Kamasa-TOOLS®

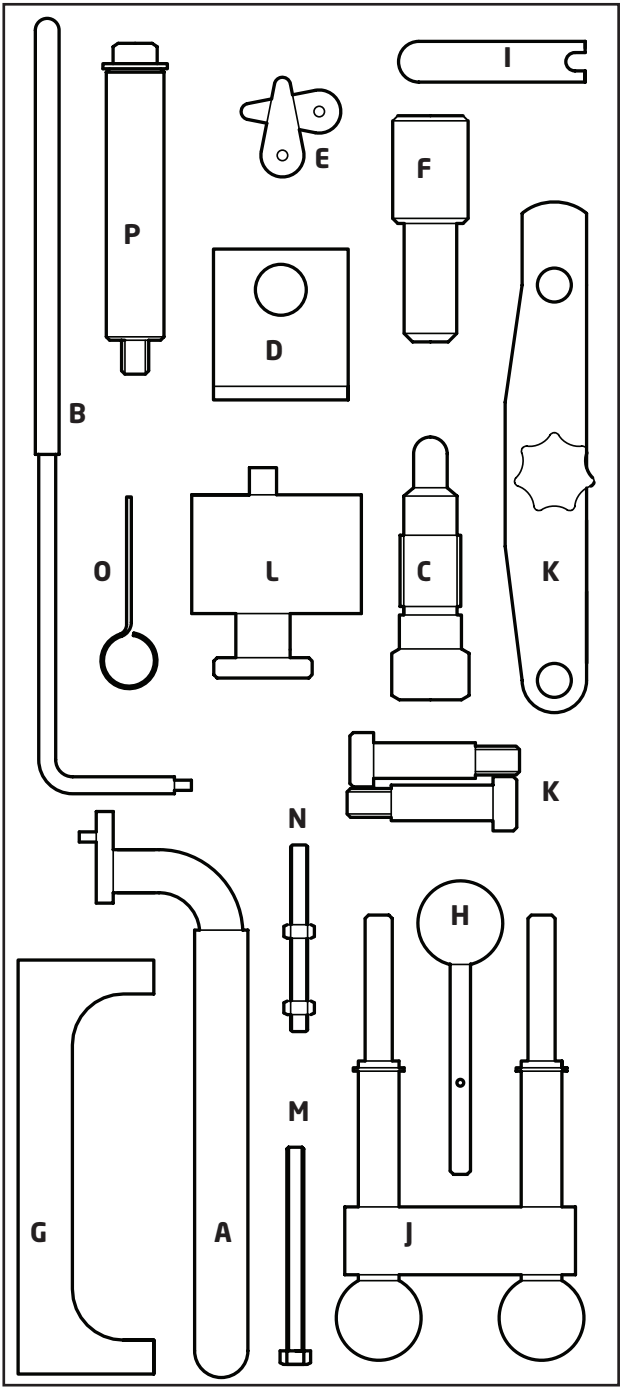
PART NO. K312

Engine Timing Tools

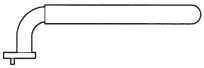
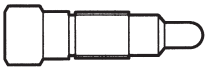
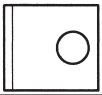
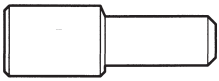
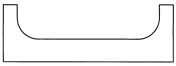
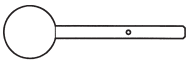
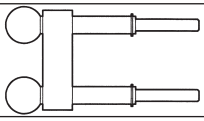
Volksawagen Audi Group

Master Kit

Plan Layout



Component Identification

Ref.	OEM Ref.	Description	Identification
A 23044-01	V.159 T 10020	Tension Wrench	
B 23044-03	3387 U-30009	Tension Wrench	
C 23056-0	3242	Crankshaft locking tool	
D 23056-0	3458	Camshaft aligning too	
E 23060-F		Shim Set. (2)	
F 23061-01	2064 U-20003	15,4mm. Injection Pump Setting Pin.	
G 23062-B	2065A U-40021	Camshaft Setting Bracket.	
H 23069-11	3359 T20102 U-40074	Injection Pump Pulley Timing Pin 6 mm.	
I 23069-12	T10008 310-084 (23-058)	Tensioner Locking Tool	
J 23069-14	T10016	Camshaft Locking Tool	
K 23161-B	3418 T20038	Camshaft Setting Bracket	
L 23161-03	T10050 310-085 (23-059)	Crankshaft Locking Tool.	
M 23161-04		Setscrew	
N 23161-05	T20046	Stud and Nuts M5 x 55 mm	

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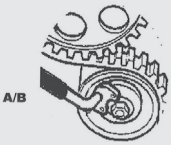
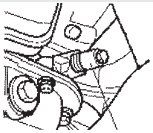
Component Application

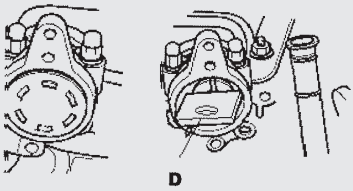
Tension Wrench This wrench is used when fitting timing belts, and is necessary for holding and positioning the belt tensioner pulley in alignment whilst the centre nut is tightened.



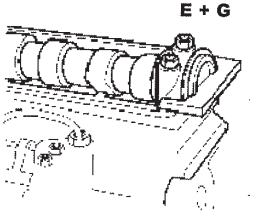
Crankshaft Locking Tool for Petrol & Diesel Engines



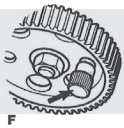
Locking Plate (2) – Audi / Volkswagen. For use on Audi A4, A6, A8 and Allroad / Volkswagen Passat with 2,5 V6 TDI diesel engines (Engine Code AFB, AKN, AKE, AYM)
These tools are used to lock both camshafts in the correct timing position during the replacement of both Fuel Pump and Timing Belts.



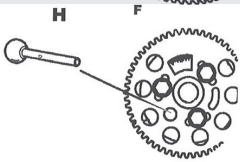
Camshaft Setting Bracket is used to set the correct timing position of the camshaft. The centre part of the bracket fits into the slotted end of the camshaft. The ends of the bracket locate on the cylinder head. The correct alignment is achieved by placing equal thickness of shim/feeler gauge between both ends of the bracket and the cylinder head.



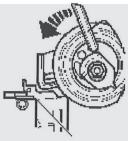
Injection Pump Pulley Locking Pin is 15,4mm. diameter and is used on engines having a one piece Injection Pump Sprocket.



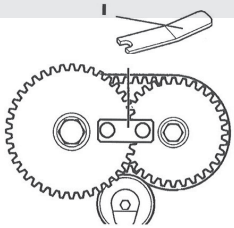
Injection Pump Pulley Locking Pin is used to lock the timing position of the camshaft to the injection pump and is for two-part sprockets which are retained by three bolts. The pin is specially hollowed to prevent fuel pushing the pin back out.



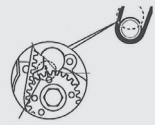
Tensioner Locking Tool is inserted into the automatic tensioner unit after the tension has been released but before the timing belt is removed. This tool is left in place until the tension has been re-set after fitting the new belt.

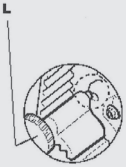


Camshaft Locking Tool is fitted through the two camshaft sprockets and located in the cylinder head to set the correct timing before the timing belt and /or exhaust camshaft belt is removed.

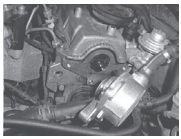


Crankshaft Locking Tool is used to set the crankshaft timing position during both removal and replacement of the timing belt. The crankshaft is first turned to TDC on N0.1 cylinder, checking the timing marks on the camshaft sprocket hubs are aligned.
Slide the crankshaft locking tool into position ensuring that the triangular mark/ arrow on the tool (positioned on the left behind the handle) aligns with the timing mark on the crankshaft sprocket.

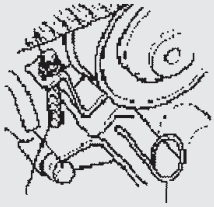




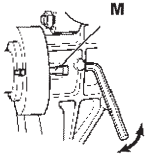
Camshaft Setting Bracket enables the correct engine timing to be conducted following the simple removal of the vacuum pump and saves time and expense because it is not necessary to remove the camshaft cover and gasket. When the timing belt has broken or has been removed this tool can be used with an open-ended spanner to turn the camshaft to the correct timing position. Then the two Dowel Screws are attached to enable correct alignment.



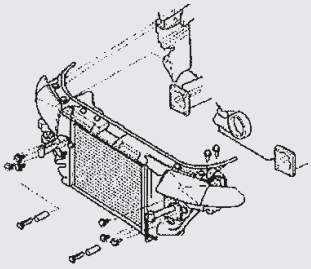
M5 x 55mm. Stud and Nut. This is used to apply pressure to the tensioner plunger to release the tension from the timing belt.
Tensioner Pin. This is used inconjuncion with the above Stud and Nut and locks the tensioner adjuster in the retracted position to permit the old timing belt to be removed and the new timing belt to be fitted.



M5 x 60mm. Setscrew is used to lock the viscous fan coupling whilst it is being un-screwed, using a suitable hexagon key.



Support Guides. Some cars require the front panel to moved forward to enable access to the engine.



Safety Precautions

- If the engine has been identified as an Interference engine, damage to the engine will occur if the timing belt has been damaged. A compresion check of all the cylinders should be taken before the cylinder head (s) are removed.
- Do not turn crankshaft or camshaft when the timing belt has been removed
- To make turning the engine easier, remove the spark plugs
- Observe all tightening torques
- Do not turn the engine using the camshaft or any other sprocket
- Disconnect the battery earth lead (Check Radio code is available)
- Do not use cleaning fluids on belts, sprockets or rollers
- Some toothed timing belts are not interchangeable. Check the replacement belt has the correct tooth profile
- Always mark the belt with the direction of running before removal
- Do not lever or force the belt onto its sprockets
- Check the ignition timing after the belt has been replaced.
- Do not use timing pins to lock the engine when slackening or tightening the crankshaft pulley bolts
- ALWAYS REFER TO A REPUTABLE MANUFACTURERS WORKSHOP MANUAL **Warning - Incorrect or out of phase engine timing can result in damage to the valves. It is always recommended to turn the engine slowly, by hand, and to re-check the camshaft and crankshaft timing positions**