YELLOW JACKET®

Automatic Refrigerant Recovery/Recycling/Recharge System

For Automotive Applications

Model 39800

Operation Manual

YELLOW JACKET®

HVAC/R & Automotive Service Tools

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.

Model 800 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: 9.3	RLA:
	FLA: 11.0	FLA:
	LRA: 30.0	LRA: 19.0
Size:	**800 Series**	
Height:	45 in	
Width:	19.5 in	
Depth:	29 in	
Weight:	Maximum is deluxe unit at 225 lb. w/ Tank	

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General Safety Instructions

Know your equipment. Read and understand the operation manual and labels affixed to the unit. Learn it's 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:

Wire	Maximum Length
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 (frost-bite). 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 Model 800 Series with the Correct Refrigerants. See the specifications for a list of compatible refrigerants.

Operate the Unit within the Design Environment. The Model 800 series 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.

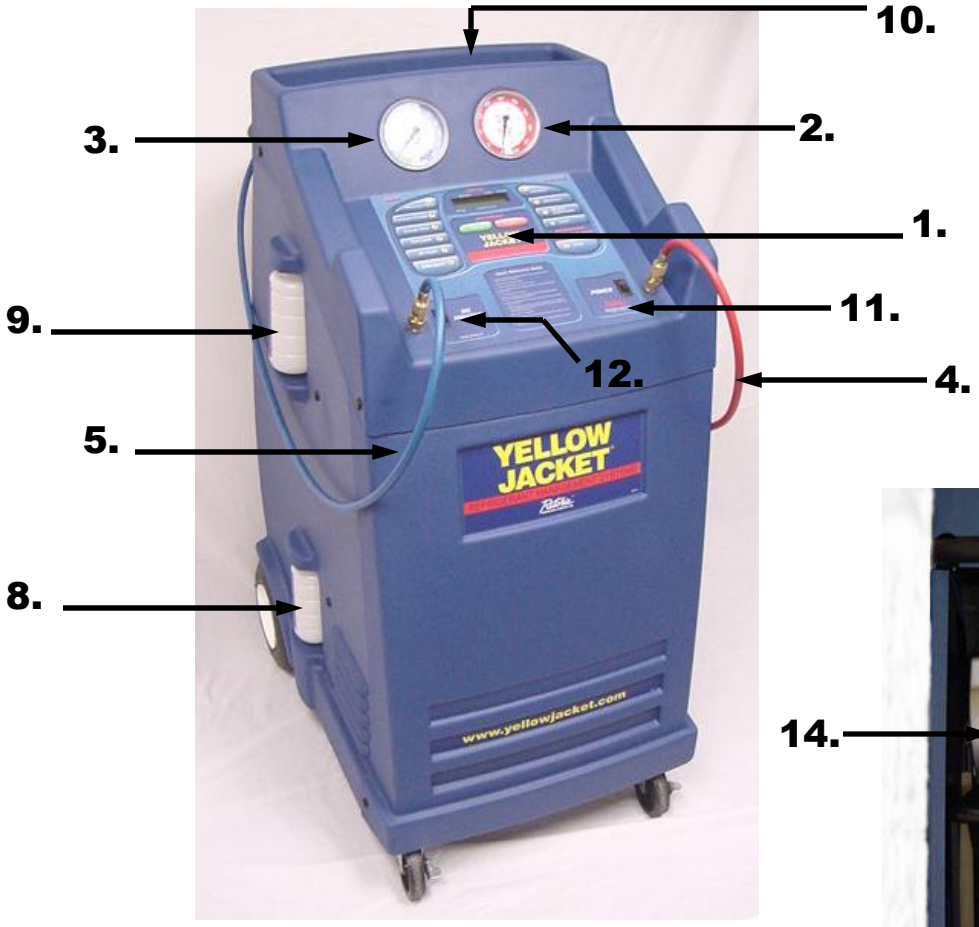
FIRST AID: If high concentrations of refrigerant are inhaled, immediately remove the victim to fresh air. Call a physician or emergency medical technician. Keep calm. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Do not give epinephrine or similar drugs.

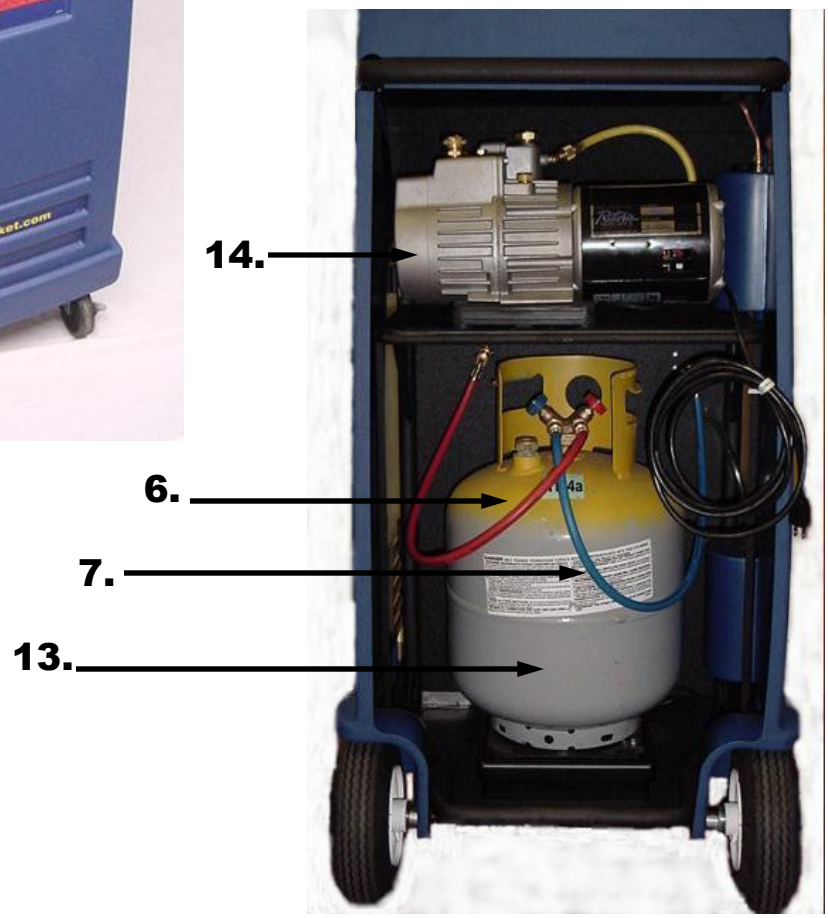
- **EYE:** In case of liquid contact, immediately flush eyes with plenty of water. Call a physician.
- **SKIN:** Flush with water. Treat for frostbite, if necessary, by gently warming the effected area.

CAUTION! All refrigerant hoses, recovery tanks, refrigerant lines, the Model 800 series, and other vessels containing refrigerants should be handled as if under high pressure.

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 Switch
13. Storage Tank
14. Vacuum Pump



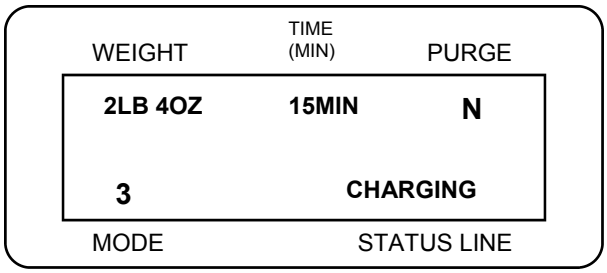


Control Panel Features

LCD Display

The Liquid Crystal Display (LCD) display provides the unit operator with continual updates of the status of the Model 800. 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 either Flush or 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. Six 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 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 Model 800 series 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 red protective cap from the oil fill port and discard it.
4. Remove the fill cap located on top of the vacuum pump.
5. Using a funnel, insert oil to the oil level line using the provided YELLOW JACKET vacuum pump oil.
6. Replace the oil fill cap.
7. 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.
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 R134a 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 800 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 800 SERIES.

2. 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.
3. Press ENTER 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.

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. Shut the service valves and disconnect the high and low side auto service hoses from the automobile.
9. Measure the oil in the oil drain bottle. Dispose of recovered oil in a proper manner.
10. Use the oil injection switch to add new oil back into the automobile A/C low side port in accordance with the automobile manufacturer's recommendations. Add an amount of new oil equal to the amount collected in the oil drain bottle.

Mode 2– Vacuum

The vacuum function of the 800 SERIES is designed to remove 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.

MODE 2 Operational Steps

1. Refer to the Pre-Operation Check List.

NOTE: If desired, the gauges of the 800 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 800 SERIES.

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.
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. Answer 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.

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 800 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. Press the RESET button. The LCD should read **"CHECK OIL LEVELS."** Unit will force a hose clearing routine (see full cycle).
19. 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.

MODE 3 Operational Steps:

1. Refer to the Pre-Operation Check List.

NOTE: If desired, the gauges of the Model 800 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 Model 800.

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 800 Series will 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.

9. Verify the message on the LCD reads **"CHRG ONLY COMPLETE."** Unit will force a hose clearing routine (See Full cycle).
10. Shut the service valves and disconnect the high and low side auto service hoses from the auto.
11. Press the RESET key to return to the **"SELECT MODE"** status.

Mode 4 – Full Cycle

The Full Cycle function of the Model 800 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 Model 800 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 Model 800.

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.

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

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. The LCD should read **"PUSH START."**
9. Press START KEY to begin full cycle operations.
10. 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.

7. 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.
8. 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 Model 800 will automatically start the charge cycle.

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.

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.

13. Verify the message on the LCD reads **"FULL CYCLE COMPLETE."**
14. Press the RESET button. The LCD should read **"CHECK OIL LEVELS."** The LCD will read **"HOSES NEED CLEARING"**
15. Press the Enter Key. The unit will then prompt you to **"DISCONNECT VEHICLE."**
16. Shut the service valves and disconnect the high and low side auto service hoses from the auto.
17. Press the ENTER key; the LCD will read **"CLEARING HOSES."**
18. Measure the oil in the oil drain bottle. Dispose of recovered oil in a proper manner.
19. Press the RESET button to return to the **"SELECT MODE"** status.

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.

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 Model 800, 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.
4. Press the ENTER 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.

Mode 7– Refrigerant Management System

The Refrigerant Management System (RMM) built into the Model 800 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 recovery mode, however, accuracy is plus or minus three ounces 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

Mode 7– Refrigerant Management System, cont.

The refrigerant management information is stored in nine registers. To access the information, press Mode 7, REFRIGERANT MANAGEMENT SYSTEM. Press INCREASE or DECREASE to cycle through the registers. The registers are:

Register 1: Total number of jobs to date.

Register 2: Cumulative run time in minutes.

Register 3: Refrigerant recovered during last job.

Register 4: Refrigerant charged in last job.

Register 5: Run time of last job.

Register 6: Total amount of refrigerant recovered to date.

Register 7: Total amount of refrigerant charged to date.

Register 8: Total of all new refrigerant added to the storage tank to date.

Purging Non-Condensable Gases

The Model 800 is designed to automatically purge non-condesable 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 (ºF)	R-12	R-134a	Temp (ºF)	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 Model 800 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.

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.

Filter Change Steps:

1. Turn on system power
2. Run recovery cycle
3. Remove filter drier
4. Replace filter drier

Maintenance Reminders, cont.

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.

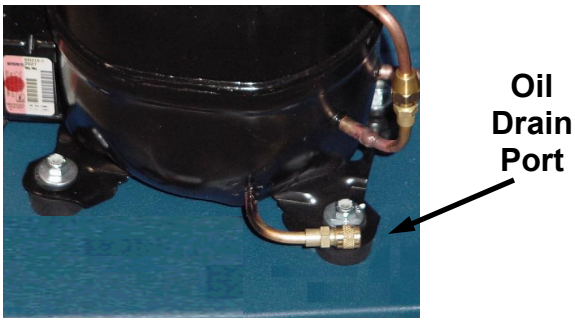
Note: High pressure may be present, remove cap slowly.

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

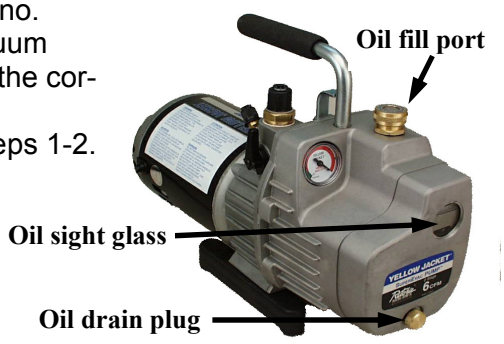
1. Follow steps 1 thru 4 in the oil level check.
2. Tilt unit at 45° angle towards oil drain. port until all oil has been drained.
3. Refill with proper amount and type of oil. The proper oil charge is 8.0 ounces or 225 cc's of Artic 22 Castrol SW 22 POE oil.
4. Replace oil port cap and front cover.
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.



Troubleshooting Information

The Model 800 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 trouble-shooting. Although the Model 800 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. Technical support can be reached at (800)769-8370.

Common Problems and Potential Solution

Problem	Possible Causes	Possible Solutions
Model 800 cannot pull automobile A/C system into a vacuum	• 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 and repair leak in A/C system.
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 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.
Touch Pad will not accept commands	• Button on touch pad is stuck. • Bad Touch Pad. • Wire disconnected between touch pad and microprocessor. • Microprocessor malfunction.	• 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	• Loose power wire to fan. • Microprocessor malfunction. • Fan malfunction.	• Locate loose fitting and reconnect. • Call Technical Support. • Call Technical Support.
Machine will not turn on	• 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.	• 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	• Valves on service hoses shut. • Service hose is constricted. • Unit storage tank valve is closed. • Compressor not operating.	• Open valves. • Straighten hose. • Open tank valves. • 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 • Compressor not operating	• Open valves • Straighten hose • Open tank valves • Call Technical Support.
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.

LCD Error Messages and Potential Solution

Error	Possible Causes	Possible Solutions
Hi Pressure Limit	• Service valves on hoses closed	• Open valves
	• Schrader core on A/C system not depressing	• Replace Schrader core
Tank Empty	• No refrigerant in storage tank	• Refill storage tank using Mode 6, Tank Refill
	• Tank not properly on scale	• Reposition scale
	• Scale cord not properly connected	• Check scale cord connection
	• Scale is out of calibration	• Re-calibrate scale using Utility Mode
Supply Tank Empty	• Tank of new refrigerant is empty	• Close supply tank valve and disconnect hoses. If tank is not empty, see “Refrigerant not being transferred during Tank Refill.”
Tank Full	• Tank is 80% full	• Charge some refrigerant or transfer to another tank.
	• Scale is out of calibration	• Re-calibrate scale using Utility Mode
	• Tank not properly on scale	• Reposition tank
Time Limit (during charging cycles)	• Tank on unit is closed • Default time limit is too short	• Open tank valve • Use default time of 10 minutes unless A/C system
	• Compressor not running	• Call Technical Services
	• Tank or scale misaligned	• Reposition tank and scale
Time Limit (during recovery cycle)	• A/C system has a leak	• Locate and repair leak
	• Valves on service hoses shut	• Open valves
	• Service hose is constricted	• Straighten hose
	• Unit storage tank valve is closed	• Open tank valves
	• Compressor not operating	• Call Technical Services
No Scale	• Scale cord not connected	• Properly connect cord
	• Scale cord damaged	• Call Technical Services
	• Microprocessor malfunction	• Call Technical Services
No Tank	• Tank is not on scale	• Place tank on scale
	• Scale out of calibration	• Calibrate scale using Utility Mode
Possible Overcharge	• Tank was disturbed during charging cycle	• Re-start Full Cycle
	• Internal failure of unit	• Call Technical Services
Accum Time Limit	• Internal failure of unit	• Call Technical Services
Accum Hi Pressure	• Internal failure of unit	• Call Technical Services
Purge “Y”	• Non-condensable gases are present in storage tank	• Turn unit off and on to start purge cycle
Purge “N”	• Non-condensable gases are NOT present in storage tank	• Normal condition
Purge “E”	• Time limit was reached before purge cycle was complete.	• Turn unit off/on to start purge cycle. If “E” remains after three on-off cycles, contact Technical Support.

Model 800 Repair Parts List

Part #	Description	Part #	Description
95173	High Pressure Switch	27296	R-134a Auto Low Side Blue Hose (10ft)
38023	Vacuum Switch	27696	R-134a Auto High Side Red Hose (10ft)
	Capacitor	00849	R-134a Tank Vapor Blue Hose (30in)
	Relay	00853	R-134a Tank Liquid Red Hose (30in)
38026	Differential Switch	19153	R-134a Tank Refill Adapter
	Membrane Touch Pad	95006	50lb Refrigerant Tank
	Microprocessor		Filter-Dryer (2 per unit)
95157	Circuit Breaker, 15 Amp	38019	Oil Bottle
	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. Our automatic series (Models 39870, 39750, 39751, 39770, 39771, 39800, 39830, 39832, 39833, 39840, 39841, 39842, 39843) has a two year full parts and labor warranty, the semi– automatics (Models 39710, 39711, 39730, 39731, 39732, and 39733) and hand held machines (Models 39702 and 39704) have a full one years 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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