

ENSPECO

Recovery/ Recycle/ Evacuate/ Recharge

RMS 3012

Approved by UL/SAE to J-1991 R12 Purity Standards

RMS 3034

Approved by UL/SAE to J-2210 R134 Purity Standards

This semi-automatic machine will recover all the Refrigerant from the vehicle, recycle the refrigerant to automotive SAE standard in a single pass, evacuate (dry) the system using a vacuum pump and recharge the system.

"The high level of engineering results in a very simple to operate unit that does everything"

Piping and remote hook-up ready for any vacuum pump

Features

- Function indicator lights for: Recovery/recycle complete, Tank full. Recovery malfunction, Cylinder heater.
- 6 lbs. Visual on-board storage
- "Time-in use" clock to remind you to change filters
- Moisture indicator for diagnostic check
- Compressor oil drain for easy maintenance
- Compressor oil level port
- 30.cu.in. filter mounted externally for easy maintenance
- Waste oil bottle and drain
- Virgin and storage tank shelf with straps
- Minimized internal storage

Specifications

Recovery Rate	½ lb/min
Filter Dryer	One 30 in 3
Compressor/Pump	1/3 HP
Condensers	Air-cooled cylinder
Power	115Vac, 60 Hz, 10 amp
Weight	105 pounds
Size (HxWxD in.)	41.5x21x18.25
Storage Capacity	Calibrated 6 lbs. Internal, Unlimited external



Note: Recovery rates may vary due to ambient temperatures & type of refrigerant. Manufactures specifications may change without notice.

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RECOVERY / RECYCLING PRODUCTS

3012 / 3034 FEATURES LIST

UL Listed	R12 3012 R134 3034 Complete system tested and approved for recovery, Recycling and complete process.
Single Pass Distillation	When refrigerant enters the recovery tank, and the non-condensables vented, SAE quality refrigerant is now available for reuse.
Single Hose Connection	Recover from systems is achieved by single hose connection. Recovery protected against liquid slugging.
Recovery Complete	Recovery is completed at 20" of vac therefore eliminating premature shut down due to low ambient conditions or restrictive pressure drop.
Recovery Tank Safety Moisture Filters Driers	Tank complete with 80% shut off float utilizes a 24V circuit to ensure no Unique filter drier separates moisture and dirt from refrigerant during recovery process.
Internal Piping	All copper pipe with SAE flare connection.
Refrigerant Condensing	3 cooling fans ensure high efficiency condensing under the highest ambient condition.
Compressor	Heavy duty capacitor start compressor with equalization control valve ensure an easy start of compressor while providing oil separator circuit to ensure long life of compressor. Oil drain and fill port allows easy field maintenance of compressor.
Moisture Indication	Provides indication of the condition of refrigerant.
Hour Meter	Used in determining service frequency for oil change, filter changes and possible equipment time charges.
Waste Oil	Dispense into calibrate plastic container on back machine.
High Pressure Gauge	Monitors discharge pressure and tank pressure therefore used during recovery and aids in non condensable purge.
Low Pressure Gauge	Continually monitors pressure of the suction of the RMS including 20" vacuum.
Charging Cylinder	Heated charging cylinder internally mounted and protected. Heater controlled by on/off switch on control panel. No field mounting required.

3012 / 3034 FEATURES LIST

Control Panel	Suction and pressure gauge, control valve, hour meter, system function light, fuse, charging cylinder, air purge all placed on single control panel and protected by high impact plastic moulded dash.
User Friendly	By simply moving one hose you can change function (recovery, evacuating, charging).
Electrical Switches	Recovery/Vac Pump switch, Cylinder heater
Vac Pump Compartment	Add your own pump. Plumbed electrically and mechanical to operate from dash board and one single hose connection.
Heavy Duty	Constructed of 22 gauge steel and heavy duty wheels to provide easy mobility.
Minimize Internal Storage	Virtually all refrigerant during recovery process is exhausted to storage tank
Easy to operate	The user friendly process ensures ease of operation in all modes of operation.

RMS 3000

INTRODUCTION

RMS 3000

The RMS 3000 has been designed to recover virtually 100% of available refrigerant in the vehicle. It is easy to use and it is very versatile.

Upon delivery of yours RMS 3000, it will have to be set up as follow, before it can be used for recovery:

1) Install the recovery tank on the back of the unit, (left side on back) by strapping it to the back of the recovery unit.

Note: Always evacuate a new recovery tank before using.

2) Install the "Temperature Indicator Strip" on the center of the tank.

3) Connect the hose from the Discharge/Charge outlet port of the recovery unit to the vapor port of the recovery tank and open the valve.

4) Connect the yellow umbilical cord to the electrical connector on the top of the recovery tank (for overflow protection). Always unplug the RMS unit before doing this procedure.

Note: The recovery machine will not start or run unless the umbilical cord is connected to the tank and the Refrigerant Suction Gauge must show more than 5 psig.

Note: If using an extension cord, never use longer than 50 feet and it must be at least 16/3 wire.

WHEN USING YOUR RECOVERY SYSTEM

- 1) Position your RMS 3000 near the vehicle being serviced, and having the proper electrical outlet, plug in the RMS unit.
- 2) Check the hour meter on top of the RMS unit to see if it is in need of service.
- 3) Check the oil in the compressor by depressing the oil level port on the back side of the recovery unit. If oil is not present, top it up or change it.. A few psi of pressure will assist in checking the oil level.
- 4) Check the waste oil bottle for contents and note the level or empty it. Also make sure waste oil valve is closed.
- 5) Check the internal charging cylinder/condenser to see if it is empty. If not empty, record the amount or empty.
- 6) Check your recovery tank valve, make sure it is open.
- 7) To allow flow of refrigerant, check to ensure that the depressor end of the hoses are attached to SCHRAEDER valve on the recovery machine.
i.e. Refrigerant Suction port, Discharge/Charge port and Vacuum port.
- 8) When operating the RMS unit, safety goggles, protective wear and all state, provincial, and local codes of practice should be observed.

MAINTENANCE

The unit has a built-in Hour Meter which will permit you to service the recovery unit properly. At approximately 3 hour intervals, or if the moisture indicator starts to show wet condition then an oil and filter change is required.

INSTALLING VACUUM PUMP

- 1) Remove the front lower panel from the RMS 3000. This will provide air circulation and space for the vacuum pump.
- 2) Position the pump and install the tie down strap around the pump so that the pump is securely fastened. With some models of vacuum pumps you may have to remove the handle in order for the unit to fit in the space provided. A general purpose 15 Amp., 115 Volts receptacle is provided.
- 3) Using a short approved refrigeration hose, connect the vacuum suction port on the pump to the ¼" SAE flare connection on the RMS. This located on the top left corner in the back of the compartment. A reducer bushing may be necessary on some older style pumps which have 3/8" SAE flare inlets. Use the depressor end of the hose and connect it to the fitting on the RMS unit.
- 4) Plug the pump into the electrical outlet, and switch the vacuum pump to "ON" position.
- 5) Any mechanical valves which control vacuum flow should be opened. Remember maintenance of the vacuum pump will be required from time to time, therefore, provision for removal should be considered now.

HOW THE RMS UNITS WORKS IN VACUUM PUMP MODE

When vacuum pump "ON" button is depressed the pump will be energized and the appropriate valves in RMS will automatically open and will allow evacuation through interconnecting hoses and piping of the RMS 3000. Open valves on manifold to allow flow from the vehicle.

USING YOUR RMS 3000 SERIES

There are 3 basic functions available with the 3000 series machine. Each change of function will require a simple hose change i.e. recovery to evacuation or evacuation to change. The following instructions attempt to keep the process as easy as possible.

RECOVERY

After diagnosing the air conditioning system and determining recovery of refrigerant is necessary:

- 1) Connect the center port of the 3 hose refrigeration manifold to the "Refrigerant Suction port " of the RMS.
- 2) Make sure that the control valve on the RMS (located between gauges on dash board) and the waste oil valve (located on the rear of machine) are both closed before starting.
- 3) The waste oil container should be empty.
- 4) With the RMS plugged into a 120V receptacle, turn the recovery switch on. Open high and low side valves of the manifold and refrigerant will flow from the vehicle into the RMS unit. The pressure of the refrigerant being recovered will show on the "Refrigerant Suction gauge" of the RMS. The RMS will recover until approximately 18 inches of vacuum shows on this "Refrigerant Suction gauge", then it will automatically terminate and the recovery complete light will go on. If the "Refrigerant Suction gauge" maintains a vacuum, then recovery is complete. If the gauge rises to a positive pressure then refrigerant is still present and the recovery will resume at approximately 5 PSIG and will pull into a vacuum again. If the system maintains a vacuum, this would be considered complete recovery.
- 5) Turn the RMS off and open the control valve on the dashboard or the RMS and leave it open for approximately 30 seconds or so. (This allows the oil return to the compressor and pressurizes the waste oil purge).
- 6) Open the waste oil valve on the back of the RMS. Any oil recovered will flow into the waste bottle. Close immediately after oil stops flowing.

PURGE PROCEDURE FOR NON-CONDENSABLE

For this procedure the hose should be connected from the vapor valve of the recovery tank to the Discharge/Charging port of the RMS unit.

To properly purge the NON-CONDENSABLE GASES (i.e. air, nitrogen, etc.) from the recovery tank on the RMS 3000:

- 1) Allow the tank to stabilize for ten(10) minutes.
- 2) Read the TEMPERATURE STRIP on the tank.
- 3) Read the CYLINDER TANK GAUGE on the dash of the RMS 3000, compare the reading of the thermometer to the temperature pressure chart. If the pressure reading is higher than 8 PSIG above the SATURATED PRESSURE on the chart, it has to be purged.
- 4) Purge the non-condensable by depressing the schraeder valve (on the right side of the cylinder tank gauge in the dash), for approximately fifteen (15) seconds.
- 5) Allow cylinder tank gauge to stabilize for 30 seconds. If the pressure has decreased to under 8 PSIG above saturation point, it is considered purged. If it is not, repeat procedure until 8 PSIG or less is achieved.

Note: Non condensable gas is air, nitrogen, etc., that may have been introduced during servicing of the vehicle's AC system.

EVACUATION (Vacuum Pump)

If you have equipped your RMS unit with a vacuum pump, connect the center hose of the manifold to the Vac Pump Suction Port, located on the back of the RMS unit. Turn on the vacuum pump switch and open the valves of your manifold whereby evacuation of the air-conditioning system will take place. The time required to achieve proper evacuation will depend on the condition of the system and the size of the pump you are working with.

CHARGING THE AC SYSTEM

- 1) To use the unit for charging, close the valve on the recovery tank and disconnect the hose from the discharge\charging port of the recovery.
- 2) Connect a hose from the vapor valve of the refrigerant tank to be used (virgin or recycled) to the refrigerant suction port of the recovery unit.
- 3) Switch the recovery unit on. Add the proper amount of refrigerant needed by observing the liquid level column of the recovery unit.
- 4) Once you have achieved the proper amount of refrigerant, close the vapor valve of the refrigerant tank and wait for the RMS to shut off on recovery complete.
- 5) With the center hose of the manifold hooked up to the discharge\charging port and the hose connected to the vehicle, turn the unit switch to the charge position and open the high side valve only to charge on high side.
- 6) Allow all of the refrigerant to flow from the charging cylinder into the vehicle (high side) until the pressure of the red gauge stops dropping or until the proper amount has been charged.
- 7) Close your manifold gauge valve and disconnect the center hose.
- 8) Run vehicle to determine AC performance.

Note: At the end of charging there may be a small amount of refrigerant left in the recovery machine.

SERVICING YOUR RMS

CHANGING YOUR FILTERS

Proper maintenance requires the RMS filter to be changed every 3 hours of running time as indicated on the Hour Meter, or more often if the moisture indicator on the RMS indicates a Wet condition.

- 1) Run the RMS in recovery mode.
- 2) Once recovery is complete and the indicator light comes on, turn off the RMS and unplug the electrical cord. Remove the filter by removing the nut from the bottom of the filter. You can now unscrew the filter from the top brass fitting.
- 3) To install a new filter, remove the cap from the it and put a small amount of REFRIGERATION OIL on the threads and the flare part of the filter (this will eliminate the tendency to damage the O rings in the brass filter.
- 4) Install the filter, making sure that the arrow is pointing down.

Note: Do not over tighten, Simply make sure that they are hand-tight

COMPRESSOR OIL CHANGE PROCEDURES

After 3 hours of recovery, or if the recovery speed slows down drastically, the oil should be changed.

- 1) With the RMS in the OFF position, hook a hose to the compressor drain port and an approved waste oil container, (compressor drain port is located on the side of RMS). Now depress the schraeder in the oil-check fitting on the back of the RMS (between tanks) and allow the oil to drain out through the drain port.

Note: Always drain the oil when it is hot, it will drain much better. You can also introduce some nitrogen pressure through the oil check port to help push the oil out (never any more than 5 to 10 PSIG).

- 2) Using the oil pump connected to the oil fill port, replace with 10 oz. of appropriate oil as listed below:
#30501 Polyester oil

WARNING: Protective apparel, gloves and safety goggles should be worn while servicing your RMS.

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