

OPERATION MANUAL

RTI

RHS650

RTI TECHNOLOGIES, INC.

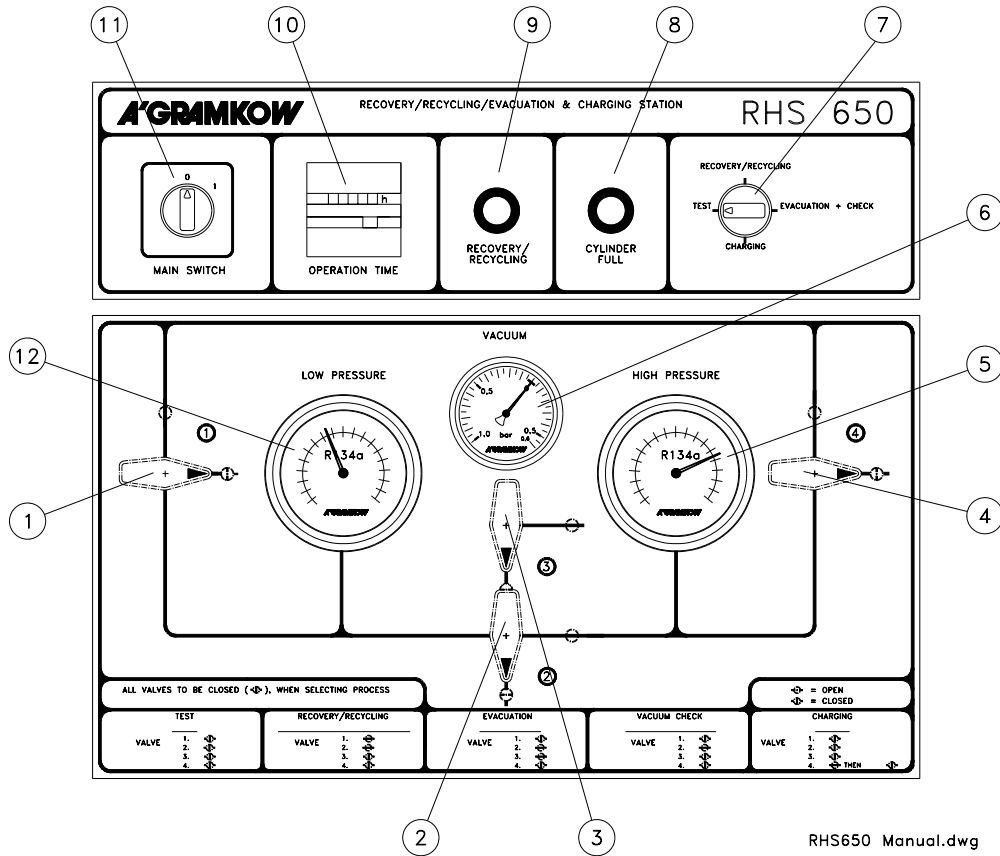
4075 East Market Street
York, PA 17402

Manual P/N 035-80589-02

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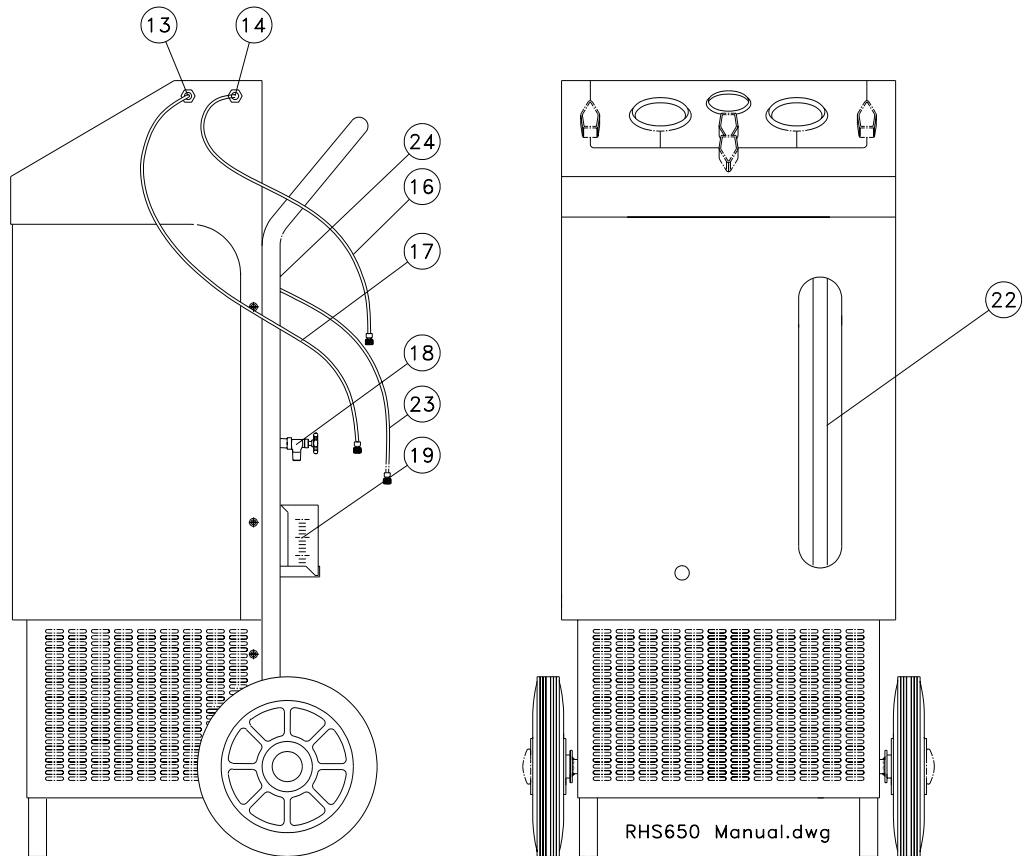
COMPONENTS



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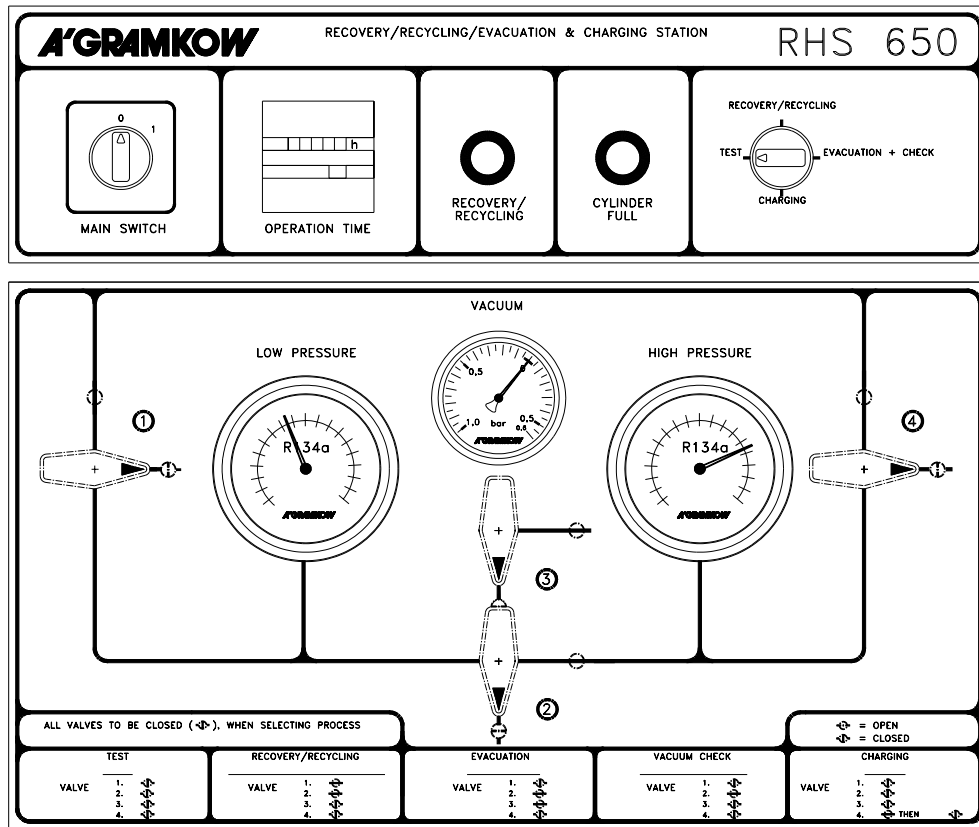
- 1-4 Valves 1 to 4
- 5 Pressure Gauge - High Side
- 6 Vacuum Gauge
- 7 Process Switch
- 8 Cylinder Full Lamp
- 9 Recovery/Recycling Lamp
- 10 Operation Time Indicator
- 11 Main Switch
- 12 Pressure Gauge - Low Side

COMPONENTS



- 13 Low Pressure Connection
- 14 High Pressure Connection
- 16 High Pressure Hose - Red
- 17 Low Pressure Hose - Blue
- 18 Oil Drain Valve
- 19 Oil Cup 250 ml
- 22 Sight Glass
- 23 OFP Cord (External Cylinder)
- 24 OFP Park Connection (No External Cylinder)

TEST

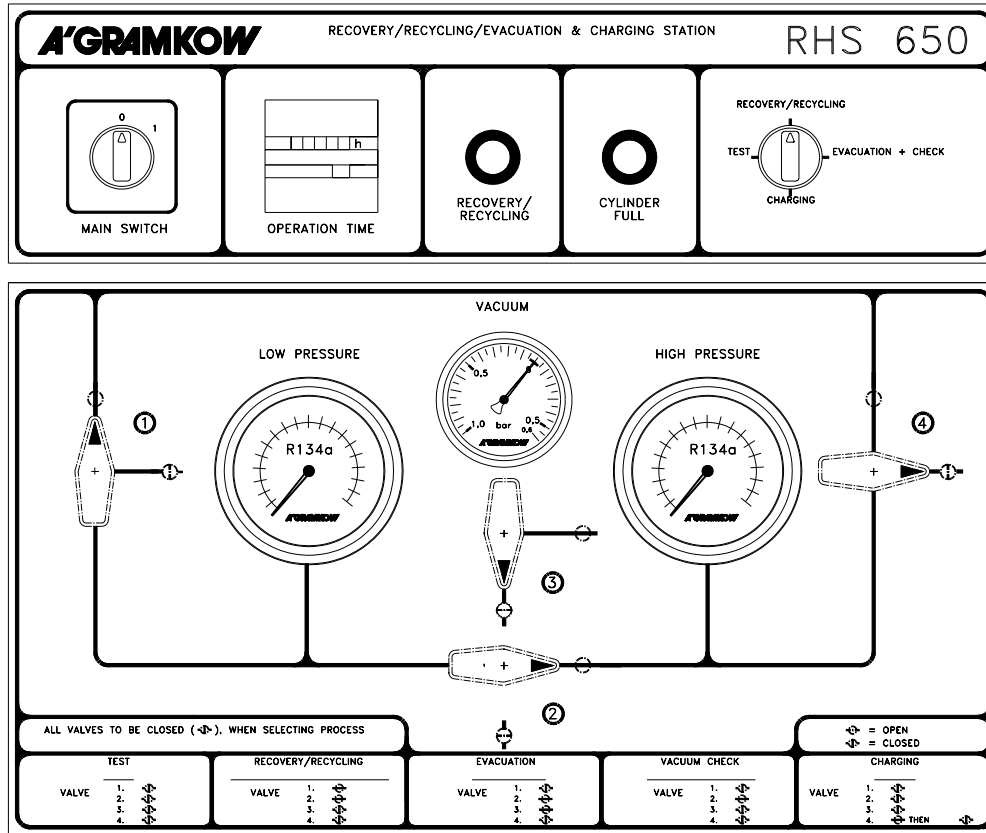


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The test function is necessary to check the A/C system.

1. Close all valves (valve 1, 2, 3, 4 and 18)
2. Connect high pressure and/or low pressure hoses to the A/C system and open the service hose valves.
3. Set the process selector on TEST and switch on main switch.
4. Turn on the A/C system and read the pressure on the high and low pressure gauges. The correct pressures are stated in the instructions of the vehicle manufacturer.

RECOVERY / RECYCLING



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Select the RECOVERY/RECYCLING process to drain refrigerant from the A/C system prior to repair or service.

1. Make sure that all valves are closed, then connect high and low pressure hoses to the A/C system and open the service hose valves.
2. Set the process selector to RECOVERY/RECYCLING and turn on main switch.
3. Open valves 1 and 2. If there is refrigerant pressure in the A/C system, the RHS650 will automatically recover it. The white lamp RECOVERY/RECYCLING lights up until the process is complete.
4. When the white lamp goes out for the first time, wait 5 minutes in order to ensure that the A/C system is completely empty.

RECOVERY / RECYCLING

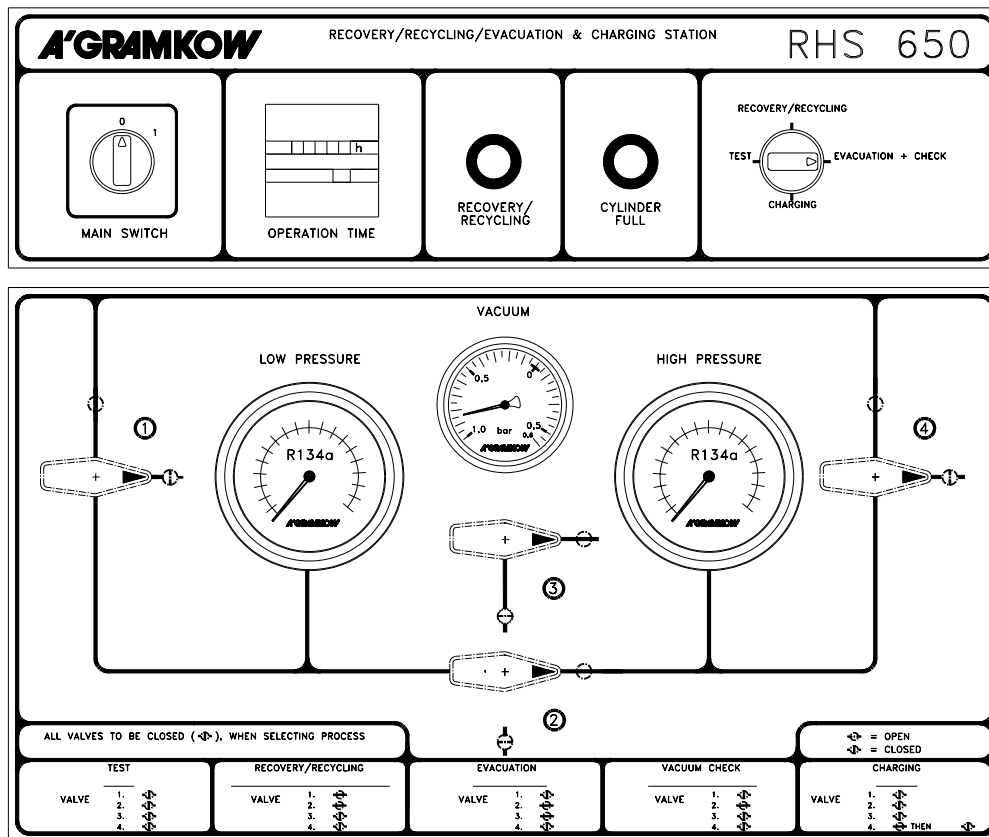
5. If the charging cylinder becomes full during the RECOVERY/RECYCLING process, the RHS650 stops and the yellow lamp CYLINDER FULL lights up. The charging cylinder must be emptied into an A/C system or a refrigerant cylinder before the process can be continued. See description of the CHARGING process.
6. During the RECOVERY/RECYCLING process, oil might be removed from the A/C system. This oil should be drained from oil drain valve (18) of the RHS650 into the plastic measuring cup. The A/C system must be charged with a corresponding amount of oil. Follow the instructions from the vehicle manufacturer and only use the specified oil type.

NOTE: It may be desirable to pre-fill the charging cylinder with new refrigerant. This is done by connecting the low pressure (blue) hose to a cylinder of new refrigerant. Open the valve on the new refrigerant cylinder and the service hose valve. **Do not turn the cylinder of new refrigerant upside down (only recover vapor).**

Open valve 1. Set the process selector to RECOVERY/RECYCLING and turn on main switch. Close the valve on the new refrigerant cylinder when the desired amount of refrigerant has been recovered into the RHS650 charging cylinder. When the white lamp RECOVERY/RECYCLING goes out the process is complete. Close valve 1.

NOTE: Sometimes it may be advantageous to recover from only the low pressure side of the A/C system, as less oil will be removed. Make sure that only valve 1 is opened.

EVACUATION

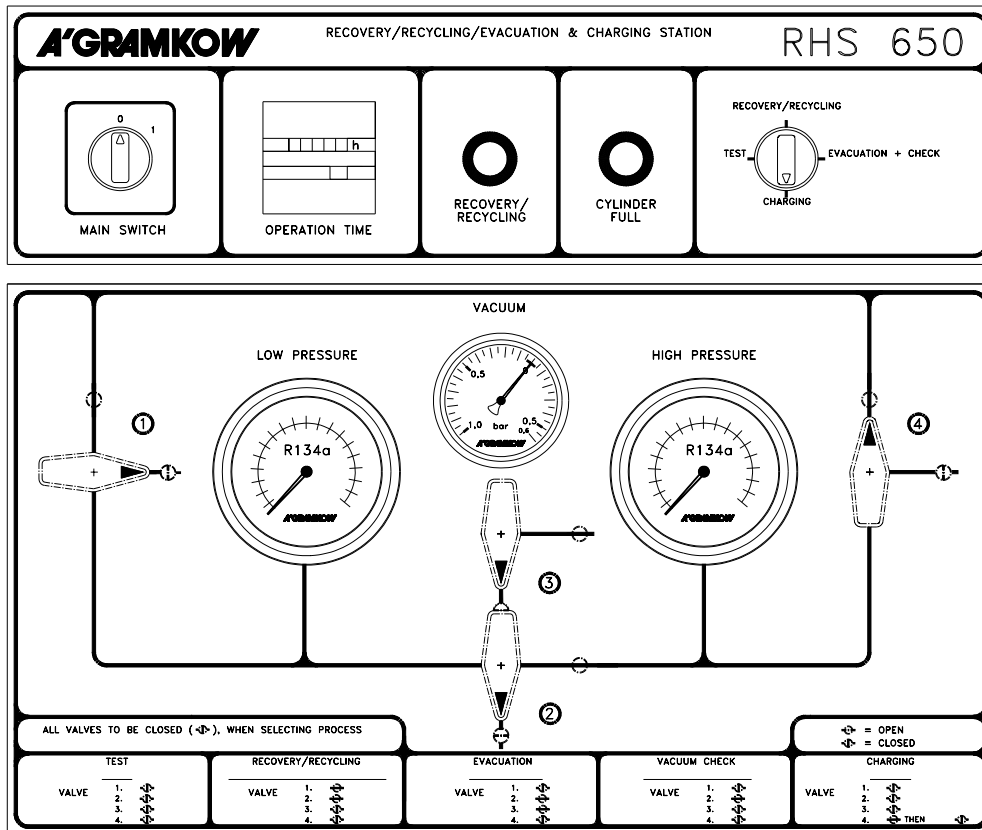


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Prior to charging the A/C system, air and moisture must be evacuated. Air or moisture in the A/C system may result in poor performance.

1. Make sure that all valves are closed and then connect the high and low pressure hoses to the A/C system and open both service hose valves.
2. Read the pressure in the A/C system on the RHS650 gauges. The pressures in the A/C system must be below 0,2 bar before starting the evacuation procedure. If the pressure is above 0,2 bar, perform a recovery/recycling procedure as described earlier.
3. Open valves 2 and 3.
4. Set the process selector on EVACUATION and turn on the main switch. The EVACUATION process should run for several minutes. Note the vacuum level on the vacuum gauge.
5. A Vacuum leak check can now be made. Turn the main switch off and close valve 3. Watch the vacuum gauge. If the pressure rises, there is a leak or moisture in the A/C system.

CHARGING



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Check the vehicle manual or the label under the hood of the vehicle to determine the required amount of refrigerant.

1. Make sure that all valves are closed and connect the high pressure hose to the A/C system.
2. Open the high pressure hose service valve.
3. Use the o-ring on the refrigerant level tube to mark the level to which the charging cylinder must be drained to ensure that the correct amount of refrigerant is charged.
4. Set the process selector on CHARGE and turn on the main switch.
5. Slowly open valve 4 and observe the level in the charging cylinder. When the level reaches the o-ring, close valve 4.
6. It is now possible to check the operation of the A/C system by setting the process selector on TEST (See page 4).

CHARGING

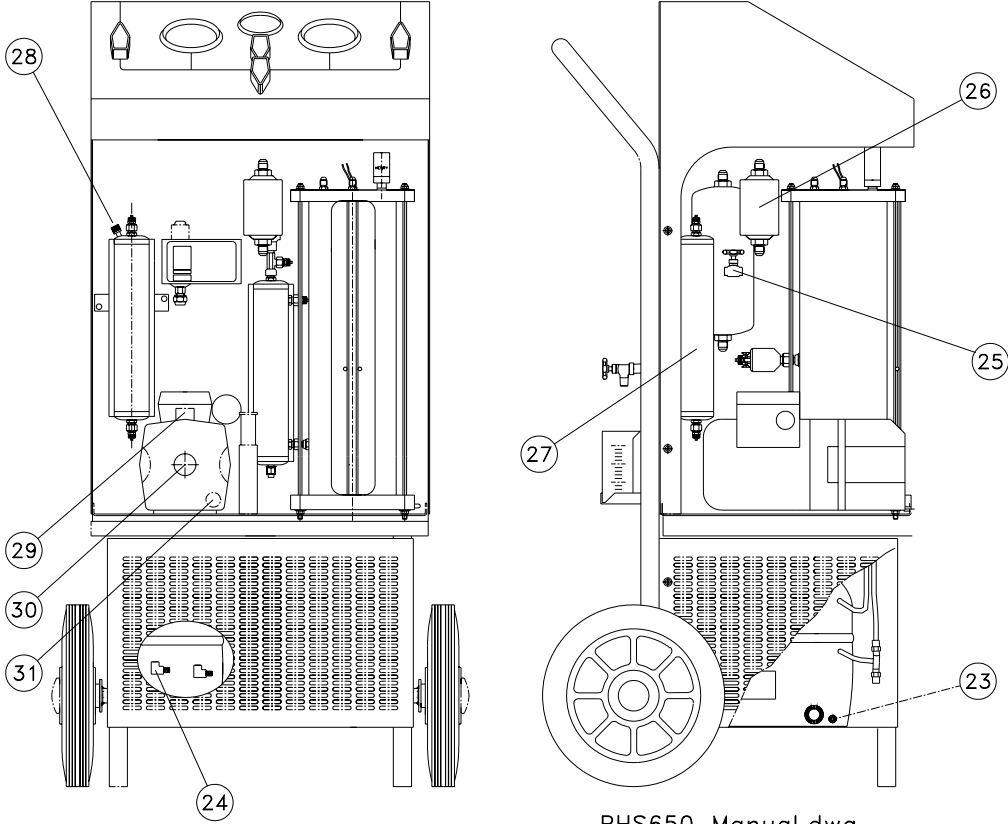
7. After completion of the charging process, wait approximately 30 seconds, close service hose valves and then remove hoses from the A/C system.
8. The hoses will still contain a small amount of refrigerant. To recover this refrigerant, switch process selector switch to RECOVERY/RECYCLING for a short time and open valves 1 and 2.

NOTE: Refrigerant can be transferred from the internal cylinder by connecting the high pressure service hose (red) to the vapor port of the refrigerant cylinder. Open high pressure hose service valve. Open valve 4 and valve on the refrigerant cylinder. Note that the refrigerant cylinder must not be charged with more than 80% of the maximum volume. After the required amount has been charged, close the valve on the refrigerant cylinder and valve 4. Open valve 1 and set the process switch to RECOVERY/RECYCLING to drain the high pressure hose.

The refrigerant cylinder on the rear of the RHS650 may have an over-fill protection (OFP) limit switch installed. The OFP cord must be connected to the receptacle on the cylinder. If the cylinder fills to 80% capacity, the charge mode will stop and the Cylinder Full yellow lamp will illuminate. The RHS650 will not charge (into an A/C system or the cylinder) as long as this lamp is illuminated.

Disconnect the OFP cord from the refrigerant cylinder and connect it to the receptacle on the rear of the RHS650 to over-ride the function. Refrigerant from the internal cylinder can then be charged into an A/C if desired.

MAINTENANCE



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- 23 Oil Level - Compressor
- 24 Compressor Outlet (High Side) Access Port
- 25 Service Valve
- 26 Acid Filter
- 27 Filter Drier
- 28 Service Port
- 29 Oil Charging Cap - Vacuum Pump
- 30 Oil Level - Vacuum Pump
- 31 Oil Drain Screw - Vacuum Pump

MAINTENANCE

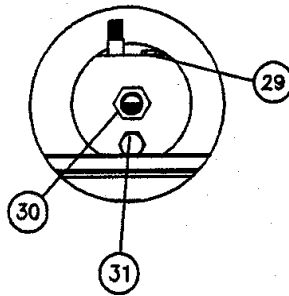
Always turn off power supply before servicing.

For each 25 hours of operation:

Check **oil level** in vacuum pump as follows:

Let the **EVACUATION process** run approximately 3 minutes where high and low pressure hoses are closed and disconnected. Turn off the power supply.

1. Remove grid (four screws) from lower part of station.
2. When the oil level falls below the middle of sight glass 30, remove cap 29 and replenish the oil until the correct level is reached.
3. If the vacuum pump is overfilled (sight glass full) oil must be drained via plug 31 until the correct level is reached.
4. Replace grid.



For each 75 hours of operation:

Clean the **cooling surfaces** of the condenser as follows:

1. Remove grid (four screws) from lower part of station.
2. Clean condenser with compressed air and perhaps a soft brush. Be careful not to bend the fins since this will reduce condenser capacity.
3. Replace grid.

MAINTENANCE

For each 50 hours of operation - Replace filter drier:

Replace filter drier as follows:

1. Close valve 25.
2. Attach hose from low pressure side to service connector 28.
3. Attach hose from Compressor Outlet (High Side) Access Port 24 and an empty refrigerant cylinder with a hand valve. Open hand valve.
4. Open inlet valve 1 on operating panel, set process selector on RECOVERY/RECYCLING and main switch to on.
5. The white lamp RECOVERY lights up to indicate that refrigerant in the filter drier is being recovered. Wait until the lamp goes out, close valve 1 and shut off main switch.
6. Filter drier 27 can now be removed by loosening the fittings.
7. Slide off the insulation and put it on the new filter drier.
8. Install the new filter drier.
9. Disconnect service hose, mounted between low pressure side and service connection 28.
10. Close valve on refrigerant cylinder. Disconnect service hose from Compressor Outlet (High Side) Access Port 24.
11. Open valve 25. The RHS 650 is now ready to service A/C systems again.
12. Empty the refrigerant from the cylinder by connecting the low pressure service hose to the vapor valve. Open valve 1 on the RHS650.

Set process selector to RECOVERY/RECYCLING and turn on the main switch. The cylinder is empty when white RECOVERY/RECYCLING lamp turns off.

For each 50 hours of operation - Replace acid filter:

Replace acid filter as follows:

1. Set the process selector to RECOVER/RECYCLING and the main switch to on.
2. Wait for a short time, until the low pressure gauge shows 0 bar. Turn off power supply. DO NOT wait until the white RECOVER/RECYCLING lamp goes out - otherwise the pressure will be built up again in the compressor.
3. Replace the acid filter 26 by loosening both 3/8" nuts. When mounting the filter, make sure the arrow points downwards.