

RHS[®]980C

OPERATION MANUAL



MAHLE

MAHLE Aftermarket Inc., Service Solutions

10 Innovation Drive

York, Pennsylvania 17402 USA

Phone: 717-840-0678

Toll Free: 800-468-2321

Web-site: www.servicesolutions.mahle.com

Manifold Protected Under US Pat No. 7,726,343

Manual P/N: 035 81550 00 (Rev J)

CONGRATULATIONS

You have purchased the finest Recovery, Recycling and Charging Machine certified to SAE Standard J2788!

Fill out and return the Warranty Card within 90 days to activate warranty and free lifetime technical support.

TABLE OF CONTENTS

Introduction	5
Overview of the RHS980C and How to Operate it	6
Startup & Safe Operation	7
Special Considerations with R134a	7
Control Panel	8
First Time Use	9
Contaminated Refrigerant	11
Automatic Operation	11
A/C System Test Mode	16
Printing Results	19
High Pressure Leak Detect	20
High Voltage Oil Flush.....	21
Refrigerant Flush.....	23
Setup.....	24
Selectable Options.....	24
Select Language	
Enable Buzzer	
Enable Refrigerant Identifier	
Enable A/C Capacity Database	
Enable Printer	
Enable Print to Flash Drive	
Enable Low Voltage Detect	
Enable Micron Vacuum Sensor	
Enable Password Protection	
Enable VIN Entry	
Enable Operator ID Entry	
Enable AC Test Mode	
Enable Vacuum Pump Oil Life	
Enable Refrigerant Liquid Flush	
Enable Tech Alert Demo	
Enable High Pressure Leak Detect	
Enable Automatic Weighing Oil Injection	
Enable Automatic Weighing Oil Drain	
Enable Automatic Weighing UV Dye	
Enable High Voltage Oil Flush	
Enable Fill Cylinder	
Enable Manual Oil Injection	

Default Values	28
Fill Cylinder Target Amount	
Initial Vacuum Hold Level	
Final Vacuum Level	
Vacuum Run Time	
Hoses Overcharge Amount	
Minimum Line Voltage	
Elevation from Sea Level	
Vacuum Pump Oil Life Rise Level	
Oil Drain Maximum Level	
Minimum Vacuum Leak Level	
High voltage Flush	
Maintenance Options	29
Calibration Check	
Perform Load Cell Site Calibration	
Perform Load Cell Shop Calibration	
Perform Vacuum Sensor Calibration	
Set Date and Time	
Input/Output Diagnostics	
Combo Filter Replacement	
Vacuum Pump Oil Replacement	
Change Operator Passwords	
Change Service Manager Password	
Print Parameters	
Total Capacities	34
Combo Filter Life Remaining	
Total Refrigerant Recycled	
Total Refrigerant Charged	
Vacuum Pump Oil Life Remaining	
Reminders	35
TechALERT Demo Mode.....	35
Vacuum Pump Maintenance	37
Combo Filter Maintenance.....	37
Inline Filter Maintenance	38
Printer Maintenance	39
Refrigerant Identifier Maintenance	39
Updating Program and Languages	39
Attaching Temperature Probes	40
Frequently Used MAHLE Consumable Items.....	41
Parts Identification	42
Notes	43
TechALERT.....	45

INTRODUCTION

MAHLE RHS980C Refrigerant Handling System is designed for use on R134a vehicles and is compliant with J2788 standard. Unit recovers 95% of automobile refrigerant systems and has a refrigerant recharge accuracy of +/- 1/2 ounce. It features fully automatic operation. All control functions of the RHS980C are designed to provide intuitive and rapid interaction with the service technician. Easily removable one piece composite cover allows gaining unobstructed access to all interior components for service and maintenance.

Images below show the key features of RHS980C Refrigerant Handling System.



OVERVIEW OF THE RHS980C AND HOW TO OPERATE IT

The RHS980C is designed for intuitive operation with menu driven prompts on the display.

A few minutes spent reviewing the contents of this operation manual will enable the technician to understand and optimize the use of the RHS980C to provide customers with a professional A/C service.

The display shows data such as the internal cylinder weight and prompts the technician for input using the alpha-numeric keypad and various navigation buttons.

The RHS980C can be used to perform a fully automatic A/C service. The technician will be prompted for entry of data such as charge amount and given options like vacuum leak test. Once the necessary data has been entered, the RHS980C will automatically perform the complete A/C service and alert the technician for interaction or that the service is complete.

The RHS980C can also be used to perform individual functions like recycle, vacuum or charge. The keypad has dedicated buttons (AUTOMATIC, RECYCLE, VACUUM and CHARGE) to allow the technician to jump directly to any one of these functions.

Units of measure displayed can be changed at any time by repeatedly pressing the **U/M** key.

A setup routine can be used to select options, set default values, perform maintenance operations and manage fluid capacities processed.

IMPORTANT – review the Startup & Safe Operation statements on the following page before operating the RHS980C. Failure to do so may cause personal injury or cause the RHS980C to malfunction.

The Automatic Mode of operation is explained in the following pages. The screen which will be displayed for each step is shown on the left. A description of the RHS980C operation is shown to the right of each screen.

► **VERY IMPORTANT – MACHINE SHUTDOWN** ◀

The new SAE Standard J2788 dictates that the filter must be changed at set intervals to ensure that recycled refrigerant is pure.

The RHS980C has one filter which must be changed after recycling every 150 lbs. of refrigerant.

The technician will be alerted when the filter life is at 100 LB (45 KG). This allows time to order a replacement filter kit (See “Parts Identification”).

When the filter has purified 150 LB (68 KG) of refrigerant, **the RHS980C will shut down** and not perform any function.

A new filter must be installed to re-activate the RHS980C controller.

Fill out and return the Warranty Registration to activate the RHS980C warranty and free lifetime technical support. This can also be done by calling MAHLE and providing information to one of the Technical Support Technicians.

Call 800-468-2321

STARTUP & SAFE OPERATION

- Do not use a damaged unit. Check for shipping damage and place a claim with carrier if damage is discovered.
- Return the Warranty Card to activate technical support service and warranty coverage.
- The RHS980C should be operated by certified personnel only.
- The RHS980C should not be operated or serviced by any person who has not read all the contents of this manual.
- This manual describes normal operation and maintenance for the RHS980C. Failure to read and comply with these instructions or any one of the limitations noted herein can result in serious injury and/or property damage. The instructions should not be interpreted to anticipate every possible contingency.
- It is the responsibility of the owner/user to operate the RHS980C in accordance with all laws and specifications which may apply.
- Recover, recycle, and charge only R134a.
- Avoid breathing refrigerant or lubricant vapor. Exposure may irritate eyes, nose and throat. Ventilate work area if accidental system discharge occurs.
- Wear safety glasses and protective gloves. Refrigerant has a very low boiling point and can cause frostbite.
- Follow the RHS980C operating procedures sequentially to avoid prematurely disconnecting hoses or opening valves which may release refrigerant to the atmosphere.
- Do not expose the RHS980C to moisture or operate in wet areas.
- Use RHS980C in areas with ventilation that provides at least four air changes per hour.
- Service hoses must be constructed of the proper materials and with lengths as supplied with the RHS980C (See "Parts Identification"). Hoses must have shutoff devices at the connection point to the A/C to minimize the introduction of air into the RHS980C and the release of refrigerant when being disconnected.
- Avoid using an extension cord with the RHS980C. If necessary use a good condition, three wire grounded, #14 AWG or larger extension cord of the shortest possible length.
- Disconnect power before performing any maintenance or service on the RHS980C.

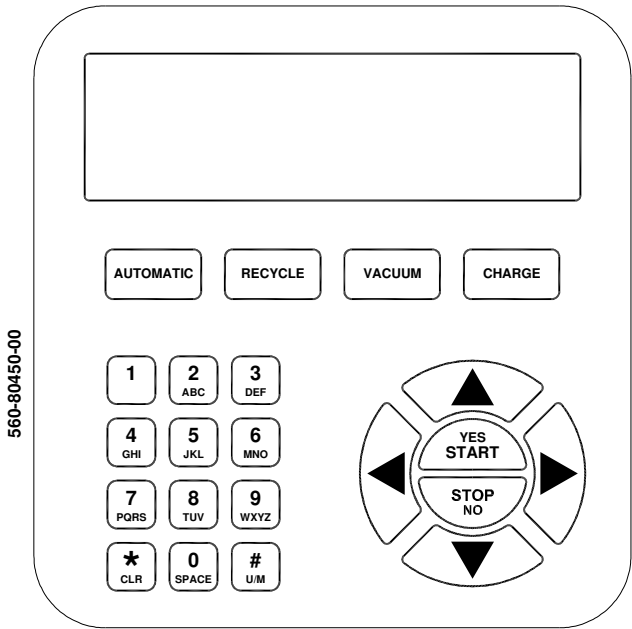
SPECIAL CONSIDERATIONS WITH R134a

R134a has been shown to be nonflammable at ambient temperature and atmospheric pressure. However, tests under controlled conditions have indicated that at pressures above atmospheric and with air concentrations greater than 60 percent by volume, R134a can form combustible mixtures.

While it is recognized that an ignition source is also required for combustion to occur, the presence of combustible mixtures is a potentially dangerous situation and should be avoided.

Under no circumstances should any equipment be pressure tested or leak tested with air and R134a mixtures. Do not use compressed air for leak detection in R134a systems.

CONTROL PANEL



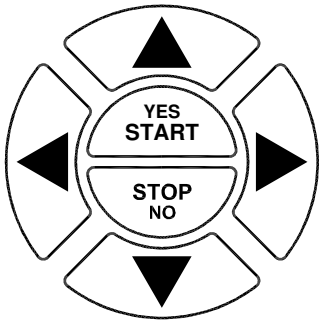
Pressing any one of these four buttons causes the RHS980C to jump to the respective procedure.



The alpha-numeric keypad is used to enter data when prompted on the LCD screen.

Note: The # key also has U/M printed on it. Pressing this key will toggle the units of measure displayed on the LCD screen.

Note: Pressing the number 4 key provides quick access to change languages. Follow prompts to select desired language.



Pressing any one of the arrow keys will move the point of data entry on the LCD screen in the respective direction.

Some screens provide options to select. The arrow keys make it possible to select the desired input.

The START and STOP buttons are used to start or stop procedures as prompted on the LCD screen.

FIRST TIME USE

The first time a new RHS980C is powered up it will automatically perform a routine where the language is selected. The language can be changed later if desired in the Setup Mode.

The RHS980C will arrive without any refrigerant. It will be necessary to put new refrigerant into the internal charge cylinder before any other sequences can be run. The amount of refrigerant which to be transferred is factory set at 18 LB (8.16 KG). This amount can be adjusted if desired. Refer to SETUP section under DEFAULT VALUES to change the factory setting. Connect the short yellow hose on the rear of the RHS980C to a new 30 lb. cylinder of refrigerant. Open the cylinder valve, turn the cylinder up-side-down and place it on the platform. Secure with web belt.

Plug the power cord into an appropriate power source. Avoid using an extension cord. If necessary, use a good condition, three wire grounded, #14 AWG or larger extension cord of the shortest possible length.

```

R H S 9 8 0 C
M A H L E   A F T E R M A R K E T
          I N C .
                      # # # # # #
    
```

Press the Power Switch to turn on the RHS980C.

The screen shown to the left will be displayed and a buzzer will sound.

```

S E L E C T   L A N G U A G E
▶ E N G L I S H       E S P A Ñ O L
  F R A N Ç A I S    D E U T C H
                                   ▲ , ▼
    
```

Press ▲ or ▼ key to scroll the displayed arrow to the desired language. Press **START** key.

(Refer to Section CHANGING LANGUAGES for additional information on loading new languages) **Note: Pressing the #4 key from the main menu will access the language selection option.**

```

E N T E R   P A S S W O R D
# # # #
S T A R T   T O   C O N T I N U E
S T O P    T O   E N D
    
```

If password protection is **NOT** enabled then the next 3 subsequent screens will not be shown. Enter any of the 11 stored passwords (10 operator and 1 service manager) to gain access to operate the RHS980C. The passwords will prevent non certified technicians from performing A/C service. A service manager password is required to change several machine parameters. See section on Maintenance Options for complete listing of passwords. Press **START** key to continue.

```

P A S S W O R D   A C C E P T E D
S T A R T   T O   C O N T I N U E
S T O P    T O   E N D
    
```

If password is accepted, this screen is shown. Press **START** key.

```

P A S S W O R D   R E J E C T E D
S T A R T   T O   R E T R Y
S T O P    T O   E N D
    
```

If password is rejected, this screen is shown. Check the password and press **START** key to retry the entry or press **STOP** key to end.

```

W E I G H T =   # # . #   L B
A U T O M A T I C
                                   S T A R T ?
    
```

The screen shown to the left will be displayed. Press the ▼ key to scroll to the next screen.

```

W E I G H T =   # # . #   L B
R E C Y C L E
                                   S T A R T ?
    
```

Press ▼ key.

```

W E I G H T =   # # . #   L B
V A C U U M
                                   S T A R T ?
    
```

Press ▼ key.

```
WEIGHT =   # # . #  LB
CHARGE
START ?
```

```
WEIGHT =   # # . #  LB
FILL CYLINDER
START ?
```

```
STARTING REFRIGERANT
IDENTIFIER
DO NOT CONNECT HOSES
PLEASE WAIT . . .
```

```
EXAMINE ID SAMPLE
HOSE / FILTER FOR OIL
START TO CONTINUE
STOP TO END
```

```
CONNECT IDENTIFIER
SAMPLE HOSE TO LOW
SIDE
PRESS YES WHEN DONE
```

```
GAS ANALYSIS IS IN
PROCESS . . PLEASE
WAIT
```

```
REMOVE IDENTIFIER
SAMPLE HOSE FROM LOW
SIDE
PRESS YES WHEN DONE
```

```
ID RESULTS :
R134 : # # . # % , AIR : # # . # %
HC : # # . # % PRESS NO TO
REJECT , YES TO ACCEPT
```

```
> 5% AIR SUGGESTS
EXCESS OIL IN SAMPLE
HOSE / FILTER . REMEDY
BEFORE USE . CONTINUE ?
```

```
CONNECT HOSE TO
SOURCE TANK
OPEN VALVE
START ?
```

```
FILL CYL IN PROCESS
AMT FILLED # # . # LB
STOP TO END
```

Press ▼ key.

Press **START** key. **If the internal cylinder capacity is equal to or greater than the target amount shown in DEFAULT VALUES, the FILL CYLINDER process will not be available from the main menu.**

If the RHS980C has a refrigerant identifier installed, the screen to the left and next 3 subsequent screens will appear. The refrigerant identifier is an optional item and can be installed in the field. Contact MAHLE for more information.

Inspect the identifier hose for traces of oil contamination. If oil is present in the hose, remove the contaminated hose section or replace the entire hose assembly. See REFRIGERANT IDENTIFIER MAINTENANCE section of manual. Press **START** key.

Connect refrigerant identifier hose found on the rear of the RHS980C to the cylinder of new refrigerant. Unit includes an adapter to convert the 1/2 inch Acme fitting on the cylinder to low side coupler. **Cylinder of new refrigerant must be upright with valve at top of tank.** Press **YES** key.

Sample of new cylinder refrigerant is processed and the hose and coupler must be removed. Press **START** key.

This shows the results from the identifier refrigerant sample processed. Select **NO** key to reject these results or **YES** key to accept the results. Pressing **NO** will return to the initial screen.

If the results from the refrigerant identification show an air percentage above 5%, this screen will appear. Inspect the id filter, sample hose and coupler filter prior to the next identification to ensure these devices are free of oil contamination. See REFRIGERANT IDENTIFIER MAINTENANCE section for more information.

This is a reminder that the cylinder of new refrigerant must be connected to the yellow hose on the rear of the RHS980C. Press **START** key.

Refrigerant will be transferred from the cylinder on the rear platform into the internal charge cylinder of the RHS980C. **Cylinder of new refrigerant must be upside down with valve at bottom of tank.**

```
F I L L   C Y L   I N   P R O C E S S
T I M E   L E F T   # # . # #
S T O P   T O   E N D
```

```
F I L L   C Y L   C O M P L E T E
A M T   F I L L E D   # # . #   L B
S T O P   T O   E N D
```

The amount transferred will be displayed. **Note: Pressing the STOP key will start an internal clearing process. This process must run to completion to remove internal refrigerant.**

The Fill Cylinder procedure is complete when desired amount of refrigerant has been transferred. The Setup procedure allows changing the value and is covered in DEFAULT VALUES section in this manual.

Note: To fill to less than 18 LB (8.16 KG), close valve on cylinder of new refrigerant and allow procedure to complete. A minimum of 10 LB (4.53 KG) is suggested for truck service application.

REFRIGERANT BLENDS

The RHS980C is designed to recover, recycle and charge R134a. Take extreme precaution to ensure that other refrigerants are not recovered into the RHS980C.

A refrigerant identifier is recommended for evaluating refrigerant in the A/C system prior to servicing.

Recovering other refrigerants will contaminate the refrigerant in the RHS980C charge cylinder.

LEAK SEALERS

Sealants and leak stop chemicals in A/C systems may cause serious damage to the RHS980C if they are present in the refrigerant recovered intended for recovery.

Detection devices are readily available to check for the presence of these chemicals and are highly recommended to protect the RHS980C.

Call MAHLE for more information about solutions for detection of refrigerant blends and leak sealers.

AUTOMATIC OPERATION

```
W E I G H T =   # # . #   L B
A U T O M A T I C
S T A R T ?
```

```
S T A R T I N G   R E F R I G E R A N T
I D E N T I F I E R
D O N O T   C O N N E C T   H O S E S
P L E A S E   W A I T . . .
```

```
E X A M I N E   I D   S A M P L E
H O S E / F I L T E R   F O R   O I L
S T A R T   T O   C O N T I N U E
S T O P   T O   E N D
```

```
C O N N E C T   I D E N T I F I E R
S A M P L E   H O S E   T O   L O W
S I D E
P R E S S   Y E S   W H E N   D O N E
```

```
G A S   A N A L Y S I S   I S   I N
P R O C E S S . .   P L E A S E
W A I T
```

At the main menu screen, press the **START** key.

If the RHS980C has the optional refrigerant identifier installed, the screen to the left and next 6 subsequent screens will appear.

Inspect the identifier hose for traces of oil contamination. If oil is present in the hose, remove the contaminated hose section or replace the entire hose assembly. See REFRIGERANT IDENTIFIER MAINTENANCE section of manual. Press **START** key.

Connect refrigerant identifier hose found on the rear of the RHS980C to the vehicle low side service port. Press **YES** key.

```
REMOVE IDENTIFIER
SAMPLE HOSE FROM LOW
SIDE
PRESS YES WHEN DONE
```

```
ID RESULTS :
R134 : ## . # % , AIR : ## . # %
HC : ## . # % PRESS NO TO
REJECT , YES TO ACCEPT
```

```
> 5 % AIR SUGGESTS
EXCESS OIL IN SAMPLE
HOSE / FILTER . REMEDY
BEFORE USE . CONTINUE ?
```

```
CHECK OIL DRAIN
LEVEL , ADJUST ORING
TO TOP OF LEVEL
CONTINUE ?
```

```
SELECT VACUUM TYPE
ENHANCED
STANDARD
CONTINUE ?
```

```
ENTER VACUUM
TIME ## MIN
CONTINUE ?
```

```
USE AC CAPACITY
GUIDE TO DETERMINE
CHARGE AMOUNT ?
SELECT YES OR NO
```

```
USE ▲ ▼ TO SCROLL
◀ ▶ PAGE UP & DOWN
START TO CONTINUE
STOP TO END
```

```
VERIFYING DATABASE
PLEASE WAIT . . .
```

```
SELECT YEAR
> ### #
> ### #
> ### #
```

```
SELECT MAKE
> ##### #
> ##### #
> ##### #
```

Sample of vehicle A/C refrigerant is processed and the hose and coupler must be removed. Press **START** key.

This shows the results from the identifier refrigerant sample processed. Select **NO** key to reject these results or **YES** key to accept the results. Pressing **NO** will return to the initial screen. A high air percentage can be an indication of required maintenance, see Identifier Maintenance section for more information.

If the results from the refrigerant identification show an air percentage above 5%, this screen will appear. Inspect the id filter, sample hose and coupler filter prior to the next identification to ensure these devices are free of oil contamination. See REFRIGERANT IDENTIFIER MAINTENANCE section for more information.

Ensure that the oil drain bottle has enough remaining capacity to perform a service. Adjust the o-ring slider so it is level with the oil in the oil drain bottle. Press **START** key.

Select vacuum type, Enhanced or Standard. If enhanced is selected, the unit will draw a deeper vacuum and use the onboard micron sensor. The enhanced vacuum process will take longer than the standard vacuum process. The standard procedure will utilize a pressure transducer to measure vacuum levels. Press **START** key.

Enter the time desired to vacuum the A/C system. Press **START** key.

See SETUP SELECTABLE OPTIONS to enable or disable AC Capacity Guide. To use the on board AC capacity guide to determine the charge amount for the vehicle, press **YES** key. Otherwise press **NO** key. Pressing the **YES** key will show the next 9 subsequent screens.

Screen shows the instructions for the navigation and selection of the information shown on the next 5 screens. Press **YES** key to continue or **NO** key to abort operation.

Screen to the left will appear after operator selections are made and data is processed internally.

Select the year for the vehicle being serviced. Press **YES** key on the highlighted value to continue. Use **▲** or **▼** key to scroll the displayed arrow to the desired selection.

Select the make of the vehicle being serviced. Press **YES** key on the highlighted value to continue. Use **▲** or **▼** key to scroll the displayed arrow to the desired selection.

```
S E L E C T   M O D E L
> # # # # # # #
> # # # # # # #
> # # # # # # #
```

Select the model of the vehicle being serviced. Press **YES** key on the highlighted value to continue. Use ▲ or ▼ key to scroll the displayed arrow to the desired selection.

```
S E L E C T   E N G I N E
> # # # # # # #
> # # # # # # #
> # # # # # # #
```

Select the engine configuration of the vehicle being serviced, if more than 1 option is available. Press **YES** key on the highlighted value to continue. Use ▲ or ▼ key to scroll the displayed arrow to the desired selection.

```
S E L E C T   S Y S T E M
> # # # #
> # # # #
> # # # #
```

If required, a screen to select the system for the vehicle being serviced will be shown. Press **YES** key on the highlighted value to continue. Use ▲ or ▼ key to scroll the displayed arrow to the desired selection.

```
Y E A R ,   M O D E L ,   E N G I N E
S Y S T E M ,   T Y P E X X , X X   O Z
C O N D E N S E R   C A P A C I T Y
X X   O Z
```

The data will be shown for the vehicle parameters entered on this screen. Year, make, model, type, system and refrigerant capacity in OZ is detailed. Press ▼ key to display the next screen or **YES** key to accept the charge amount.

```
O I L   T Y P E
# # # # #
T O T A L   O I L   C A P A C I T Y
# # # # #   O Z
```

The oil type and total oil capacity are shown on the screen for the selected vehicle parameters. Press key ▲ to display the previous screen or **YES** key to accept the charge amount.

```
E N T E R   C H A R G E   A M O U N T
# # . #   L B

C O N T I N U E ?
```

Enter the amount of refrigerant to be charged into the A/C system or the charge capacity will be automatically entered if the AC database was used. Press **START** key.

```
C U R R E N T   O I L   T Y P E
P A G / P O E
< >   T O   C H A N G E
C O N T I N U E ?
```

Press ► or ◀ key to change the type of oil which exists on the A/C system being serviced. A HIGH VOLTAGE OIL FLUSH will be started automatically if the type is changed.

```
S E L E C T   T O   C H A R G E
H I G H / L O W / B O T H
C O N T I N U E ?
```

Press ► or ◀ key to select which side to charge to on the A/C system. The word HIGH, LOW or BOTH will display in bold letters. Note: If oil injection was selected, only HIGH or BOTH will be enabled. Press **START** key.

```
C O N N E C T   H O S E S
O P E N   V A L V E S

S T A R T ?
```

Connect the red hose to the high side and the blue hose to the low side of the A/C system. Open the valves on both hoses. Press **START** key.

```
C L E A R I N G   I N   P R O C E S S
P L E A S E   W A I T

S T O P   T O   E N D
```

A clearing procedure will run to remove refrigerant from internal components.

```
R E C Y C L E   I N   P R O C E S S
A M T   R E C   # # . #   L B

S T O P   T O   E N D
```

The RHS980C will now recover and recycle refrigerant. The amount of refrigerant recovered will be displayed. The next screen will be displayed when vehicle system pressure is in a vacuum.

```
O I L D R A I N I N P R O C E S S
P L E A S E   W A I T

S T O P   T O   E N D
```

```
R E C Y C L E   I N   P R O C E S S
A M T   R E C   # # . #   L B
T I M E   L E F T   # #   M I N
S T O P   T O   E N D
```

```
V A C U U M   I N   P R O C E S S
T I M E   L E F T   # #   M I N
L E V E L   # # # # #   M I C R O N
S T O P   T O   E N D
```

```
C H E C K I N G   V A C U U M   L E A K
T I M E   L E F T   # #   S E C
L E V E L   # # # # #   M I C R O N
S T O P   T O   E N D
```

```
V A C U U M   I N   P R O C E S S
T I M E   L E F T   # #   M I N
L E V E L   # # # # #   M I C R O N
S T O P   T O   E N D
```

```
P U R G E   I N   P R O C E S S
P L E A S E   W A I T

S T O P   T O   E N D
```

```
C L E A R I N G   I N   P R O C E S S
P L E A S E   W A I T

S T O P   T O   E N D
```

```
C H A R G E   I N   P R O C E S S
A M T   C H G =   # # . #   L B
D O   N O T   D I S T U R B   U N I T !
S T O P   T O   E N D
```

```
A U T O M A T I C   C O M P L E T E
A M T   R E C   # # . #   L B
A M T   C H G   # # . #   L B
C O N T I N U E ?
```

```
S T A R T   T O   E V A C   H O S E S
S T O P   T O   T E S T   M O D E
```

When the vehicle system reaches 10 psi, the machine will drain any recovered oil.

The RHS980C will continue to recycle refrigerant and complete after the time shown is expired.

The RHS980C will draw a deep vacuum on the A/C system for the time entered in the default vacuum run time in the set up menus. The time left and the vacuum level in micron will be displayed if Enhanced vacuum is selected.

The vacuum leak test will begin. The time left and the micron level will be displayed if Enhanced vacuum is selected. If the vacuum level rises above leak level set in set up default menu, an error screen will be displayed.

A second deep vacuum process will run for the length of time displayed.

The RHS980C will purge air from the recovered refrigerant if necessary. This process will be displayed.

A clearing procedure will run to remove refrigerant from internal components.

The RHS980C will charge the amount of refrigerant set previously into the A/C system. **TO AVOID AN INACCURATE CHARGE, DO NOT BUMP OR MOVE THE RHS980C DURING THIS PROCESS.**

The automatic cycle is complete when the desired amount of refrigerant has been charged. The amount of refrigerant recycled and the amount of refrigerant charged will be displayed. Press **START** key.

Press **START** key to proceed to the hose evacuation procedure as outlined below. Press **STOP** key to perform AC system test mode. See A/C SYSTEM TEST MODE for a description of this feature.

```
DISCONNECT HS HOSE
AND START A/C MAX
CONTINUE?
```

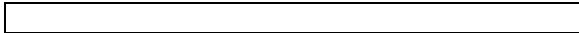
```
EQUALIZING HOSES
PLEASE WAIT
```

```
DISCONNECT LOW SIDE
HOSE, SHUT OFF ENGINE
CONTINUE?
```

```
CLEARING IN PROCESS
PLEASE WAIT
STOP TO END
```

```
CLEARING HOSES
AMT REC ##.# LB
TIME LEFT ## MIN
STOP TO END
```

```
EVAC HOSES COMPLETE
INSTALL SERVICE CAPS
ADD OIL IF REQUIRED
STOP TO END
```



Close the high side coupler and disconnect from the vehicle system coupler. Start the engine and place the A/C system on max setting. Press **START** key.

While the engine and A/C system is running, liquid is being removed from the services hoses. This ensures only vapor remains in hoses.

Close the low side coupler and disconnect from the vehicle system coupler. Turn off the vehicle engine. Press **START** key.

A clearing procedure will run to remove refrigerant from internal components.

Any vapor refrigerant remaining in the hoses will be recovered into the RHS980C.

The automatic cycle is complete when the hose evacuation process is ended. Check the level of oil drained and add oil to the A/C system following standard injection procedures. Reinstall service caps onto vehicle A/C ports.

A/C SYSTEM TEST MODE

```
WEIGHT =   ## . #  LB
AUTOMATIC
                                START ?
```

```
WEIGHT =   ## . #  LB
A / C  S Y S T E M  T E S T  M O D E
                                START ?
```

```
STARTING REFRIGERANT
IDENTIFIER
DO NOT CONNECT HOSES
PLEASE WAIT . . .
```

```
EXAMINE ID SAMPLE
HOSE / FILTER FOR OIL
START TO CONTINUE
STOP TO END
```

```
CONNECT IDENTIFIER
SAMPLE HOSE TO LOW
SIDE
PRESS YES WHEN DONE
```

```
GAS ANALYSIS IS IN
PROCESS . . PLEASE
WAIT
```

```
REMOVE IDENTIFIER
SAMPLE HOSE FROM LOW
SIDE
PRESS YES WHEN DONE
```

```
ID RESULTS :
R134 : ## . # % , AIR : ## . # %
HC : ## . # % PRESS NO TO
REJECT , YES TO ACCEPT
```

```
> 5 % AIR SUGGESTS
EXCESS OIL IN SAMPLE
HOSE / FILTER . REMEDY
BEFORE USE . CONTINUE ?
```

```
CONNECT HOSES
OPEN VALVES
                                START ?
```

At the main menu screen, press the ▲ key 7 times.

Press **START** key.

If the RHS980C has the optional refrigerant identifier installed, the screen to the left and next **6** subsequent screens will appear.

Inspect the identifier hose for traces of oil contamination. If oil is present in the hose, remove the contaminated hose section or replace the entire hose assembly. See REFRIGERANT IDENTIFIER MAINTENANCE section of manual. Press **START** key.

Connect refrigerant identifier hose found on the rear of the RHS980C to the vehicle low side service port. Press **YES** key.

Sample of vehicle A/C refrigerant is processed and the hose and coupler must be removed. Press **START** key.

This shows the results from the identifier refrigerant sample processed. Select **NO** key to reject these results or **YES** key to accept the results. Pressing **NO** will return to the initial screen. A high air percentage can be an indication of required maintenance, see Identifier Maintenance section for more information.

If the results from the refrigerant identification show an air percentage above 5%, this screen will appear. Inspect the id filter, sample hose and coupler filter prior to the next identification to ensure these devices are free of oil contamination. See REFRIGERANT IDENTIFIER MAINTENANCE section for more information.

Connect the red hose to the high side and the blue hose to the low side of the A/C system. Open the valves on both hoses. Press **START** key.


```
P R E C H A R G I N G   H O S E S
A M T   C H G =   # # . #   L B
D O N O T   D I S T U R B   U N I T !
S T O P   T O   E N D
```

```
A T T A C H   T E M P   P R O B E S
T O   V E H I C L E   A N D   S T A R T
E N G I N E   W I T H   A / C   M A X
C O N T I N U E ?
```

```
T 1 = # # #   T 2 = # # #   T 3 = # # #
H I G H P R E S = # # #   R H = # # #
L O W   P R E S = # # #   * T O   C L R
S T A R T   T O   C A P T U R E
```

T1, T2 and T3 are external temperature probes attached to the rear of unit.

```
P R I N T   R E S U L T S ?
S T A R T   T O   C O N T I N U E
S T O P   T O   E N D
```

```
E N T E R   V I N   N U M B E R
# # # # # # # # # # # # # # # #
S T A R T   T O   C O N T I N U E
S T O P   T O   E N D
```

```
P R I N T I N G   R E S U L T S
T O   P R I N T E R
P L E A S E   W A I T . . .
```

```
C L E A R   R E S U L T S / D A T A
C O L L E C T E D ?
S E L E C T   Y E S   O R   N O
```

```
T E S T   M O D E   C O M P L E T E
S T A R T   T O   E V A C   H O S E S
S T O P   T O   E N D
```

```
W I T H   E N G I N E   R U N N I N G
A N D   A / C   M A X
D I S C O N N E C T   H S   H O S E
C O N T I N U E ?
```

The RHS980C will precharge the hoses with refrigerant. Allow unit to automatically proceed to the next step. Press **STOP** key will abort operation.

Attach temperature probes to vehicle following the service manual vehicle performance test procedures. Start vehicle engine with the A/C system on maximum. Press **START** key.

The RHS980C will start displaying A/C performance data. Units of measure can be changed by pressing the **U/M** key. The lowest temperature is tracked and updated on the LCD screen. The highest pressure is tracked and updated. The lowest pressure is tracked and updated. **RH is the relative humidity**. Press the * key to refresh or reset the tracking of data. Press the **START** key to capture the data and proceed to the next step.

Press **START** key to print performance results captured. Press **STOP** key to end. Refer to PRINTING RESULTS section of manual for details on printing.

Using the alpha-numeric keypad, enter the vehicle identification number. Follow typical text messaging methods to enter characters. After a brief delay during entry, cursor position will move to the right. Press **START** key when complete.

Screen to left will be shown when data is printing.

Press **YES** key if printing is complete or **NO** key if another copy is required.

Press **START** key to begin hose evacuation procedure.

Disconnect high side coupler from vehicle with the engine running and A/C system on maximum. Press **START** key to continue.

```
EQUALIZING HOSES  
PLEASE WAIT
```

While the engine and A/C system is running, liquid is being removed from the services hoses. This ensures only vapor remains in hoses.

```
DISCONNECT LOW SIDE  
HOSE , SHUT OFF ENGINE  
  
CONTINUE ?
```

Close the low side coupler and disconnect from the vehicle system coupler. Turn off the vehicle engine. Press **START** key.

```
CLEARING IN PROCESS  
PLEASE WAIT  
  
STOP TO END
```

A clearing procedure will run to remove refrigerant from internal components.

```
CLEARING HOSES  
AMT REC ##.# LB  
TIME LEFT ## MIN  
STOP TO END
```

Any vapor refrigerant remaining in the hoses will be recovered into the RHS980C.

```
EVAC HOSES COMPLETE  
INSTALL SERVICE CAPS  
ADD OIL REQUIRED  
STOP TO END
```

The A/C system test mode is complete when the hose evacuation process is ended. Check the level of oil drained and add oil to the A/C system following standard injection procedures. Reinstall service caps onto vehicle A/C ports.

PRINTING RESULTS

```
WE I G H T =   # # . #   L B
A U T O M A T I C
S T A R T ?
```

```
WE I G H T =   # # . #   L B
P R I N T   R E S U L T S
S T A R T ?
```

```
ENTER VIN NUMBER
#####
START TO CONTINUE
STOP TO END
```

```
PRINTING RESULTS
TO PRINTER
PLEASE WAIT . . .
```

```
CLEAR RESULTS / DATA
COLLECTED?
SELECT YES OR NO
```

Example of printout:

```

*****
MAHLE AFTERMARKET INC.
DATE: ##-##-## 980C
TIME: ##:##-##-##
SOFTWARE REV: 980C##
PRINTOUT OFF RESULTS
VIN: #####
AMBIENT DATA
RELATIVE HUMIDITY:
##%
TEMPERATURE: ### F
VEHICLE DATA
T1 TEMP MIN: ### F
T2 TEMP MIN: ### F
T3 TEMP MIN: ### F
HIGH SIDE MAX PRES:
## PSI
LOW SIDE MIN PRES:
## PSI
RECYCLED: ##.## LBS
VAC LEAK TEST: #####
MIN VAC: ##### MICRON
CHARGED: ##.## LBS
*****

```

At the main menu screen, press the ▲ key 5 times. See Printer Maintenance section if additional paper is required.

Press **START** key.

Using the alpha-numeric keypad, enter the vehicle identification number. Follow typical text messaging methods to enter characters. After a brief delay during entry, cursor position will move to the right. Press **START** key when complete.

Screen to left will be shown when data is printing.

Press **YES** key if printing is complete or **NO** key if another copy is required.

Printout will scroll from the rear of the machine. Pull paper at a slight angle upright to remove. See picture below.



Units of measure on print-out are dependent on selected units during normal operation.

Depending on the process performed, selected data will be available for printing. **Data is stored when the processes are allowed to run until full completion.**

HIGH PRESSURE LEAK DETECT

HIGH PRESSURE LEAK DETECT allows an operator to pressurize a component or system to detect a difficult to locate leak prior to checking with an external leak detector. Recommend to start process with an internal system capacity of 8 to 10 LB (3.63 to 4.54 KG). Use of a leak detector meeting newest standard SAE J2791 or later is suggested.

```

WE I G H T =   # # . #   L B
A U T O M A T I C
                                     S T A R T ?
    
```

At the main menu screen, press the ▲ key 4 times.

```

WE I G H T =   # # . #   L B
H I G H   P R E S S U R E   L E A K
D E T E C T                                     S T A R T ?
    
```

Press **START** key.

```

E N T E R   F I N A L   T A R G E T
P R E S S U R E   # # #   P S I
B E T W E E N   7 0   &   1 2 0   P S I
                                     C O N T I N U E ?
    
```

Using the alphanumeric keypad, enter the final target pressure for the system or component under test. Recommend a setting of 90 PSI for most applications. Press **START** key to continue.

```

I N T E R N A L   C Y L I N D E R
B U I L D I N G   P R E S S U R E
                                     P L E A S E   W A I T
    
```

The RHS980C will begin building internal pressure to the specified target amount.

```

H I G H   P R E S S U R E   L E A K
F A I L E D ,   U N A B L E   T O
R E A C H   T A R G E T ,   S E E
M A N U A L   C O N T I N U E ?
    
```

If the unit has failed to build the desired pressure after 30 minutes, the screen to left is displayed. Add refrigerant to the internal cylinder and retry procedure. Press **START** key to continue.

```

C H A R G E   I N   P R O C E S S
A M T   C H G =   # # . #   L B
D O   N O T   D I S T U R B   U N I T !
S T O P   T O   E N D
    
```

After reaching the target pressure, the unit will charge the system or component with liquid refrigerant. Press the **STOP** key to abort the operation.

```

H P   L E A K   D E T E C T   D O N E
P E R F O R M   L E A K   C H E C K
U S I N G   E X T E R N A L   L E A K
D E T E C T O R   C O N T I N U E ?
    
```

When charge is complete, the screen shown will appear. Check for system leaks using a leak detector.

Refrigerant must be recovered after leak check is completed.

WARNING

DO NOT START VEHICLE AC SYSTEM IF HIGH PRESSURE LEAK DETECT PROCEDURE WAS USED. COMPRESSOR DAMAGE COULD RESULT. A RECYCLE PROCEDURE MUST FOLLOW LEAK DETECT.

HIGH VOLTAGE OIL FLUSH

The RHS980C can be configured from the factory to have the ability to perform an internal oil flushing process to eliminate cross contaminations between PAG oil used in a conventional R-134a system and POE oil used in HIGH VOLTAGE HYBRID systems. The POE oil acts as a lubricant, but more importantly the POE oil is required to keep the HIGH VOLTAGE system isolated from the chassis. If the HYBRID's system becomes conductive, the service technician can be at risk of electrical shock. During the HIGH VOLTAGE OIL FLUSH process the residual PAG oil from previous services will be flushed from the HIGH - low side couplers and hoses along with the corresponding internal passages of the RHS980C unit.

IMPORTANT – THE HIGH VOLTAGE OIL FLUSH PROCESS MUST BE PERFORMED BEFORE A SERVICE ON A HYBRID VEHICLE WITH THIS MACHINE IS CONDUCTED!

IT IS THE SERVICE TECHNICIANS RESPONSIBILITY TO UNDERSTAND THE RISKS INVOLVED IN SERVICING A HIGH VOLTAGE HYBRID A/C SYSTEM, AS WELL AS DETERMING THE PROPER OIL REQUIRED FOR THE HYBRIDS A/C SYSTEM TO ENSURE ITS ELECTRICAL ISOLATION FROM THE VEHICLES CHASSIS IS MAINTAINED.

With units configured for the High Voltage Oil Flush there will be a screen illustrated below that will start the High Voltage Oil Flush process. The manual oil injection bottle and connections will NOT be present next to the oil drain bottle. The High Voltage Oil Flush configured unit will also be shipped with a HIGH -LOW side adapter so that the hoses can be connected to flush residual oil from previous services. To get to the HIGH VOLTAGE OIL FLUSH FEATURE, follow the procedure below.

WE I G H T = # # . # L B
A U T O M A T I C
S T A R T ?

The screen shown to the left will be displayed. Press the ▼ key to scroll to the next screen.

Press ▼ key.

WE I G H T = # # . # L B
R E C Y C L E
S T A R T ?

Press ▼ key.

WE I G H T = # # . # L B
V A C U U M
S T A R T ?

Press ▼ key.

WE I G H T = # # . # L B
C H A R G E
S T A R T ?

Press ▼ key.

WE I G H T = # # . # L B
F I L L C Y L I N D E R
S T A R T ?

```
WEIGHT = ##.# LB
TECHALERT DEMO
START?
```

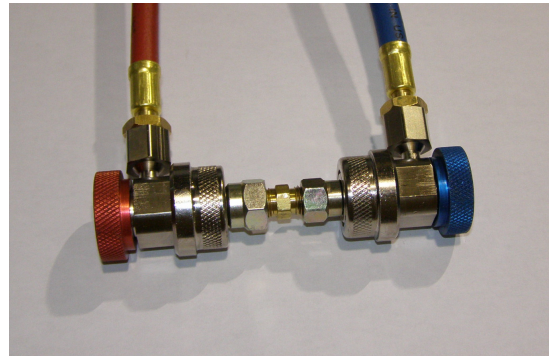
```
WEIGHT = ##.# LB
HIGH VOLTAGE OIL
FLUSH START?
```

```
CONNECT EXT FLUSH
ADAPTER TO LOW AND
HIGH SIDE COUPLERS
CONTINUE?
```

Press ▼ key.

Press **START** key.

Connect the HIGH and LOW side couplers with the supplied HIGH VOLTAGE OIL FLUSH adapter as shown below, open HIGH and LOW side couplers. Press the **START** key.



```
CHARGE IN PROCESS
AMT CHG = ##.## LB
DO NOT DISTURB UNIT!
STOP TO END
```

```
RECYCLE IN PROCESS
AMT REC ##.## LB
TIME LEFT ##:##
STOP TO END
```

```
HIGH VOLTAGE OIL
FLUSH COMPLETE
STOP TO END
```

The RHS980C will perform the HIGH VOLTAGE OIL FLUSH process at this time.

Press **STOP** key to end the process, disconnect the HIGH and LOW service couplers from the adapter.

REFRIGERANT FLUSH

REFRIGERANT FLUSH will force liquid refrigerant in a reverse flow through a component or components to remove contaminants and oil. Special flush components and adapters are available through MAHLE to properly connect to standard AC components.

```
WEIGHT =   # # . #   LB
AUTOMATIC
                                START ?
```

At the main menu screen, press the ▲ key 1 time.

```
WEIGHT =   # # . #   LB
REFRIGERANT FLUSH
                                START ?
```

Press **START** key.

```
ENTER TIME FOR FLUSH
## MIN
BETWEEN 5 AND 30 MIN
                                CONTINUE ?
```

Enter the desired time to flush using the alphanumeric keypad. Press **START** key to continue.

```
CHECK OIL DRAIN
LEVEL, ADJUST ORING
TO TOP OF LEVEL
                                CONTINUE ?
```

Empty oil bottle and adjust o-ring. Press **START** key to continue.

```
CHECKING
PRESSURES
PLEASE WAIT
```

```
CONNECT FLUSH FILTER
TO LOW SIDE AND
COUPLERS TO SYSTEM
                                CONTINUE ?
```

Following adapter detailed installation instructions, connect flush filter and service couplers to AC component. Press **START** key to continue.

```
FLUSH IN PROCESS
TIME LEFT ~ ## : ##
STOP TO END
```

The RHS980C will pulse charge liquid and recycle refrigerant through the component being serviced. Contaminants will be captured in the service filter. Press the **STOP** key to abort the operation.

```
FLUSH COMPLETE
DISCONNECT COUPLERS
AND FLUSH FILTER
                                CONTINUE ?
```

Observe pressure shown on pressure gauges and if pressure is less than 0 psi, carefully remove connections from component under test. If pressure is greater than 0 psi, perform a recycle before disconnecting component. Press **START** key to continue.

```
CHECK OIL BOTTLE
CLEAN FLUSH FILTER
                                CONTINUE ?
```

Check the oil bottle and empty if required. Flush filter must be replaced after every service. Press **START** key to continue.

If system states “CHARGE FAILED”, check flush filter, component or system for blockage. Replace as required. Filter: 026 80561 00

Since refrigerant flushing removes all oil from the component being serviced, ensure that the proper quantity of oil is manually replenished.

SETUP

The setup procedure provides a means of setting options for various operation functions of the RHS980C.

```
WE I G H T =   # # . #   L B
A U T O M A T I C
S T A R T ?
```

The initial screen displayed after turning on power will be as shown to the left.

```
WE I G H T =   # # . #   L B
S E T U P
S T A R T ?
```

Press the ▼ key to scroll through screens until the setup screen shown to the left is displayed. Press the **START** key.

SELECTABLE OPTIONS

```
S E L E C T A B L E   O P T I O N S
C O N T I N U E ?
```

The first screen will be for SELECTABLE OPTIONS. Press the ▼ key to scroll through other setup screens: DEFAULT VALUES, MAINTENANCE OPTIONS and TOTAL CAPACITIES. These four setup procedures are described below. Press **START** key.

```
S E L E C T   L A N G U A G E
▶ E N G L I S H           E S P A Ñ O L
  F R A N Ç A I S
                                     ▲ , ▼
```

The first option is to select the language which is used on LCD display screens.

Press ▲ or ▼ key to scroll the displayed arrow to the desired language. Press **START** key.

Default is **ENGLISH**.

Note: Pressing the #4 key from the main menu will access the language selection option.

```
B U Z Z E R   E N A B L E D ?
▶ Y E S
  N O
                                     ▲
                                     ▼
```

This enables or disables the buzzer on the RHS980C. Press the ▲ or ▼ key to scroll to YES or NO. Press **START** key.

Default is **YES**.

```
R E F R I G   I D   I N S T A L L E D ?
  Y E S
▶ N O
                                     ▲
                                     ▼
```

This enables the RHS980C to interact with the MAHLE Refrigerant Identifier. If this optional item was not installed at the factory, visit the MAHLE web-site for more information. Press the ▲ or ▼ key to scroll to YES or NO. Press **START** key.

Default is **NO**.

```
A C   C A P   D B   I N S T A L L E D ?
▶ N O
  I N T E R N A L
  E X T E R N A L
                                     ▲
                                     ▼
```

This enables the RHS980C to interact with the MAHLE Refrigerant Capacity Database. If NO is selected, the operator will not be prompted prior to charge to access the AC Capacity Database for the vehicle charge amount. Selecting external and having flash drive with the optional Database attached to the unit USB port, charge capacities will be available. Selection of internal is not available on RHS980C, Press the ▲ or ▼ key to scroll to choices. Press **START** key.

Default is **NO**.

Contact MAHLE for more information


```
PRINTER INSTALLED ?
▶ YES
NO
```

Default is **YES**.

```
PRINT TO FLASH DRIVE
▶ YES
NO
```

Default is **YES**.

```
LOW VOLTAGE DETECT
ENABLED ?
▶ YES
NO
```

Default is **YES**.

```
MICRON VACUUM
SENSOR ENABLED ?
▶ YES
NO
```

Default is **YES**.

```
PASSWORD PROTECTION
ENABLED ?
▶ YES
NO
```

Default is **YES**.

```
ENTER PASSWORD
#####
START TO CONTINUE
STOP TO END
```

```
STARTUP PASSWORD
ENABLED ?
▶ YES
NO
```

Default is **YES**.

```
VIN ENTRY ENABLED ?
▶ YES
NO
```

Default is **YES**.

```
OPERATOR ID ENTRY
YES
▶ NO
```

Default is **NO**.

```
AC TEST MODE
ENABLED ?
▶ YES
NO
```

Default is **YES**.

Use to enable or disable the on board printer on the RHS980C . Press the ▲ or ▼ key to scroll to YES or NO. Press **START** key.

Use to enable or disable printing service results or setup parameters as files on the attached flash drive. Press the ▲ or ▼ key to scroll to YES or NO. Press **START** key.

Use to enable or disable the Low Voltage Detect on the RHS980C. Press the ▲ or ▼ key to scroll to YES or NO. Press **START** key.

Use to enable or disable the Micron Vacuum Sensor on the RHS980C. Press the ▲ or ▼ key to scroll to YES or NO. Press **START** key.

This feature can be enabled on the base RHS980C-NAV. **IMPORTANT** The manager password will also be required to make any changes in the **Selectable Options** and the **Default Values** sections if enabled. See Maintenance Options in regards to default password and changing passwords. Press **START** key. If **NO** is selected the following screen will be shown.

Default Service Managers password is 5237, enter this password to continue. Proceed to Maintenance Section to see how to change default password to one of the 20 optional passwords. Press **START** key.

An operator password will be required to proceed with any operation after powering the unit if this feature has been enabled.

This feature allows the vehicles VIN to be entered that is being serviced. Press **START** key.

Use to enable or disable the Operator ID Entry feature on the RHS980C. Press the ▲ or ▼ key to scroll to YES or NO. Press **START** key.

Use to enable or disable the AC Test Mode feature on the RHS980C. Press the ▲ or ▼ key to scroll to YES or NO. Press **START** key.

```
VACUUM PUMP OIL LIFE
TEST ENABLED?
▶ YES ▲
NO ▼
```

Default is **YES**.

Use to enable or disable the Vacuum Pump Oil Life feature on the RHS980C. Press the ▲ or ▼ key to scroll to YES or NO. Press **START** key.

```
REFRIGERANT LIQUID
FLUSH ENABLED?
▶ YES ▲
NO ▼
```

Default is **YES**.

Use to enable or disable the Refrigerant Liquid Flush feature on the RHS980C. Press the ▲ or ▼ key to scroll to YES or NO. Press **START** key.

```
TECHALERT DEMOMODE
ENABLED?
▶ YES ▲
NO ▼
```

Default is **YES**.

Use to enable or disable the TechALERT demo mode feature on the RHS980C. Press the ▲ or ▼ key to scroll to YES or NO. Press **START** key.

```
HIGH PRESSURE LEAK
DETECT ENABLED?
▶ YES ▲
NO ▼
```

Default is **YES**.

Use to enable or disable the High Pressure Leak Detect feature on the RHS980C. Press the ▲ or ▼ key to scroll to YES or NO. Press **START** key.

```
AUTOMATIC WEIGHING
OIL INJECT ENABLED?
▶ YES ▲
NO ▼
```

Default is **NO**.

This feature is currently not applicable to the base RHS980C. Enabling this feature will compromise the functionality of the unit. Press **START** key.

```
AUTOMATIC WEIGHING
OIL DRAIN ENABLED?
▶ YES ▲
NO ▼
```

Default is **NO**.

This feature is currently not applicable to the base RHS980C. Enabling this feature will compromise the functionality of the unit. Press **START** key.

```
AUTOMATIC WEIGHING
UV DYE ENABLED?
▶ YES ▲
NO ▼
```

Default is **NO**.

This feature is currently not applicable to the base RHS980C. Enabling this feature will compromise the functionality of the unit. Press **START** key.

```
HIGH VOLTAGE OIL
FLUSH ENABLED?
▶ YES ▲
NO ▼
```

Default is **YES** for RHS 980C

Use to enable or disable the High Voltage Oil Flush feature on the RHS980C. Press the ▲ or ▼ key to scroll to YES or NO. Press **START** key.

WARNING DO NOT ENABLE THIS FEATURE IF YOUR UNIT IS NOT CONFIGURED FOR HIGH VOLTAGE OIL FLUSH. IF YOUR UNIT HAS AN OIL INJECTION BOTTLE AND CONNECTION POINT TO INJECT OIL INTO THE A/C SYSTEM DO NOT ENABLE THIS FEATURE. Press **START** key.

```
F I L L   C Y L I N D E R
E N A B L E D ?
▶ Y E S           ▲
  N O            ▼
```

Default is **YES**.

```
M A N U A L   O I L   I N J E C T I O N
E N A B L E D ?
  Y E S           ▲
▶ N O            ▼
```

Default is **NO**.

This feature allows the operator to fill the internal cylinder of the RHS980 from an external virgin refrigerant tank to the preset amount, see Default Values. Press **START** key.

This feature is currently not applicable to the base RHS980C, due to this unit being configured to perform a high voltage oil flush function. Enabling this feature will compromise the functionality of the unit. Press **START** key.

DEFAULT VALUES

```

D E F A U L T   V A L U E S

                                     C O N T I N U E ?
    
```

```

F I L L   C Y L I N D E R   T A R G E T
A M O U N T   # # . # #   L B
B E T W E E N   6 . 6   &   2 4 . 2 L B
                                     C O N T I N U E ?
    
```

```

I N I T I A L   V A C U U M   H O L D
# # # # #   M I C R O N
B E T W E E N   3 K   &   9 K
                                     C O N T I N U E ?
    
```

```

F I N A L   V A C U U M   L E V E L
# # # # #   M I C R O N
B E T W E E N   1 K   &   9 K
                                     C O N T I N U E ?
    
```

```

V A C U U M   R U N   T I M E
# #   M I N
B E T W E E N   1   &   9 9   M I N
                                     C O N T I N U E ?
    
```

```

H O S E S   O V E R C H A R G E
A M O U N T   # . # #   K G
B E T W E E N   0   &   0 . 9 9   K G
                                     C O N T I N U E ?
    
```

```

D E F A U L T   M I N I M U M   L I N E
V O L T A G E   # # # V   A C
B E T W E E N   9 0   &   1 2 0 V A C
                                     C O N T I N U E ?
    
```

```

E L E V A T I O N   F R O M   S E A
L E V E L   # # # # #   F T
B E T W E E N   0   &   3 0 K   F E E T
                                     C O N T I N U E ?
    
```

Press **START** key.

The Fill Cylinder procedure will automatically transfer refrigerant from a new cylinder of refrigerant to the internal RHS980C charge cylinder. The value set here will be the amount of refrigerant which will have been transferred when the procedure stops automatically. Enter an amount between 3 and 11 KG (6.6 and 24.2 LB). The value will be displayed as it is entered. Press **START** key. (Default is 8.00 KG (17.6 LB))

The A/C system will be checked for leaks during the vacuum process. This test will pull the A/C system into a vacuum and then pause for a period of 60 seconds. If the vacuum level decreases, it's an indication that the A/C system has a leak. Enter an amount between 3000 and 9000 micron of vacuum. The value will be displayed as it is entered. Press **START** key. (Default is 5000 MICRON)

This screen allows the adjustment of the final vacuum micron level check performed. After the vacuum procedure is completed, the level achieved must be at least this value or a failure message is displayed. Press **START** key. (Default is 2000 MICRON)

This screen prompts for the length of time the vacuum pump will run during each cycle. There is one initial cycle to pull the system for an initial vacuum leak test, then a second cycle to obtain the final micron level. Enter a number of minutes between 1 and 99. The value will be displayed as it is entered. Press **START** key. (Default is 10 MIN)

A small overcharge of refrigerant is necessary to compensate for refrigerant which will remain in the hose after a charge procedure. Enter the number of KG between 0 and 0.99 (0 and 2.2 LB). The value will be displayed as it is entered. Press **START** key. (Default is 0.02 KG (0.04 LB))

During machine operation, the line voltage is monitored to remain above a threshold to ensure correct operation. Enter number of volts between 90 and 120VAC. The value will be displayed as it is entered. Press **START** key. (Default is 90 V AC)

Elevation from sea level to adjust pressure transducer calibration. Enter a number in feet from 0 to 30,000 feet. The elevation can be obtained by calling your local airport. (Default is 400 FT)

```
O I L   L I F E   V A C U U M   R I S E
L E V E L   # # #   M I C R O N
B E T W E E N   2 5   &   2 0 0
                        C O N T I N U E ?
```

```
O I L   D R A I N   M A X   L E V E L
# # #   M L
B E T W E E N   5 0   &   2 0 0 M L
                        C O N T I N U E ?
```

```
M I N I M U M   V A C U U M   L E A K
L E V E L   # #   I N H G
B E T W E E N   1 5   &   2 5   I N H G
                        C O N T I N U E ?
```

```
H I G H   V O L T A G E   F L U S H
C H G   A M T 1 . 6 L B
B E T W E E N   0 . 1 & 2 . 0 L B
                        C O N T I N U E ?
```

MAINTENANCE OPTIONS

```
P E R F O R M   C A L I B R A T I O N
C H E C K ?

S E L E C T   Y E S   O R   N O
```

MAHLE recommends checking calibration every 3 months

```
A T T A C H   W E I G H T   T O
B O T T O M   O F   M A C H I N E

                        C O N T I N U E ?
```

```
C A L I B R A T I O N   A P P R O V E D
R E M O V E   W E I G H T

                        C O N T I N U E ?
```

Or the next screen may be displayed...

```
C A L I B R A T I O N   R E J E C T E D
R E C A L I B R A T E   U N I T   O R
C A L L   F O R   S E R V I C E

                        C O N T I N U E ?
```

```
P E R F O R M   I N T E R N A L
C Y L I N D E R   L O A D   C E L L
S I T E   C A L I B R A T I O N ?
S E L E C T   Y E S   O R   N O
```

Enter the amount of rise in vacuum level used during the vacuum pump oil life test. The value must be between 25 and 200 micron. Press **START** key. (Default is 50 micron)

This feature is currently not applicable to the base RHS980C. Enabling this feature will compromise the functionality of the unit. Press **START** key.

During vacuum leak test, this value is used to determine a pass or fail. (Default is 29 in hg)

The Default value is 1.6 lbs for the HIGH VOLTAGE OIL FLUSH. **WARNING, DO NOT REDUCE THIS SETTING TO LESS THAN 1.6 LBS AS THE FLUSHING PROCESS WILL NOT BE COMPLETED PROPERLY AND RESIDUAL OIL MAY BE LEFT IN HOSES.** Press **START** key.

The calibration of the weight scale in the RHS980C can be easily checked using this procedure. A steel ball of a precise weight is provided with the RHS980C for performing this calibration check. Remove the document pocket on the left side to gain access to the calibration ball. Ball is under a bracket near the bottom base, see PARTS IDENTIFICATION. **Unit must show positive weight on scale prior to selecting this procedure.** Press **YES** key. Access to unit calibration must be verified by service manager by entering a password.

The screen prompts to attach the steel ball to the bottom of the machine. There is a small post which protrudes through the bottom plate of the RHS980C (see Parts Identification at rear of this Operation Manual). This post is magnetic. Attach the calibration weight to this post. Press **START** key.

This screen will display if the weight scale is in calibration. If calibration check failed, the RHS980C must be fully calibrated. See below.

This screen will display if the weight scale is not in calibration. To perform a full load cell calibration procedure, press **START** key.

Press **YES** key if a calibration is required. Otherwise, press **NO** key. **A Special MAHLE 4 KG (8.8 LB) weight IS required to calibrate the scale, do not use steel ball supplied with the machine! Unit must show positive weight on scale prior to selecting this procedure.** Load cell calibration should be performed by qualified technicians only and should be performed at least once per year. Call MAHLE technical support for more information. 1-800-468-2321 X 1

ATTACH WEIGHT TO
BOTTOM OF MACHINE
CONTINUE ?

CALIBRATION APPROVED
REMOVE WEIGHT
CONTINUE ?

Or the next screen may be displayed...

CALIBRATION REJECTED
RECALIBRATE UNIT OR
CALL FOR SERVICE
CONTINUE ?

PERFORM INTERNAL
CYLINDER LOAD CELL
SHOP CALIBRATION?
SELECT YES OR NO

CONNECT CYLINDER TO
LOW SIDE HOSE AND
OPEN VALVE
CONTINUE ?

CHARGE IN PROCESS
AMT CHG = ##.## LB
CONTINUE ?

CALIBRATION MIN
WEIGHT ON
CONTINUE ?

CALIBRATION MAX
WEIGHT ON
CONTINUE ?

CALIBRATION COMPLETE
REMOVE WEIGHT
AMOUNT = ##### XX
CONTINUE ?

Or the next screen may be displayed...

CALIBRATION FAULT
INSUFFICIENT WEIGHT
CONTINUE ?

The screen prompts to attach the 4 KG (8.8 LB) weight to the bottom of the machine. There is a small post which protrudes through the bottom plate of the RHS980 (see Parts Identification at rear of this Operation Manual). This post is magnetic. Attach the 4 KG calibration weight to this post. Press **START** key.

The weight scale is now calibrated. Remove the calibration weight. Press **START** key.

This screen will display if the weight applied does not meet the minimum required. For example; attempting to use the calibration ball instead of the approved 4 KG (8.8 LB) calibration weight. Perform a shop load cell calibration procedure or call MAHLE technical support for more information. 1-800-468-2321 X 1

Press **YES** key if a calibration is required. Otherwise, press **NO** key. **Special MAHLE 10 KG (22 LB) weights are required to calibrate the scale, do not use steel ball supplied with the machine!** Load cell calibration should be performed by qualified technicians only and should be performed at least once per year. Call MAHLE technical support for more information. 1-800-468-2321 X 1

If **YES** key was pressed, this screen will display. Connect the blue low side hose of the RHS980 to the vapor port of a refillable DOT cylinder. Open the valve on the cylinder. Press **START** key. Refrigerant will be transferred from the RHS980 internal cylinder into the externally connected DOT cylinder.

This screen will display a decreasing amount as refrigerant is transferred to the DOT cylinder. Press **START** key when the amount does not decrease any more.

This screen indicates the weight scale is reading a minimum weight since the charge cylinder is empty. Press **START** key.

This screen prompts for maximum weight. Place the calibration weights on top of the RHS980 charge cylinder. The weight scale will now read a maximum weight. Press **START** key.

The weight scale is now calibrated. Remove the calibration weights. Press **START** key.

This screen will appear if the weight used does not meet the required minimum. For example; attempting to use the 4 KG (8.8 LB) weight or calibration ball instead of the approved 10 KG (22 LB) calibration weight. Call MAHLE technical support for more information. 1-800-468-2321 X 1

```
PERFORM VACUUM
SENSOR CALIBRATION?
SELECT YES OR NO
```

```
VAC CAL - STABLE
SENSOR TARGET 1000M
TOGGLE PUMP WITH #1
PRESS YES TO CAPTURE
```

```
SET DATE AND TIME?
## - ## - ####
## : ## : ##
SELECT YES OR NO
```

```
ENTER PASSWORD
###
START TO CONTINUE
STOP TO END
```

```
PASSWORD ACCEPTED
START TO CONTINUE
STOP TO END
```

Or the next screen may be displayed...

```
PASSWORD REJECTED
START TO RETRY
STOP TO END
```

```
SET THE DATE FORMAT
YYY - MM - DD ▲
MM - DD - YYY ▼
CONTINUE ?
```

```
SET THE YEAR
#### ▲
▼
CONTINUE ?
```

```
SET THE MONTH
## ▲
▼
CONTINUE ?
```

Press **YES** key if vacuum sensor calibration is required. Otherwise, press **NO** key. An external micron sensor gauge is required and must be connected to the low side port for this procedure. Access to vacuum sensor calibration must be verified by service manager by entering a password.

Vacuum process will start and external sensor will be drawn into a vacuum. Press **#1** key when level reaches 1000 micron. Micron level must hold 1000 as shown on the external micron sensor for 1 min prior to pressing the **YES** key. Press **NO** key to end procedure without capturing new value.

Press **YES** key if adjustment to the date and time is required. Otherwise, press **NO** key.

If password protection is enabled the next 3 subsequent screens will be shown. The current service manager password is entered, default is shown, 5237. Call MAHLE for assistance if password is unknown or lost. Press **START** key.

If service manager password is accepted, this screen is shown. Press **START** key.

If service manager password is rejected, this screen is shown. Check the password and press **START** key to retry the entry or press **STOP** key to end.

The format for the date is selected by pressing **START** key. Change highlighted format with the ▲ or ▼ key.

Using ▲ or ▼ key, increase or decrease the year. Press **START** key to continue.

Using ▲ or ▼ key, increase or decrease the month. Press **START** key to continue.

```
SET THE DAY
  ##
CONTINUE? ▲
▼
```

Using ▲ or ▼ key, increase or decrease the day. Press **START** key to continue.

```
SET THE HOUR
  ## : ##
CONTINUE? ▲
▼
```

Using ▲ or ▼ key, increase or decrease the hour. Press **START** key to continue.

```
SET THE MINUTES
  ## : ##
CONTINUE? ▲
▼
```

Using ▲ or ▼ key, increase or decrease the minutes. Press **START** key to continue.

```
ACCEPT THESE VALUES?
## - ## - ### #
## : ##
SELECT YES OR NO
```

Press **YES** key to accept the date and time changes, press **NO** key to return without changes.

Unit is equipped with a battery backup feature to save time and date. Battery life is dependent on many conditions. See Parts Identification for replacement battery part number.

```
PERFORM INPUT / OUTPUT
DIAGNOSTICS?
SELECT YES OR NO
```

Inputs and outputs of devices in the RHS980C can be checked for diagnostic purposes. Press **YES** key.

```
USE ▲ ▼ TO CHANGE
SELECTED OUTPUT
START TOGGLES ON & OFF
STOP TO END
```

Press ▲ or ▼ key to select various outputs. The output identification number will display on the screen. For a selected output, press the **START** key to toggle it on and off. Press **STOP** key to advance to next screen.

```
USE ▲ ▼ TO CHANGE
SELECTED INPUT
STOP TO END
### ### ## ##
```

Press ▲ or ▼ key to select various inputs. The input identification number will display on the screen. For a selected input, press the **START** key to toggle it on and off and display units. Press **STOP** key to advance to next screen.

```
PERFORM COMBO FILTER
REPLACEMENT?
SELECT YES OR NO
```

The RHS980C combo filter must be replaced after every 150 LB (68 KG) of refrigerant has been recovered from A/C systems. A reminder message will appear after the filter capacity reaches 125 LB (57 KG) and the unit is powered ON. Press **YES** to start the procedure to change the combo filter. This filter can be accessed by removing the literature pocket on the left side of the RHS980. Press **YES** key.

```
CHECKING
PRESSURES
PLEASE WAIT
```

Internal pressure of the combo filter will be checked. If pressure is detected a buzzer will sound and the display will indicate the need to go to recycle mode to eliminate the pressure.

```
REMOVE AND REPLACE
COMBO FILTER
CONTINUE?
```

This screen will display if pressure was not detected. Replace the combo filter. Note the serial number on the new combo filter label as it may not be visible when installed. Press **START** key.

ENTER FILTER SERIAL
NUMBER

CONTINUE ?

PERFORM VACUUM PUMP
OIL REPLACEMENT
SELECT YES OR NO

PERFORM VACUUM
PUMP OIL LIFE TEST ?
SELECT YES OR NO

REFER TO MANUAL FOR
COMPLETE INSTRUCTION
FOR VAC OIL CHANGE
CONTINUE ?

CHANGE OPERATOR
PASSWORDS ?
SELECT YES OR NO

ENTER PASSWORD

START TO CONTINUE
STOP TO END

PASSWORD ACCEPTED
START TO CONTINUE
STOP TO END

Or the next screen may be displayed...

PASSWORD REJECTED
START TO RETRY
STOP TO END

NUM KEYS TO CHANGE
USE ▲ ▼ TO SCROLL
START TO CONTINUE
STOP TO END

7 5 8 4	0 9 9 6	1 0 8 0
4 4 3 5	1 5 3 4	2 8 3 9
9 1 1 5	8 1 9 0	
1 0 2 8	1 3 7 6	

Default passwords shown:

PASSWORDS UPDATED
CONTINUE ?

Enter the new six digit combo filter serial number. Press **START** key.

The RHS980C records the hours of vacuum pump use and prompts after every 10 hours that the oil should be changed. Earlier replacement of oil maybe required if oil appears cloudy or vacuum performance is unsatisfactory. Press **YES** key to replace the vacuum pump oil.

The condition of the vacuum pump oil can be evaluated using the vacuum pump oil life test procedure. Press **START** key to continue.

Refer to Vacuum Pump Maintenance Section in this manual for complete instructions for the vacuum pump oil change procedure. Press **START** key when oil has been changed. MAHLE recommends changing of both in-line hose screen filters at this interval also. See PARTS IDENTIFICATION section for details.

The 10 operator passwords stored on the RHS980C can be changed by the service manager. Press **YES** key to access change operator passwords.

Enter the service manager password, default is 5237. Press **START** key to continue.

If service manager password is accepted, this screen is shown. Press **START** key.

If service manager password is rejected, this screen is shown. Check the password and press **START** key to retry the entry or press **STOP** key to end.

The numeric keys are used to change the password which is selected. Use the ▲ or ▼ key to change the password selection. Press **START** key.

Default passwords are shown. Passwords can be assigned to each service technician individually. It is a recommended practice to record these passwords as they are changed in a secured location. After changes are complete, press **START** key to continue and accept the changes.

Press **START** key.

```
CHANGE SERVICE
MANAGER PASSWORD ?
SELECT YES OR NO
```

```
ENTER PASSWORD
5 2 3 7
START TO CONTINUE
STOP TO END
```

Default service manager password shown:

```
PASSWORD ACCEPTED
START TO CONTINUE
STOP TO END
```

```
PASSWORD REJECTED
START TO RETRY
STOP TO END
```

```
ENTER NEW SERVICE
MANAGER PASSWORD
### #
CONTINUE ?
```

Default service manager password shown:

```
PASSWORDS UPDATED
CONTINUE ?
```

```
PRINT PARAMETER
SETTINGS ?
SELECT YES OR NO
```

TOTAL CAPACITIES

```
TOTAL CAPACITIES
CONTINUE ?
```

```
COMBO FILTER LIFE
REMAINING ### LBS
CONTINUE ?
```

```
TOTAL REFRIGERANT
RECYCLED ##### KG
CONTINUE ?
```

```
TOTAL REFRIGERANT
CHARGED ##### KG
CONTINUE ?
```

The service manager password on the RHS980C can be changed. The current service manager password must be entered to grant access. Press **YES** key to change service manager password.

The current service manager password is entered, default is shown, **5237**. Call MAHLE for assistance if password is unknown or lost. Press **START** key.

If service manager password is accepted, this screen is shown. Press **START** key.

If service manager password is rejected, this screen is shown. Check the password and press **START** key to retry the entry or press **STOP** key to end.

Use numeric keys to change the service manager password. It is a recommended practice to record this password in a secured location. After changes are complete, press **START** key to continue and accept the changes.

Press **START** key.

The RHS980C has the capability to print all of the user selectable parameters to the printer or to a file. Press **YES** key to access this feature.

The RHS980C records data which can be used for shop management of the equipment and refrigerant usage. Press **START** key.

The RHS980C combo filter must be replaced after every 150 LB (68 KG). of refrigerant has been recovered from A/C systems. An alert will display when the filter life is at 100 LB (45.35 KG). The RHS980C will shut down when the filter life is at 150 LB (68 KG). A new filter must be installed and a serial number entered to re-start the RHS980C. Press **START** key to go to next screen.

The RHS980C records the total refrigerant which has been recycled. That total is displayed on this screen. Press **START** key to go to next screen.

The RHS980C records the total refrigerant which has been charged. That total is displayed on this screen. Press **START** key to go to next screen.

```
VACUUM PUMP OIL LIFE
REMAINING ## HOURS

CONTINUE?
```

The RHS980C records the hours the vacuum pump runs. A reminder screen displays when that total equals 10 hours. The vacuum pump oil should be changed at that time. This screen displays the hours remaining until the reminder screen will display. Press **START** key to continue.

REMINDERS

```
REMINDER: CALL
SERVICE TO CHECK
SCALE CALIBRATION

CONTINUE?
```

After 1 year, a reminder to schedule service to check the internal scale calibration will be shown. Call MAHLE to assist with scheduling maintenance with a service center. Press **START** key to continue.

```
REMINDER: PERFORM
CALIBRATION CHECK?

CONTINUE?
```

After 3 combo filter changes, a reminder to perform a scale calibration check will be prompted. Follow MAINTENANCE OPTIONS section of the manual for more details. Press **START** key to continue.

TechALERT DEMO MODE

The RHS980C has been configured with TechALERT demonstration mode. This feature allows the user to witness the signals that will be sent from TechALERT base as well as what signals will be received with the TechALERT remote. To reach the TechALERT demo mode feature, follow the procedure below.

```
WEIGHT = ##.## LB
AUTOMATIC

START?
```

The screen shown to the left will be displayed. Press the ▼ key to scroll to the next screen.

```
WEIGHT = ##.## LB
RECYCLE

START?
```

Press ▼ key.

```
WEIGHT = ##.## LB
VACUUM

START?
```

Press ▼ key.

```
WEIGHT = ##.## LB
CHARGE

START?
```

Press ▼ key.

```
WEIGHT = ##.## LB
FILL CYLINDER

START?
```

Press ▼ key.

```
WEIGHT = ##.## LB
TECHALERT DEMO

START?
```

Press **START** key.

```
SELECT DEMO MODE
AUTOMATIC
MANUAL
CONTINUE ?
```

Select either the AUTOMATIC mode or MANUAL mode, if AUTOMATIC mode is selected follow the subsequent 5 screens. If MANUAL was selected see below. Use the ▲ or ▼ key to change the selection. Press **START** key.

```
SIGNAL WILL CHANGE
AUTOMATICALLY AFTER
30 SECONDS
CONTINUE ?
```

The signal will be sent for 30 seconds before switching to the next signal.

```
SENDING RUNNING
LED GREEN, BUZZ OFF
VIB OFF, TIME LEFT ##
STOP TO END
```

RUNNING signal being sent.

```
SENDING FAULT
LED RED, BUZZ OFF
VIB ON, TIME LEFT ##
STOP TO END
```

FAULT signal being sent.

```
SENDING COMPLETE
LED GRN/YEL, BUZZ ON
VIB ON, TIME LEFT ##
STOP TO END
```

COMPLETE signal being sent.

```
SENDING CLEAR SIGNAL
LED OFF, BUZZ OFF
VIB OFF, TIME LEFT ##
STOP TO END
```

Press the **STOP** key to end TechALERT automatic demo mode.

```
SELECT DEMO MODE
AUTOMATIC
MANUAL
CONTINUE ?
```

If MANUAL mode is selected follow the subsequent screens. Use the ▲ or ▼ key to change the selection. Press **START** key.

```
PRESS # 1 = RUN, # 2 =
FAULT, # 3 = COMPLETE,
# 0 = CLEAR
STOP TO END
```

When in TechALERT manual demo mode, push the corresponding key on the keypad to witness the desired signal.

Press the **STOP** key to end the TechALERT manual demo mode.

VACUUM PUMP MAINTENANCE

Oil must be periodically changed in the vacuum pump to ensure continued performance. The RHS980C will display a reminder after every ten hours of vacuum pump use.

A drain port and fill port for the vacuum pump protrude through the rear wall of the RHS980C to the left of the handle. A sight glass for viewing the oil level in the vacuum pump is located on the end of the fill port.

Remove Fill Port Cap to optimize fluid draining. Drain oil from the drain port and refill with new oil through the fill port. Use oil which is specially formulated for a vacuum pump.

MAHLE Part Numbers:

011 80004 00 One quart bottle

360 80012 00 Case of 12 one quart bottles

The oil level should be visible approximately one-half the way up in the sight glass. **DO NOT OVERFILL!**

Please be advised, vacuum pump overfilling or running the machine without service hoses being connected can cause vacuum pump oil to be discharged out through the vacuum pump vent tube at the bottom of the machine. Overfilling can be corrected. Refer to MAINTENANCE OPTIONS section for instructions regarding machine reset.

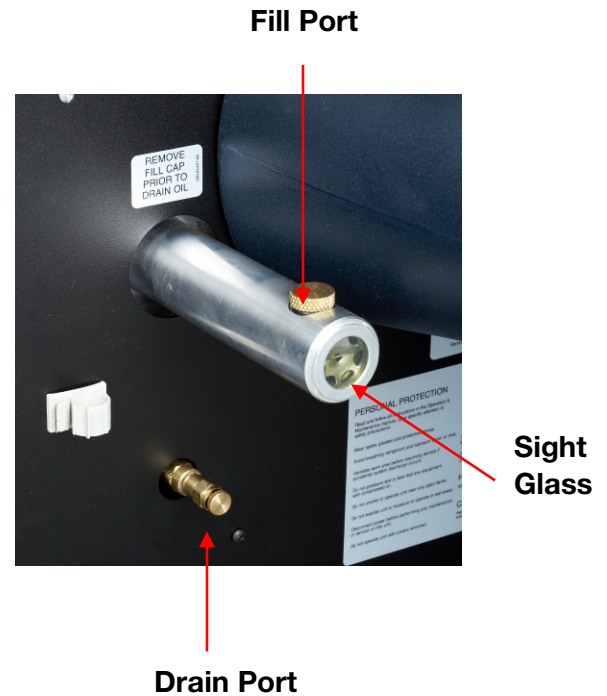
COMBO FILTER MAINTENANCE

The RHS980C combo filter must be replaced after every 150 LB (68 KG). of refrigerant has been recovered from A/C systems. An alert will display when the filter life is at 100 LB (45.35 KG). The RHS980C will shut down when the filter life is at 150 LB (68 KG). A new filter canister must be installed and a serial number entered to re-start the RHS980C.

A special routine for changing the combo filter is explained on MAINTENANCE OPTIONS in this manual.

Remove the document pocket on the left side of the RHS980C to gain access to the combo filter. The combo filter is on the right side of the manifold as shown in the photo. A hex on top of the filter is provided to make filter removal and installation easy. Use an open end wrench on this hex. New O-rings are provided with the replacement filter. Apply a light coating of mineral oil to the o-rings prior to reassembly.

A serial number is printed on a label attached to the new filter. Make a note of this number as it may not be visible when the filter is installed. This serial number must be entered to reset the 150 LB (68 kg) filter life routine. Refer to MAINTENANCE OPTIONS section for instructions regarding machine reset.

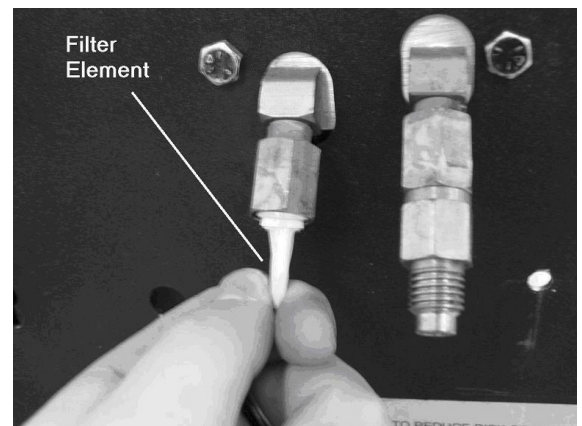
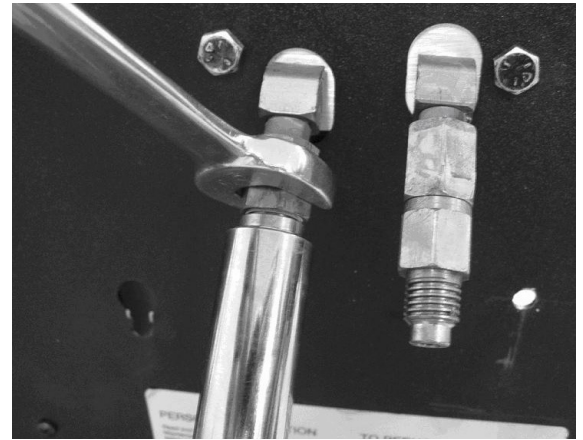


Order Filter Kit: 360 82175 00

INLINE FILTER MAINTENANCE

It is recommended that the inline filter elements be changed at a minimum of every 75 lbs of processed refrigerant. Note: If an A/C system with known contamination is serviced, the inline filters should be cleaned or replaced prior to next system recharge.

1. Pressure gauges must read zero or less. If not, perform a recycle procedure.
2. Remove the red and blue service hoses from the connection ports on the rear of the RHS980C.
3. Use a deep 5/8 inch socket on the hose connection fitting along with a 5/8 inch backing wrench to remove the filter element housing (as shown to right).
4. Remove the filter element and replace with a new one.
Note direction of filter during reinstallation.
5. Carefully observe the amount of debris on the old filter element. An excessive amount indicates the need to change the filter more frequently. Filter element replacement kits are available through your local distributor.
6. Attach the red and blue service hoses - red on the right and blue on the left. The connection ports have red and blue markings.
7. During the next A/C service, use a leak detector to ensure the inline filters and hoses are not leaking.



PRINTER MAINTENANCE

(Optional Item)

The printer paper will require replacement and can be accessed on the rear of the RHS980C.

Paper is 58MM Wide X 45MM Diameter Thermal paper and can be found at most local office supply retailers. Replacement paper is available from MAHLE.

Order Kit: 360 82218 00

Press the door release button to open cover as shown.

Insert the paper with about 5mm of paper outside the printer.

Close cover door. Light will indicate Green when printer is ready.



Door Release Button

REFRIGERANT IDENTIFIER

MAINTENANCE (Optional Item)

A reported high concentration of air by the identifier can be caused by any of the following:

- No refrigerant in the vehicle A/C system.
- Gross leak in vehicle A/C system.
- Refrigerant identifier coupler not properly connected during sampling operation.
- Pinched, plugged or oil clogged sample hose. Oil contaminated sample hose must be replaced, order kit listed below
- Coupler o-ring damaged or missing, order kit listed below.

Order Kit: 360 82219 00



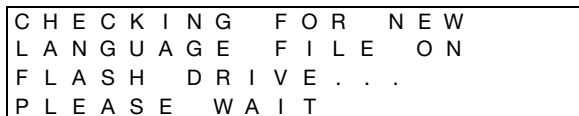
**Check hose for oil or UV dye for contamination.
Replace hose and coupler if contaminated.**

UPDATING PROGRAM AND LANGUAGES

The RHS980C has the capability to easily update program functionality and languages. This is accomplished by inserting a programmed flash drive into the USB slot in the rear of the unit and cycling power OFF and ON.



If languages are loading, the following message will display.



Flash Drive



If AC database is loading, the following message will display.

```
C H E C K I N G   F O R   N E W  
D A T A B A S E   F I L E   O N  
F L A S H   D R I V E . . .  
P L E A S E   W A I T
```

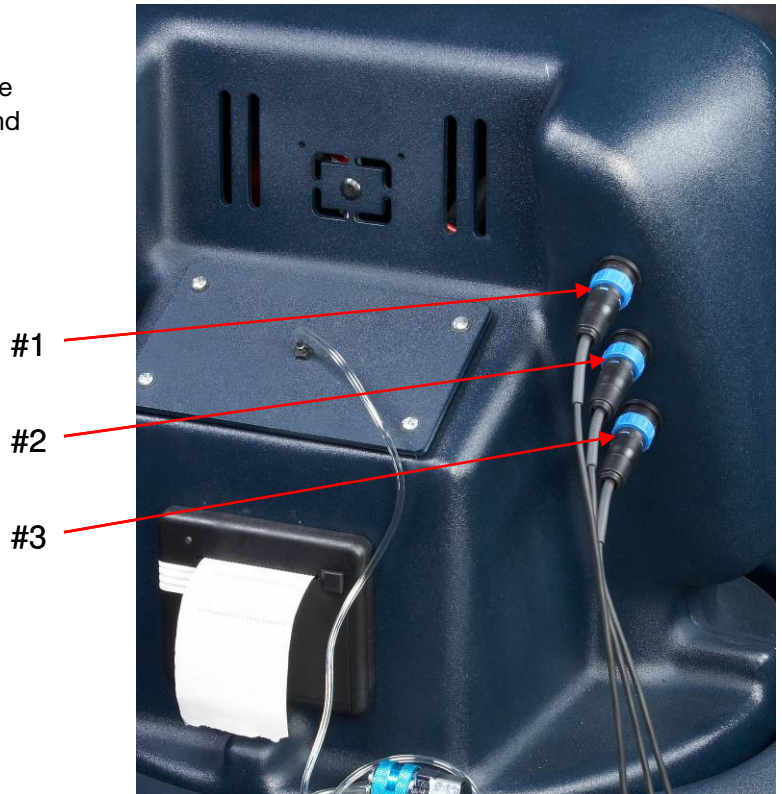
If configuration file is loading, the following message will display, The configuration file sets all options back to factory defaults.

```
L O A D I N G   N E W  
C O N F I G U R A T I O N   F I L E  
F R O M   F L A S H   D R I V E . .  
P L E A S E   W A I T
```

Contact MAHLE for more information regarding the All Makes Database.

ATTACHING TEMPERATURE PROBES

Connect the 3 temperature probes to the rear of the RHS980C as shown. Each probe has a number on the tip end. Place probe #1 at the top, #2 in the center and #3 on the bottom socket.



FREQUENTLY USED MAHLE CONSUMABLE ITEMS

REFERENCE MAHLE P/N	ITEM DESCRIPTION
028 80035 04	HOSE RED 9 FT .5 ACME X M14-1.5
028 80036 04	HOSE BLU 9 FT .5 ACME X M14-1.5
023 80095 00	COUPLING FSC HIGH RED M14-1.5 215010
023 80096 00	COUPLING FSC LOW BLUE M14-1.5 215011
360 82175 00	KIT FILTER MAINTENANCE FOR RHS980C
011 80004 00	OIL VACUUM PUMP (QUART) 217020
025 80114 19	CORD POWER 5-15 PLUG 5-15 RECEP 120"
025 80404 00	THERMISTOR PROBE 10K 1/4IN 2PIN 20FT
360 81733 00	SEALER IDENTIFIER KIT
026 80482 00	EQUIPMENT STORAGE COVER RHS 980C-NAV
360 81618 00	FILTER , INLINE MICRON FOR MACHINES, 10 PK
360 80672 00	O-RING REPAIR SET FOR R134a SERVICE COUPLERS
360 82219 00	KIT REPLACEMENT ID SAMPLE HOSE RHS980C-N
026 80309 00	SEALANT DETECTOR CARTRIDGE, 25 PK.
360 80012 00	OIL VACUUM PUMP (12 QT CASE)
360 82292 00	REPLACEMENT BATTERY FOR CIRCUIT BOARD CR1025

Note: For RHS980C replacement parts contact MAHLE Technical Support at 1-800-468-2321, ext 1.

PARTS IDENTIFICATION



- 1 Manifold Assembly
- 2 In-line Hose Screen Filters
- 3 Service Hoses
- 4 New Refrigerant (not included)
- 5 Condenser Fan
- 6 Control Power Supply
- 7 Combo Filter
- 8 Charge Cylinder
- 9 Load Cell
- 10 Calibration Ball
- 11 Control Board
- 12 Vacuum Pump
- 13 Compressor (Maintenance Free)
- 14 High Pressure Gauge
- 15 Low Pressure Gauge
- 16 Display & Keypad
- 17 Power Switch
- 18 Oil Drain Bottle



NOTES

NOTES



TechALERT® Remote
(front view shown actual size)

- Made from hi-strength composite material
- Impact and chemical resistant housing
- Ergonomically shaped and lightweight for ease-of-handling and use
- Four easy-to-see LED's
 - Each LED can be synchronized to a specific RTI machine
 - Intuitive LED illumination codes provide alert status
 - LED's brightly illuminate either red or green for excellent readability
 - LED's are sealed for long life
- Sealed activation button
- Internal wireless synchronization sensor



TechALERT® Remote
(rear view shown actual size)

- Integrated clip for secure shirt pocket placement
- Battery compartment
 - Easily removed cover
 - Two (2) AAA batteries required to power remote, batteries included

It just makes sense—the key to increased productivity is to keep technicians and their machines continually performing *value-added work*. Service techs that are constantly checking machine status are busy—but this type of busy does nothing to generate profits.

TechALERT® Base
(front view shown actual size with docking remote)

- Conveniently mounts to compatible RTI service machines
- Made from hi-strength composite material
- Impact and chemical resistant housing
- Storage pocket holds one remote
- LED indicator for synchronization process
- Sealed control button
- Internal wireless synchronization sensor



Specifications

Electrical	3.0 V, requires (2) AAA batteries for power; batteries included.
Operating Range	Up to 250 feet nominally from base unit (Certain conditions may increase or decrease distance accordingly.)
Battery Operating Life	30 days typical (certain conditions may increase or decrease life accordingly)
Low Battery Indicator	Included, LED alert signal
Remote Dimensions	5.5 in x 1.0 in x 0.8 in (14.0 cm x 2.5 cm x 2.0 cm) (L x W x D)
Remote Weight	3.0 ounces (batteries included)
Shipping Box Dimensions	10.75 in x 7.5 in x 3.5 in (L x W x D)
Shipping Weight	2.0 lb (box and components)

Complete TechALERT® System (Includes one [1] Base for RHS@980 and one (1) Universal Remote, AAA batteries included)

495-80000-00

TechALERT® Base only for RHS@980

495-80002-00

TechALERT® Universal Remote only (AAA batteries included)

495-80001-00