

6_MECHANICAL CONVERSIONS

6.1. ADDITIONAL COMPONENTS ON ACCESSORIES SUPPORT:

IMPORTANT:

There are no longer any versions without an air conditioning compressor:

- ✓ for vehicles with automatic gearboxes produced after 14 November 2022.
- ✓ for vehicles with manual gearboxes produced after 30 January 2023,



This makes it impossible to install a second air conditioning compressor of the FRIGO type in the engine compartment.



IMPORTANT: For vehicles with STOP & START, it is recommended to use the "fast idle" function for conversions requiring a running engine. (See the "Stop & Start", "CABADP" and "RALENT" sheets)

The fridge compressor drive must be dependent on the running engine signal (see sheet 4.16 "Running engine signal") and it is recommended to add a 5-second delay time after engine starting in order to reach a stable engine speed.

The maximum power absorbed by the accessory component replacing the engine's free-wheeling pulley must not exceed: **6 kW**.



The adaptation of an additional component (fridge compressor) on the engine accessory side is only possible on the K9K and HR13 engines, without air conditioning and with a manual gearbox.

The largest authorised additional compressor is a "QP 13" (a larger size of compressor is not compatible with the K9K and HR13 engines in terms of architecture, and the stresses applied on the belt would exceed the approved values)

To fit the additional compressor, the drive belt idler pulley should be removed and replaced with a specific support for adaptation of the compressor.

For each of these engine types, an adaptation kit is available from OLIVA TORRAS.

The converter must:

- Define the frequency for replacing the drive belt for the fridge conversion and also comply with RENAULT's rules for dismantling/refitting vehicle parts.
- Define the layout of the coolant pipes in the vehicle, while complying with the functional constraints of architecture and environment.
- Preserve the original pulley alignment.

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6.1.1 Adaptation on K9K GEN8 engine:

REMINDER

There are no longer any versions without an A/C compressor:

- ✓ for vehicles with automatic gearboxes produced after 14 November 2022.
- ✓ for vehicles with manual gearboxes produced after 30 January 2023.

This makes it impossible to fit a second air conditioning compressor of the FRIGO type in the engine compartment.

The result is that, for versions with air conditioning, the only option for the converter who wishes to install a refrigeration unit in negative cold is to connect to the air conditioning circuit of the basic vehicle (at the cost of a major deterioration in the passenger compartment comfort service).

IMPORTANT:

The crankshaft output pulley has a diameter of 155 mm

The converter must ensure that the maximum speed of the fridge compressor is compatible with the engine speeds, bearing in mind the gear reduction ratio.

If required, it is possible to use the BOIADP (Additional adaptation unit) option, which delivers a logic output when a certain engine speed (value to be calibrated) is reached. This logic output is then used to disengage the compressor.

Depending on the emission reduction constraints in connection with the dimensions and weights of the converted refrigerated vehicle, the vehicle's maximum speed may be reduced to 110 km/h. The converter will be able to check whether this condition is sufficient to avoid the risk of compressor overspeed.

The drive belt is set to 6V. To avoid all risk of alignment fault during fitting and of the belt slipping, the fridge compressor pulley should also be 6V.

As the length of the original belt on the K9K Gen8 Euro 6DFull **is not compatible with the** with the fridge compressor adaptation, **this belt must be replaced by the K9K Gen6 belt (The belt is available from the RENAULT network (after-sales reference: 117209098R)).**

Adaptation of a compressor (for versions WITHOUT compressor):

- ✓ for vehicles with automatic gearboxes produced **before** 14 November 2022.
- ✓ for vehicles with manual gearboxes produced **before** 30 January 2023,

The crankshaft output pulley must be filtered.

If the pulley is not filtered, the converter must replace it with a filtered pulley reference 123036715R when making the fridge modification.

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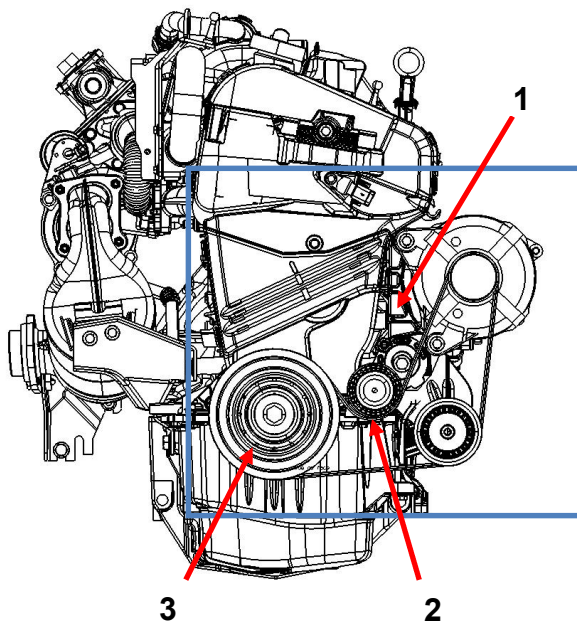
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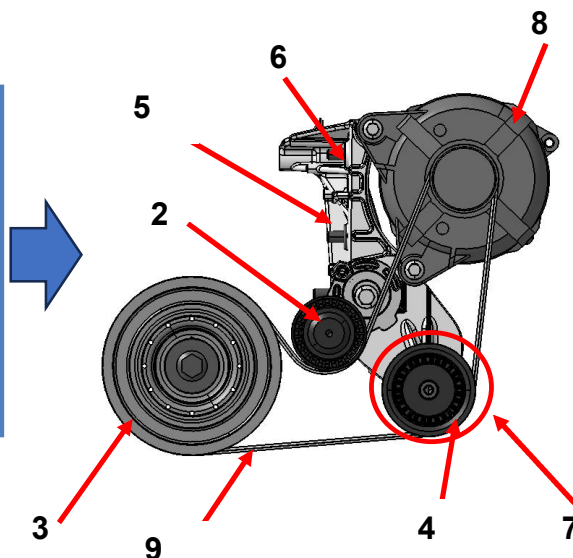
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Engine diagrams are given below

BEFORE CONVERSION:



AFTER CONVERSION:



| | | |
|----|--|------------------------|
| 1 | NON-"CA" version accessory support | To be deleted |
| 2 | Automatic idler roller | 117501113R |
| 3 | Crankshaft pulley | 123036715R. |
| 4 | 6V compressor pulley | |
| 5 | "CA" version accessory support | RENAULT after-sales |
| 6 | Intermediate compressor holder | OLIVATORRAS kit |
| 7 | FRIGO compressor OR OEM component fitted to air conditioning accessory bracket | |
| 8 | Alternator | To be kept |
| 9 | Drive belt | 117209098R |
| 10 | Complete kit | OLIVATORRAS kit |

6.1.1.1 Fitting the compressor

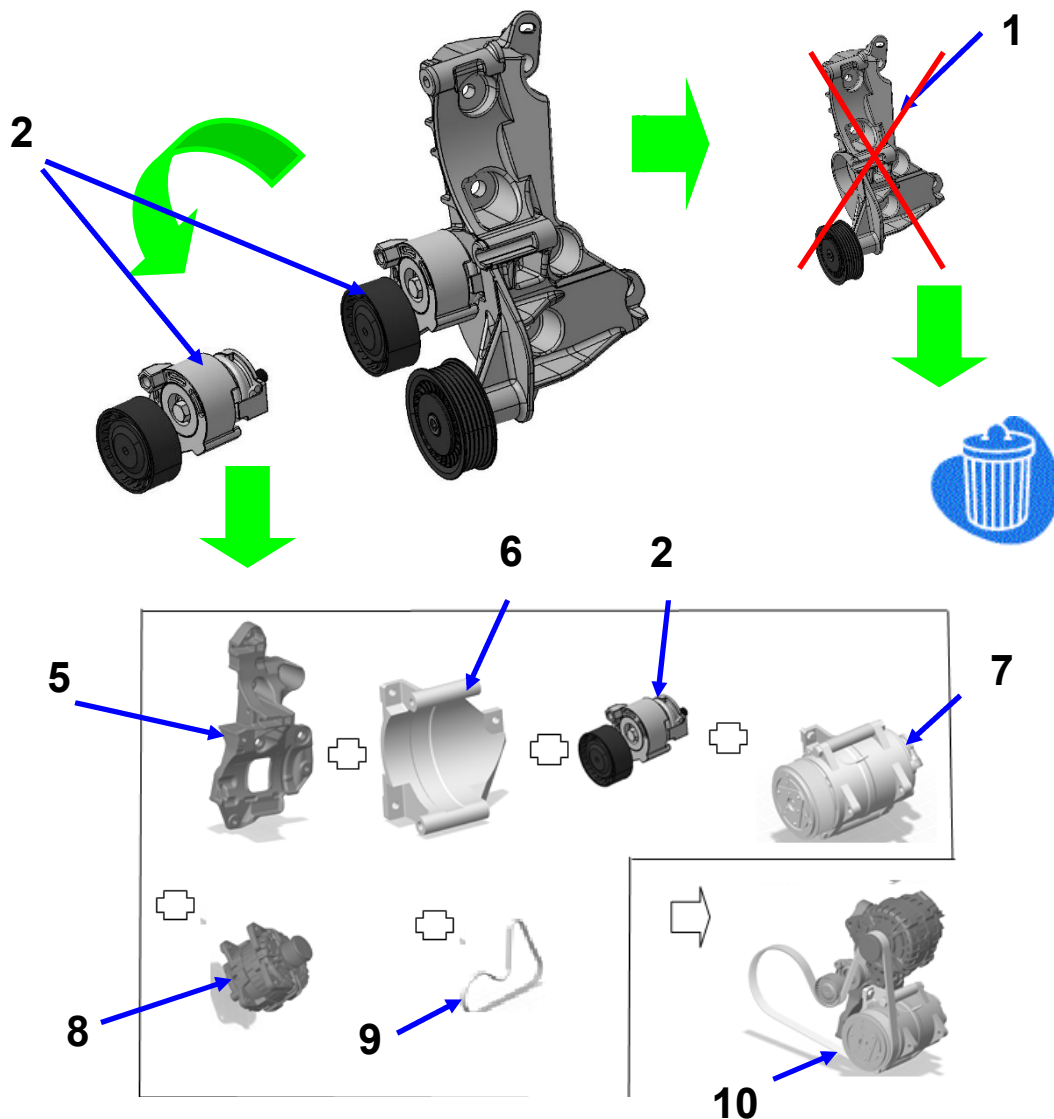
- 1) Remove the belt idler pulley and alternator support (1) from the base vehicle and recover the tensioner roller (2).
- 2) Replace crankshaft pulley (3) if it is not filtered.
- 3) Replace the fridge compressor pulley with a 6V pulley (4) if needed.
- 4) Fit the alternator support (5) corresponding to the vehicle definition with air conditioning with:
 - Intermediate refrigerator compressor support (6) (available in the OLIVATORRAS original kit)
 - The tensioner roller (2) recovered at step 1
 - The fridge compressor (7).
- 5) Fit the assembly (2+4+6+7) + alternator (8) to the engine.
- 6) Fit a drive belt (9) (See sheet 1.2 "Engine process sheet").

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**IMPORTANT:**

For all conversions, it is essential that the converter ensures that the correct part numbers for the belt (117209098R), automatic tensioner (117501113R) and filter pulley (123036715R) are used.

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6.1.2 ADAPTATION ON HR13 engine:

REMINDER

There are no longer any versions without an A/C compressor:

- ✓ for vehicles with automatic gearboxes produced after 14 November 2022.
- ✓ for vehicles with manual gearboxes produced after 30 January 2023,

This makes it impossible to install a second air conditioning compressor of the FRIGO type in the engine compartment.

The result is that, for versions with air conditioning, the only option for the converter who wishes to install a refrigeration unit in negative cold is to connect to the air conditioning circuit of the basic vehicle (at the cost of a major deterioration in the passenger compartment comfort service).

IMPORTANT:

The crankshaft output pulley has a diameter of 152 mm

The converter must ensure that the maximum speed of the fridge compressor is compatible with the engine speeds, bearing in mind the gear reduction ratio.

If required, it is possible to use the BOIADP (Additional adaptation unit) option, which delivers a logic output when a certain engine speed (value to be calibrated) is reached. This logic output is then used to disengage the compressor.

Depending on the emission reduction constraints in connection with the dimensions and weights of the converted refrigerated vehicle, the vehicle's maximum speed may be reduced to 110 km/h. The converter may check whether this condition is sufficient to avoid the risk of compressor overspeed

The drive belt is set to 7V. To avoid all risk of alignment fault during fitting and of the belt slipping, the fridge compressor pulley should also be 7V.

The definition of the original belt **is compatible** with the fridge compressor adaptation.

The converter must ensure that the crankshaft output pulley is filtered.

Adaptation of a compressor (for versions WITHOUT compressor):

- ✓ for vehicles with automatic gearboxes produced **before** 14 November 2022.
- ✓ for vehicles with manual gearboxes produced **before** 30 January 2023,

If the pulley is not filtered, the converter must replace it with a filtered pulley when making the fridge modification.

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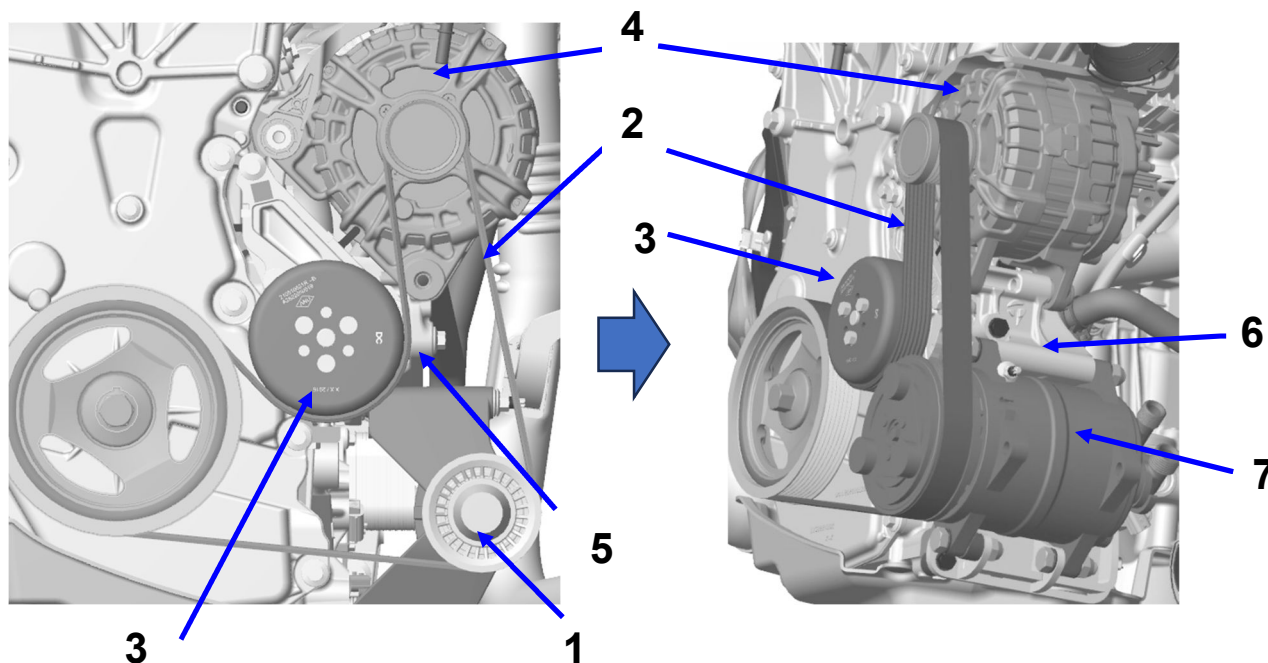
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Engine diagrams are given below

BEFORE CONVERSION:

AFTER CONVERSION:



| | | |
|---|---|-------------------------------|
| 1 | Free pulley | To be deleted |
| 2 | Belt (length = 1199 mm) 7V | To be kept |
| 3 | Roller | To be kept |
| 4 | Alternator | To be kept |
| 5 | Lower alternator bracket (NON CA version) | To be eliminated and replaced |
| 6 | Intermediate brackets (CA version) | OLIVATORRAS KIT |
| 7 | Fridge compressor | OLIVATORRAS KIT |

6.1.2.1 Fitting the compressor

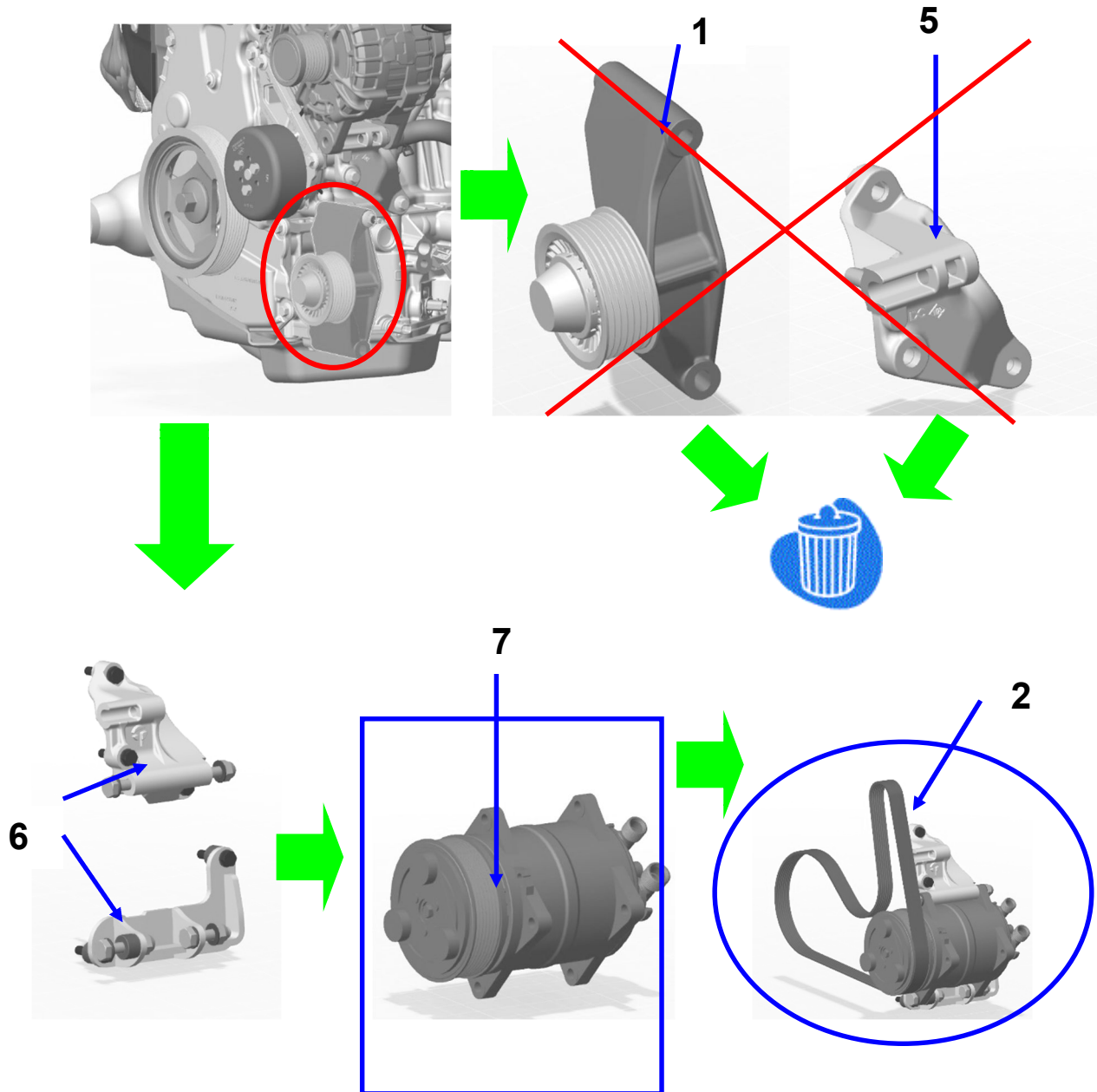
- 1) Remove the idler pulley and its mounting (1) and the alternator bottom mounting bracket (5)
- 2) Replace the crankshaft pulley if it is not filtered
- 3) Fit the fridge compressor intermediate adaptation brackets (6) on the engine.
- 4) Fit the fridge compressor (7).
- 5) Replace the fridge compressor pulley with a 7V pulley.
- 6) Refit the belt.

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