURING CHARGING	INCREASE VACUUM TIME CHANGE TO LOW SIDE CHARGE, CLOSE THE HIGH SIDE VEHICLE FITTING, AND RUN THE VEHICLE TO DRAW IN THE REMAINING REFRIGERANT CHARGE
ERROR 11	HOSE CLEARING TIME OUT	CLEARING TIME OUT AFTER CHARGING	CLOSE SERVICE VALVES AND DISCONNECT
ERROR 12	SCALE MALFUNCTION	SCALE NOT READING TANK PROPERLY	CHECK TANK PLACEMENT CHECK SCALE CALIBRATION REPLACE SCALE ASSEMBLY
ERROR 13	VACUUM ERROR	R-134a SYSTEM NOT MAINTAINING PROPER VACUUM LEVEL	CHECK SYSTEM FOR LEAKS INCREASE VACUUM TIME
ERROR 14	LEAK CHECK FAILED	SYSTEM NOT HOLDING PROPER VACUUM LEVEL	CHECK SYSTEM FOR LEAKS INCREASE VACUUM TIME
ERROR 15	SOLENOID MALFUNCTION	SOLENOID COMMUNICATION ERROR	CHECK SOLENOID CONNECTIONS REPLACE FAULTY SOLENOID
ERROR 16	SCALE CALIBRATION	SCALE CALIBRATION MAY HAVE CHANGED	RECALIBRATE ONBOARD SCALE
ERROR 17	STABILIZING ERROR	SCALE READINGS NOT STABILIZING	DO NOT MOVE MACHINE WHILE SCALE IS STABILIZING CALIBRATE SCALE REPLACE SCALE
ERROR 19	UNIDENTIFIED PRESSURE DETECTED	MACHINE HAS DETECTED PRESSURE WHILE TRYING TO PULL A VACUUM	ON R-1234yf MACHINES IF THE PRESSURE IN THE SYSTEM IS ABOVE ATMOSPHERIC PRESSURE THEN THE SYSTEM MUST BE RECOVERED TO BELOW ATMOSPHERIC PRESSURE BEFORE VACUUM CAN

ERROR 19			OCCUR CLOSE THE VEHICLE SERVICE COUPLERS AND ALLOW MACHINE TO CLEAR THE HOSES VIA THE VACUUM PUMP FOLLOW THE PROPER RECOVERY PROCEDURE BEFORE PROCEEDING TO THE VACUUM CYCLE
ERROR 20	IDENTIFIER CALIBRATION ERROR	IDENTIFIER COULD NOT CALIBRATE	ENSURE IDNTIFIER IS DICONNECTED FROM ANY REFIGERANT SOURCE DURING CALIBRATION CHECK IDENTIFIER FILTER
ERROR 21	SYSTEM UNDER PRESSURE	PRESSURE TRANSDUCERS ARE UNDER PRESSURE WHILE MACHINE IS ATTEMPTING TO ZERO	ENSURE BLUE VEHICLE HOSE IS DISCONNECTED FROM THE MACHINE AND THAT THE RED VEHICLE HOSE IS DISCONNECTED FROM ANY REFRIGERANT SOURCE REPLACE PRESSURE TRANSDUCERS
ERROR 22	VACUUM ERROR	R-1234yf REQUIRED VACUUM LEVEL NOT REACHED OR NOT MAINTAINED	CHECK SYSTEM FOR LEAKS INCREASE VACUUM TIME
ERROR 23	REFEGERANT PURITY FAIL	IDENTIFIER HAS DETECTED CONTAMINATED REFRIGERANT	RECALIBRATE IDENTIFIER AND TRY IDENTIFICATION AGAIN RECOVER CONTAMINATED REFRIGERANT USING MACHINE DESIGNED TO HANDLE CONTAMINATED REFRIGERANT
ERROR 24	FAN SPEED PROBLEM	FAN IS RUNNING AT AN IRREGULAR SPEED	CHECK FAN FOR OBSTRUCTIONS CHECK FAN WIRING REPLACE FAN

Repair Parts List

Part #	Description	Part #	Description
41301	R-134a High Side Coupler	41441	R-1234yf High Side Coupler
41302	R-134a Low Side Coupler	41442	R-1234yf Low Side Coupler
01215	R-134a Auto Low Side Blue Hose (10ft)	17830	R-1234yf Auto Low Side Blue Hose (10ft)
01216	R-134a Auto High Side Red Hose (10ft)	17870	R-1234yf Auto High Side Red Hose (10ft)
19240	R-134a Tank Vapor Red Hose	19234	R-1234yf Tank Vapor Red Hose
19241	R-134a Tank Liquid Blue Hose	19243	R-1234yf Tank Liquid Blue Hose
36211	R-134a Tank Refill Adapter	19244	R-1234yf Tank Refill Adapter
95026	R-134a 50lb Refrigerant Tank	95028	R-1234yf 50lb Refrigerant Tank
37842	R-134a Oil Injector	37862	R-1234yf Oil Injector
38132	R-134a Hybrid Hose Flush Adapter	19245	R-1234yf Hybrid Hose Flush Adapter
67008	R-134a Automotive ManTooth	67009	R-1234yf Automotive ManTooth
38019	Oil Bottle	37845	37840 R-134a to R-1234yf Changeover Kit
95157	Circuit Breaker, 15 Amp	93192	Vacuum Pump Oil
38113	Automatic Scale Assembly	37913	Dust Cover
95423	High Pressure Switch	37911	Replacement Tablet
38003	Filter-Dryer (1 per unit)	37865	Refrigerant Identifier
38155	Caster Wheels (2 pack)	69336	Refrigerant Leak Detector
19246	500g Scale Check Weight	19239	Replacement Magnet Set
19247	Replacement Side Hooks		

Limited Warranty for 37840 & 37860

EXCLUSIVE WARRANTY – LIMITATION OF LIABILITY

The Limited Warranty is the only Warranty for this unit given by Ritchie Engineering Company Inc. No one is authorized to make any other warranties on our behalf. Ritchie Engineering's sole liability, with respect to any defect, shall be set forth in this limited warranty, and any claims for incidental or consequential damages are excluded. Some states do not allow limitations on how long an implied warranty last, or for the exclusion of incidental or consequential damages, so the above limitations or exclusions may not apply to you.

This Limited Warranty gives you specific legal rights, and you may also have other rights, which vary from state to state.

Reasonable proof of the date of purchase of your Refrigerant Management System may be required to establish its "in-warranty" status. Otherwise, the effective date of this Limited Warranty will be the date of sale to Distributor.

GENERAL

Ritchie Engineering Company Inc. warrants its product to be free from factory defects in materials and workmanship, under normal use and service, for the applicable warranty period. At its option Ritchie Engineering Company Inc. will credit, repair or replace the defective Refrigerant Management System, or defective component part(s), in accordance with the terms of this Limited Warranty, if it fails in normal use and service during the applicable warranty period. The replacement Refrigerant Management System must be manufactured by Ritchie Engineering. The replacement component part(s) must be Ritchie Engineering authorized component part(s). The replacement unit will be warranted only for the unexpired portion of the original unit's applicable warranty period.

WARRANTY EXCLUSIONS

This Limited Warranty will not cover:

1) Service trips to teach you how to install, use or maintain this Refrigerant Management System.
2) Damages, malfunction or failures resulting from failure to maintain clean uncontaminated oil in the Vacuum Pump and Compressor.
3) Damages, malfunctions, or failures resulting from improper installation or failure to operate and maintain the Refrigerant Management System in accordance with the manufacturer's instructions provided.
4) Damages, malfunctions, or failures caused by misuse, abuse, accident, fire, flood, freeze, lightning, acts of God, and the like.
5) Damages, malfunctions, or failures caused by operating the Management Refrigerant System with modified, altered, or unapproved parts installed.

THE EFFECTIVE DATE

The effective date of warranty coverage (or the beginning of the Applicable Warranty Periods) is the date of purchase of the Refrigerant Management System, if properly documented. If you are not able to provide the documentary proof of the date of original purchase, the effective date will be the date of sale to the Distributor.

APPLICABLE WARRANTY PERIODS

Ritchie Engineering Company Inc. YELLOW JACKET Refrigerant Management Systems part number 37840 and 37860 is covered by a one year warranty for parts and labor. The Vacuum Pump has a standard 2 year parts and labor warranty.

BEFORE REQUESTING SERVICE

Please review the applicable technical documentation to insure proper installation and correct customer control for the system. If the problem persists, please arrange for warranty service.

TO OBTAIN WARRANTY SERVICE

Promptly contact Ritchie Engineering Company Inc. at 1-800-769-8370 for service, repair or return. If service cannot be completed over the phone and/or through Remote Access Troubleshooting by Ritchie Engineering Company's Technical Services an Independent Service Center may be dispatched. If return is required you must obtain an authorization number prior to return. All returns must be PREPAID.

Ritchie Engineering Company Inc.
10950 Hampshire Ave., S.
Bloomington, MN 55438 USA

Phone: 952-943-1333
Toll Free: 800-769-8370
Fax: 952-943-1605
Toll Free: 800-322-8684

Email: custserv@yellowjacket.com
Web Site: www.yellowjacket.com