



ARION 650-620

ARION 550-520

Repair manual

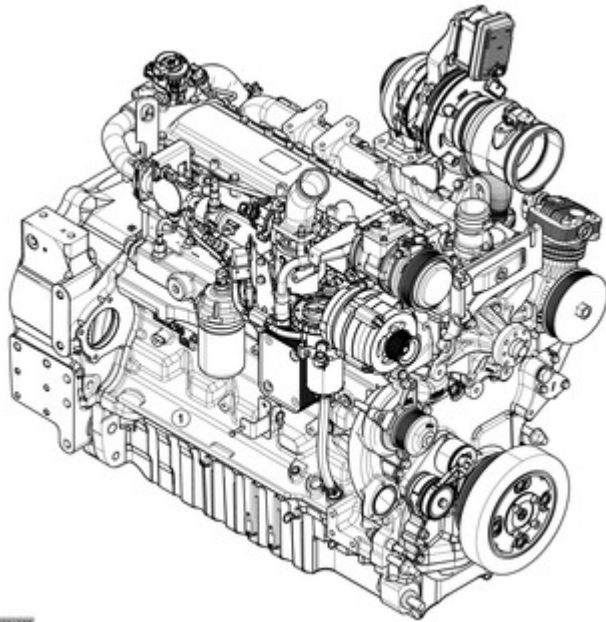
Original repair manual

Validity of this repair manual

This repair manual applies to the following tractors:

Description	Type	Tractor serial number	
		from	to
ARION 600	A36	A3600050	—
ARION 500	A34	A3400050	—

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".

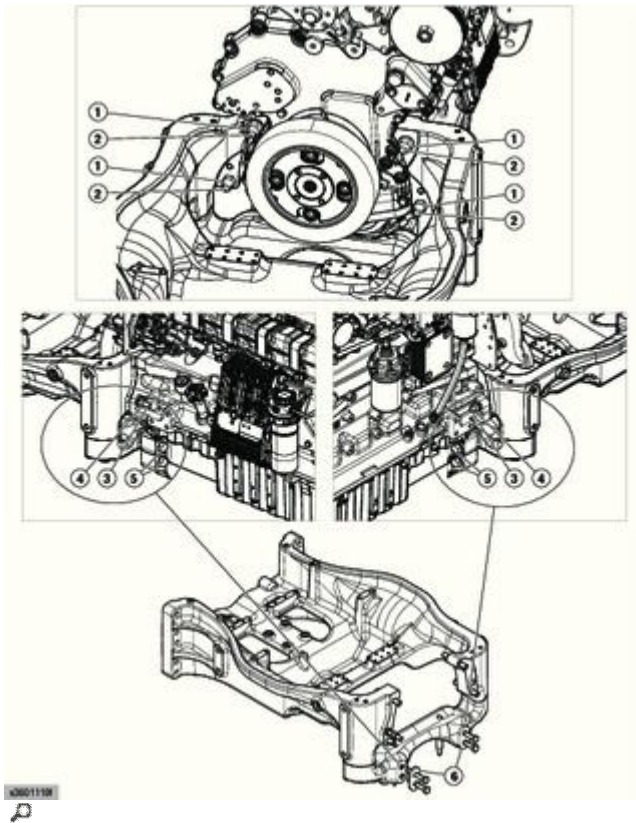
WARNING

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 screw
6	Without play + 0.1 mm	—	Shim
For unspecified tightening torques, refer to the section entitled: "Tightening torques".			

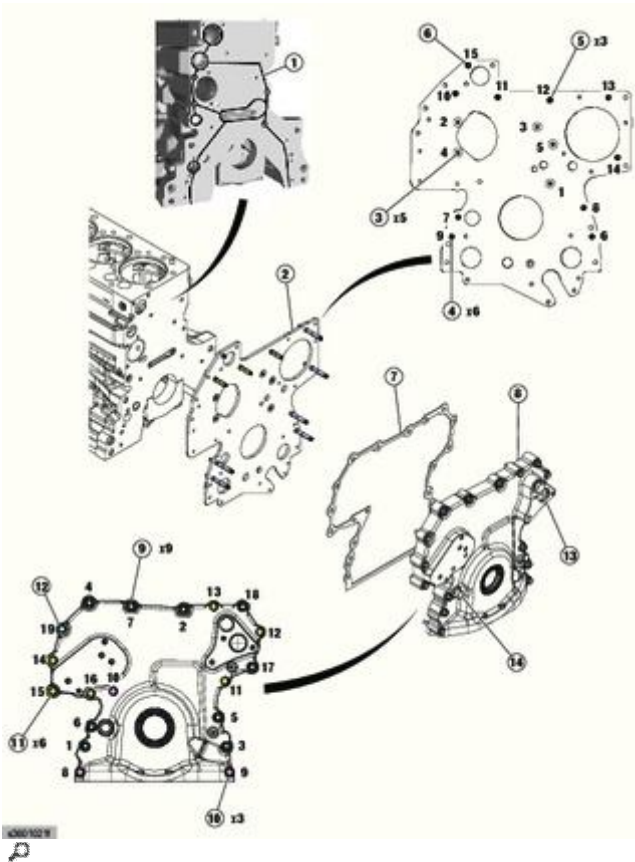
Preparation for work

Consumables to be used

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

Timing cover

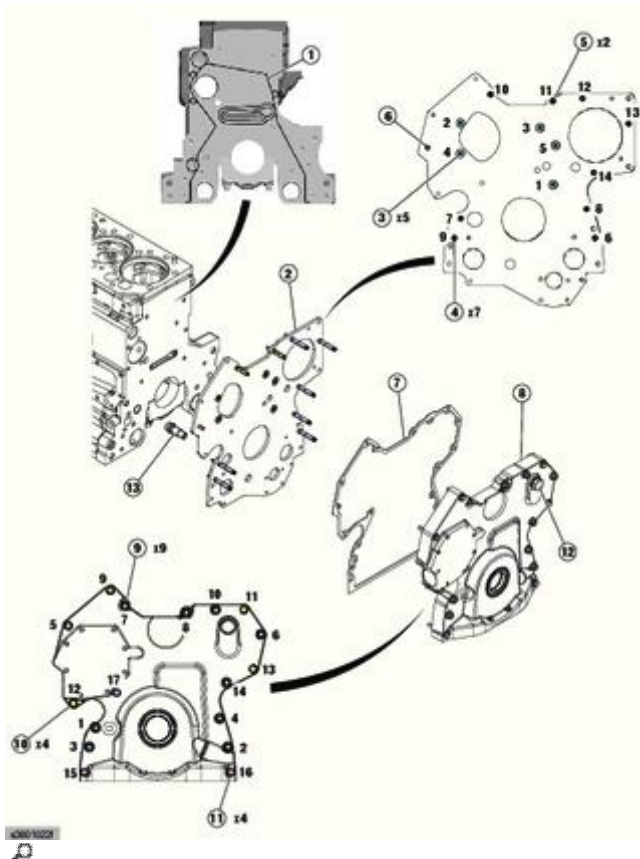
6 cylinders



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. Observe the tightening order as illustrated.
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 Observe the tightening order as illustrated.
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

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Special tool

Tool for fitting and removing the oil pressure controller.

No. 60 0500 557 3



77 0138 809 7

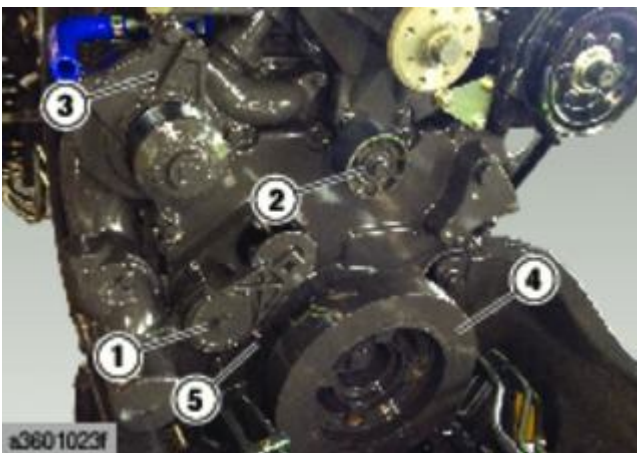
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Special tool

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).





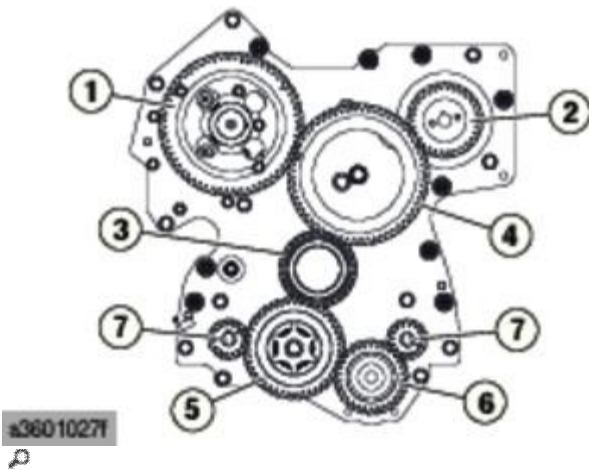
Note the position of the bolts and nuts before removing them.

- ▶ 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

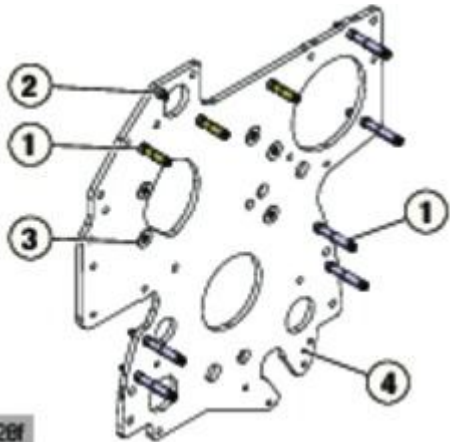
- ▶ Remove the upper intermediate pinion (4).

▶ 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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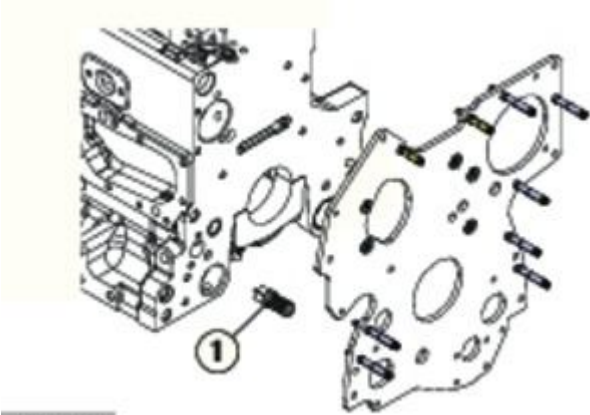
▶ Remove the studs (1).

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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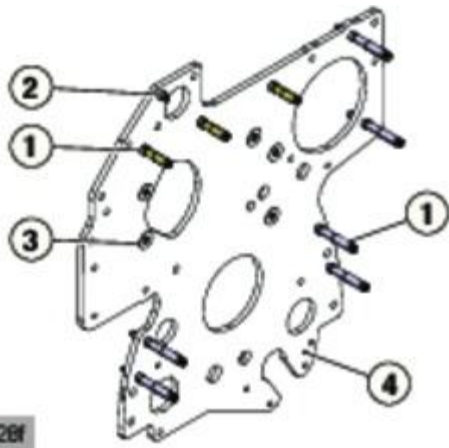
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Respect the technical specifications from the overview.

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.

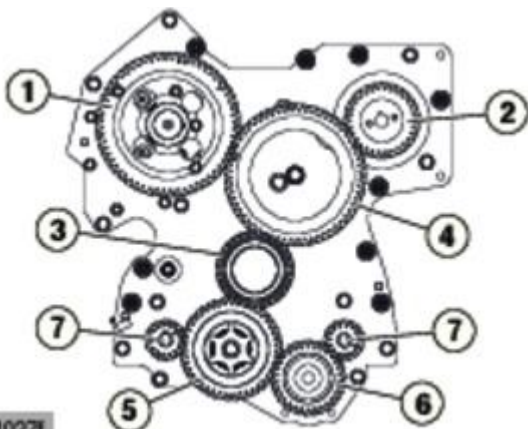


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Respect the technical specifications from the overview.

- ▶ 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).

Timing pinions

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

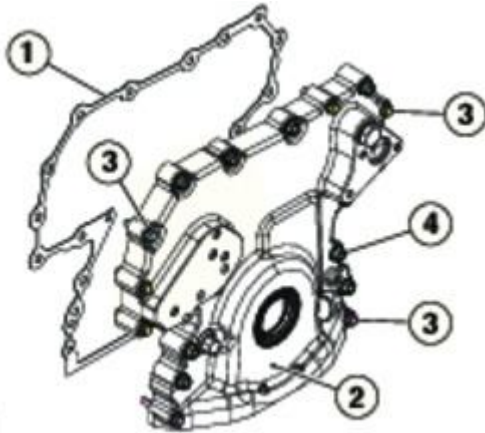
- ▶ Fit the camshaft (1).
Camshaft and bearing shells
- ▶ Set the timing of the camshaft and upper intermediate pinion (4).
Timing pinions
- ▶ Fit the target of the crankshaft sensor (3).
Crankshaft sensor target

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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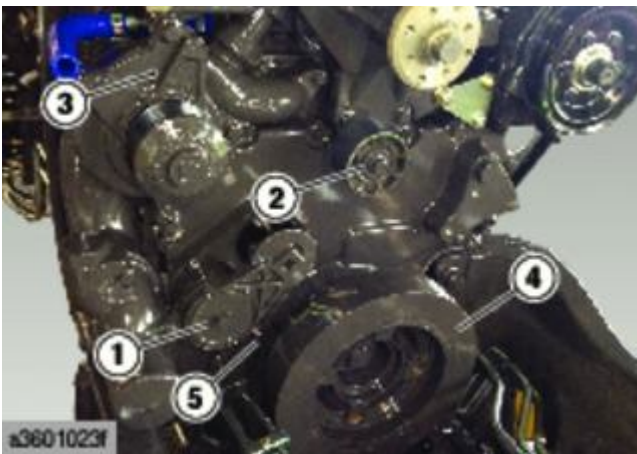


Respect the technical specifications from the overview.

- ▶ 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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