1. Control housing
   - Lubricate contact surfaces of oil seal when installing
   - Removing and installing, refer to "Camshaft" See: Camshaft, Engine > Removal and Replacement > Camshaft
   - Disassembling and assembling, refer to "Disassembling and Assembling Control Housing" See: Camshaft, Lifters and Push Rods > Procedures > Valve Gear, Servicing
   - Check screen of control housing for contamination before installing, refer to "Checking Control Housing Screen for Contamination" See: Camshaft, Lifters and Push Rods > Procedures > Valve Gear, Servicing

2. Bolt
   - 8 Nm
   - Replace

3. Camshaft roller chain
   - Mark direction of rotation before removing (installation position), refer to "Marking Roller Chains"
   - Installing, refer to "Valve Timing, Installing and Adjusting" See: Timing Chain > Removal and Replacement > Valve Timing, Installing and Adjusting

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[Diagram of Chain Drive Assembly Overview]
Installing, refer to "Valve Timing, Installing and Adjusting"  
See: Timing Chain > Removal and Replacement > Valve Timing, Installing and Adjusting

4. Exhaust camshaft timing adjuster
   Marking: 32A  
   Turn engine over only when camshaft timing adjuster is installed  
   Check camshaft timing adjustment, refer to "Camshaft, Checking Adjustment”  
See: Camshaft, Engine > Adjustments > Camshaft, Checking Adjustment  
Installing, refer to "Valve Timing, Installing and Adjusting”  
See: Timing Chain > Removal and Replacement > Valve Timing, Installing and Adjusting

5. Intermediate shaft
6. Thrust washer

7. 8 Nm  
   Insert with Locking Compound -D 000 600 A2-

8. Tensioning plate  
   For camshaft roller chain
9. Mounting stud, 10 Nm  
   For tensioning plate
10. Chain tensioner, 40 Nm  
    For camshaft roller chain  
    Turn engine over only when chain tensioner is installed

11. Seal  
    Replace if damaged or leaking

12. Chain sprocket  
    For roller chain  
    Installing, refer to "Valve Timing, Installing and Adjusting”  
See: Timing Chain > Removal and Replacement > Valve Timing, Installing and Adjusting

13. Chain sprocket  
    For camshaft roller chain  
    Installing, refer to "Valve Timing, Installing and Adjusting”  
See: Timing Chain > Removal and Replacement > Valve Timing, Installing and Adjusting

14. 60 Nm plus an additional 1/4 turn (90°)  
    Replace  
    Use Counter support -T10069- to loosen and tighten, refer to "Valve Timing, Installing and Adjusting”  
See: Timing Chain > Removal and Replacement > Valve Timing, Installing and Adjusting

15. Chain tensioner with tensioning rail  
    For roller chain  
    Before installation release the locking device in the chain tensioner with a small screwdriver and press the tensioning plate against the chain tensioner  
    Turn engine over only when chain tensioner is installed

16. Drive sprocket  
    Integral part of crankshaft  
    Ground down tooth aligned with main bearing joint = TDC cyl. 1, refer to Valve Timing, Installing and Adjusting  
See: Timing Chain > Removal and Replacement > Valve Timing, Installing and Adjusting

17. Roller chain  
    Mark direction of rotation before removing (installation position), refer to Marking Roller Chains  
See: Timing Chain > Removal and Replacement > Valve Timing, Installing and Adjusting

18. Guide rail  
    For roller chain  
    Remove and install together with roller chain, refer to "Valve Timing, Installing and Adjusting”  
See: Timing Chain > Removal and Replacement > Valve Timing, Installing and Adjusting

19. Stud without collar, 10 Nm  
    For guide rail

http://repair.alldata.com/alldata/article/display.action?componentId=57&iTypeId=376&n...
20.10 Nm
For guide rail

21.23 Nm
For guide rail

22. Intake camshaft timing adjuster
   Marking: 24E
   Turn engine over only when camshaft timing adjuster is installed
   Check camshaft timing adjustment, refer to “Camshaft, Checking Adjustment” See: Camshaft, Engine > Adjustments > Camshaft, Checking Adjustment
   Installing, refer to “Valve Timing, Installing and Adjusting” See: Timing Chain > Removal and Replacement > Valve Timing, Installing and Adjusting
   23.60 Nm plus additional 1/4 turn (90°) further
   Replace
   Contact surface of sensor wheel on bolt head must be dry for assembly
   To remove and install, use a 32 mm open jaw spanner on camshaft to counter support, refer to “Camshaft” See: Camshaft, Engine > Removal and Replacement > Camshaft

24. Guide rail
   For camshaft roller chain

25. Camshaft adjustment valve 1 (exhaust) -N318-
   Check camshaft timing adjustment, refer to “Camshaft, Checking Adjustment” See: Camshaft, Engine > Adjustments > Camshaft, Checking Adjustment
   Mark connector and component before pulling connector off

26. Valve 1 for camshaft adjustment -N205-
   For intake camshaft
   Check camshaft timing adjustment, refer to “Camshaft, Checking Adjustment” See: Camshaft, Engine > Adjustments > Camshaft, Checking Adjustment
   Mark connector and component before pulling connector off

27. Guide rail
   For camshaft roller chain
   Clipped into control housing

Marking Roller Chains
- Mark roller chains before removing (for example with paint, -arrow- pointing in direction of rotation)

**Note:** Do not mark chain with a punched mark, notch or similar!

**To Loosen and Tighten Securing Bolt, Hold Vibration Damper with Counter Support -T10069-**

**Note:**
- Vibration damper securing bolt must be replaced
- Tighten securing bolt with torque wrench (150 to 800 Nm) -VAG 1601-