



**ARION 650-620 CMATIC**

**ARION 550-530 CMATIC**

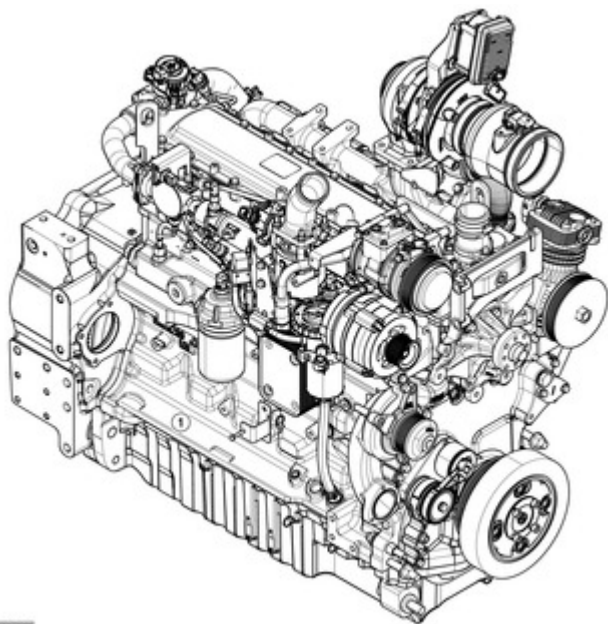
**Repair manual**

## Validity of this repair manual

This document is valid for the following tractors:

Description	Type	Tractor serial number	
		from	to
ARION 600	A37	A3700050	—
ARION 500	A35	A3500050	—

## Complete engine





Number	Value	CCN	Note – Description
1	860 kg	—	Complete 6-cylinder engine
1	700 kg	—	Complete 4-cylinder engine

For unspecified tightening torques, refer to the section entitled "Tightening torques".

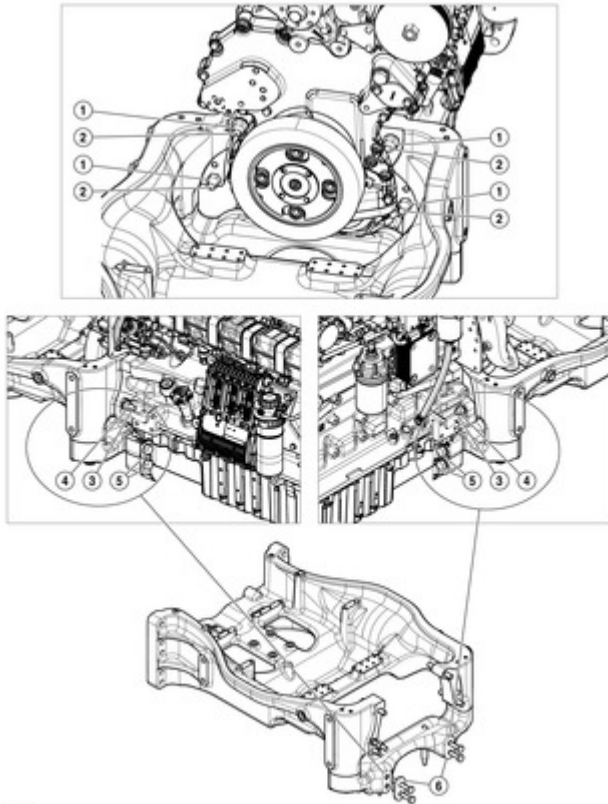
### **WARNING**

Lifting heavy components.

Risk of death or serious injury.

- Use lifting equipment that will support the load.
  - Use reliable lifting equipment.
  - Placer the lifting equipment on the appropriate locations.
-

## Coupling the engine to the chassis



Number	Value	CCN	Note – Description
1	130 N·m + 40°	—	H, M16 x 2.00 CL 10.9 nut
2	50 ± 5 N·m	—	M16 x 2.00 L 80 CL 10.9 stud Coat the studs with Loctite (638).
3		—	M14 x 1.50 L 82 CL 10.9 stud Coat the studs with Loctite (638).
4	195 ± 20 N·m	—	H, M14 x 1.50 CL 10.9 nut
5	240 N·m	—	H, M14 x 1.50 L 80/34 CL 12.9 bolt
6	Without play + 0.1 mm	—	Adjustment shim
For unspecified tightening torques, refer to the section entitled "Tightening torques".			

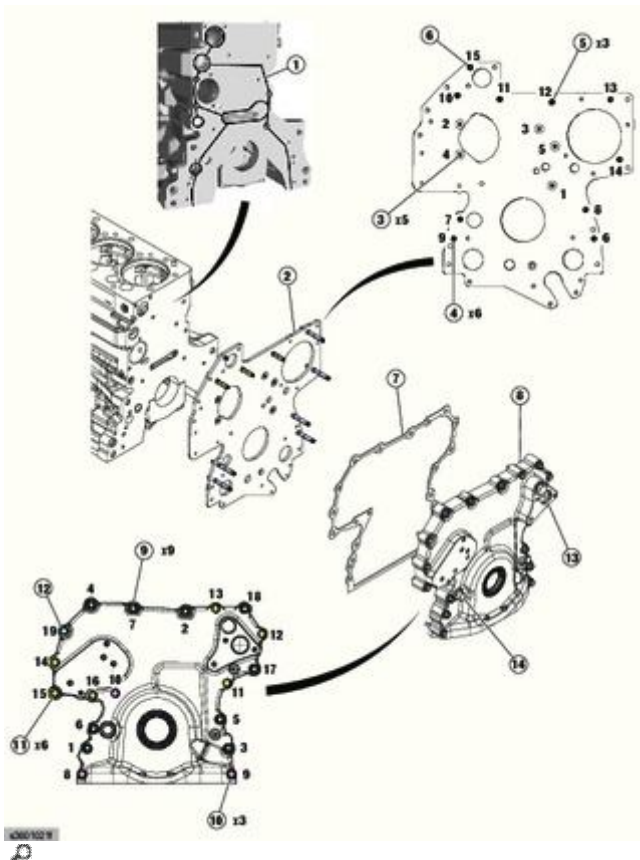
### Preparation for work

Consumables to be used

- Sealing and glue product:  
Loctite (638) – 60 0136 585 0.

# Timing cover

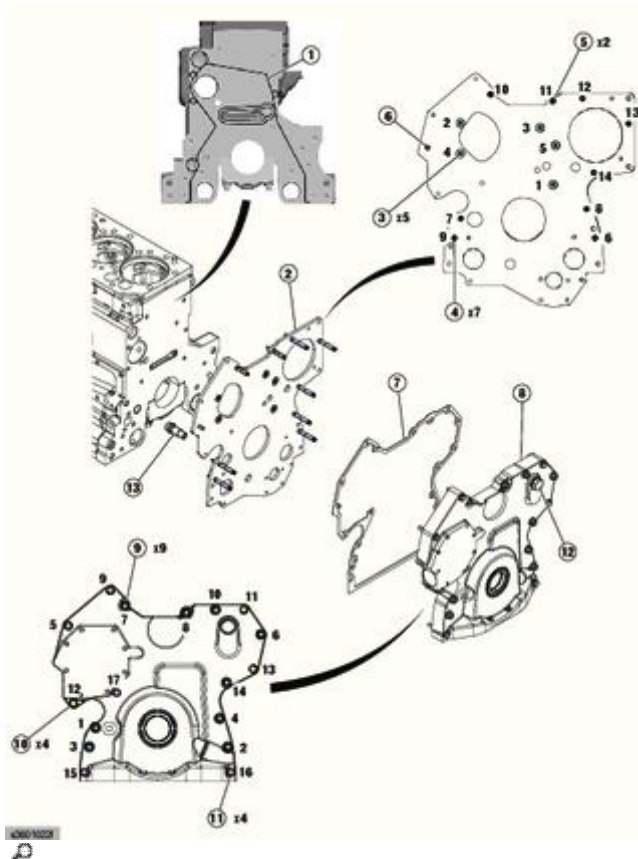
6 cylinders



Number	Value	Note – Description	
1	—	Diagram for applying the flexible seal to the cylinder block. Use Loctite (515).	
2	8 kg	Weight of front panel.	
3	25 N.m	Torx® milled head bolts.	Observe the tightening order as illustrated.
4	35 N.m	M10 x 84 studs.	
5		M10 x 68 studs.	
6		Torx® bolt.	
7	—	Timing cover seal. The surfaces that will come into contact with the seal must be clean and dry before fitting.	
8	4 kg	Weight of the timing cover	
9	35 N.m	M10 nuts	Observe the tightening order as illustrated.
10		M8 x 60 bolt	
11		M8 x 50 bolt	
12		M8 x 40 bolt	
13	60 N.m	Access plug to the high-pressure pump pinion. Use a new O-ring.	

Number	Value	Note – Description
14	97 N.m	Oil pressure controller.
	120 mm	Length of the controller spring.
	42.5 mm	Length of the controller spring at a tension between 60 and 75 N.
For unspecified tightening torques, refer to the section entitled: "Tightening torques".		

#### 4 cylinders



Number	Value	Note – Description
1	—	Diagram for applying the flexible seal to the cylinder block.
2	8 kg	Use Loctite (515). Weight of front panel.
3	25 N.m	Torx® milled head bolts.
4		M10 x 84 studs. <span style="float: right;">Observe the tightening order as illustrated.</span>
5	35 N.m	M10 x 68 studs.
6		Bolts ( <i>to be tightened when refitting the timing cover</i> ) . Timing cover seal.
7	—	The surfaces that will come into contact with the seal must be clean and dry before fitting.
8	4 kg	Weight of the timing cover
9		M10 nuts
10	35 N.m	M8 x 50 bolt <span style="float: right;">Observe the tightening order as illustrated.</span>
11		M8 x 60 bolt

Number	Value	Note – Description
12	60 N.m	Access plug to the high-pressure pump pinion. Use a new O-ring.
13	—	Oil pressure controller.
For unspecified tightening torques, refer to the section entitled: "Tightening torques".		

### CAUTION

Contact with very hot liquids or machine parts.

Risk of burns

- ▶ Wear suitable protective clothing.
- ▶ Allow liquids or machine parts to cool.
- ▶ Follow the instructions in the operator's manual.

### Environment!

Lubricants and fuel are harmful to the environment.

Pollution

- ▶ Collect lubricants and fuel in appropriate containers; store and dispose of them in accordance with the regulations in force.

### WARNING

Lifting heavy components.

Risk of death or serious injury.

- Use lifting equipment that will support the load.
- Use reliable lifting equipment.
- Placer the lifting equipment on the appropriate locations.

### Preparation for work

Consumables to be used:

- Sealing and glue product:  
Loctite (515) – 60 0571 950 5.

### Special tool



60 0500 557 3

Ⓟ

Special tool
Tool for fitting and removing the oil pressure controller.
No. 60 0500 557 3

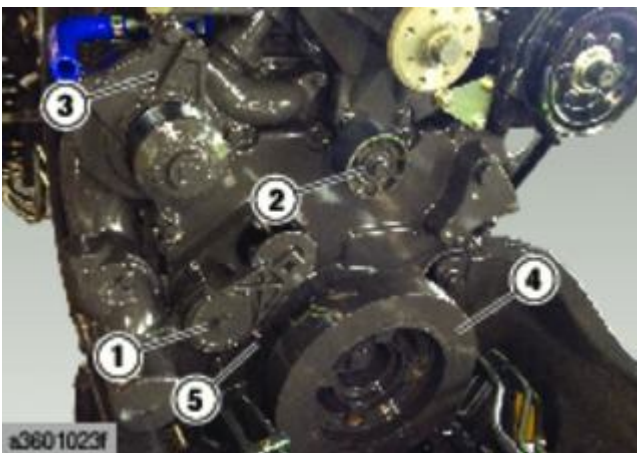


77 0138 809 7

Ⓟ


Special tool
Slide hammer
No. 77 0138 805 8

### Removing the timing cover



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Ⓟ

- ▶ Drain the engine oil. 
- ▶ Remove the sump.



## Sump

- ▶ Remove the fan and its support.  
Ventilation and beltsFunction:01 Engine
- ▶ Remove the fan belt tensioner (1) and the roller (2).  
Ventilation and beltsFunction:01 Engine
- ▶ Remove the water pump (3).  
Water pump
- ▶ Remove the crankshaft torsional absorber (4).  
Crankshaft torsional absorber
- ▶ Remove the front bearing seal.  
Crankshaft bearing seals

On a **6-cylinder** engine, remove the oil pressure controller (5).

## Timing cover



- ▶ Remove the bolts (1) securing the clamps on the wiring harness for the crankshaft position sensor (B231).
- ▶ Remove the crankshaft position sensor (B231) (2).





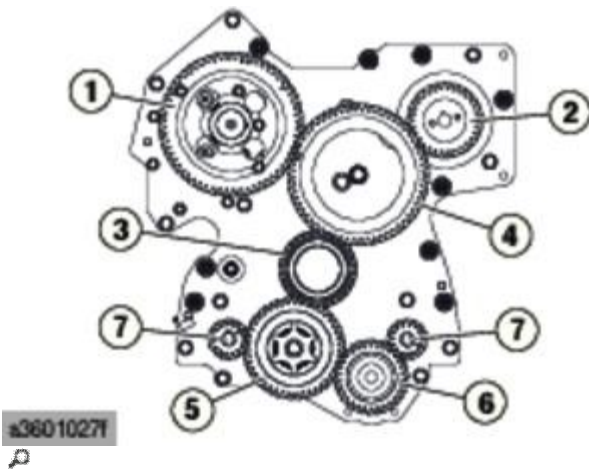
**Note the position of the bolts and nuts before removing them.**

- ▶ Remove the bolts (1) and nuts (2) of the timing cover.

*On a 4-cylinder engine, remove the bolt (3) located behind the front panel.*

- ▶ Remove the timing cover.

### Removing the front panel



*On a 4-cylinder engine, remove the oil pressure controller.*

#### Timing cover

- ▶ If necessary, remove the thermostat unit.

- ▶ Remove the camshaft (1).  
Camshaft and bearing shells

- ▶ Remove the high-pressure injection pump (2).  
High-pressure pump

- ▶ Remove the target from the crankshaft sensor (3).  
Crankshaft sensor target

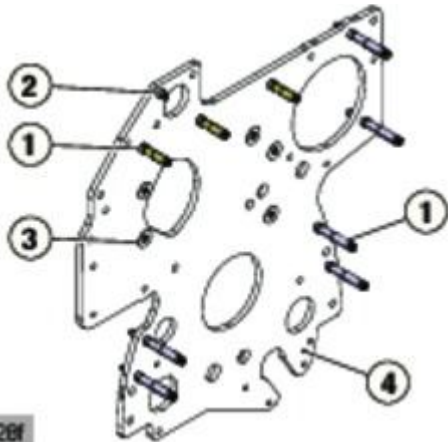
- ▶ Remove the upper intermediate pinion (4).

▶ Remove the lower intermediate pinion (5).

▶ Remove the oil pump (6).

On a **4-cylinder** engine, remove the two balancer shafts (7).

#### Balancer shaft



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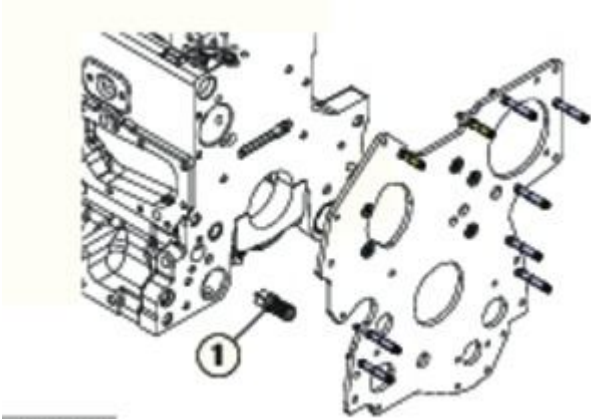
▶ Remove the studs (1).

On a **6-cylinder** engine, remove the bolt (2).

▶ Remove the Torx® milled head bolt (3).

▶ Remove the front panel (4).

#### **Fitting the front panel**



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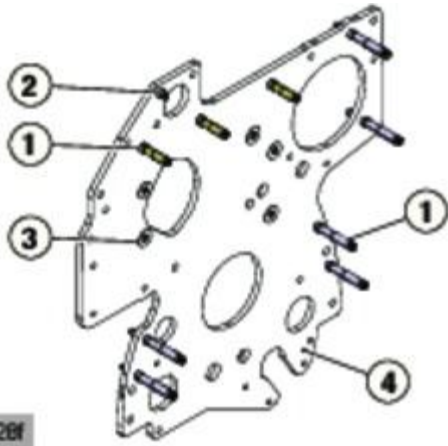
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**Respect the technical specifications from the overview.**

**Check that the surfaces of the cylinder block and front panel are free from oil, remaining sealing paste or cleaning products before applying the sealing product.**

▶ Apply a continuous bead of Loctite (515) to the cylinder block, respecting the application diagram.

▶ Fit the bypass valve (1) in the cylinder block if it was removed.



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**Respect the technical specifications from the overview.**

- ▶ Fit the front panel.
  - ▶ Fit the bolts (3) and studs (1) and tighten them to the recommended torque, respecting the tightening order.
- On a **6-cylinder** engine, fit and tighten the bolt (2) to the recommended torque.



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On a **4-cylinder** engine, set the timing of the balancer shafts (7) and lower intermediate pinion (5).

Balancer shaft

On a **6-cylinder** engine, fit the oil pump (6).

Oil pump

On a **6-cylinder** engine, fit the lower intermediate pinion (5).

Timing pinions

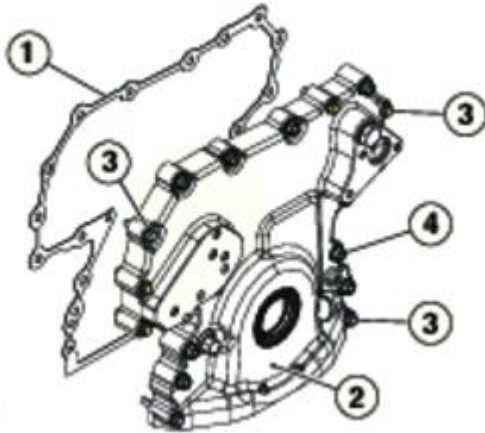
- ▶ Fit the camshaft (1).  
Camshaft and bearing shells
- ▶ Set the timing of the camshaft and upper intermediate pinion (4).  
Timing pinions
- ▶ Fit the target of the crankshaft sensor (3).  
Crankshaft sensor target

On a **4-cylinder** engine, fit the oil pressure controller.

### Timing cover

- ▶ Fit the timing cover.
- ▶ Fit the high-pressure injection pump (2).  
High-pressure pump
- ▶ Fit the thermostat unit if it was removed.  
Thermostat unit

### **Fitting the timing cover**

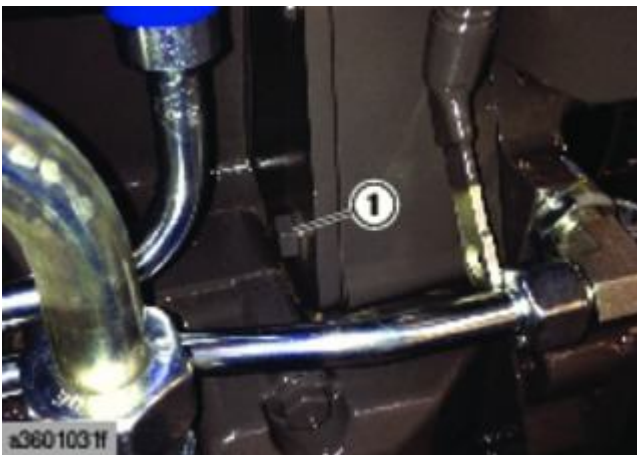


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***Respect the technical specifications from the overview.***

- ▶ Install a new seal (1) and fit the timing cover (2).
- ▶ Fit and tighten the bolts (3) and nuts (4) to the recommended torque, respecting the tightening order.



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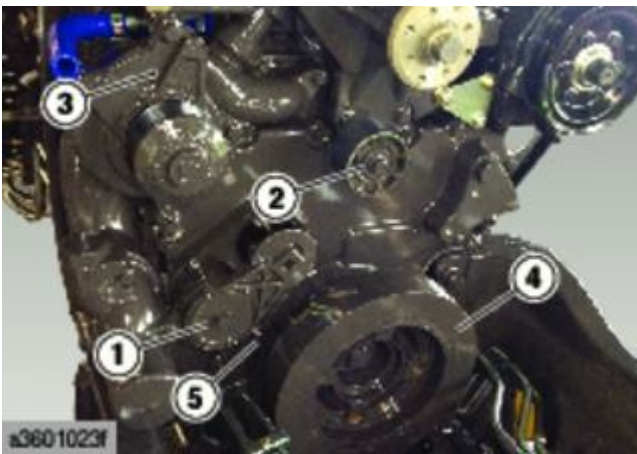


***Respect the technical specifications from the overview.***

- ▶ Fit and tighten the bolt (1) to the recommended torque.



- ▶ Fit the crankshaft position sensor (B231) (2).  
SensorsFunction:01 Engine
- ▶ Fit and tighten the bolts (1) securing the clamps on the wiring harness for the crankshaft position sensor (B231).



**Respect the technical specifications from the overview.**

On a **6-cylinder engine**, fit the oil pressure controller (5).

Timing cover

- ▶ Fit the sump.  
Sump
- ▶ Fit the front bearing seal.  
Crankshaft bearing seals
- ▶ Remove the crankshaft torsional absorber (4).  
Crankshaft torsional absorber
- ▶ Fit the water pump (3).  
Water pump
- ▶ Fit the fan belt tensioner (1) and the roller (2).  
Ventilation and beltsFunction:01 Engine
- ▶ Fit the fan and its support.



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