Assembly/disassembly recommendations

| NISSAN: | Primastar, Primastar FL, Interstar (I, II, II FL) |
| OPEL: | Movano (A, FL, FL2), Vivaro (A, A FL) |
| RENAULT: | Avantime, Espace (IV, IV.2), Laguna (II, II.2), Master (II, II.2), Trafic (II, II.2) |
| VAUXALL: | Movano (A, FL, FL2), Vivaro, Vivaro FL |

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<tr>
<th>ENGINES</th>
<th>OE reference</th>
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<td>2.2 dCi</td>
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<td>2.2 dti</td>
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**EnGINES**
- 2.2 dCi
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**OE reference**
- 7701477380
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- 93161859

**TIMING BELT ARRANGEMENT FOR KIT KD455.62**

- **GT355.38 (T)**
  - OE: 8200839580
- **GE355.41 (G)**
  - OE: 8200004593, 4506092, 9201540

- Toothed belt
  - 89 teeth
COMMON PROBLEMS WITH TENSIONER GT355.38

PROBLEMS INVOLVING TENSIONER FAILURE

Probable cause

Insufficient timing belt tension. This failure typically occurs when the timing belt has been fitted with too low tension (identified by wear on the back of the belt, cut teeth, and damage to the lower stop of the tensioner roller (FIG 1) the low tension is normally caused by the tensioner being tensioned in the wrong direction.

When the automatic tensioner roller operates under insufficient (low) tension, the metal adjustment indicator strikes the stops and eventually breaks as result of these repetitive impacts.

If the belt is too loose, it slips on the rollers and the teeth of the belt are subject to forces which exceed the technical specifications of the belt. This causes the teeth on the belt to tear at the base where they join the belt which allows the belt to slip on cam pulleys, allowing the timing to slip and damage the engine.

**REPLACEMENT**

Special tools
- Crankshaft timing pin - MOT no. 1536.
- Blocking tool for intake camshaft - MOT no. 1534.
- Blocking tool for exhaust camshaft - MOT no. 1537.
Precautions:
- Disconnect the ground cable from the battery.
- DO NOT rotate the crankshaft or the camshafts once the timing belt has been removed.
- Remove the glow plugs to make engine rotation easier.
- Rotate the engine in the normal direction of rotation (unless indicated otherwise).
- DO NOT rotate the engine with the camshafts or other drive pinions.
- Follow all tightening torque specifications.

REMOVAL

1) Raise the vehicle overhead

2) Remove the following:
   - The protective panel under the engine.
   - The right front wheel.
   - The right front wheel well.

3) Lift the engine

4) Remove the following:
   - The right motor mount.
   - The right motor support bracket (Fig1).
   - The timing cover (Fig2).
   - The oil filter canister bolt (Fig3).

5) Rotate the crankshaft pulley clockwise until the timing mark is almost at the bottom (Fig4).

6) Install the crankshaft timing pin while slowly rotating the crankshaft pulley clockwise (no. 5). Tool MOT no. 1536

7) Move the crankshaft back and forth gently to ensure that the timing pin is correctly in place
8) Check that the timing mark on the crankshaft pulley is at the bottom (no.4).

9) Check that the camshaft keyways are vertical (Fig6)

10) Install the alignment tools on the camshafts (Fig7) and (Fig8). Tools MOT no. 1534 / MOT no. 1537

11) If these tools cannot be installed correctly, rotate the crankshaft one full revolution clockwise

12) Loosen the bolts of each camshaft gear (Fig9) and (Fig10) by one full turn

13) Loosen the tensioner roller bolt (Fig11)

14) Remove the following:
   • The bolts of the exhaust camshaft gear (Fig10)
   • The exhaust camshaft gear (Fig12)
   • The timing belt

RE-INSTALLATION

1) Move the crankshaft back and forth gently to ensure that the timing pin is correctly in place (Fig5)

2) Verify that the alignment tools are installed correctly (Fig7) and (Fig8)

3) Install a new tensioner roller and tighten the bolt by hand (Fig11)

4) Verify that the bolts of the intake camshaft gear are not at the limits of their slotted mounting holes (Fig14)
5) **Install the timing belt in the following sequence:**
- The intermediate shaft gear
- The fixed roller → G (GE355.41)
- The intake camshaft gear
- The tensioner roller → T (GT355.38)

6) **Install the exhaust camshaft gear (Fig12) on the belt**, then install both together on the end of the camshaft. Check to ensure that the gear bolts are not at the limits of their slotted mounting holes (Fig14)

7) **Rotate the tensioner roller backwards** until the top of the lever arm (no. 15) is aligned with the top edge of the tool (Fig7). Use a 6 mm Allen key

8) Verify that the pointer is in the indicated position (Fig17)

9) Verify that the bolts of the exhaust camshaft gear are not at the limits of their slotted mounting holes (Fig14)

10) **Tighten the tensioner roller bolt (Fig11)**
    Tightening torque: **25 Nm**

11) **Tighten the bolts of the camshaft gears (Fig9) and (Fig10).**
    Use new bolts. Tightening torque: 10 Nm

12) **Remove the following:**
- The alignment tools (Fig7 and 8)
- The crankshaft timing pin (Fig5)

13) **Rotate the crankshaft two full revolutions clockwise**

14) **Verify that the timing mark of the crankshaft pulley is at the bottom (Fig4)**

15) **Install the crankshaft timing pin (Fig5)**

16) **Move the crankshaft back and forth gently to ensure that the timing pin is correctly in place**
17) Install the alignment tools on the camshafts (Fig 7) and (Fig 8)

18) Loosen the bolts of the two camshaft gears (Fig 9) and (Fig 10)

19) Loosen the tensioner roller bolt (Fig 11)

20) Rotate the tensioner roller anticlockwise until the upper part of the lever arm (Fig 15) is aligned with the top edge of the tool (Fig 7). Use a 6 mm Allen key.

21) Rotate the tensioner roller until the pointer is lined up with the notch (Fig 18)

22) Tighten the tensioner roller bolt (Fig 11)
   Tightening torque: 25 Nm.

23) Tighten the bolts of the camshaft gears (Fig 9) and (Fig 10).
   Use new bolts. Tightening torque: 10 Nm

24) Remove the following:
   • The alignment tools (Fig 7) and (Fig 8)
   • The crankshaft timing pin (Fig 5)

25) Install the oil filter canister bolt (Fig 3)
   Tightening torque: 22 Nm

26) Re-install the remaining parts in the reverse order that they were removed.
Verify that the tensioner roller is placed correctly at the positioning index point (Fig13).

Recommendations
Follow the vehicle manufacturer’s installation procedures and apply the specified tightening torques.
Refer to the vehicle applications in our online catalogue: eshop.ntn-snr.com

Scan this QR code to access our online catalogue.

FOLLOW THE RECOMMENDATIONS OF THE VEHICLE MANUFACTURER.