

OPERATION
&
MAINTENANCE
MANUAL

AC800

Refrigerant Management Center

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Manual P/N 035-80207-02

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CONGRATULATIONS:

You have purchased one of the finest Recovery, Recycling, and Charging Machines available! Fill out and return the Warranty Card within 90 days to activate warranty and free lifetime technical support.

START-UP INSTRUCTIONS

- 1) Check for any shipping damage. Place a claim with carrier if damage is discovered.
- 2) Complete and return the Warranty Card to activate Technical Support and Warranty Coverage.
Warranty claims can not be honored without this warranty card on file.

BEFORE USING THE AC800

Check for any shipping damage. Place a claim with carrier if damage is discovered.

DO NOT USE A DAMAGED UNIT.

Complete and return the Warranty Card to activate technical support service and warranty coverage.

Warranty claims can not be honored without this warranty card on file.

The AC800 should not be operated or serviced by any person who has not read all the contents of this manual. 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.

These general instructions describe normal operation and maintenance situations encountered with the AC800. The instructions should not be interpreted to anticipate every possible contingency.

It is the responsibility of the owner/user to operate the AC800 in accordance with all specifications and laws which may apply.

The following pages contain rules for safe operation of the AC800. Taking precedence over any specified rule listed herein, however, is the most important rule of all:

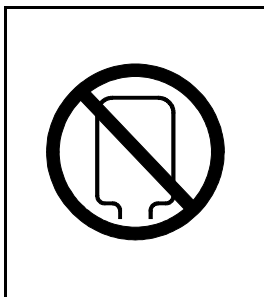
"USE COMMON SENSE"

A few minutes spent reading these instructions can make an operator aware of dangerous practices to avoid and precautions to take for his own safety and the safety of others.

A regular schedule of inspection of the AC800 should be established and records maintained with special attention given to Hoses, Compressor Oil Level, Moisture Indicator, and Filters.

SAFETY PRECAUTIONS

- ! Recover, Recycle, and Charge only the refrigerants for which the machine is configured.
- ! Wear safety glasses and protective gloves. Refrigerant has a very low boiling point and can cause frostbite.
- ! Follow the AC800 operating procedures sequentially to avoid prematurely disconnecting hoses or opening valves which may release refrigerant to the atmosphere.
- ! Do not expose the AC800 to moisture or operate in wet areas.
- ! Use the AC800 in locations with mechanical ventilation that provides at least four air changes per hour.
- ! Hoses used with the AC800 must have shutoff devices within 12 inches of the connection point to the system being serviced to minimize the introduction of Non-condensable Gas (Air) into the AC800 and the release of refrigerant when being disconnected.
- ! Disconnect power before performing any maintenance or service on the AC800.
- ! Avoid using an extension cord with the AC800. If necessary, use a good condition, UL listed, 3-wire grounded, #14 AWG, or larger, extension cord of the shortest possible length.
- ! Connect the AC800 to a properly grounded receptacle. Do not over load the circuit.
- ! Do not allow the AC800 to remain unattended in the Charge Mode with power On. The Charge Cylinder Heater will be energized creating a high pressure condition.



NEVER TURN THE CYLINDER UP-SIDE-DOWN.

DO NOT CONNECT THE AC800 TO THE LIQUID SIDE OF ANY A/C SYSTEM WITH A CAPACITY GREATER THAN 4 LBS.

REFRIGERANT IN A/C SYSTEMS HAVING LARGER CAPACITIES MUST BE RECOVERED FROM THE VAPOR SIDE ONLY.

NEVER CONNECT THE AC800 TO THE LIQUID PORT OF A CYLINDER OF REFRIGERANT TO FILL THE AC800 CHARGE CYLINDER.

FAILURE TO FOLLOW THE ABOVE MAY CAUSE THE AC800 COMPRESSOR TO FAIL AND VOID THE WARRANTY.

CAUTION

Avoid breathing refrigerant or lubricant vapor or mist.

Exposure may irritate eyes, nose and throat.

If accidental system discharge occurs, ventilate work area before resuming service.

Additional health and safety information may be obtained from refrigerant and lubricant manufacturers.

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% 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/R134a mixtures. Do not use compressed air (shop air) for leak detection in R134a systems.

FILLING THE CHARGING CYLINDER

A/C Systems requiring service often do not have a full charge of refrigerant. To avoid unnecessary repositioning of hoses it is recommended that the AC800 be filled until about 3 pounds of liquid refrigerant can be seen in the Charging Cylinder Sight Glasses. The Sight Glasses are visible through slotted openings on the front of the AC800.

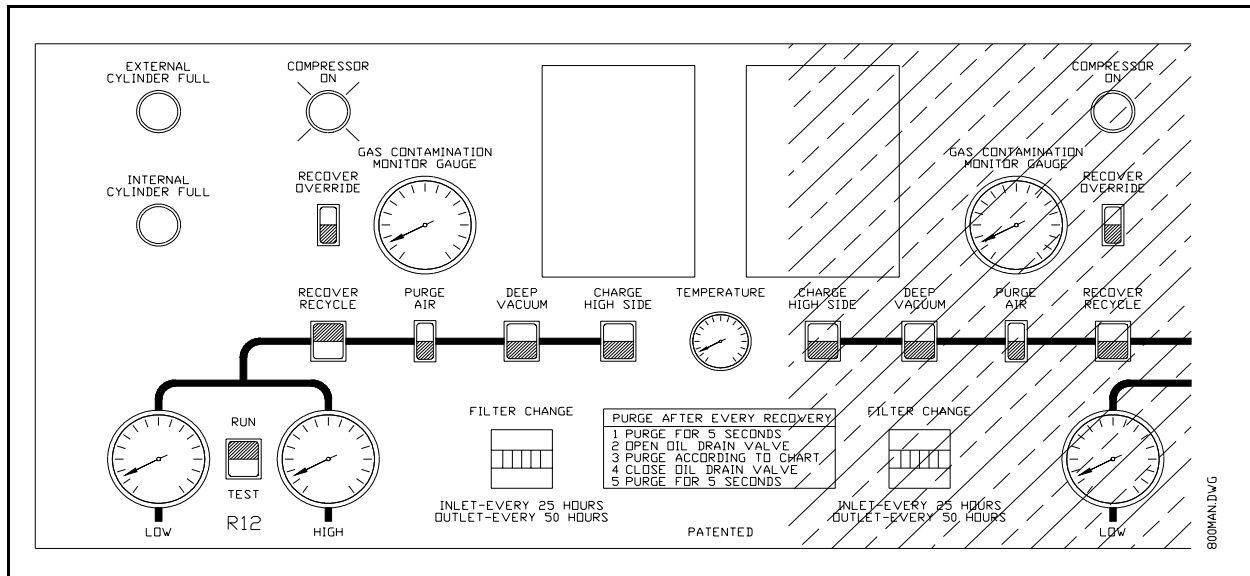


Figure 1 Filling the Cylinder

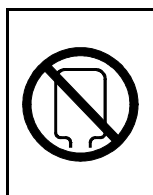
To fill the AC800 Charge Cylinder, refer to Figure 1 and follow these steps:

Note: Instructions given for R12 side only. Operation of R134a side is identical.

1. Connect the short Yellow Hose provided to the Rear Port of the AC800 and to the **VAPOR** port of a cylinder of the correct refrigerant.

DO NOT CONNECT TO THE LIQUID VALVE.

If the cylinder has two ports, observe that the embossed marking on the cylinder knob says **VAPOR** or **GAS**. Do not rely on color coding of the knobs on the valves.



DO NOT TURN THE CYLINDER UP-SIDE-DOWN.

INTRODUCTION OF LIQUID INTO THE AC800 MAY DAMAGE THE COMPRESSOR AND VOID THE WARRANTY.

2. Shut Red and Blue Hose Valves.
3. Press top (ON) of rocker switch marked TEST RUN.
4. Press top (ON) of rocker switch marked RECOVER RECYCLE.

The green COMPRESSOR ON Light will illuminate and liquid refrigerant will rise in the Charging Cylinder Sight Glass. When the level is approximately 3 lbs, close the valve on the refrigerant cylinder. Allow the AC800 to continue to run until the Low Side Gauge shows a vacuum, and the green light goes out. This will empty the Blue Hose.

HINT: Heating of the cylinder of refrigerant with an RTI Heat Belt (P/N 026-80092-00) will speed the recovery process.

5. Press bottom (OFF) of rocker switch marked RECOVER RECYCLE.
6. Press bottom (OFF) of rocker switch marked TEST RUN.

... NOTE ...

The sight glass does not indicate the amount of refrigerant recovered; Only the amount of refrigerant available to put into the vehicle A/C System while in the CHARGE mode of operation.

Refrigerant is processed through a Condenser by the AC800. The actual volume of refrigerant contained in the Condenser varies from job to job due to pressure and temperature variations.

If a known amount of refrigerant has been introduced into the AC800 it may not all be seen in the Charging Cylinder Sight Glass. This is normal and nothing to be concerned about. Refrigerant has not been lost.

As Purge Pressure goes up, the rate of transfer of refrigerant from the Condenser to the Charge Cylinder goes down. As Gauge Manifold pressure goes down, the rate of transfer of refrigerant from the Condenser to the Charge Cylinder goes down.

RECOVER/RECYCLE

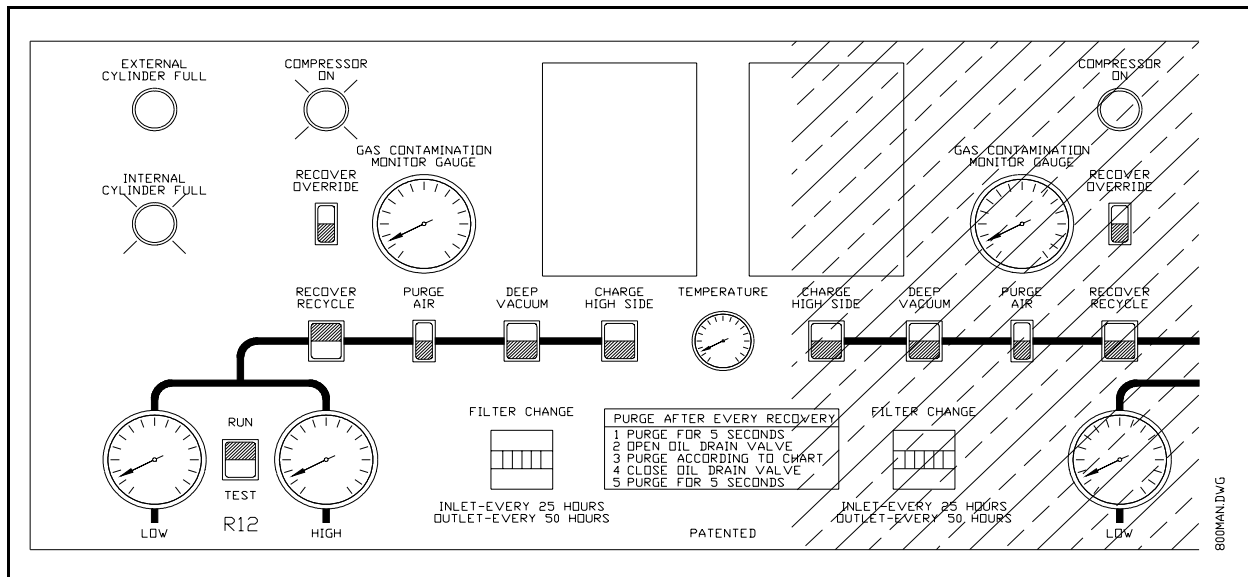


Figure 2 Recover/Recycle

To Recover/Recycle, refer to Figure 2 and follow these steps:

1. Attach Red and Blue Hoses to the A/C system per the vehicle manufacturer's instructions.

Note For R134a Machines

Field Service Couplings on the ends of Service Hoses are of a special design.

The valves have **LEFT HAND** threads which makes operation opposite to that of others.

To Close... Turn Counter-clockwise

To Open... Turn Clockwise

The valves **MUST BE CLOSED** before connecting or disconnecting Field Service Couplings.

-
2. Open Red and Blue Hose Valves.
 3. Press top (ON) of rocker switch marked TEST RUN.

4. Press top (ON) of rocker switch marked RECOVER RECYCLE.

The AC800 will recover and recycle refrigerant from the A/C System, and then automatically cycle off when a vacuum is sensed. This vacuum level can be seen on the Low Side Gauge.

! DO NOT TURN THE AC800 OFF OR DISCONNECT HOSES !

A small quantity of Liquid refrigerant will probably still remain in the A/C System. This can be detected by observing an increasing pressure reading on the Low Side Gauge.

As pressure rises to a preset level, the AC800 will automatically cycle on to continue recovering refrigerant. Allow this automatic On/Off sequence to repeat until the vacuum level remains constant for at least 2 minutes.

Note: Press and hold the top of the rocker switch marked RECOVER OVERRIDE to remove any residual pressure that the AC800 may not remove when used on cooler days.

6. Close Red and Blue Hose Valves.
8. Press bottom (OFF) of rocker switch marked RECOVER RECYCLE.
8. Press bottom (OFF) of rocker switch marked TEST RUN.

INTERNAL CYLINDER FULL LIGHT:

This Light will illuminate if the Internal Charging Cylinders Fill to capacity, approximately 9 lbs. When this occurs, the Internal Cylinder must be drained using the charging procedure outlined on Page 12. An optional 30 lb DOT Refillable Cylinder equipped with an Over Fill Protection device can be used to store the refrigerant to be charged if the recovery process is not complete. Contact your distributor, or call Technical Support at 800-468-2321 for details.

OIL DRAIN & AIR PURGE

Oil and Non-condensable Gas (Air) are separated from the recovered refrigerant and **MUST** be removed following **EACH** recycling procedure as follows:

Note: AC800 must be connected to power source.

1. Press and hold the Purge Button (below the Purge Gauge) for 5 seconds, and then release it.
2. **SLOWLY** open the Oil Drain Valve (behind push up door in front of AC800) to drain any oil which may have been removed from the A/C System. A cup is provided to collect the oil.

Unless the A/C System had previously been overfilled, the AC800 will typically not remove more than a tablespoon of oil, making replenishment unnecessary.

LEAVE THE OIL DRAIN VALVE OPEN...

3. Read temperature on Thermometer in center of AC800 control panel.
4. Locate the pressure (PSIG) corresponding to this room temperature (^oF) in the chart on the top of the AC800. This chart is reproduced at the right.

If the pressure indicated on the Purge Gauge is greater than that determined from the chart:

Press and hold the Purge Button until the Purge Gauge pressure goes down to the pressure determined from the chart. Any Non-condensable Gas will be vented through the Oil Drain Valve at this time.

5. Close the Oil Drain Valve.
6. Press and hold the Purge Button for 5 seconds. This permits any residual Non-condensable Gas to be recirculated for reprocessing during the next recycle procedure.

^o F	R12	R134A
30	42	40
32	44	42
34	46	44
36	48	46
38	50	49
40	52	51
42	54	54
44	57	56
46	59	59
48	61	61
50	64	64
52	66	67
54	69	70
56	72	72
58	74	76
60	77	78
62	80	82
64	83	85
66	85	88
68	88	92
70	92	95
72	95	97
74	98	104
76	102	107
78	105	110
80	108	114
82	112	118
84	115	123
86	118	127
88	123	130
90	127	135
92	130	140
94	135	145
96	138	148
98	143	153
100	147	157
102	150	163
104	155	167
106	160	173
108	165	180
110	168	185
112	173	190
114	178	195
116	183	200
118	188	207
120	193	213

Purge Chart

DEEP VACUUM

If the A/C System is "opened" for replacing components, a deep vacuum must be drawn on the system before recharging with refrigerant. This vacuuming process removes air and moisture introduced into the system. A Vacuum Pump in the AC800 provides this capability.

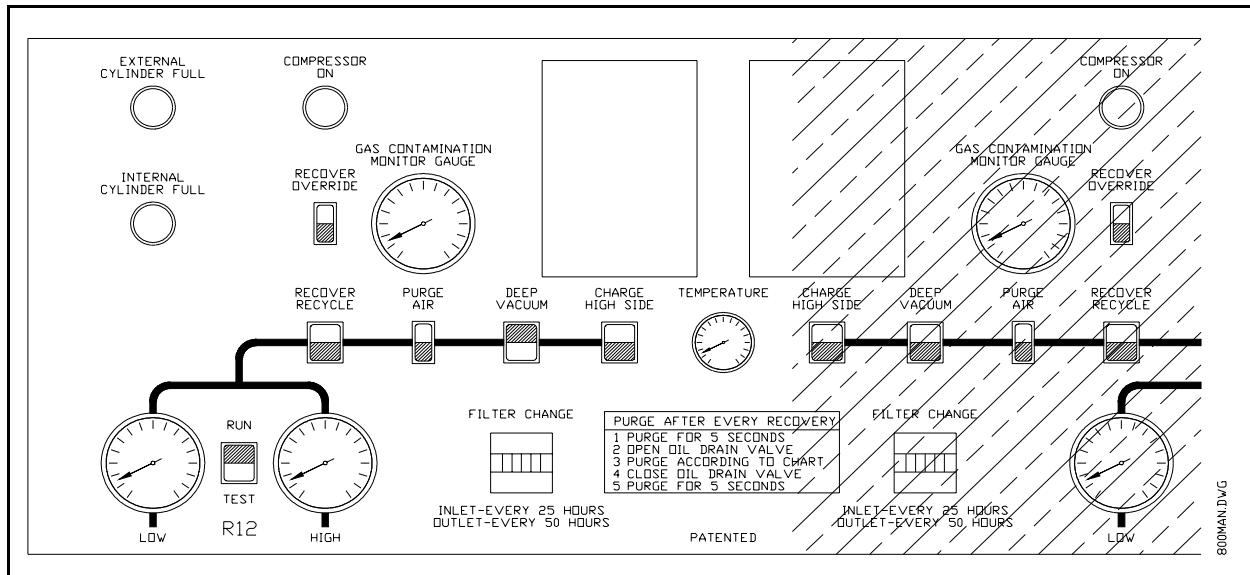


Figure 3 Deep Vacuum

To Deep Vacuum the A/C System, refer to Figure 3 and follow these steps:

1. Connect Red and Blue Hoses to the high and low sides of the A/C System.
2. Open Red and Blue Hose Valves.
3. Press top (ON) of rocker switch marked TEST RUN.
4. Press top (ON) of rocker switch marked DEEP VACUUM.
5. The Vacuum Pump will start and the AC800 will draw a vacuum.

NOTE... If pressure is sensed at the Red and Blue Hoses on the AC800, the Vacuum Pump will not start. If this occurs, perform the recover/recycle operation described earlier.

ALSO... It may be necessary to momentarily loosen the Blue Hose to break the vacuum and allow the pump to start if its operation has been interrupted.

6. Press bottom (OFF) of rocker switch marked DEEP VACUUM.
7. Press bottom (OFF) of rocker switch marked TEST RUN.

HOSE EVACUATION

It's important that Air not be introduced into the A/C System during a Charging procedure. If a Deep Vacuum procedure was performed previously, the following Hose Evacuation Procedure is not required. If the service valves on the hoses have been open, the following procedure must be performed.

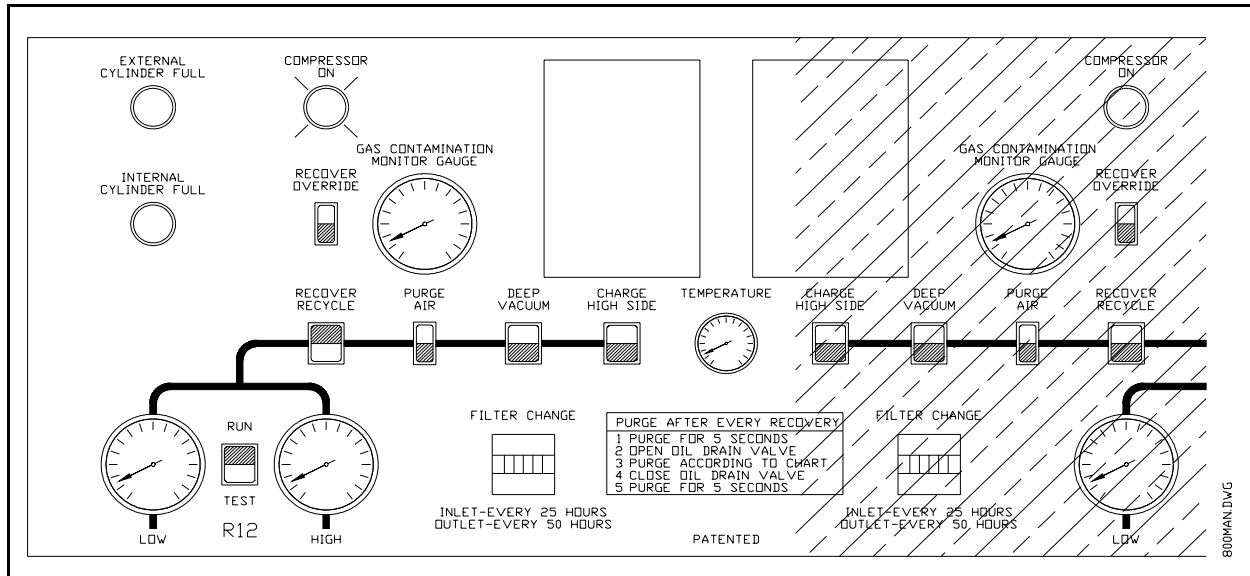


Figure 4 Hose Evacuation

To Evacuate Hoses, refer to Figure 4 and follow these steps:

1. Close Red and Blue Hose Valves.
2. Press top (ON) of rocker switch marked TEST RUN.
3. Press top (ON) of rocker switch marked RECOVER RECYCLE.
4. Let the AC800 run until the green COMPRESSOR ON light goes out.

Note: If the green light does not illuminate, press and hold the top of the rocker switch marked RECOVER OVERRIDE until the Low Side Gauge indicates a vacuum.

5. Press bottom (OFF) of rocker switch marked RECOVER RECYCLE.
6. Press bottom (OFF) of rocker switch marked TEST RUN.
7. Vent any Non-condensable Gas as described in the previous section.

CHARGE - HIGH SIDE

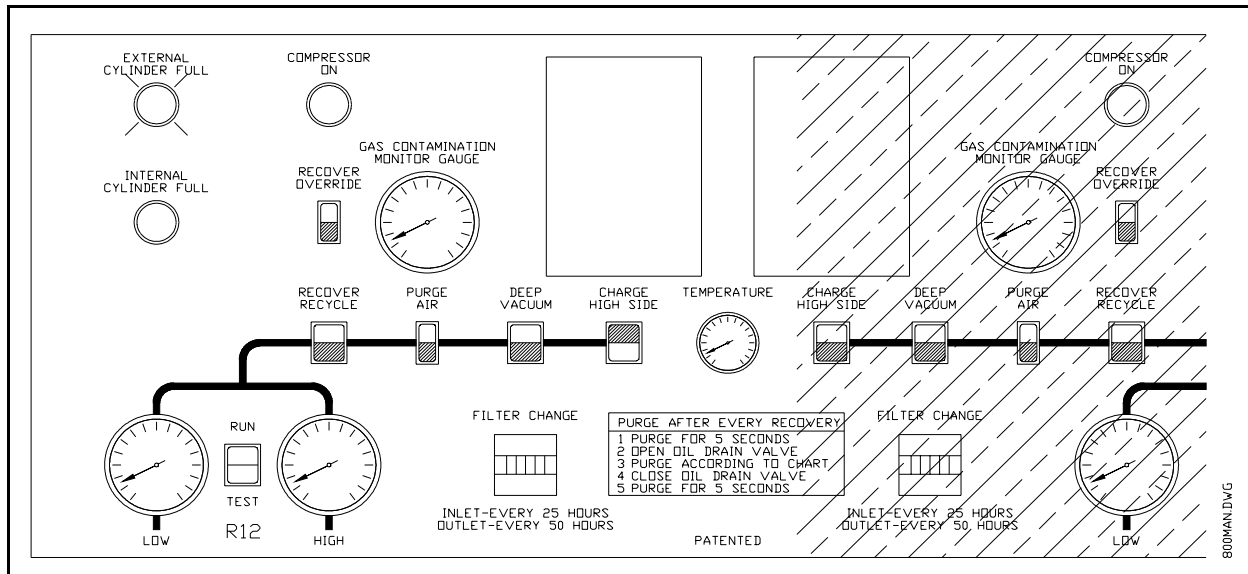


Figure 5 Charge - High Side

To Charge Refrigerant, refer to Figure 5 and follow these steps:

1. Perform Hose Evacuation described previously.
2. Connect Red and Blue Hoses to the A/C System per the vehicle manufacturer's instructions.
3. Determine the refrigerant capacity of the A/C system to be charged. This data is usually printed on a tag located on the accumulator or under the hood of the vehicle. Convert this quantity to tenths of a pound for setting the AC800 charge indicator.

The following will determine where to set the indicator prior to starting the charge mode:

$$(\text{AC800 Liquid Level}) - (\text{A/C System Capacity}) = \text{Indicator Setting}$$

EXAMPLE: The level of liquid visible in the AC800 Charging Cylinder Sight Glass is 7.4 lbs. and the A/C system capacity is 3.2 lbs. The following calculation results...

$$(7.4) - (3.2) = 4.2$$

Therefore, the sliding indicator should be set at 4.2 lbs. in this example. When the liquid level lowers to the 4.2 lb. mark, a charge of 3.2 lbs. will have been delivered

NOTE: The Sight Glasses on the Charging Cylinders have markings for both R12 and R134a. Always use the correct scale for accurate charging.

Note: Skip to step 5 if charging to an optional 30 lb DOT Refillable Cylinder via the short Yellow Hose attached to the rear port.

4. Open Red and Blue Hose Valves.
5. Press top (ON) of rocker switch marked TEST RUN.
6. Press top (ON) of rocker switch marked CHARGE HIGH SIDE. **Do not start the Vehicle's Engine.** Refrigerant will flow into the high side of the A/C System. Closely monitor the liquid level as it lowers in the Charging Cylinder Sight Glass.
7. Press bottom (OFF) of rocker switch marked CHARGE HIGH SIDE as soon as the refrigerant level drops to the sliding indicator.
8. Press bottom (OFF) of rocker switch marked TEST RUN.

The vehicle can now be started and the A/C system checked by monitoring Gauge pressures.

Always close Red and Blue Hose Valves before disconnecting hoses.

Evacuate the hoses per the preceding section "Hose Evacuation".

NOTE: All Refrigerant Recycling Machines charge Liquid, by law. The preceding is the suggested method of charging liquid into an A/C system.

Some vehicle manufacturers may not provide a High Side connection. The above instructions would have to be modified accordingly. Always follow the vehicle manufacturer's recommended service procedures.

EXTERNAL CYLINDER FULL LIGHT:

This Light will illuminate if the External Charging Cylinders Fill to capacity, approximately 25 lbs. When this occurs, the External Cylinder must be emptied or changed.

Note: The AC800 will be unable to charge while this light is on, or if the Yellow Over Fill Protection Cord is NOT connected to the 30 lb DOT Refillable Cylinder.

SCHEDULED MAINTENANCE

BEFORE EACH USE...Check the oil level in the Compressors *DAILY* before using. The Oil Level Sight Glasses can be seen through slots in the front lower section of the AC800. The oil levels should simply be visible in the glass. If oil is not visible or is above the top of the glasses call Technical Support at 800-468-2321.

MONTHLY...Clean the Condensers to maintain high efficiency performance of the AC800. Disconnect power and remove the lower front perforated panel and blow compressed air through the cooling fins of the Condenser to remove any debris. Do not bend the fins on the Condenser coils. Air flow will be restricted and cause damage to the AC800. Replace the panel before applying power to the AC800.

FILTER MAINTENANCE

Monitor the Moisture Indicators for a color change from BLUE to PINK. When the AC800 is new and immediately after changing Combo Filters, the Moisture Indicators may show PINK. This is due to the exposure to air and does not indicate inadequate filter performance. Combo Filters (two on each side) are located behind access panels on either side of the AC800.

The "INLET" Combo Filter (right most of the two) must be changed every 25 hours of operation OR when the Moisture Indicator is Pink. Hours are indicated on the Filter Change Meter.

The "OUTLET" Combo Filter (left most of the two) must be changed every 50 hours of operation OR when the Moisture Indicator is Pink. Hours are indicated on the Filter Change Meter.

1. Remove side Access Panel to service the Combo Filters.
2. Disconnect Flare Fittings from top and bottom of filters.
3. Remove mounting nuts, and filters.
4. Transfer filter insulation material to new filter as applicable.
5. Install new Combo Filters using hardware removed in Step 3.
6. Connect Flare Fittings to top and bottom of filters.
7. Check for leaks, repair as necessary.
8. Replace Access Panel.

PROBLEMS & SOLUTIONS

On rare occasion the AC800 may seem to be performing incorrectly. Experience has shown that varying operating conditions can affect the performance characteristics of the AC800. The temperature of the vehicle A/C System will affect how the AC800 performs.

Following are typical problems with explanations of the possible cause and solution.

PROBLEM: My AC800 worked fine all last Summer. I got it out today for the first service job this Spring and it is very slow in evacuating the system.

SOLUTION: Today's Spring temperature may be much lower than the average temperatures during the summer months. Maybe the vehicle was brought in from outside where the temperature is very low.

The refrigerant in the vehicle will not be under as high a pressure at lower temperatures and the AC800 will take longer to draw a vacuum. More cycles may be required to completely recover the refrigerant.

PROBLEM: I put 5 lbs. of refrigerant into the AC800 using the Recycle Mode. When I checked the sight glass on the Charging Cylinder, there was less than 5 lbs. I lost Refrigerant. The unit must leak.

SOLUTION: Due to temperature changes, some refrigerant may condense into liquid form and stay in tubes and other components in the circuit preceding the Charging Cylinder. This is normal and will explain why all refrigerant is not visible in the sight glass.

PROBLEM: I can not get the AC800 to draw a vacuum as indicated on the Low Side Gauge.

SOLUTION: Check Hoses for restrictions.

PROBLEM: When I try to fill the Charging Cylinder from an auxiliary cylinder of clean refrigerant, the AC800 is really slow or shuts down.

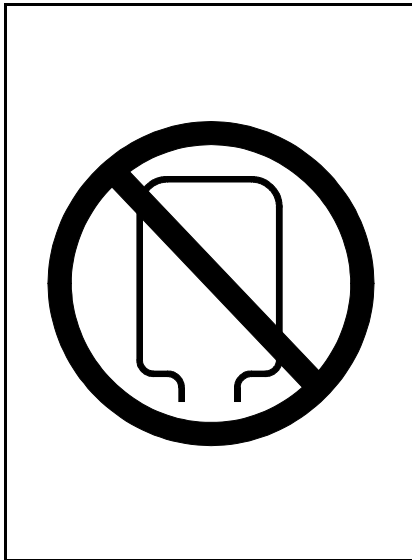
SOLUTION: The auxiliary cylinder will cool due to the vaporization of refrigerant. This causes the pressure to decrease.

Use a heat belt to increase the speed of recycling by the AC800.

PROBLEM: I turned a 30 lb. cylinder of new refrigerant upside down to fill the Charging Cylinder with liquid. The Charging Cylinder didn't fill and now the AC800 won't recover from an A/C system.

SOLUTION: The AC800 has been overloaded with liquid refrigerant (see Safety Precaution Section at the beginning of this manual).

... WARNING ...



IF A CYLINDER IS TURNED UP-SIDE-DOWN, THE AC800 WILL OVERFILL WITH LIQUID REFRIGERANT. THIS OVER FILLS THE SUCTION ACCUMULATOR WITH LIQUID.

FROST ON THE OIL DRAIN ON THE REAR OF THE AC800 IS A GOOD INDICATION OF THIS OCCURRENCE.

THIS SYMPTOM IS CAUSE FOR CONCERN AS LIQUID REFRIGERANT WILL BE FORCED INTO THE COMPRESSOR.

THIS CAN DESTROY THE COMPRESSOR AND WILL VOID THE WARRANTY.

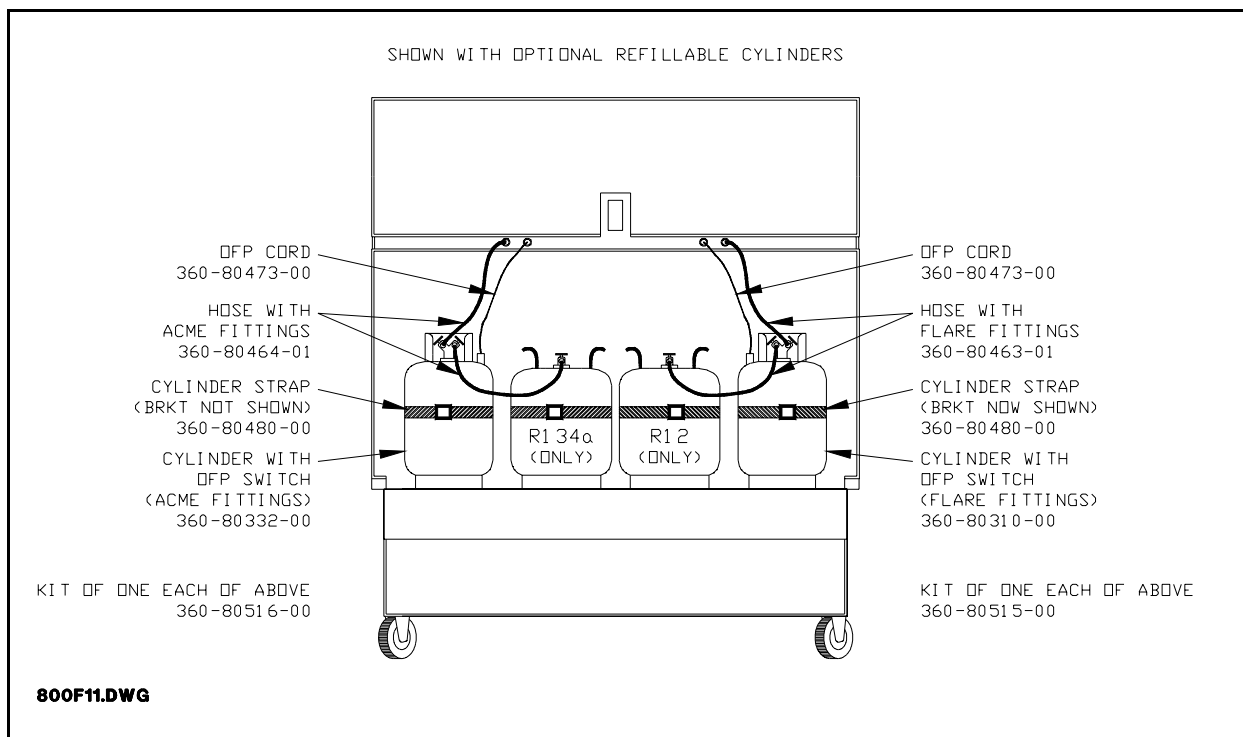
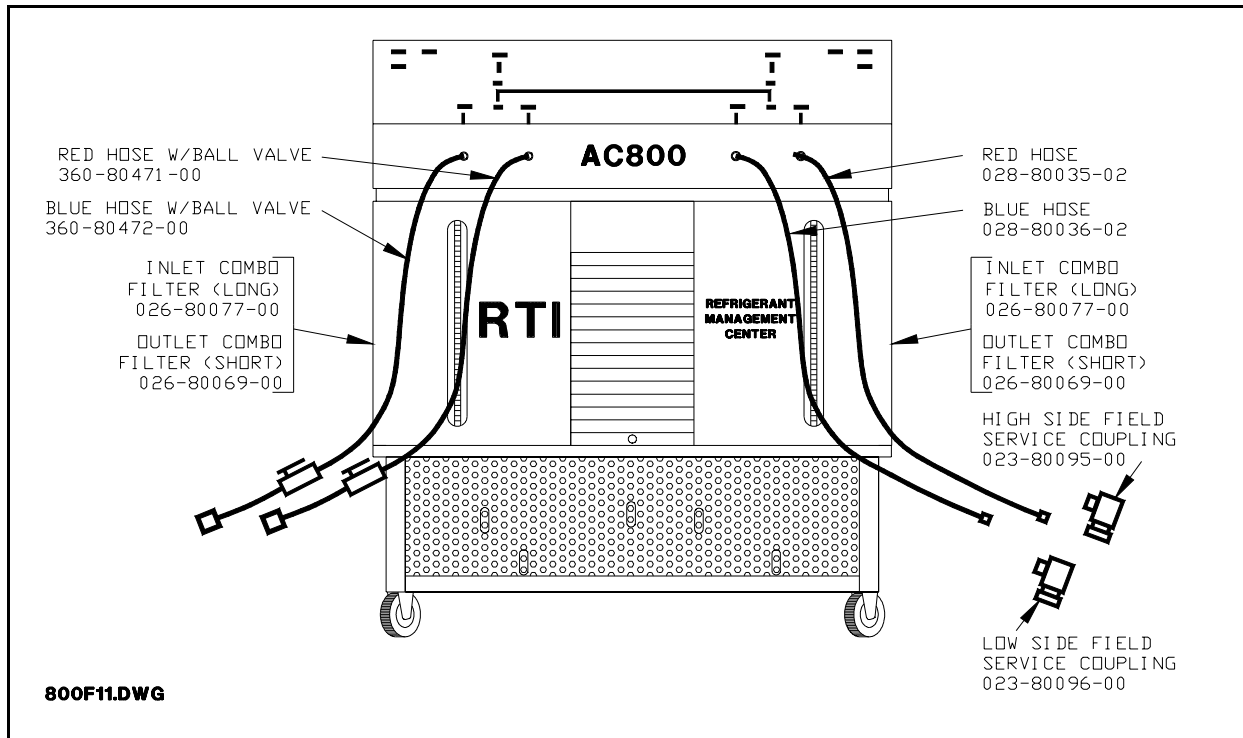
The safest method to remove the excess liquid which has collected in the Suction Accumulator is to drain it from the Oil Drain on the back of the AC800 as follows:

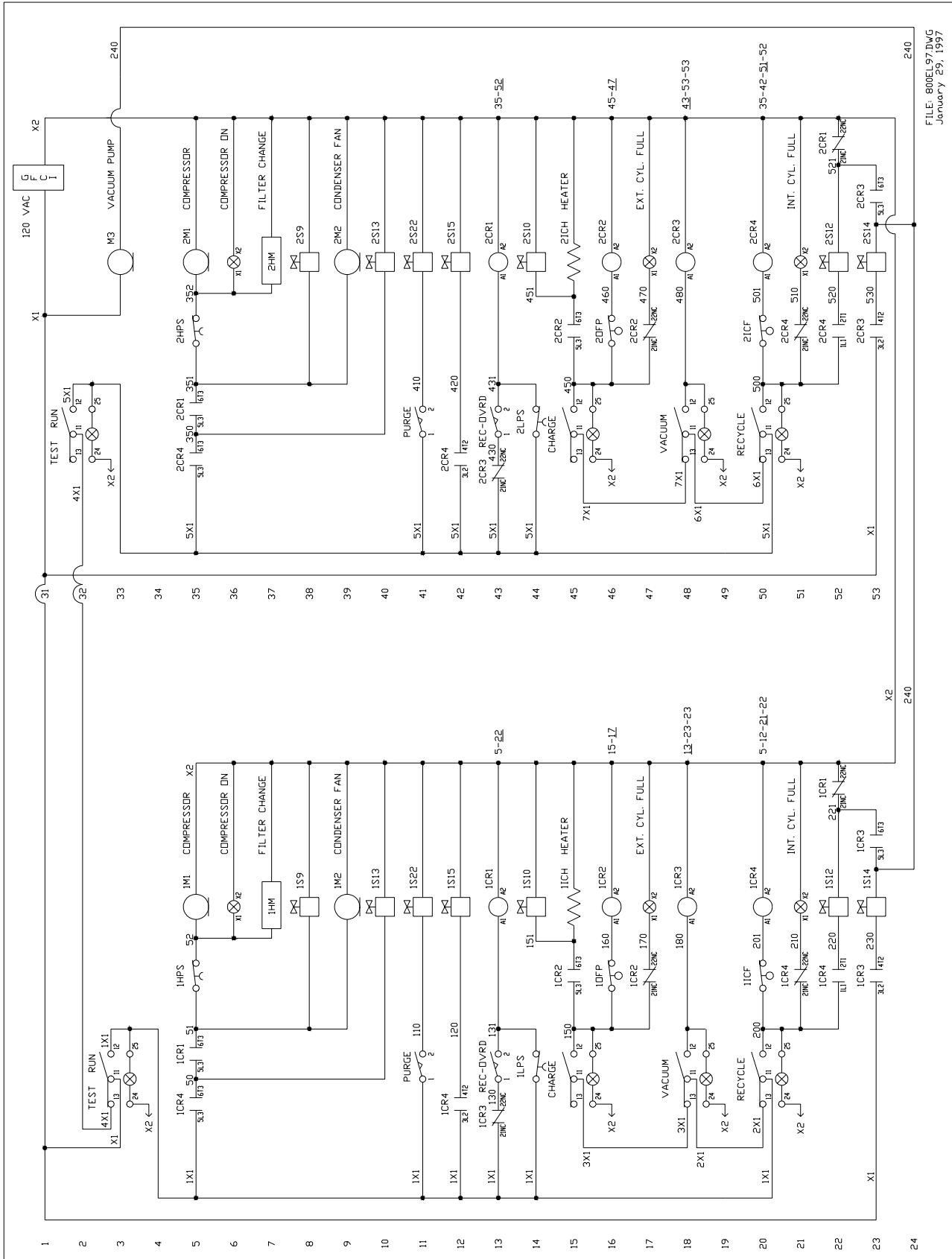
Draw a deep vacuum (25 to 29 In. Hg.) on an empty cylinder and connect it to the Oil Drain Valve. Open the cylinder valve and the Oil Drain valve.

Close the valves and disconnect the cylinder after the liquid has been drawn into the cylinder. This refrigerant can now be recycled by the AC800 following normal recycling procedures.

If the above suggested solutions do not solve the problem, call the phone number shown on the Serial Label on the rear of the machine and one of our technicians will help diagnose the cause. Please have the Serial Number available for reference.

ACCESSORY PARTS LIST





FILE: 800EL97.DWG
January 29, 1997

800 SCHEMATIC (1997)