### Components

| Ref. | Component Code | OEM Ref. | Description             |
|------|----------------|----------|-------------------------|
| A    | C626           | VM9992   | Crankshaft Locking Tool |
| В    | C627           | VM9991   | Camshaft Locking Tool   |





## **Applications**

Wrangler

Nitro

Nitro

Dodge

2,8 D

2,8 D

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

most cases the tools are specific to this type of engine and are necessary for cambelt or train maintenance.

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

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

ways consult a suitable work shop manual before attempting to change the cambelt or chain.

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

Size | Fuel | Eng Code Year to Grand Voyager 2,8 118 (161) 3800 2014 Grand Voyager 2,8 D 120 (163) 3800 2011 2014 Grand Voyager D 131 (178) 3800 2013 2014 Grand Voyager 2,8 VM64C 2011 Grand Voyager VM640 2011 Cherokee 2,8 ENS 147 (200) 360 2013 2.8 ENS (51C) 130 (177) 3800 2011 Wrangler 2.8 D 49C 130 (177) 3800 2007 2011 Wrangler 2,8 D 50C 130 (177) 3800 2007 2011 Wrangler 2,8 ENS 128 (174) 3800 2007 2011 Wrangler 2,8 ENS VM10D 147 (200) 3600 2010 2014 Wrangler 2,8 ENS VM11D 147 (200) 3600 2010 2014

118 (158)

128 (174) 3800 2007

130 (177) 3800 2007

2008

2011

2011

2010

## Instructions

# Preparation and precautions:

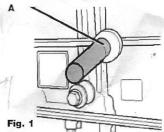
- Raise the front of the vehicle and remove the right hand front wheel and inner wheel arch where required.
- Remove the engine under shield, top cover, air intake, auxiliary drive belt(s) and crankshaft position sensor.

 $\mbox{N.B.}$  The information given below is for reference only. We recommend the use of Manufacturer data or Autodata.

We cannot accept responsibility for damage or personal injury caused by the use of the kit how so ever caused.

#### Component A

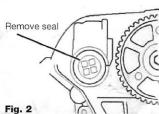
Turn the crankshaft in a clockwise direction until the crankshaft timing marks are at 3 o'clock. Check the camshaft gear alignment holes are lined up. Fit the crankshaft locking tool as shown in Fig. 1.



### Component B

Used to lock the exhaust camshaft in its timed position which in turn locks the inlet camshaft.

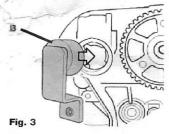
In order to gain access to the end of the exhaust camshaft the blanking seal on the end of the cylinder head must be removed as shown in Fig. 2.







With the seal removed and taking care not to damage or move the camshaft sensor disc mark the position of the disc relative to the cam and cylinder head. Fit component B as shown in Fig. 3.



Our products are designed to be used correctly and with care for the purpose for which they are intended. No liability is accepted by the Tool Connection for incorrect use of any of our products, and the Tool Connection cannot be held responsible for any damage to personnel, property or equipment when using the tools. Incorrect use will also invalidate the warranty.

Fapplicable, the applications database and any instructional information provided has been designed to offer general guidance for a particular tool's use and while all attention is given to the accuracy of the data no project should be attempted without referring first to the manufacturer's technical documentation (workshop or instruction manual) or the use of a recognised authority such as

It is our policy to continually improve our products and thus we reserve the right to alter specifications and components without prior notice. It is the responsibility of the user to ensure the suitability of the tools and information prior to their use.

# Safety Precautions

- Disconnect the battery earth leads (check radio code is available)

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  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
  It is always recommended to turn the engine slowly, by hand and to re-check the camshaft and crankshaft timing positions.
  Crankshafts and Camshafts may only be turned with the chain drive mechanism fully installed.
  Do not turn crankshaft via camshaft or other gears

- . 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

ALWAYS USE A REPUTABLE WORKSHOP MANUAL



Safety First. Be Protected.

### Guarantee

If this product fails through faulty materials or workmanship, contact our service department direct on: +44 (0) 1926 818186. Normal wear and tear are excluded as are consumable items and abuse.





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