

## Repair Manuals

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Timing chain: removal/installation

### Warnings and recommendations

Always use new gaskets

Note: Avoid bending, torsion or traction

### Removal

Disconnect the battery earth cable

Remove the engine

Remove the right-hand engine support

Support the engine

Use the special tools (00 2 320, 00 2 300, 2 288 357, 11 9 030)

Fit the locking tool (11 9 265, 11 9 811)

Remove the flexplate

Remove the cylinder head

Remove the dipstick tube

Drain the engine oil

Remove the oil sump

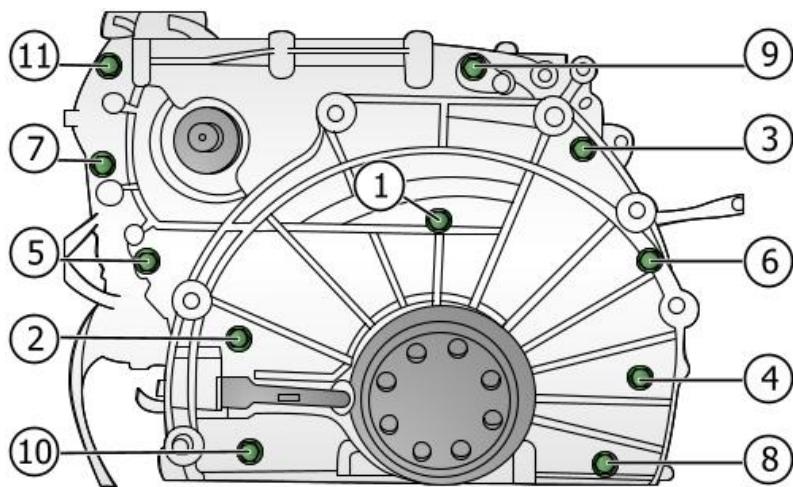
Remove the oil pump

Remove the ATF cooler

Remove the ATF cooler bracket

Remove the crankshaft position sensor ring

Remove the bolts in the reverse order to that shown ((11 - 1))



Remove the timing chain cover. Use a screwdriver.

Clean off the old gasket

Check the dowel pins for damage

Renew as necessary

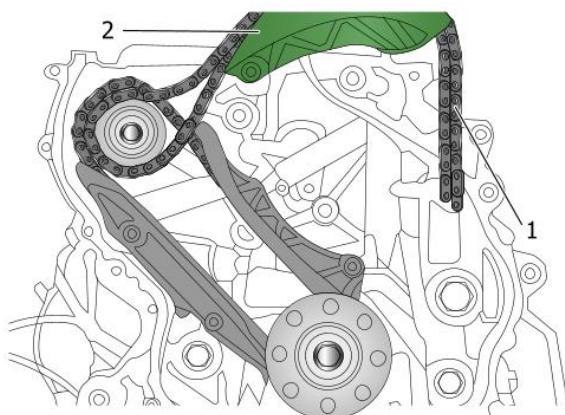
Remove and discard the crankshaft oil seal

Remove the oil pump chain

Remove the secondary timing chain ((1))

Remove the chain tensioner guide ((2))

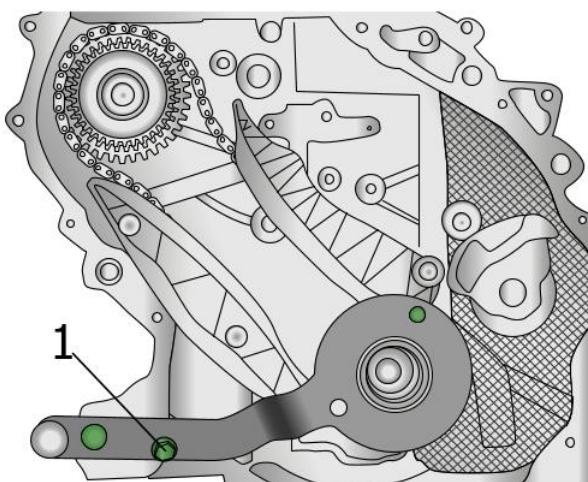
## Repair Manuals



Fit the crankshaft locking tool (2 357 904)

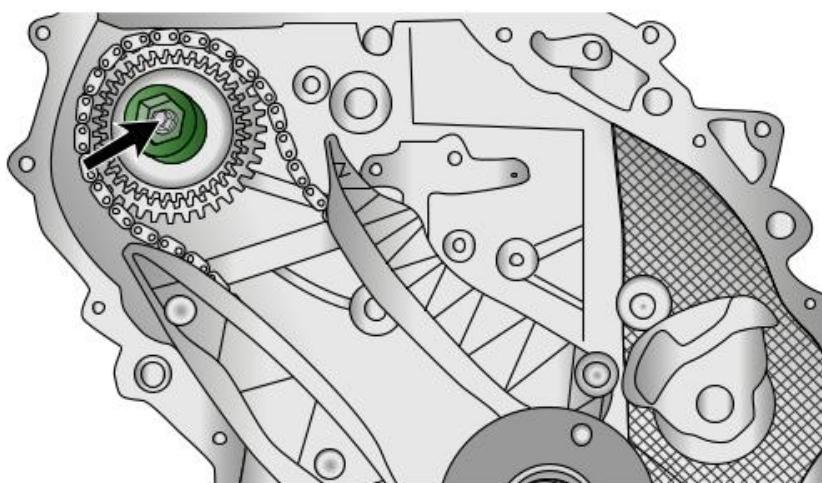
Fit the special tool at the point shown

Secure the special tool with a bolt ((1))



Loosen the high-pressure pump gearwheel bolt

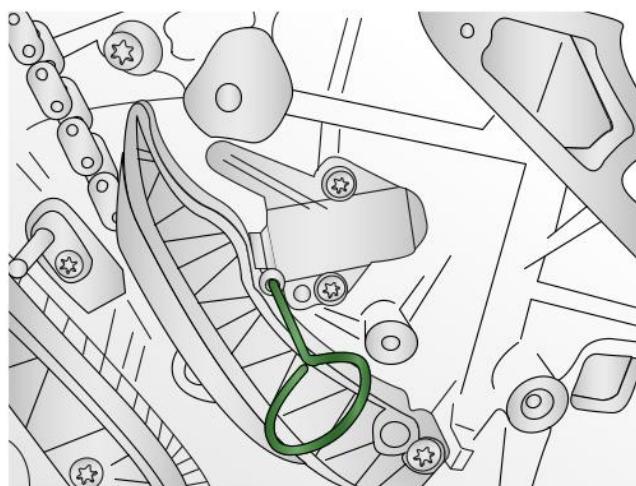
Fit the special tool. Detach the high-pressure pump gearwheel.



Compress the primary chain tensioner

Lock the chain tensioner with a locking pin (11 4 120)

## Repair Manuals



Remove the primary chain tensioner

Remove the chain guide

Remove the chain tensioner guide



Remove the high-pressure pump gearwheel

Remove the crankshaft locking tool (2 357 904)

Remove the primary timing chain

### Installation

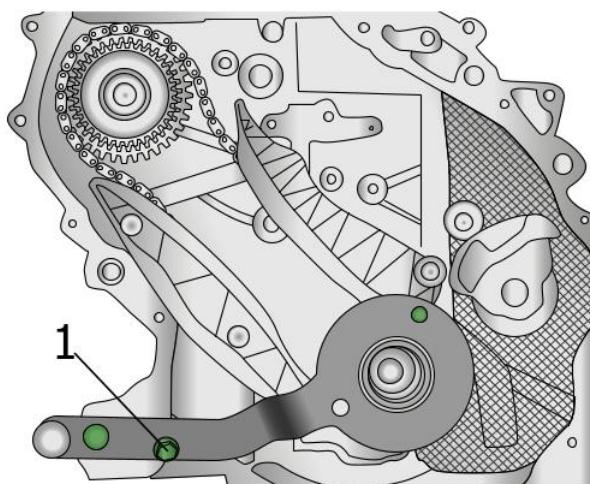
Fit the primary timing chain onto the crankshaft gearwheel

Fit the crankshaft locking tool (2 357 904)

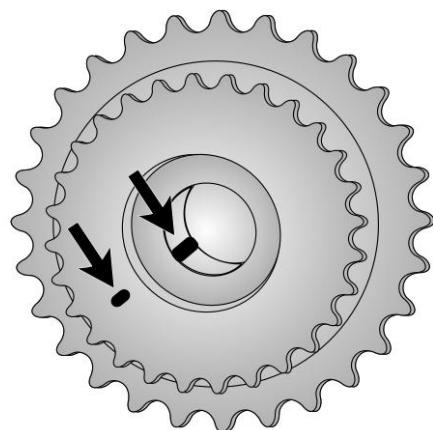
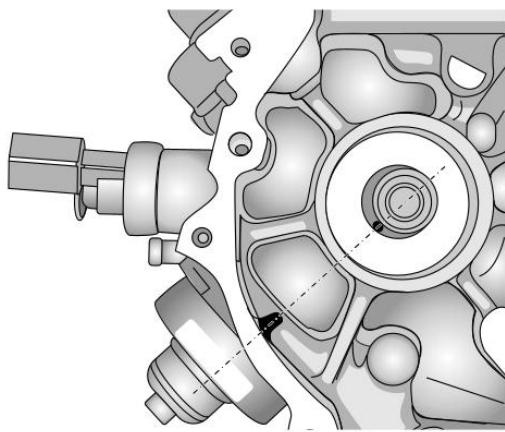
Secure the special tool with a bolt ((1))

## Repair Manuals

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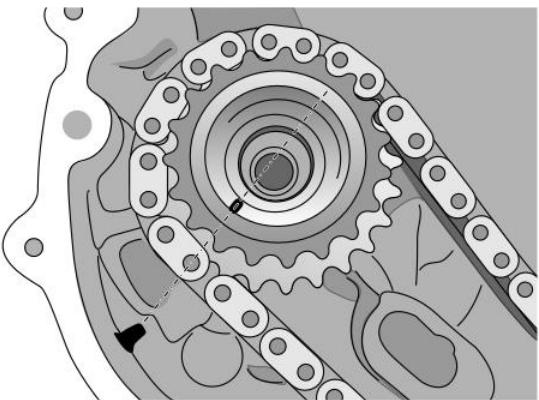


Check the timing marks



Refit the high-pressure pump gearwheel

## Repair Manuals



Note: Do not tighten the bolt

Refit the chain guide

Refit the chain tensioner guide

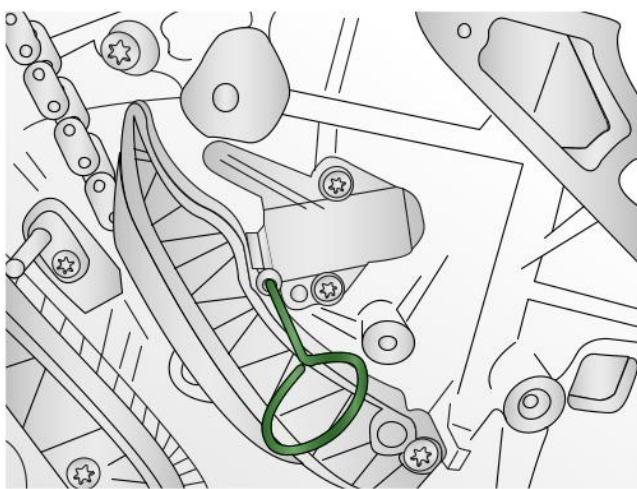


Note: Clean the threads before refitting

Note: Use new bolts

Refit the primary chain tensioner

Remove the tensioner locking pin (11 4 120)

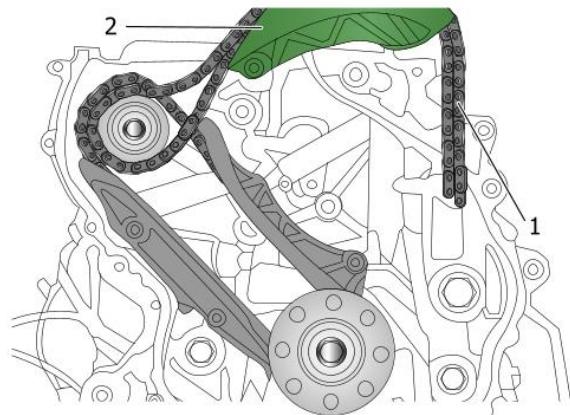


Tighten the high-pressure pump gearwheel

## Repair Manuals

Fit the secondary timing chain ((1))

Refit the chain tensioner guide ((2))



Fit the oil pump chain onto the crankshaft gearwheel

Refit the timing chain cover

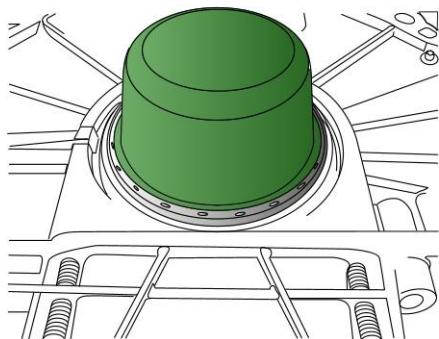
Apply sealant ((1.5 - 2.0 mm))

Note: The cover must be fitted within 10 minutes of applying the sealant

Tighten the timing cover bolts

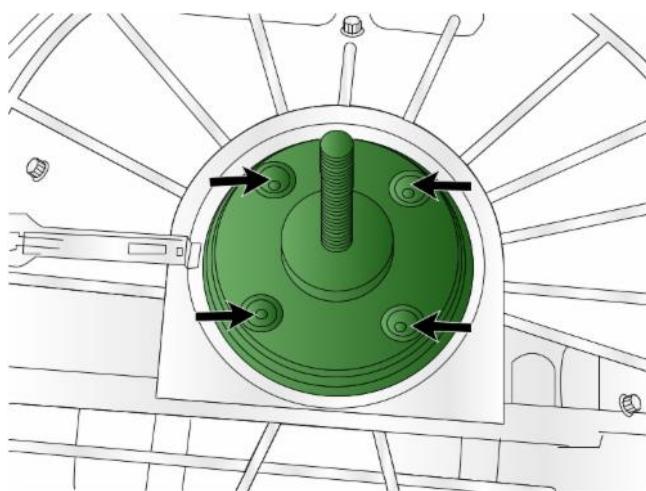
Fit the crankshaft oil seal

Use the special tool (11 8 815)

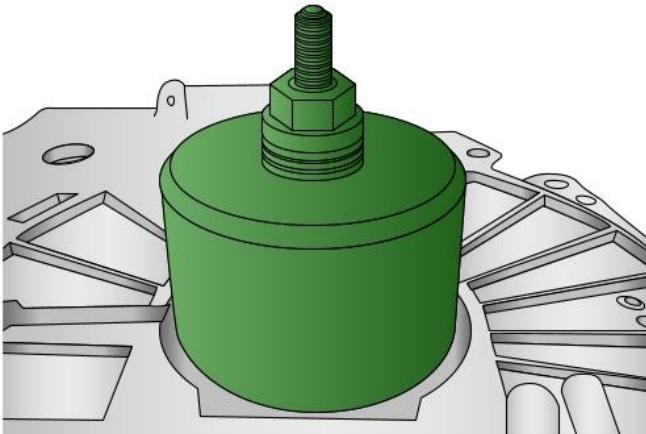


Fit the special tools (11 8 815, 11 8 814, 11 8 813, 11 8 812, 11 8 811)

## Repair Manuals



Tighten the special tool bolt until full surface contact is made



Further refitting is in the reverse order of removal

Reconnect the battery earth cable

### Torque settings

Flexplate

Oil sump

Oil pump

Oil pump gearwheel

Timing cover

Timing chain tensioner

Timing chain guide

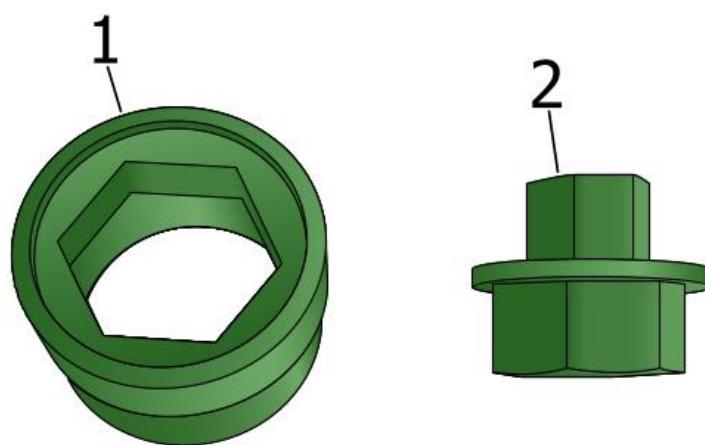
High-pressure pump gearwheel

Right-hand engine support: (38 Nm)

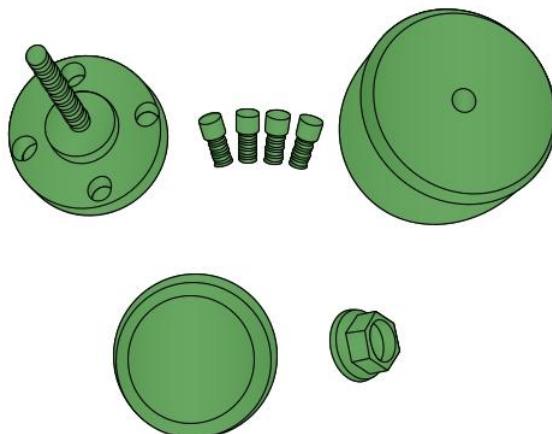
### Special tools

Extractor: (11 8 740)

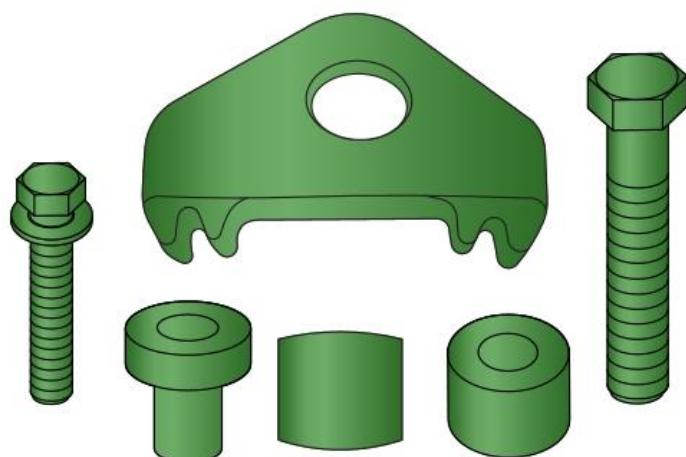
## Repair Manuals



Oil seal fitting tool: (11 8 815, 11 8 814, 11 8 813, 11 8 812, 11 8 811)



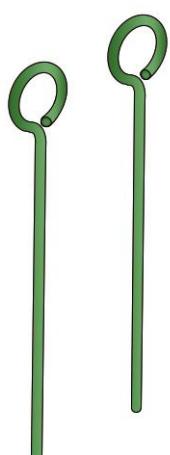
Flywheel locking tool: (11 9 260)



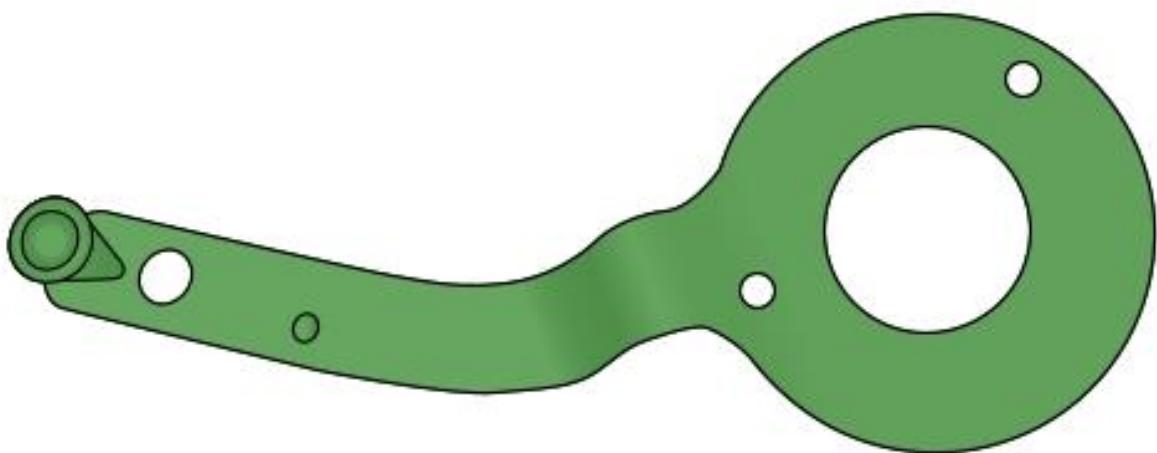
Locking pin: (11 4 120)

## Repair Manuals

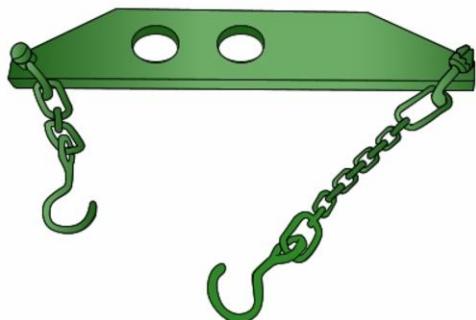
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Crankshaft locking tool: (2 357 904)



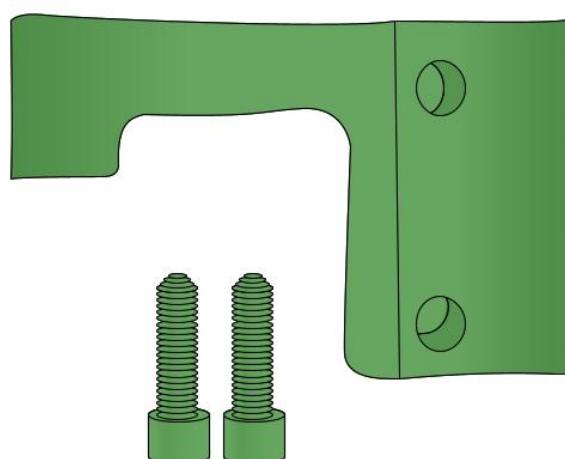
Engine support tool: (11 0 000)



Flexplate locking tool: (2 365 488)

## Repair Manuals

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Flexplate locking tool: (2 288 380)



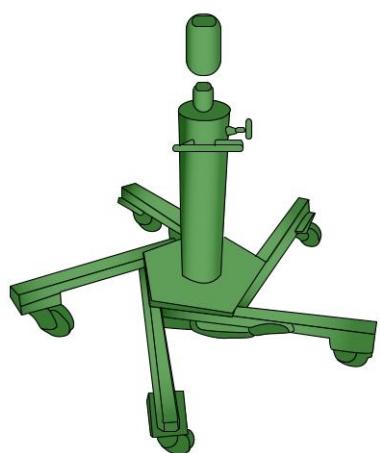
Socket: (11 6 480)



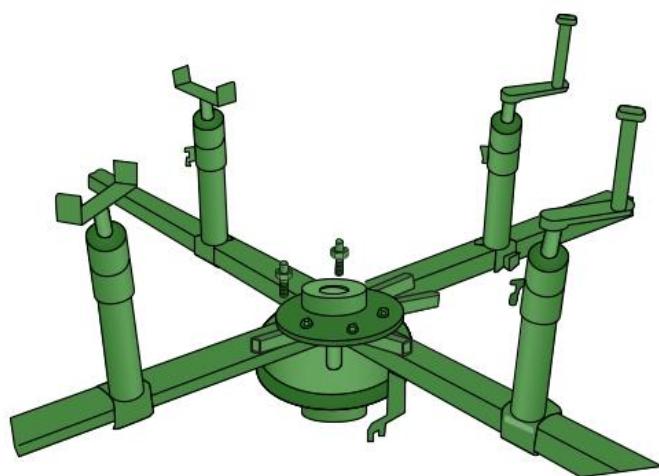
Transmission jack: (00 2 030)

## Repair Manuals

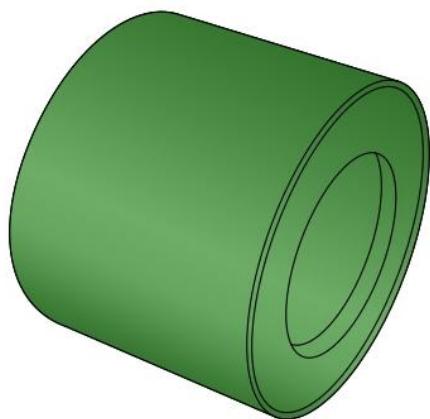
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Subframe support: (31 5 250)



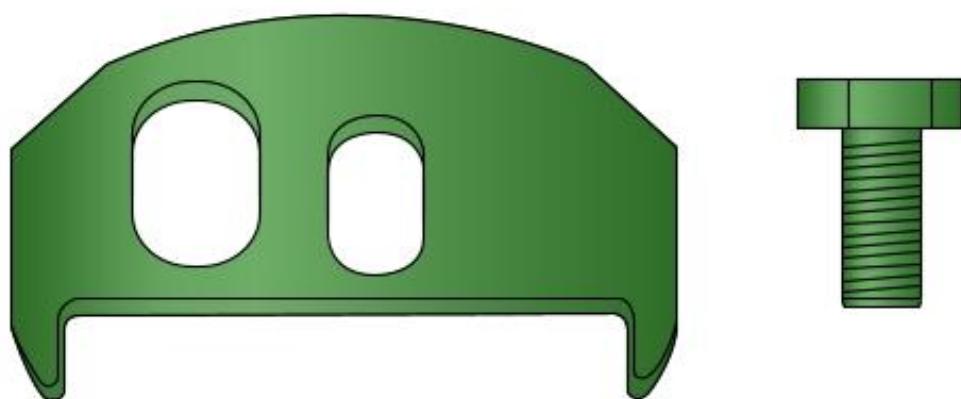
Bush: (11 9 265)



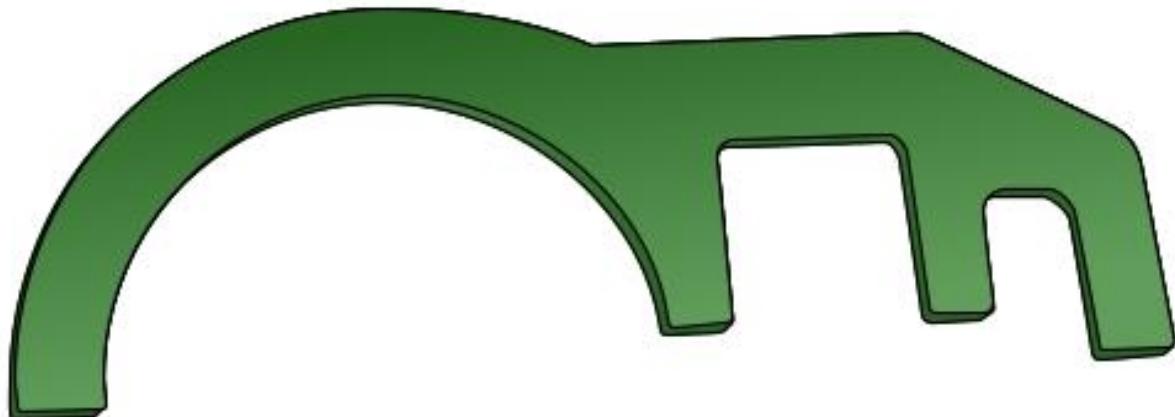
Flywheel locking tool: (11 9 811)

## Repair Manuals

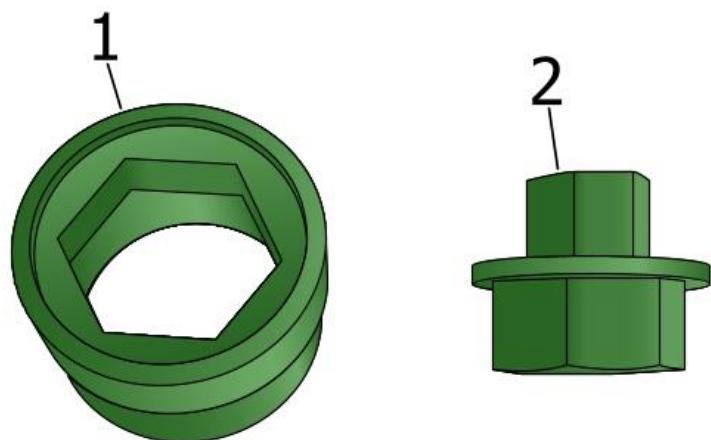
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Camshaft blocking tool: (11 8 760)



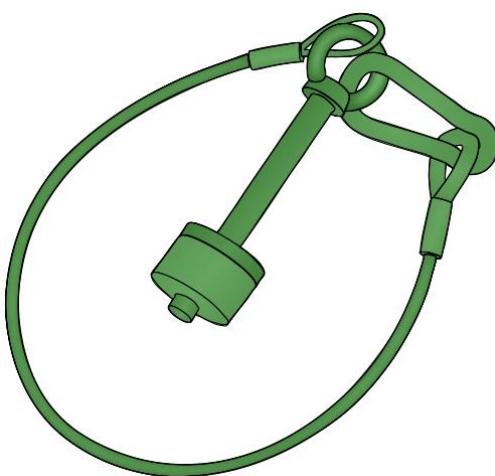
Extractor: (11 8 030)



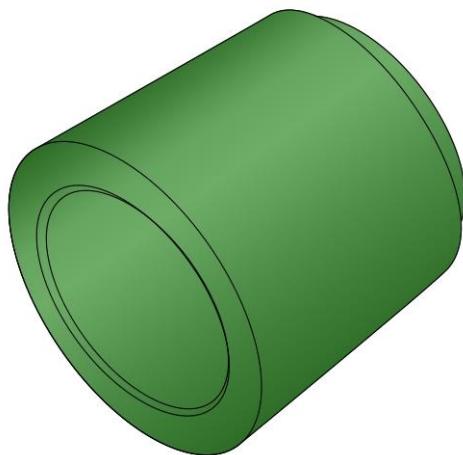
Alignment tool: (31 4 170)

## Repair Manuals

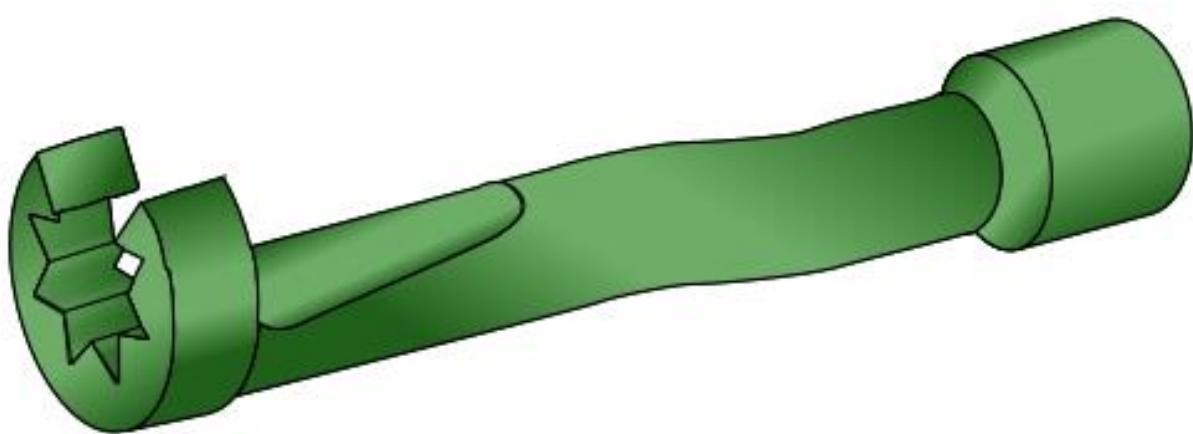
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Oil seal fitting tool: (11 8 815)



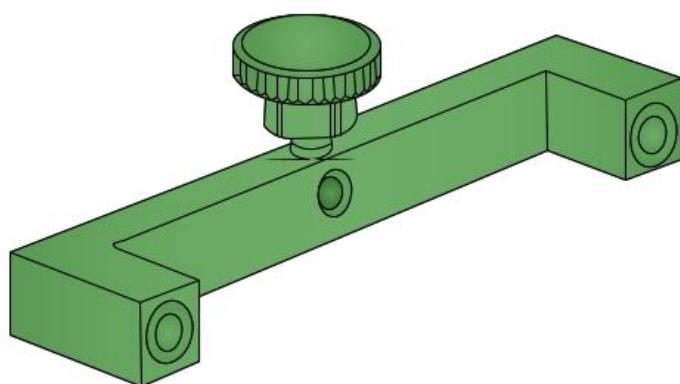
Socket wrench: (37 1 152)



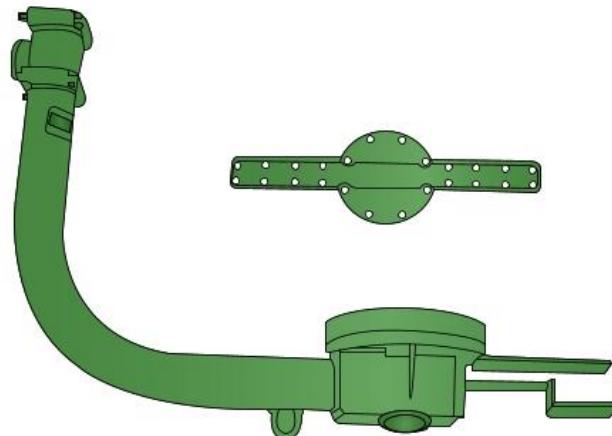
Dial gauge holder: (00 2 530)

## Repair Manuals

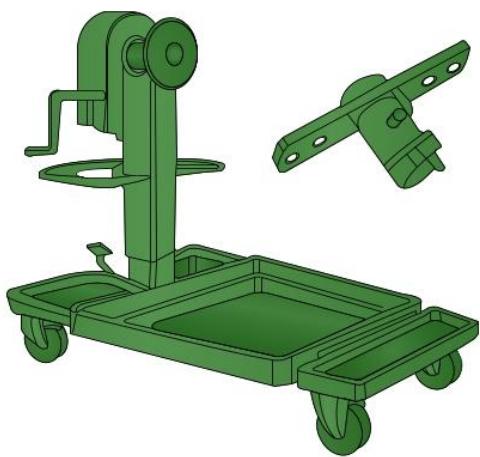
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Engine support: (00 2 320)



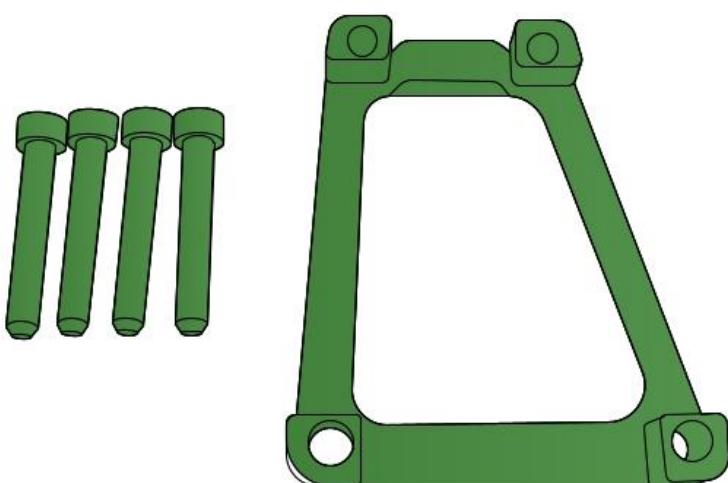
Engine support: (00 2 300)



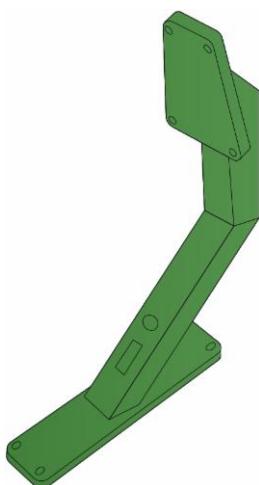
Engine support: (2 288 357)

## Repair Manuals

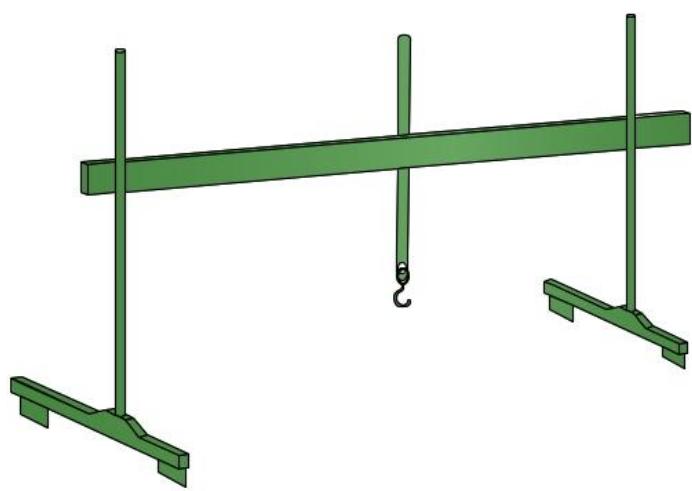
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Engine support: (11 9 030)



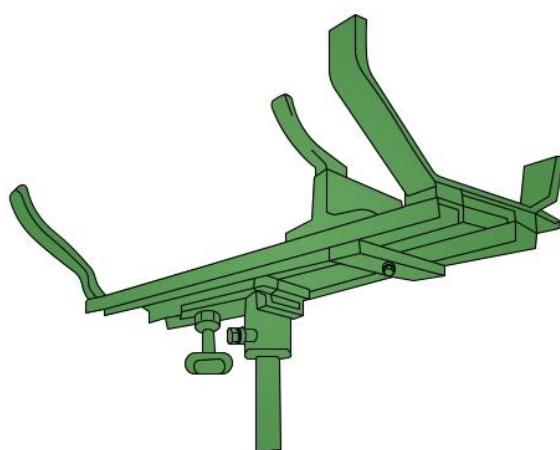
Engine support tool: (00 6 001, 00 6 031, 00 6 051, 00 6 052, 00 6 053)



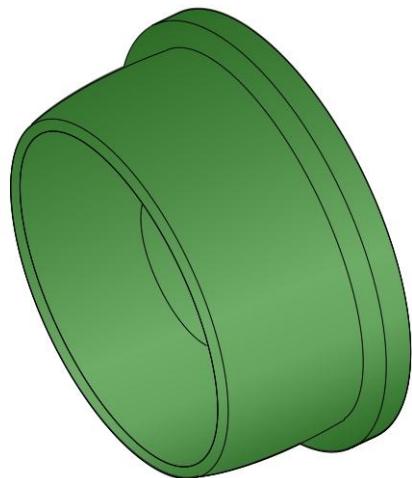
Gearbox support: (23 4 050, 00 2 030)

## Repair Manuals

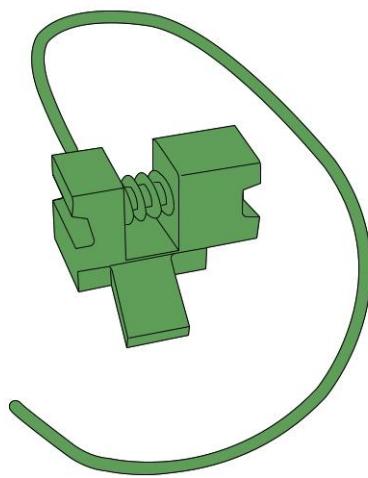
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Plug (24 3 390)



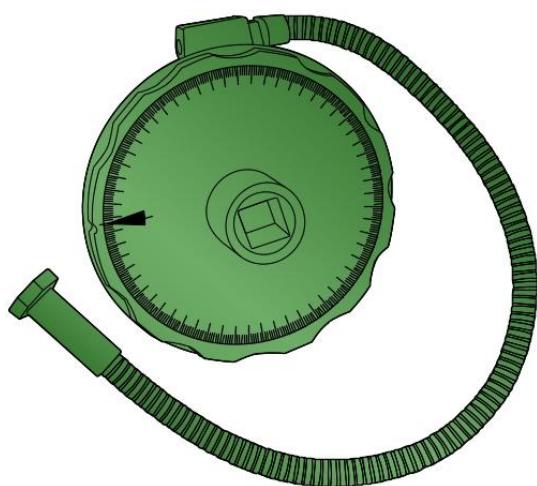
Flywheel locking tool: (24 1 380 )



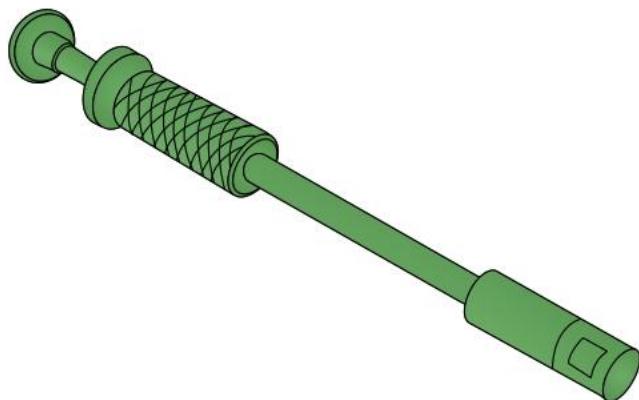
Torque wrench: (00 9 120)

## Repair Manuals

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Injector removal tool: (13 5 250)



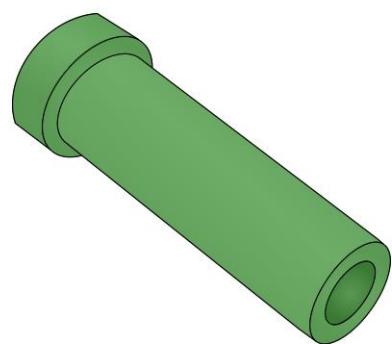
Injector removal tool: (13 5 252)



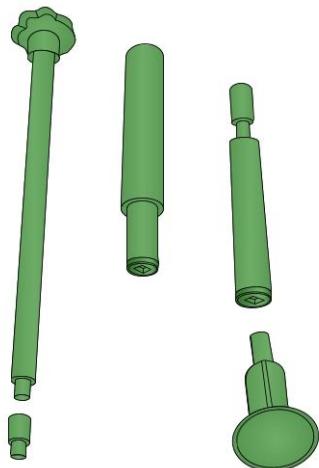
Injector removal tool: (13 5 253)

## Repair Manuals

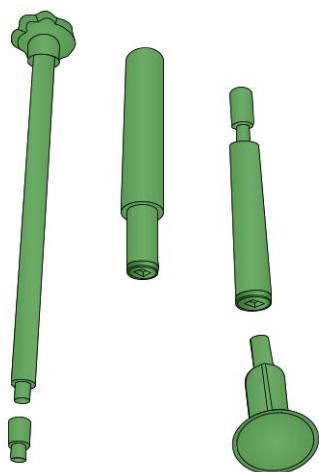
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Injector cleaner: (13 5 215)



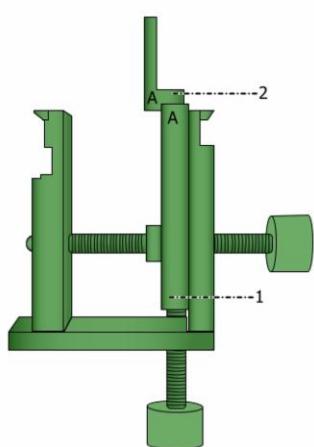
Injector cleaner: (13 5 210)



Bearing bracket: (24 4 160, 24 4 161, 24 4 164)

## Repair Manuals

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Impact extractor: (13 6 100)



Socket wrench: (11 7 020)

