

**MODEL:** NX / NX-R Coupe 1992-96. Series: B13 // Pulsar 1991-95. Series: N14  
**ENGINE:** SR20DE, 2.0L

**REMOVAL**

**INTERFERENCE ENGINE.** In the event of timing chain failure, it is probable that valve to piston damage has occurred. A compression test should be carried out on all cylinders before removing the cylinder head.

1. Release fuel pressure.
2. Remove:
  - engine under covers,
  - front RH wheel,
  - engine side cover.
3. Drain engine coolant from cylinder block .
4. Remove:
  - radiator,
  - air duct to intake manifold,
  - drive belts,
  - water pump pulley,
  - alternator,
  - P/S oil pump.
5. Remove:
  - vacuum hoses,
  - fuel hoses,
  - water hoses,
  - wires,
  - harness and connectors.
6. Remove:
  - spark plugs,
  - rocker cover #1 and oil separator,
  - intake manifold supports
  - oil filter bracket,
  - P/S oil pump bracket.
7. Rotate crankshaft to set No.1 piston at TDC on compression stroke. At this point, the mating marks on camshafts are aligned with mating marks on the timing chain.
8. Remove:
  - chain tensioner,
  - distributor,
  - timing chain guide,
  - camshaft sprockets,
  - camshafts and brackets,#2
  - oil tubes,
  - baffle plate.
9. Remove:
  - water hose for cylinder block,
  - water hose from heater,
  - starter motor,
  - water pipe bolt.
10. Remove cylinder outside bolts, then cylinder head bolts. #3
11. Remove cylinder head complete with intake and exhaust manifolds.
12. Remove:
  - oil pans,
  - oil strainer and baffle plate,
  - crankshaft pulley.
13. Place a transmission jack under main bearing beam and remove front engine mounting.
14. Remove:
  - front cover,
  - timing chain guides,
  - and timing chain.

**INSTALLATION**

1. Install crankshaft sprocket on crankshaft.
2. Turn crankshaft so keyway is at 12 o'clock and mating mark at 4 o'clock.  
**Note: At this point, No.1 piston is at TDC.**
3. Position timing chain on crankshaft sprocket. Ensure that the mating mark (gold link) on the timing chain is aligned with the mating mark on the crankshaft sprocket.
4. Install timing chain and guides.
5. Install oil pump drive spacer and front cover.  
**Note: Ensure contact surface is clean and apply a continuous bead of liquid gasket before installing.**
6. Install front engine mounting.
7. Install crankshaft pulley.
8. Set No.1 piston at TDC on its compression stroke.
9. Install oil strainer, baffle plate and oil pan.
10. Install cylinder head #3 complete with the intake and exhaust manifolds.  
**Note: Ensure contact surface is clean and apply a continuous bead of liquid gasket before installing.**
11. Install cylinder head outside bolts.
12. Install:
  - water pipe bolt,
  - starter motor,
  - water hoses to cylinder block,
  - water hoses for heater.
13. Install camshafts, camshaft brackets #2, oil tubes and baffle plate.  
 Position LH camshaft key at 12 o'clock.  
 Position RH camshaft key at 10 o'clock.
14. Install camshaft sprockets. Ensure that the mating marks (silver links) on timing chain are aligned with corresponding marks on camshaft sprockets.
15. Install:
  - timing chain guide,
  - distributor,
  - chain tensioner,
  - oil filter bracket,
  - P/S oil pump bracket.
16. Install the remainder of the components in the reverse order of removal

**SPECIAL TOOLS**

Cylinder head bolt wrench SSTE1139  
 Seal cutter E7112  
 Angle wrench E7115

**RECOMMENDED REPAIR TIME**

14.5 hours

\*May not include time to remove/install associated component(s).

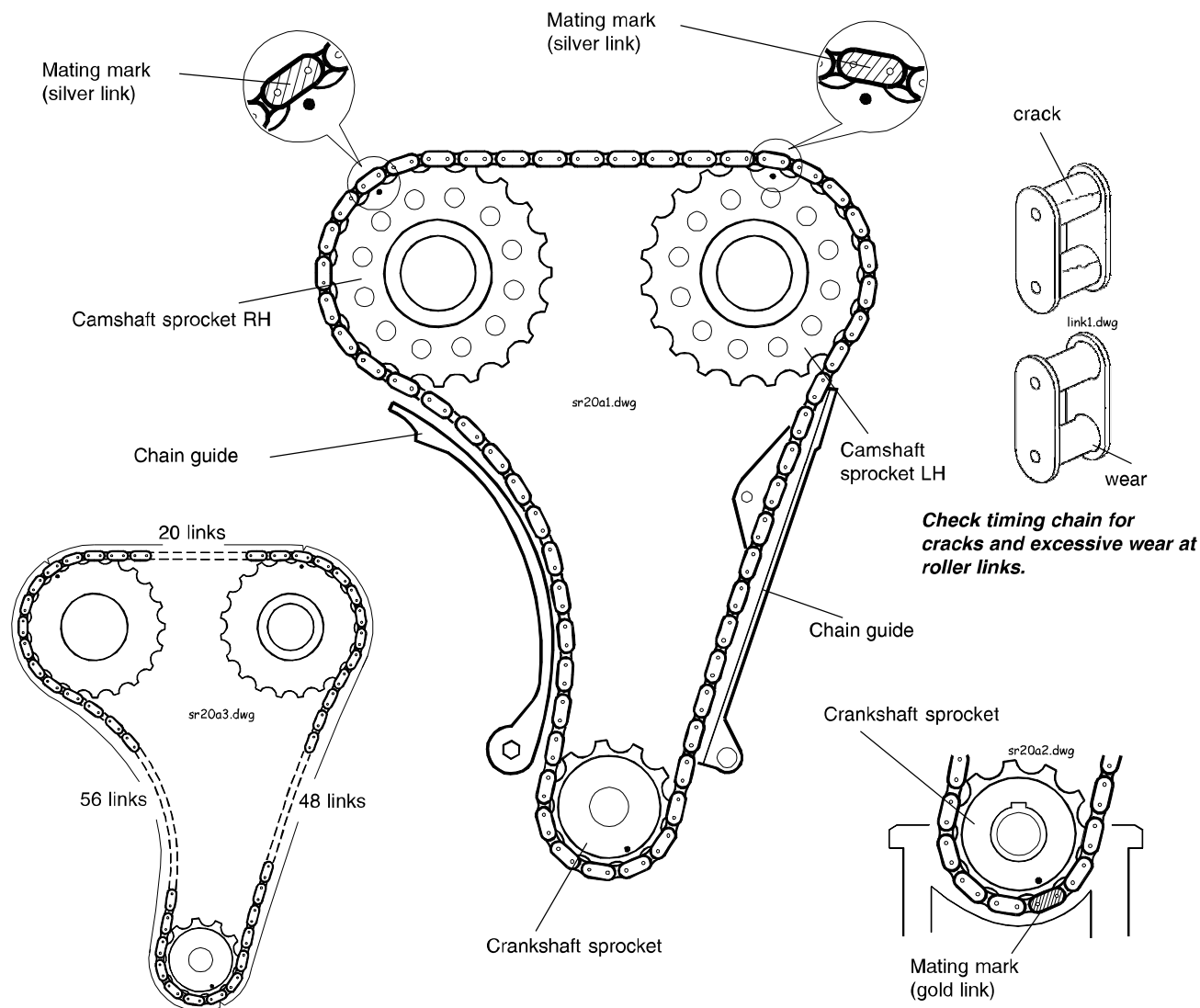
**TIGHTENING TORQUE**

Chain guides: 13 Nm  
 Chain tensioner: 6.3-8.3 Nm  
 Front cover: 6.4-7.5 Nm  
 Crank pulley: 142-152 Nm  
 Camshaft sprockets: 137-157 Nm  
 Rocker cover (see footnote)  
 Cylinder head bolts: (see footnote)

**Footnotes**

- #1- Refer to Note 1 (B13, N14, N15) on page 615  
 #2- Refer to Note 2 (B13, N14, N15) on page 615  
 #3- Refer to Note 3 (B13, N14, N15) on page 615

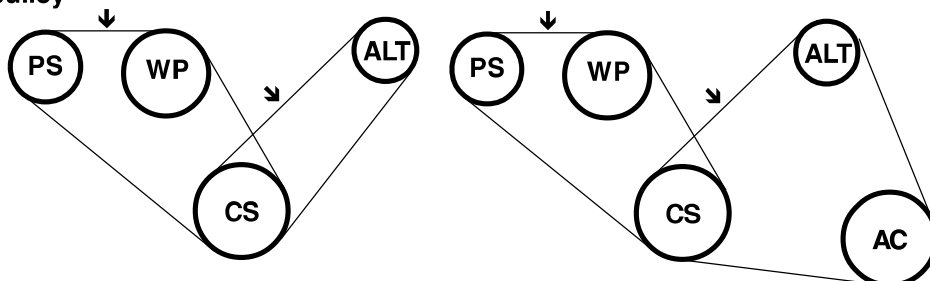
**Note:** Diagrams are not to scale and for presentation only.  
They may not show real shape and size of the components.

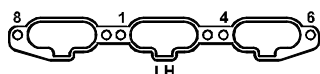


## AUXILIARY DRIVE BELTS

BELT	DEFLECTION (mm) under 10kg (98N) load		SIZE (WxL)(mm)
	NEW	USED	
ALT(w/o AC)	7 - 8	8 - 9	14 x 840 (N14), 845 (B13)
ALT&AC	6.5 - 7.5	7 - 8	NAM (N14), 21 x 1035 (B13)
PS	3.5 - 4.5	4 - 5	14 x 845 (all)

**AC** - Air conditioning pulley  
**ALT** - Alternator / generator pulley  
**CS** - Crankshaft pulley  
**IP** - Idler pulley  
**PS** - Power steering pulley  
**TP** - Tension pulley  
**WP** - Water pump



**INTAKE MANIFOLD  
BOLTS TIGHTENING ORDER**


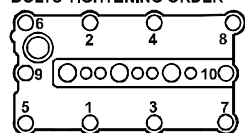
← ENGINE FRONT

**Note 1 (A32):**
**Intake manifold:**

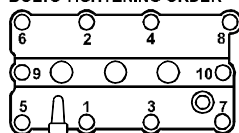
Tighten bolts in the same order shown.

Tightening sequence:

1st step: tighten to 5-10 Nm, 2nd step: 26-31 Nm.

**LEFT HAND SIDE ROCKER COVER  
BOLTS TIGHTENING ORDER**


← ENGINE FRONT

**RIGHT HAND SIDE ROCKER COVER  
BOLTS TIGHTENING ORDER**


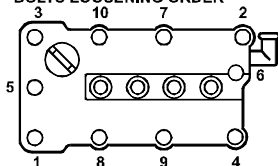
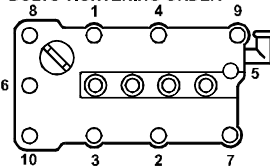
← ENGINE FRONT

**Note 2 (A32):**
**Rocker Cover**

Tighten bolts 1 to 10 in the order shown.

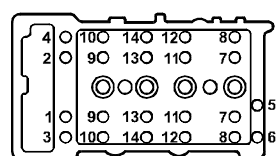
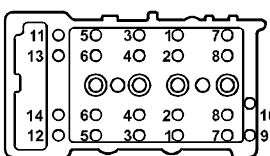
Tightening sequence in order shown.

1st step: tighten to 1-3 Nm, 2nd step: 5.4-7 Nm.

**ROCKER COVER  
BOLTS LOOSENING ORDER**

**ROCKER COVER  
BOLTS TIGHTENING ORDER**

**Note 1 (K11):**
**Rocker Cover**

Loosen bolts in the order shown.

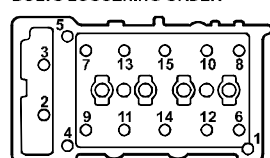
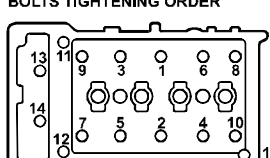
Tighten bolts in order shown to 2-3.9 Nm.

**CAMSHAFT BRACKETS AND CAMSHAFTS  
BOLTS LOOSENING ORDER**

**CAMSHAFT BRACKETS AND CAMSHAFTS  
BOLTS TIGHTENING ORDER**

**Note 2 (K11):**
**Camshaft bracket**

Loosen bolts in the order shown (in 2 or 3 steps).

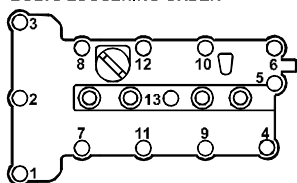
Tighten bolts in order shown. 1st step- 2 Nm, 2nd step- 6 Nm, 3rd step- 9-11.8 Nm.

Bolts must be installed in original location.

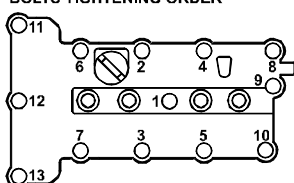
**CYLINDER HEAD  
BOLTS LOOSENING ORDER**

**CYLINDER HEAD  
BOLTS TIGHTENING ORDER**

**Note 3 (K11):**
**Cylinder head cover**

Loosen bolts in the order shown (in 2 or 3 steps).

Tighten bolts 1 to 10: 1st step 39 Nm, 2nd step 78 Nm, 3rd step- loosen completely, 4th step 35 Nm, 5th step 60°(clockwise). Then tighten bolts 11 to 15 to 6.3 - 8.3 Nm.

**ROCKER COVER  
BOLTS LOOSENING ORDER**


← ENGINE FRONT

**ROCKER COVER  
BOLTS TIGHTENING ORDER**


← ENGINE FRONT

**Note 1 (N14, N15, B13):**
**Rocker cover**

Loosen bolts in order shown.

Tighten bolts: 1st step tighten 1-10-11-13-8 in that order to 4 Nm, 2nd step tighten 1 to 13 in order shown to 8-10 Nm.

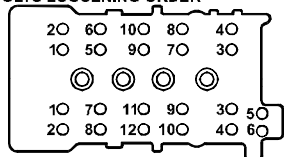
**Note 2 (N14, N15, B13):**
**Camshaft bracket bolts**

Remove in order shown in 2 or 3 steps.

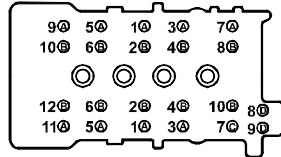
A, B, C... - bolt types; 1, 2, 3, ... loosen/tighten order.

Tightening sequence:

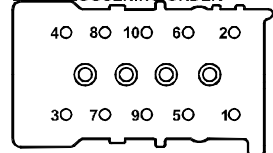
1st step- tighten 10 & 9 (RH) to 2 Nm, 2nd step tighten 11 & 12 (LH) to 2 Nm, 3rd step- tighten all (in order) to 6 Nm, 4th step- tighten bolt type A, B, C to 9-11.8 Nm, 5th step tighten bolt type D to 18 - 25 Nm.

**CAMSHAFT BRACKETS AND CAMSHAFTS  
BOLTS LOOSENING ORDER**


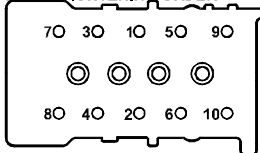
← ENGINE FRONT

**CAMSHAFT BRACKETS AND CAMSHAFTS  
BOLTS TIGHTENING ORDER**


← ENGINE FRONT

**CYLINDER HEAD  
BOLTS LOOSENING ORDER**


← ENGINE FRONT

**CYLINDER HEAD  
BOLTS TIGHTENING ORDER**


← ENGINE FRONT

**Note 3 (N14, N15, B13):**
**Cylinder head**

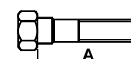
Remove in order shown in 2 or 3 steps.

Tightening sequence:

1st step- tighten all bolts to 39 Nm, 2nd step 78 Nm, 3rd step loosen completely, 4th step 34-44 Nm, 5th 90-100° clockwise, 6th step 90-100° clockwise.

Do not turn any bolt 180-200° clockwise in one go.

CYLINDER HEAD BOLT



• Ensure bolt length does not exceed 158.2 mm.