

YELLOW JACKET[®]

Automatic Refrigerant Recovery/Recycling/Recharge System

For Automotive Applications



Model 37880

Operation Manual



WARNING! CAUTION!

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.

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.

37880 Series Refrigerant Management System

Specifications

Refrigerants:	All Models: R-134a	
Compressor:	1/2 HP Hermetic Compressor	
Power Source:	120V AC 60Hz for US Models	230V AC 50Hz for CE Models
Amperage:	RLA: 8.5 FLA: 11.0 LRA: 30.0	RLA: FLA: LRA: 19.0
Size:	37880	
Height:	45 inches	
Width:	19.5 inches	
Depth:	29 inches	
Weight:	Maximum is deluxe unit at 225 lb. with tank	

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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:

<u>Wire</u>	<u>Maximum Length</u>		
18 Ga. - 10 feet		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. Repair unit to proper operating conditions.

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 37880 with the Correct Refrigerants. The 37880 Series is only approved for R-134a

Operate the Unit within the Design Environment. The 37880 was 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. Treat for frostbite, if necessary, by gently warming the effected area.

CAUTION! All refrigerant hoses, recovery tanks, refrigerant lines, the 37880, and other vessels containing refrigerants should be handled as if under high pressure.

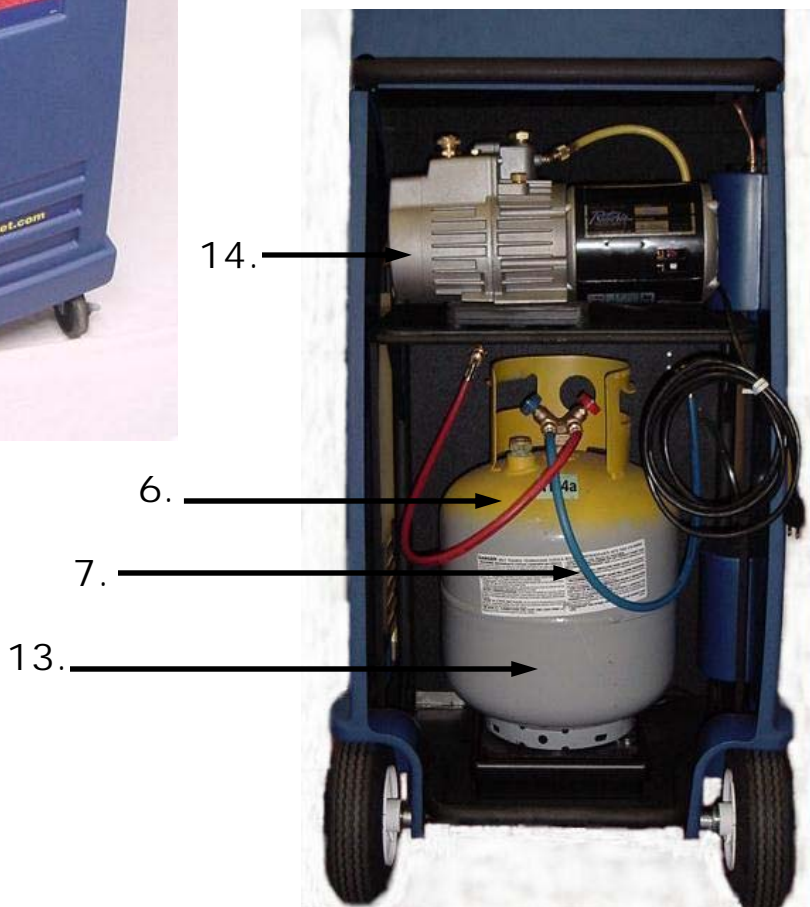
CAUTION! Should be operated by certified personnel.

CAUTION! Avoid breathing A/C refrigerant and lubricant vapor or mist. Exposure may irritate eyes, nose and throat. To remove HFC-134a from the A/C system, use service equipment certified to meet the requirements of SAE J2788. Additional health and safety information may be obtained from refrigerant and lubricant manufacturers.

CAUTION! Do not pressure test or leak test HFC-134a service equipment and/or vehicle air conditioning systems with compressed air. Some mixtures of air and HFC-134a 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.

Component Location and Description

1. Touch Pad (Control Panel)
2. High Gauge
3. Low Gauge
4. Auto High Side Hose (Red)
5. Auto Low Side Hose (Blue)
6. Tank Liquid Hose (Red)
7. Tank Vapor Hose (Blue)
8. Oil Drain Bottle
9. Oil Inject Bottle
10. Tool Tray
11. Main Power Switch
12. Oil Inject Button
13. Storage Tank
14. Vacuum Pump

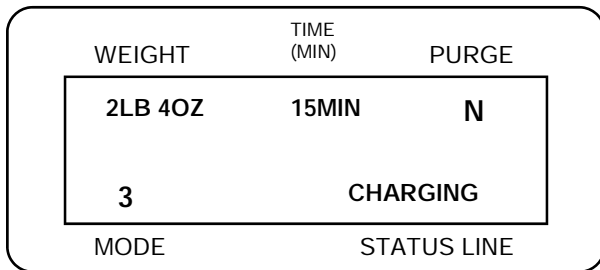


Control Panel Features

LCD Display

The Liquid Crystal Display (LCD) display provides the unit operator with continual updates of the status of the 37880. In addition, the display will prompt the technician for the user input needed to continue operation. The LCD shows error codes for rapid diagnosis of abnormal conditions.

The display is divided into five fields which aid the technician in rapidly reading information.



1. **Weight** - Shows the weight of refrigerant being processed in each mode.
2. **Time (MINS)** - Shows the time set for Vacuum. Timer will count down to display the time left.
3. **Purge** - A "Y" in this field indicates non-condensable gases such as air are present in the storage tank. The unit will purge automatically next time the unit is turned on when the "Y" is displayed. An "N" indicates non-condensable gases are below the set limit. An "E" indicates the unit purged for thirty (30) seconds and non-condensable gases are still present. This is a safety feature which prevents excess purging when a malfunction occurs somewhere in the system. See the Purging Non-Condensable Gas section for further details.
4. **Mode** - Displays the Mode number of the current operation.
5. **Status Line** - Displays programming commands and informs the user of current status of the unit.

Mode Selection Keys

The Mode Selection Keys allow the technician to select a specific operation. 5 Mode keys are located on the left side of the control panel. One key, the Refrigerant Management System Key, is located on the right side.

1. **MODE 1** - Recover Only, is used to recover and recycle refrigerant from an automobile A/C system. This mode is most often used prior to opening an A/C system to atmosphere to replace

a system component.

2. **MODE 2** - Vacuum is used to vacuum air/moisture from a system previously opened to the atmosphere. This mode will then proceed to recharge the A/C system. This mode also allows the technician to verify the A/C system will hold a vacuum for a certain length of time.
3. **MODE 3** - Charge Only, adds refrigerant to an A/C system and is most commonly used to "top off" the system.
4. **MODE 4** - Full Cycle, performs a complete recovery, recycling, evacuating and charging of an automobile A/C system.
5. **MODE 5** - Oil inject, injects the oil into the system.
6. **MODE 6** - Tank Refill, is used to add new refrigerant to the storage tank.
7. **MODE 7** - Refrigerant Management System, gives the technician access to information about refrigerant use to date.

Function Keys

The Function Keys are used to enter data into the system in a variety of modes.

FUNCTION A - INCREASE. Press INCREASE to raise values on the display for user-input information. Holding the button depressed will increase the rate of change.

FUNCTION B - DECREASE. Press DECREASE to lower values on the display for user-input information. Holding the button depressed will increase the rate of change.

FUNCTION C - WEIGHT CONVERSION. Press WEIGHT CONVERSION to change the displayed units of weight. The choices are: pounds/ounces, pounds, ounces, and kilograms.

ENTER - Press ENTER to accept the value on the LCD after using the INCREASE or DECREASE keys.

Operation Keys

START- Press START to begin a selected operational mode.

RESET- Press RESET to cancel the current operation. The RESET may have to be pushed more than once to return to "Select Mode" screen.

Initial Setup

To ensure quick, successful integration of the 37880 into your shop, please follow these set-up procedures before the first use of the unit.

Step 1: FILL VACUUM PUMP WITH OIL

1. Remove thumbscrews located under the vacuum pump shelf.
2. Rotate the front of the vacuum pump out to expose the oil fill port.
3. Remove the fill cap located on top of the vacuum pump.
4. Using a funnel, insert oil to the oil level line using the provided YELLOW JACKET vacuum pump oil.
5. Replace the oil fill cap.
6. Rotate the vacuum pump back into its original position and replace the thumbscrews.

Step 2: FILL SOURCE TANK WITH REFRIGERANT (also see page 11)

1. Attach the tank refill adapter (Part No. 19153) to the R-134a virgin cylinder. **WARNING: DO NOT OVERTIGHTEN THE TANK REFILL ADAPTER.**
2. Plug unit into a grounded 110V outlet.
3. Turn on the main power switch.
4. When the display reads "SELECT MODE" press the TANK REFILL key.
5. Follow the user prompts to complete the tank refill process.
6. When the display reads "SUPPLY TANK EMPTY" disconnect blue hose.
7. Remove the tank refill adapter from empty R-134a virgin cylinder and place it in the tool tray located on top of the unit.

The unit is now ready for operation.

Mode 1– Recovery Only

The Recovery Only mode should be used to fully recovery 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.

MODE 1 Operational Steps

1. Refer to Pre-Operation Check List.
2. Verify the automobile air conditioning system is off.
3. Press MODE 1 for recovery operations. The LCD should read "CONNECT HOSES ENTER TO CONTINUE."

NOTE: If desired, the gauges of the 37880 SERIES can now be used to aid investigation of an A/C system problem. Ensure the automobile A/C system is turned off prior to selecting a mode on the machine.

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

During the recovery operation, refrigerant is removed from both the high and low side of the automobile air conditioning system. The LCD will display the amount of refrigerant being recovered and the status line will read

"RECOVERING REFRIG."

Note: If "RECOVERY HOLD" Option is selected The unit will stop at 6" of mercury and hold for five min as required by EPA Per SAE J2211. If the pressure rises to 0 psi the compressor will restart and the unit will pull down to the required 6" of mercury and hold for two minutes. The unit will repeat this process until the system pressure remains stable at vacuum for two minutes or until it fails this process five times. If the process fails five times the status line will read " LEAK CHECK FAILED." This may mean that the automobile A/C system has a gross leak and it will not hold a vacuum.

If this occurs take the appropriate steps to locate the leak and properly repair it.

If the "RECOVERY HOLD" option is not selected the unit will shut off at the required level of vacuum and the operator must insure that the EPA standard (SAE J2211) is met.

After the system turns off, the unit will beep to alert the technician the job is complete. The oil removed from the auto will drain into the oil drain bottle on the side of the unit. Because a small amount of gas will be released as the oil drains, a small hissing sound may come from the bottle.

Always inspect hoses, o-rings, and fittings for damage before using equipment. Replace worn or damaged components. Failure to insure that hoses, o-rings and fittings are in working order can increase a build-up of NCG's in the recovered refrigerant.

Use only new lubricant to replace the amount removed during the recycling process. Discard used lubricant per applicable federal, state and local requirements.

Mode 1– Recovery Only, cont.

6. Verify the message on the LCD reads **“RECOVERY COMPLETE.”**
 7. Press the RESET button. The LCD should read **“CHECK OIL LEVELS.”**
 8. Measure the oil in the oil drain bottle. Dispose of recovered oil in a proper manner.
 9. Close the service valves and disconnect the high and low side auto service hoses from the automobile.
- follow the instructions on the screen and the unit will clear itself automatically. Repeat the identification process to insure the proper identification of the refrigerant purity level.
- If the unit fails the second time follow the on screen instructions and take the appropriate steps to remove the contaminated refrigerant with a separate unit for removal of contaminated refrigerant.

Models with the optional refrigerant identifier 37881

The unit will display “IDENTIFY REFRIG ?” To make your selection use the increase and decrease keys to toggle from Y to N. Press the Enter key to make your selection and then press the Start key to start the process. If yes is selected the unit will begin the refrigerant identification process.

If the refrigerant does not pass the identification process (98% purity) the unit will display the error message “CONTAMINATED” and the screen will show the results of the identification. Press the Reset key and

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If the filter begins to turn red in color stop using the refrigerant identifier immediately. Replace the refrigerant identifier filter and continue using the refrigerant identifier. *Failure to replace the filter will cause damage to the refrigerant identifier and void all warranties related to the refrigerant identifier.*

Mode 2 – Vacuum

The vacuum function of the 880 SERIES 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 must be removed before recharging the system with refrigerant.

We recommend pulling a vacuum for a minimum of 15 minutes to ensure that the system is evacuated. If you are working on a larger system than a standard automobile or if the system has been open and exposed to the atmosphere it will be necessary to run longer than 15 minutes.

MODE 2 Operational Steps

1. Refer to the Pre-Operation Check List.

NOTE: If desired, the gauges of the 880 SERIES can now be used to aid investigation of an A/C system problem. Ensure the automobile A/C system is turned off prior to selecting a mode on the machine.

2. Verify the auto air conditioning system is off.
3. Press MODE 2 for Vacuum.
4. The LCD will read **“CONNECT HOSES PRESS 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. Open the service hose valves.
6. Press the ENTER key.
7. When the LCD reads **“SET VACUUM TIME,”** set the vacuum time by pressing and holding INCREASE or DECREASE until the desired time is shown. Release the button and press ENTER to accept the vacuum time shown on the LCD. Bypass vacuum time by setting time to zero (FULL CYCLE MODE only).
8. When the LCD reads **“SET VACUUM HOLD TIME,”** set the vacuum hold time by pressing and holding INCREASE or DECREASE until the desired time is shown. Release the button and press ENTER to accept the vacuum hold time shown on the LCD. Vacuum hold time can be bypassed if the time is set to zero. Question: **OIL INJECT PAUSE ? “Y” for “Yes.”** Press the increase or decrease key to switch between Y and N.
9. The LCD should read **“PUSH START.”**
10. Press START key to begin vacuum and charging operations.

Mode 2 – Vacuum

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

12. The 880 SERIES will begin to evacuate the A/C system and will beep to indicate the end of the vacuum time.
13. When the unit prompts you to **“INJECT OIL NOW”** press and hold the OIL INJECT button until the desired amount of oil has been injected into the system.
14. Press the ENTER key to continue
15. Record the vacuum level shown on the low pressure gauge and press START to begin the vacuum hold time. The hold time will count down on the LCD and the unit will beep at the end of the hold time.
16. Record the final vacuum level shown on the low pressure gauge. If the two recorded vacuum levels are different, the A/C system may have a leak and might not retain refrigerant when charged.
17. Verify the message on the LCD reads **“VAC COMPLETE.”**
18. Shut the service valves and disconnect the high and low side auto service hoses from the automobile.

Press the RESET button to return to the **“SELECT MODE”** status.

Mode 3 – Charge Only

The Charge Only function is designed to add a precise amount of refrigerant when the A/C system is low on refrigerant. This mode is most often used when the A/C system is working but does not produce sufficiently cold air. **Note: THE A/C SYSTEM MUST BE IN A VACUUM BEFORE THE CHARGING PROCESS.**

MODE 3 Operational Steps:

1. Refer to the Pre-Operation Check List.

NOTE: If desired, the gauges of the 37880 can now be used to aid investigation of an A/C system problem. Ensure the automobile A/C system is turned off prior to selecting a mode on the 37880.

2. Verify the auto air conditioning system is off.
3. Press MODE 3 for Charge Only.
4. The LCD will read **CONNECT HOSES ENTER TO CONTINUE.** Press the **ENTER** key.
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. Open the service hose valves.
6. When the LCD reads **“SET CHARGE AMOUNT,”**

set the amount of refrigerant to be charged into the A/C system by pressing and holding the INCREASE or DECREASE key until the desired amount is shown. Release the key and press ENTER to set the charge amount on the LCD.

7. The LCD should read **“PUSH START.”**
8. Press START key to begin charging operations. The display will read **“STABILIZING PLEASE WAIT”** The 37880 Series will then start the charge cycle.

The LCD will display 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.

9. Verify the message on the LCD reads **“CHRG COMPLETE.”** Press the RESET key and the Unit will force a hose clearing routine. Close the service valves and disconnect the high and low side auto service hoses from the auto.
10. Press the ENTER key to return to the **“SELECT MODE”** status.

Mode 4 – Full Cycle

The Full Cycle function of the 37880 is designed to remove and recycle all refrigerant in an A/C system by transferring the refrigerant to the storage tank, remove moisture in the system by pulling a vacuum, and charging the system with a precise amount of refrigerant.

MODE 4 Operational Steps

1. Refer to the Pre-Operation Check List.

NOTE: If desired, the gauges of the 37880 can now be used to aid investigation of an A/C system problem. Ensure the automobile A/C system is turned off prior to selecting a mode on the 37880.

2. Verify the auto air conditioning system is off.

3. Press MODE 4 for Full Cycle. The LCD will read **“CONNECT HOSES”**

4. Connect the high and low side auto service hoses to the respective high and low side service ports on the automobile A/C system. Open the service hose valves. Press the ENTER key to continue.

5. When the LCD reads **“SET VACUUM TIME,”** set the vacuum hold time by pressing and holding INCREASE or DECREASE until the desired time is shown. Release the button and press ENTER to accept the vacuum hold time on the LCD.

6. When the LCD reads **“SET VAC HOLD TIME,”** set the vacuum time by pressing and holding INCREASE or DECREASE until the desired time is shown. Release the button and press ENTER to accept the vacuum hold time shown on the LCD.

NOTE: Vacuum hold time can be bypassed if the time is set to zero.

7. When the LCD reads **“SET CHARGE AMOUNT,”** set the amount of refrigerant to be charged into the A/C system by pressing and holding INCREASE or DECREASE until the desired amount is shown. Release the button and press ENTER to accept the charge amount on the LCD.

8. Oil Inject Y/N (Select Y/N)

9. The LCD should read **“PUSH START.”**

10. Press START KEY to begin full cycle operations.

11. The unit will begin to recover as outlined for the Recovery Only cycle, and then evacuate the A/C system and will beep to indicate the end of the vacuum time— if Vacuum Hold is used.

12. Record the vacuum level shown on the low pressure gauge and press START to begin the vacuum hold time. The hold time will count down on the LCD and the unit will beep at the end of the hold time. If

vacuum hold time was set to zero, the unit will transition into charge mode.

13. Record the final vacuum level shown on the low pressure gauge. If the two recorded levels are different, the A/C system may have a leak and may not retain refrigerant when charged. The 37880 will automatically start the charge cycle.

14. The unit will prompt you to **“INJECT OIL NOW”** press and hold the oil inject key until the desired amount of oil is injected into the A/C system.

15. The LCD will display the progress of the charging process. When the desired charge amount has been transferred to the A/C system, the unit will beep.

16. Verify the message on the LCD reads **“FULL CYCLE COMPLETE.”**

17. Press the RESET button. The LCD should read **“CHECK OIL LEVELS.”** The LCD will read **“HOSES NEED CLEARING”**

18. Press the Enter Key. The unit will then prompt you to **“DISCONNECT VEHICLE.”**

19. Shut the service valves and disconnect the high and low side auto service hoses from the auto.

20. Press the ENTER key; the LCD will read **“CLEARING HOSES.”**

21. Measure the oil in the oil drain bottle. Dispose of recovered oil in a proper manner.

22. Press the RESET button to return to the **“SELECT MODE”** status.

Model 37889 (Only) - The 37889 model has an integrated micron gauge that can be used to determine the micron level of the A/C System. The instructions below will outline how to use this feature.

Full Cycle Mode / Vacuum Mode – When selecting the vacuum setting press the Weight Conversion key to select microns rather than time. Use the Increase and Decrease keys to set the micron level that you would like the unit to achieve.

Note: Since the micron sensor is inside the unit and not attached to the vehicle there will be a difference in the actual micron reading in the vehicle.

To achieve the best results set the micron number lower than the micron level you want to reach.

When the unit reaches the desired micron level it will automatically stop the vacuum process.

Mode 4 – Full Cycle, cont.

Models with the optional refrigerant identifier 37881

The unit will display “IDENTIFY REFRIG ?” To make your selection use the increase and decrease keys to toggle from Y to N. Press the Enter key to make your selection and then press the Start key to start the process. If yes is selected the unit will begin the refrigerant identification process.

If the refrigerant does not pass the identification process (98% purity) the unit will display the error message “CONTAMINATED” and the screen will show the results of the identification.

Press the Reset key and follow the instructions on the screen and the unit will clear itself automatically. Repeat the identification process to insure the proper identification of the refrigerant purity level.

If the unit fails the second time follow the on screen instructions and take the appropriate steps to remove the contaminated refrigerant with a separate unit for removal of contaminated refrigerant.

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If the filter begins to turn red in color stop using the refrigerant identifier immediately. Replace the refrigerant identifier filter and continue using the refrigerant identifier. *Failure to replace the filter will cause damage to the refrigerant identifier and void all warranties related to the refrigerant identifier.*

Mode 5– Oil Inject

When prompted, press this key and watch the oil inject bottle until the correct amount of oil has been injected. Release the key when the correct amount of oil has been added to the system.

Use only new lubricant to replace the amount removed during the recycling process. Discard used lubricant per applicable federal, state and local requirements.

Mode 6– Tank Refill

In order to use the charging mode, you must have at least six (6) pounds of refrigerant in the storage tank. Follow this procedure to add refrigerant to the storage tank. When adding R-134a to the tank of either a 37880, you will need to use the tank refill adapter supplied in the accessory kit. This adapter connects the low side auto service coupling to the tank of new R-134a refrigerant. It should be stored in the tool tray on the top of the unit.

1. Refer to the Pre-Operation Check List.
2. Select MODE 6– Tank Refill.
3. 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 ensure all of the refrigerant is transferred to the storage tank on the unit. Press the ENTER button
4. 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.

Press the RESET key to return to the “SELECT MODE” status.

Models with the optional refrigerant identifier 37881

The unit will display “IDENTIFY REFRIG ?” To make your selection use the increase and decrease keys to toggle from Y to N. Press the Enter key to make your selection and then press the Start key to start the process. If yes is selected the unit will begin the refrigerant identification process.

If the refrigerant does not pass the identification process (98% purity) the unit will display the error message “CONTAMINATED” and the screen will show the results of the identification. Press the Reset key and follow the instructions on the screen and the unit will clear itself automatically. Repeat the identification process to insure the proper identification of the refrigerant purity level.

If the unit fails the second time follow the on screen instructions and take the appropriate steps to remove the contaminated refrigerant with a separate unit for removal of contaminated refrigerant.

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If the filter begins to turn red in color stop using the refrigerant identifier immediately. Replace the refrigerant identifier filter and continue using the refrigerant identifier. *Failure to replace the filter will cause damage to the refrigerant identifier and void all warranties related to the refrigerant identifier.*

Mode 7– Refrigerant Management System

The Refrigerant Management System built into the 37880 tracks all aspects of refrigeration usage. The information can significantly help you manage your automobile A/C repair business. In addition, new federal regulation require strict records of your refrigerant usage. The software in this system is designed to ensure the highest possible accuracy in managing refrigerant usage. Refrigerant measurement during charging is extremely accurate. In Charge mode, however, accuracy is plus or minus 1/2 ounce based on variations in air temperature and pressure.

Uses of the refrigerant data include:

- Improved record keeping
- Accurate determination of net profits
- Reduced billing errors
- Minimized refrigerant loss from leaks and theft

- Reduced operator errors

The refrigerant management information is stored in eight registers. To access the information, press Mode 7, REFRIGERANT MANAGEMENT SYSTEM. Press RMM key to cycle through the screens. The screens contain the following information:

Screen 1: Last Job Information

Run Time
Refrigerant Recovered
Refrigerant Charged
Refrigerant Added

Screen 2: Year-to-date Information

Total Run Time
Total Amount Recovered
Total Amount Charged
Refrigerant Added "New"

Purging Non-Condensable Gases

The 37880 is designed to automatically purge non-condensable gases such as air present in the storage tank. When the pressure in the tank exceeds a threshold value, the unit will automatically purge the excess pressure. The unit will only purge when it is first turned on. The current purge status is displayed in the upper right corner of the LCD when in Select Mode.

The purge status in the LCD should be either "Y", "N", or "E." A "Y" indicates air is present in the tank. The unit will purge the next time it is turned off and on. An "N" in the window indicates a purge is not needed.

An "E" will display on the LCD if the previous purge was insufficient to lower the non-condensable gas value below the limit. The purge time is set to 30 seconds to minimize refrigerant loss. If the LCD continues to display an "E" after several purge cycles, there may be an error in the system. Check the pressure in the tank to determine if the system is purging unnecessarily.

If the unit continues to display "Y" or an "E" and the tank pressure is near the value in the table below, contact Ritchie Engineering Customer Service at (800)769-8370.

Approximate Pressure (psig)					
Temp (°F)	R-12	R-134a	Temp (°F)	R-12	R-134a
65	74	74	90	110	120
70	80	81	95	118	126
75	87	88	100	127	135
80	96	97	105	136	145
85	102	115	110	146	155

Maintenance Reminders

FILTER - "MAINT-FILTER CHG DUE"

The 37880 has a unique filter system which ensures the refrigerant transferred to the storage cylinder is clean and moisture-free. The filters must be changed periodically to ensure the system is working properly. A maintenance reminder prompts you when to change your filters. All refrigerant must be removed from the old filters before they are removed. Follow the filter change procedures carefully to minimize refrigerant loss and ensure only clean, moisture-free refrigerant is transferred into the storage cylinder.

The new J2788 standard requires that the unit lock out if the filter drier is not replaced at the proper interval. The unit will prompt you when it is near the end of its life. When the filter drier reaches 100 lbs of refrigerant processed it will warn the user that it is nearing the end of its life. When the filter drier reaches 150 lbs of refrigerant processed it will lock the user out and 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.

Check Filter Life –

- Press the DECREASE key when the display reads "SELECT MODE".
- Press the RESET key to return to SELECT MODE.

- When the display reads – WARNING: MAINTENANCE - CHANGE FILTER DRIER IN XX.XX LB, press the RESET key to continue. This reminder will appear every time you power the unit up.

Filter Change Procedure before Scheduled Filter Change. Follow these steps to change the filter drier before the scheduled filter change:

- Hold down Decrease key and turn on main power switch on.
- When display reads "INPUT SERIAL NUMBER" enter serial number using the key pad.

NOTE: The following keys represent the letters contained in the serial number code:

INCREASE BUTTON = A

DECREASE BUTTON = B

WEIGHT CONVERSION BUTTON = C

- When the display reads "FILTER LIFE HAS BEEN CLEARED" turn off the main power switch and replace the filter drier.

Filter Change Procedure if Filter Lock Out is reached.

- When the display reads "WARNING: MAINTENANCE - CHANGE FILTER DRIER"
- Press Enter key to enter filter change mode.

Maintenance—Compressor Oil

The oil should be checked for contamination and proper oil level when the compressor oil maintenance reminder is displayed. Pressing the ENTER key will turn the reminder off until the next time you start the unit. Pressing the RESET key will reset the reminder until the next scheduled maintenance.

Instructions for Oil Maintenance

Oil Level Check

1. Place unit on a level surface and run a recovery cycle with the unit.
2. Unplug unit.
3. Remove front cover of unit.
4. **Slowly** remove oil port cap on compressor.

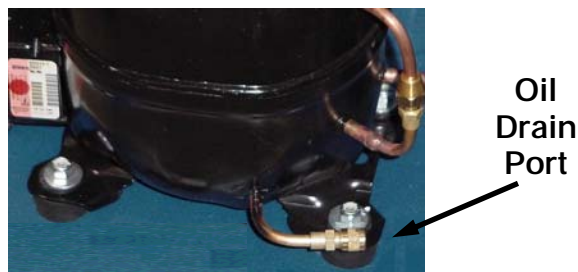
Note: High pressure may be present, remove cap slowly.

5. Place rear wheels of unit on a 2 x 4.
6. Oil should drip out of oil drain port.
7. If oil runs out of port rapidly, allow to drain.
8. Replace oil port cap and cover.
9. Dispose of oil properly.

Oil Replacement Procedure

1. Follow steps 1 thru 4 in the oil level check.
2. Tilt unit at 45° angle towards oil drain. port until all oil has been drained.
3. Refill with proper amount and type of oil. The proper oil charge is 8.0 ounces or 225 cc's of 150 VISCOSITY POE oil.
4. Replace oil port cap and front cover.
5. Dispose of oil properly.

Note: Failure to perform oil maintenance can cause the compressor to overfill with oil and severely damage the compressor.



Maintenance— Vacuum Pump Oil

Pressing the ENTER key will turn the reminder off until the next time you start the unit. Pressing the RESET key will reset the reminder until the next scheduled maintenance.

Check oil level when pump is running.

When pump is running, oil level should be 1/2 to 5/8 up in the sight glass. This level is necessary for proper operation.

This Maintenance is Best Performed when the oil is warm.

1. Remove thumb screws under vacuum pump.
2. Rotate the front of the vacuum pump towards the rear of the unit.
3. Place a container under the oil drain plug and remove the oil drain plug.
4. Drain oil into the container.
5. Dispose of the oil properly.
6. Refill the vacuum pump with YELLOW JACKET (Quart Part no. 93192) vacuum pump oil to the correct level.
7. Reverse Steps 1-2.

Calibration Check (1 lb weight)

1. Press the A key when in "SELECT MODE".
2. Press the "START" key then the LCD will read "Stabilizing Scale".
3. After stabilizing, machine will display "PUT THE KNOWN WEIGHT ON THE SCALE"
4. Put the 1 lb certified weight on the scale and press "START" key. The display will read "Stabilizing Scale" then it will display the exact weight that you put on the scale +/- .01 oz.

If the display does not show 1 lb +/- .01oz please call for technical support.

Example: 1 lb.02 oz (Out of Calibration)

0 lb. 15.98 oz (Out of Calibration)

Troubleshooting Information

The 37880 has a number of sophisticated features which make it by far the most user friendly A/C service system in the world. The unit was designed for easy operation, service and troubleshooting. Although the 37880 was 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 a 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. Our technical support number is (800)769-8370.

Common Problems and Potential Solution

Problem	Possible Causes	Possible Solutions
37880 cannot pull automobile A/C system into a vacuum	<ul style="list-style-type: none"> • Service valves on hoses not properly installed • Service ball valve seals are worn. • Hoses on unit are loose or leak. • Automobile A/C system has a leak. 	<ul style="list-style-type: none"> • Check valve seals and threads and replace if needed. • Replace valve seals and Schrader core depressor. • Tighten or replace hoses on unit. • Find and repair leak in A/C system.
High side gauge readings above normal	<ul style="list-style-type: none"> • Restriction in A/C system or Schrader core. • Service hose ball valve closed. • Incorrect charge amount entered in unit. 	<ul style="list-style-type: none"> • 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.	<ul style="list-style-type: none"> • 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. 	<ul style="list-style-type: none"> • Open Valve. • Open valve or straighten hose. • Install blue service hose on refrigerant tank. • Close valve on new supply. Disconnect service hose.
Touch Pad will not accept commands	<ul style="list-style-type: none"> • Button on touch pad is stuck. • Bad Touch Pad. • Wire disconnected between touch pad and microprocessor. • Microprocessor malfunction. 	<ul style="list-style-type: none"> • Feel for non-responsive button. If not responding, call Technical Support. • Call Technical Support. • Call Technical Support. • Call Technical Support.
Fan not running in any cycle	<ul style="list-style-type: none"> • Loose power wire to fan. • Microprocessor malfunction. • Fan malfunction. 	<ul style="list-style-type: none"> • Locate loose fitting and reconnect. • Call Technical Support. • Call Technical Support.
Machine will not turn on	<ul style="list-style-type: none"> • Power cord is not plugged into a 120 Volt outlet. • Circuit breaker tripped on shop power panel. • Bad Main Power switch. • Loose wire. • Bad Transformer on microprocessor board. 	<ul style="list-style-type: none"> • Plug into outlet. • Reset circuit breaker. If circuit breaker immediately trips, do not reset. Consult a qualified electrician. • Call Technical Support. • Repair loose wire. • Call Technical Support.
Unit will not recover refrigerant from A/C system	<ul style="list-style-type: none"> • Valves on service hoses shut. • Service hose is constricted. • Unit storage tank valve is closed. • Compressor not operating. 	<ul style="list-style-type: none"> • Open valves. • Straighten hose. • Open tank valves. • Call Technical Support.
Unit will not charge refrigerant into vehicle	<ul style="list-style-type: none"> • Valves on service hoses shut • Service hose is constricted • Unit storage tank valve is closed • Compressor not operating 	<ul style="list-style-type: none"> • Open valves • Straighten hose • Open tank valves • Call Technical Support.
Refrigerant leaking during charging	<ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> • 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.

LCD Error Messages and Potential Solution

ERROR NUMBER	MESSAGE	DESCRIPTION	TROUBLESHOOTING
ERROR 1	HIGH PRESSURE	HIGH PRESSURE SWITCH IS TRIPPED (NORMALY OPEN SWITCH)	<ul style="list-style-type: none"> • OPEN TANK VALVE • TEST HIGH PRESSURE SWITCH • CHECK SV AND CHECK VALVE OP
ERROR 2	TANK FULL	TANK WEIGHT OVER 80% OF CAPACITY	<ul style="list-style-type: none"> • CHECK SCALE CALIBRATION • REMOVE SOME REFRIGERANT FROM STORAGE TANK
ERROR 3	RECOVERY TIME OUT	RECOVERY PROCESS HAS EXCEEDED 45 FACTORY DEFAULT	<ul style="list-style-type: none"> • 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 EXCEEDED 10 MIN FACTOR DEFAULT	<ul style="list-style-type: none"> • OPEN TANK VALVES • OPEN SERVICE COUPLERS • SWITCH TO LOW SIDE CHARGING • CHECK TANK WEIGHT (10 LB MIN)
ERROR 5	NO TANK ON SCALE	SCALE NOT READING TANK WEIGHT	<ul style="list-style-type: none"> • PLACE TANK ON SCALE • CHECK SCALE CALIBRATION
ERROR 6	TANK EMPTY	REFRIGERANT BELOW 5 % OF TANK CAPACITY	<ul style="list-style-type: none"> • REFILL TANK • CHECK SCALE CALIBRATION
ERROR 7	NOT ENOUGH REFRIGERANT	UNIT IS LOW ON REFRIGERANT (10 LB MIN)	<ul style="list-style-type: none"> • REFILL TANK
ERROR 8	TANK REFILL TIME OUT	TANK REFILL HAS EXCEEDED DEFAULT TIME	<ul style="list-style-type: none"> • RUN TANK REFILL MODE AGAIN • CHECK FOR LEAKS • TEST LOW PRESSURE SWITCH
ERROR 9	VACUUM TIME OUT. PLEASE CHECK FOR LEAK		NOT USED
ERROR 10	SYSTEM EQUALIZED	PRESSURE EQUALIZED DURING CHARGING	<ul style="list-style-type: none"> • RUN THE VEHICLE TO DRAW IN THE REMAINING REFRIGERANT CHARGE
ERROR 11	HOSE CLEARING TIME OUT	CLEARING TIME OUT AFTER CHARGING	<ul style="list-style-type: none"> • CLOSE SERVICE VALVES AND DISCONNECT
ERROR 12	POSSIBLE OVER CHARGE	POTENTIAL OVERCHARGE OF THE VEHICLE	<ul style="list-style-type: none"> • REPEAT RECOVERY AND CHARGE PROCESS
ERROR 13	VACUUM ERROR.	LP SWITCH OPENED DURING VACUUM HOLD	REPEAT VACUUM CYCLE
ERROR 14	LEAK CHECK FAILD	FAILED TO HOLD VACUUM AFTER 5 ATTEMPTS	<ul style="list-style-type: none"> • REPEAT RECOVERY PROCESS • CHECK FOR LEAKS
ERROR 15	SYSTEM MAL-	EEP-ROM Data read/write error	<ul style="list-style-type: none"> • REPLACE MICROPROCESSOR

37880 Repair Parts List

<u>Part #</u>	<u>Description</u>	<u>Part #</u>	<u>Description</u>
95423	High Pressure Switch	27296	R-134a Auto Low Side Blue Hose (10ft)
95180	Vacuum Switch	27696	R-134a Auto High Side Red Hose (10ft)
W/COMP	Capacitor	00849	R-134a Tank Vapor Blue Hose (30in)
W/COMP	Relay	00853	R-134a Tank Liquid Red Hose (30in)
38026	Differential Switch	19153	R-134a Tank Refill Adapter
38111	Membrane Touch Pad	95006	50lb Refrigerant Tank
	Microprocessor	38003	Filter-Dryer (1 per unit)
95157	Circuit Breaker, 15 Amp	38019	Oil Bottle
68826	Automatic Scale Assembly	38053	Service Compressor

Warranty Information

LIMITED WARRANTY

Ritchie Engineering guarantees YELLOW JACKET® products to be free of defective material and workmanship which would affect the life of the product under normal use for the purpose for which it was designed.

This warranty does not cover items that have been altered, abused, misused, improperly maintained, or returned solely in need of field service maintenance. This warranty expressly excludes Vacuum Pump damage and failures caused by failure to maintain clean, uncontaminated oil in the pump – the major reason for pump returns. Therefore, problems related to non-maintained oil will void this warranty on that part of the product.

This warranty does not cover abuse, damage from over tightening valves, or broken gauges. "Series 41" Manifold valves can be re-conditioned using replacement seating cylinder 41133. There will be a reconditioning charge for manifolds returned to the factory for repair.

If found defective, we will upon compliance with the return instructions either credit, replace, or repair, at our option, the defective product provided it is returned within one year of the date of factory shipment (90 days for tubing tools). Note: Hoses are Date Coded to help determine age of hose. See recommended hose safety inspection procedure. Leak detectors have date of manufacture label on product.

Correction in the manner provided above shall constitute a fulfillment of all liabilities with respect to the quality, material and workmanship of the product. **THE FOREGOING WARRANTY IS EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES OF QUALITY, WHETHER WRITTEN, ORAL OR IMPLIED.**

WARRANTY RETURNS - For HVAC&R Recovery Units and for Automotive Recovery, Recycle, Recharge equipment, call 1-800-769-8370 for instructions for service, repair, or return. The 37880 Series units are covered by a one year parts and labor warranty. For all other products, please return warranty items to the main factory in Bloomington, MN, prepaid for credit, replacement, or repair, at our option. No authorization is required. All returns must be PREPAID. On direct drive pumps, many of the problems can be solved over the telephone. Call 952-943-1333.

NON-WARRANTY RETURNS - Prior authorization must be obtained from home office for non-warranty returns. All returns must be PREPAID. Minimum restocking charge 20% on standard items of current date coding and manufacture. Special production items will have a higher restocking charge. Many items shown in our price list are custom-fabricated to customer's order.



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