

REFRIGERANT CIRCUIT: DRAINING - FILLING



Note, one or more warnings are present in this procedure



Equipment required

Diagnostic tool

refrigerant charging station



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions Vehicle: Precautions for the repair



WARNING

Consult the safety and cleanliness advice and operation recommendations before carrying out any repair (see 62A, Air conditioning, Air conditioning: Precautions for the repair).



CAUTION

Consult the device's operating manual to avoid incorrect use.



CAUTION

To avoid damaging the cold loop components (corrosions, etc.), do not use dye if the traces reveal that some product has already been injected.

Note:



A summary table gives the quantities of refrigerant in the system according to the engine type ([see 62A, Air conditioning, Air conditioning: Parts and consumables for the repair](#)) .

1. RECOVERING REFRIGERANT FLUID

Note:



- If the air conditioning circuit is fitted with a single filler valve, some filling equipment only requires the use of the high pressure pipe (refer to the filling station instructions).
- Depending on the situation, run the system for a few minutes before recovering the coolant to improve drainage.

Note:



It is essential to follow these procedures to prevent:

- gas escaping when the circuit is opened,
- pollution of the environment through the release of gas into the atmosphere when the circuit is opened or when a vacuum is created.

■ When draining or checking the refrigerant fill load, three scenarios are to be taken into account:

- the engine is running and the air conditioning is in operation (A),
- the engine is running but the air conditioning is not in operation (B),
- the engine is not running nor is the air conditioning in operation (C).

■ Scenario A:

- Operate the air conditioning until the cooling fan assembly is triggered twice,
- Switch off the engine,
- drain for the first time (note down the original value),
- wait **15 minutes**,
- check that the relative pressure is no more than **0 bar**,
- repeat the cycles until the relative pressure is equal to or less than **0 bar**,
- add together the values of the various draining operations; the fill is confirmed as being correct if the volume of refrigerant fluid is the specified fill **+35g** or **-100g**.

■ Scenario B:

- run the engine until the cooling fan is triggered twice,
- Switch off the engine,
- drain for the first time (note down the value),

- wait **15 minutes**,
- run the engine until the cooling fan is triggered twice,
- Switch off the engine,
- drain for the second time (note down the value),
- repeat the cycles until the relative pressure is equal to or less than **0 bar**,
- add together the values of the various draining operations; the fill is confirmed as being correct if the volume of refrigerant fluid is the specified fill **+35g** or **-100g**.

■ Scenario C:

- drain for the first time (note down the value),
- wait **2 hours**,
- repeat the cycles until the relative pressure is equal to or less than **0 bar**,
- add together the values of the various draining operations; the fill is confirmed as being correct if the volume of refrigerant fluid is the specified fill **+35g** or **-100g**.

2. CREATING A VACUUM

■ It is essential to carry out vacuum extraction correctly before loading, otherwise the air conditioning will not work properly.

■ There are two scenarios to consider:

- vacuum created immediately after discharge (scenario A),
- vacuum created after an interval of several hours or days (scenario B).

■ Scenario A:

- creation of a vacuum takes **20 minutes**.

■ Scenario B:

- creation of a vacuum takes **45 minutes** to eliminate any trace of moisture.

■ Test the seal once the vacuum has been created (some stations do this automatically).

3. FILLING

■ Fill up the refrigerant circuit using the refrigerant charging station.

■ Top up the oil with the recommended type and volume of oil and refrigerant, depending on the work carried out ([see 62A, Air conditioning, Air conditioning: Parts and consumables for the repair](#)).

■ Check there are no leaks using the electronic detector ([see 62A, Air conditioning, Refrigerant circuit: Check](#)).

CAUTION



After injecting dye into the refrigerant, be sure to indicate this on a label (supplied with the dye capsule), and the date of the operation.

Position the label so it is visible near to the cold loop filler valve.

- Check that the air conditioning system is operating correctly([see 62A, Air conditioning, Air conditioning: Check](#)) .



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