

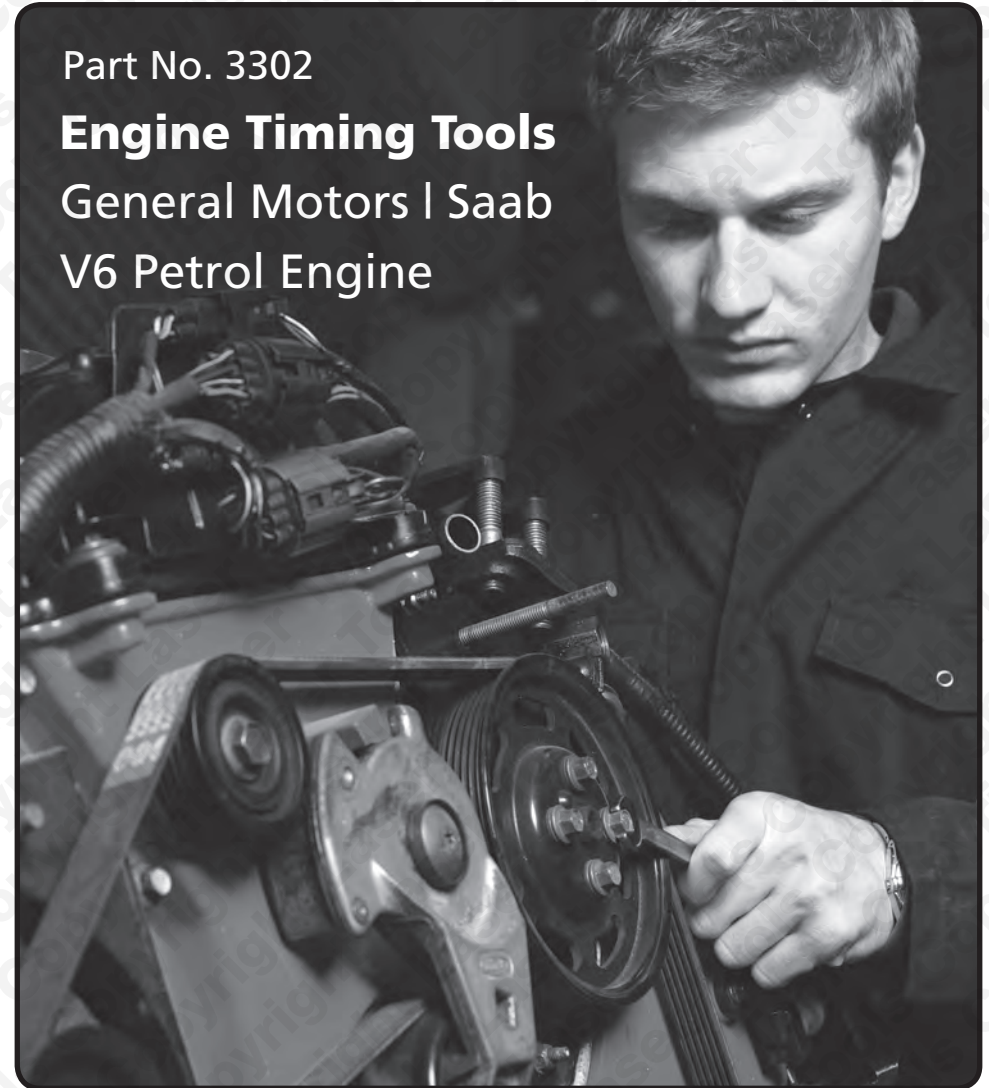
LASER®

Part No. 3302

Engine Timing Tools

General Motors | Saab

V6 Petrol Engine



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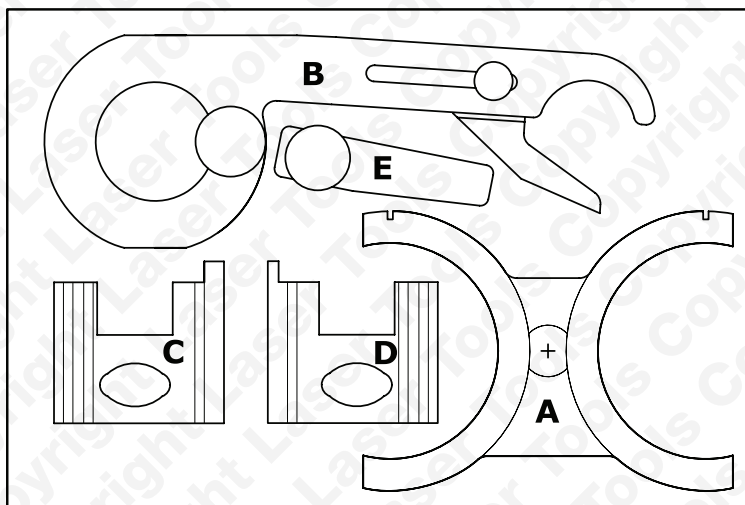
Guarantee

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Plan Layout



Ref	Code	Oem Code	Description
A	C239	KM 800-20	Crankshaft Locking Tool
B	C238	KM 800-10	Camshaft Timing Gauge
C	C249	KM 800-2	Camshaft Locking Tool (LH) (Green)
D	C248	KM 800-1	Camshaft Locking Tool (RH) (Red)
E	C242	KM 800-30	Belt Holding Wedge

Warning

Incorrect or out of phase engine timing can result in damage to the valves. The Tool Connection cannot be held responsible for any damage caused by using these tools in anyway.

Safety Precautions – Please read

- Disconnect the battery earth leads (check radio code is available)
- Remove spark or glow plugs to make the engine turn easier
- Do not use cleaning fluids on belts, sprockets or rollers
- Always make a note of the route of the auxiliary drive belt before removal
- Turn the engine in the normal direction (clockwise unless stated otherwise)
- Do not turn the camshaft, crankshaft or diesel injection pump once the timing chain has been removed (unless specifically stated)
- Do not use the timing chain to lock the engine when slackening or tightening crankshaft pulley bolts
- Do not turn the crankshaft or camshaft when the timing belt/chain has been removed
- Mark the direction of the chain before removing
- Crankshafts and Camshafts may only be turned with the chain drive mechanism fully installed.
- Do not turn crankshaft via camshaft or other gears
- Check the diesel injection pump timing after replacing the chain
- Observe all tightening torques
- Always refer to the vehicle manufacturer's service manual or a suitable proprietary instruction book
- 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

Applications

The application list for this product has been compiled cross referencing the OEM Tool Code with the Component Code.

In most cases the tools are specific to this type of engine and are necessary for Cam belt or chain maintenance.

If the engine has been identified as an interference engine valve to piston damage will occur if the engine is run with a broken Cam belt.

A compression check of all cylinders should be performed before removing the cylinder head.

Always consult a suitable work shop manual before attempting to change the Cam belt or Chain.

The use of these engine timing tools is purely down to the user's discretion and Tool Connection cannot be held responsible for any damage caused what so ever.

ALWAYS USE A REPUTABLE WORKSHOP MANUAL

Manufacturer	Model	Style	Engine Code	Year
Saab	900	2.5 V6	B258	1993-98
	9000	3.0 V6	B308	1993-98
	9-5	3.0 V6	B308E	1998-03
Vauxhall	Cavalier	2.5I V6	C25XE	1993-96
	Calibra	2.5I V6	C25XE	1993-96
	Vectra	2.5I V6	X25XE	1994-99
	Omega-B	2.5 I 3.0 V60	X25XE I X30XE	1994-99
	Calibra	2.5 V6	X25XE	1994-99
	Sintra	3.0 V6	X30XE	1994-99

Instruction

ENGINE TIMING TOOLS SET FOR GENERAL MOTORS | SAAB V6 PETROL ENGINES

**ALWAYS ROTATE THE ENGINE
MANUALLY AFTER CHANGING TIMING
TO ENSURE THE
TIMING IS CORRECTLY SET.**

Instructions for removal of Cam belt

1. Remove all parts as instructed in workshop manual including crankshaft pulley, bolts and timing belt cover
2. Align crankshaft to timing marks as described in your workshop manual
3. Fit crankshaft locking tool **(A)** in place with Holding Screw and turn crankshaft slowly clockwise until the arm of the tool rests on the water pump flange and secure in position with sliding jaws.
4. Fit Red camshaft locking tool **(D)** between CAM1 and CAM2 (If necessary release belt tension slightly by turning upper guide).
5. Fit Green camshaft locking tool **(C)** between CAM3 and CAM4 (again if necessary ease tension on Cam belt)
6. Slacken tension bolt and turn tensioner clockwise to release tension on belt.
7. Slacken upper and lower guide pulley bolts
8. Remove timing belt

**NOTE: CAM BELT RENEWAL IS ADVISED
WHENEVER IT HAS BEEN REMOVED OR
DISTURBED.**

Installation

1. Make sure all locking tools are secure and in place.
2. Check with workshop manual for correct alignment and timing marks. Ensure double lines on belt are aligned with crankshaft timing marks.

**For Vauxhall V6 engines X25XE/X30XE
with raised outer edge on tensioner
pulley (1996-2001)
Vauxhall Vectra 2.5 V6 | Omega-B 2.5 | 3.0
V6 Sintra 3.0 V6 | Calibra 2.5 V6**

1. Fit belt to Camshaft sprockets in clockwise direction
2. Starting at crankshaft sprocket, ensure timing marks are aligned
3. Wedge belt into position using belt holding tool **(E)** ensuring belt is taut around sprockets
4. Fit timing belt around tensioner pulley
5. Observing rotation direction marks on timing belt fit belt around CAM1/ CAM2 (make sure timing marks are aligned) around upper guide pulley.
6. Fit belt around lower guide pulley
7. Continue fitting belt around CAM3/ CAM4, aligning timing marks.
8. Turn lower guide pulley anti-clockwise until cam belt is taut between lower guide pulley and camshaft sprocket CAM4
9. Tighten bolt on lower guide pulley to 40Nm
10. Repeat this procedure on upper guide pulley until belt is taut between CAM2/ CAM3.
11. Tighten bolt to 40Nm
12. Turn tensioner pulley anti-clockwise as far as possible to pre-tension belt.
13. Turn tensioner pulley clockwise until tensioner mark is 1mm above floating mark.
14. Tighten tensioner bolt to 20Nm
15. Remove Crankshaft, Camshaft locking tools and belt tensioner.

Instruction

Installation

Vauxhall V6 Engines C25XE(1993-1996)/ X25XE | X30XE(1994-1996) without raised outer edge on tensioner pulley

Vauxhall Cavalier 2.5i V6 | Vectra-A 2.5i 2.5 V6 | Calibra 2.5i | 2.5 V6 Omega-B2.5 3.0 V6 | Sintra 3.0 V6

Saab V6 Engines **without** raised outer edge on tensioner pulley Saab 900 2.5 V6/9000 3.0 V6

1. Fit belt to camshaft sprockets in ANTI-CLOCKWISE direction
2. Starting at crankshaft sprocket, align double timing marks and observing rotation direction on timing belt
3. Using belt holding tool, wedge belt into position making sure the belt is taut between sprockets
4. Fit belt around lower guide pulley
5. Fit belt around camshaft sprockets CAM3/CAM4 ensuring the slack between lower guide pulley and CAM3/4 is less than 10mm
6. Fit belt around upper guide pulley and CAM1/2 making sure timing marks are aligned.
7. Fit belt around tensioner
8. Turn lower guide pulley anti-clockwise until belt is taut between lower guide pulley and CAM4. Tighten bolt to 40Nm
9. Turn upper guide pulley anti-clockwise until belt is taut between CAM2/CAM3. Tighten bolt to 40Nm
10. Turn tensioner pulley anti-clockwise until marks are 5mm apart. Tighten bolt to 20Nm
11. Remove crankshaft/camshaft locking tools and belt tensioner.

ADJUSTMENT

1. Turn crankshaft slowly twice in clockwise direction until just before timing marks
2. Fit locking tool to crankshaft as before, making sure timing marks are aligned
3. Fit timing gauge **(B)** to camshaft sprockets CAM1/CAM2 and CAM3/ CAM4 in turn
4. Make sure marks on sprockets are aligned with marks on timing gauge.
5. Check edge of timing belt is aligned with edge of sprockets
6. If alignment is not exact, repeat the tensioning and adjustment procedures starting at lower guide pulley. Tighten bolt to 20Nm
7. Remove crankshaft locking tool and tighten bolt to 20Nm

**CHECK SEALING TAPE ON TIMING BELT
COVERS IS SECURE AND RENEW IF
NECESSARY**