

1. TITLE PAGE

1.1 INTRODUCTION:

USER GUIDE FOR: Engine Timing Kit

Stock No: 16098

Part No: ETK125

1.2 REVISIONS:

Date first published June 2018.

As our user manuals are continually updated, users should make sure that they use the very latest version.

Downloads are available from: <http://drapertools.com>

Draper Tools Limited

Hursley Road

Chandler's Ford

Eastleigh

Hampshire

SO53 1YF

UK

Website: drapertools.com

Product Helpline: +44 (0) 23 8049 4344

General Fax: +44 (0) 23 8026 0784

1.3 UNDERSTANDING THIS GUIDES SAFETY CONTENT:

WARNING! – Information that draws attention to the risk of injury or death.

CAUTION! – Information that draws attention to the risk of damage to the product or surroundings.

1.4 COPYRIGHT © NOTICE:

Copyright © Draper Tools Limited.

Permission is granted to reproduce this publication for personal and educational use only. Commercial copying, redistribution, hiring or lending is prohibited.

No part of this publication may be stored in a retrieval system or transmitted in any other form or means without written permission from Draper Tools Limited.

In all cases this copyright notice must remain intact.

2. CONTENTS

| | |
|---|-------|
| 1. TITLE PAGE | |
| 1.1 INTRODUCTION | 2 |
| 1.2 REVISION HISTORY | 2 |
| 1.3 UNDERSTANDING THIS GUIDE..... | 2 |
| 1.4 COPYRIGHT NOTICE | 2 |
| 2. CONTENTS | |
| 2.1 CONTENTS | 3 |
| 3. GUARANTEE | |
| 3.1 GUARANTEE | 4 |
| 4. GENERAL PRODUCT INFORMATION | |
| 4.1 GENERAL PRODUCT INFORMATION | 5 |
| 5. HEALTH AND SAFETY INFORMATION | |
| 5.1 GENERAL SAFETY INSTRUCTIONS FOR USE | |
| Personal safety | 6 |
| 6. CONTENTS | |
| 6.1 PARTS DRAWING AND LISTING | 7 |
| 7. APPLICATION | |
| 7.1 PRODUCT APPLICATION AND COMPATIBILITY LISTING | 8 |
| 8. PREPARATION | |
| 8.1 ADVISORIES BEFORE USE | 9 |
| 9. PROCEDURE AND APPLICATION GUIDE | |
| 9.1 APPLICATION GUIDANCE | 10-11 |
| 10. EXPLANATION OF SYMBOLS | |
| 10.1 EXPLANATION OF SYMBOLS | 11 |

3. GUARANTEE

3.1 GUARANTEE

Draper tools have been carefully tested and inspected before shipment and are guaranteed to be free from defective materials and workmanship.

Should the tool develop a fault, please return the complete tool to your nearest distributor or contact:

Draper Tools Limited, Chandler's Ford, Eastleigh, Hampshire, SO53 1YF. England.

Telephone Sales Desk: (023) 8049 4333 or:

Product Helpline (023) 8049 4344.

A proof of purchase must be provided.

If upon inspection it is found that the fault occurring is due to defective materials or workmanship, repairs will be carried out free of charge. This guarantee period covering parts/labour is 12 months from the date of purchase except where tools are hired out when the guarantee period is 90 days from the date of purchase. This guarantee does not apply to normal wear and tear, nor does it cover any damage caused by misuse, careless or unsafe handling, alterations, accidents, or repairs attempted or made by any personnel other than the authorised Draper warranty repair agent.

Note: If the tool is found not to be within the terms of warranty, repairs and carriage charges will be quoted and made accordingly.

This guarantee applies in lieu of any other guarantee expressed or implied and variations of its terms are not authorised.

Your Draper guarantee is not effective unless you can produce upon request a dated receipt or invoice to verify your proof of purchase within the guarantee period.

Please note that this guarantee is an additional benefit and does not affect your statutory rights.

Draper Tools Limited.

4. GENERAL PRODUCT INFORMATION

This product is designed to be used correctly and with care for the purpose for which it is intended. No liability is accepted by Draper Tools Limited for incorrect use or application of any of our products, and Draper Tools Limited cannot be held responsible for any damage to personnel, property or equipment when using this product. Incorrect use will also invalidate any warranty.

The applications database and any instructional information provided has been designed to offer general guidance for a particular product'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 Autodata.

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 product and information prior to use.

5. HEALTH AND SAFETY INFORMATION

GENERAL SAFETY INSTRUCTIONS

Warning: Please read all safety warnings and all details carefully. Failure to follow the warnings may result in serious injury or major component damage.

Important: Draper Tools recommends that this product should not be modified or used for any application other than that for which it was designed.

Save all warnings and instructions for future reference.

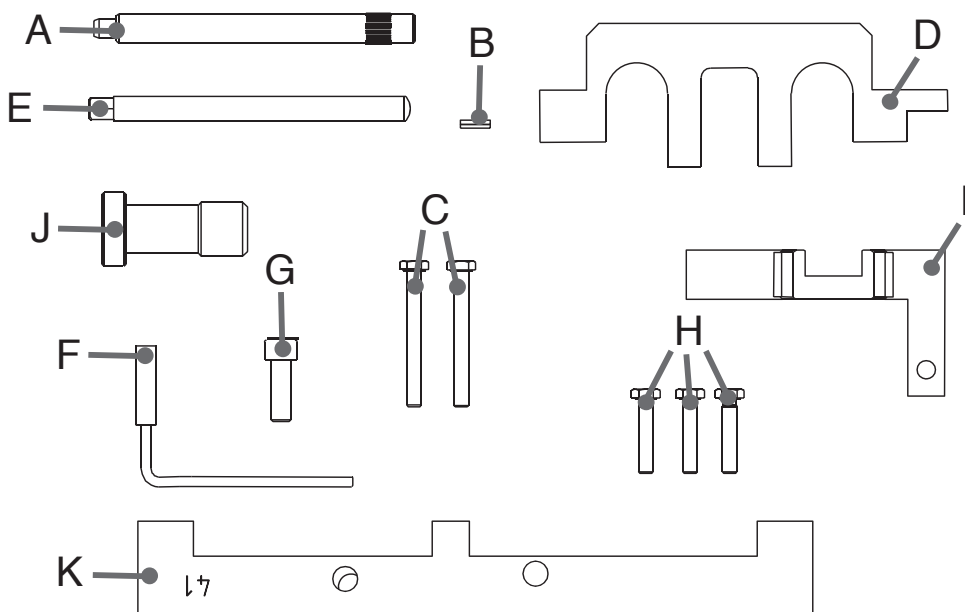
1) Personal safety

- a) Stay alert, watch what you are doing and use common sense when using this product. Do not use this product while you are tired or under the influence of drugs, alcohol or any medication. A moment of inattention while using this product may result in serious personal injury.
- b) Use personal protective equipment as necessary.
- c) Check and remove any part of the product before turning/testing the engine. A part left attached to a rotating part of the engine may result in personal injury or major component damage.
- d) Carefully clean the tool components after every use.
- f) Keep the tool components safe and tidy.
- g) Do not use this product for any purpose other than for which it is designed.

Warning! Some of the packaging materials used may be harmful to children. Do not leave any of these materials in the reach of children.

If any of the packaging is to be thrown away, make sure it is disposed of correctly; according to local regulations.

6. CONTENTS



| ITEM | DESCRIPTION | OEM | STOCK No. |
|------|----------------------------------|----------------------|-----------|
| A | Crankshaft Locking Pin | 11 5 120 11 2 300 | 22384 |
| B | 2x Washers For Item C | N/A | 22388 |
| C | 2x M6 X 55 HT Set Screw | N/A | 22391 |
| D | Exhaust Camshaft Alignment Tool | 11 9 291 | 22662 |
| E | Screw For Item J | N/A | 22858 |
| F | Flywheel Locking Pin | 11 9 190 | 23094 |
| G | M8 X 25 Cap Screw | N/A | 23279 |
| H | 3x M6 X 30 Setscrews | N/A | 23280 |
| I | Inlet Camshaft Alignment Tool | 11 9 292 | 23327 |
| J | Timing Chain Pre-tensioner Tool | 11 9 340 | 23339 |
| K | Vanos Sensor Gear Alignment Tool | 11 9 350 | 23356 |

7. APPLICATION

The **16098** has been developed as an **engine timing kit** for the vehicles listed below. Allows the user to lock the engine in the 'timed' position so the camshaft drive chain can be replaced or for checking the engine timing.

Used on the following Vehicles:

BMW 1 Series 118i 2004 - 2014

BMW 1 Series 120i 2004 - 2014

BMW 3 Series 316i 2001 - 2007

BMW 3 Series 318i 2001 - 2007

BMW 3 Series 318i 2005 - 2011

BMW 3 Series 320i 2005 - 2014

BMW 5 Series 520i 2007 - 2010

BMW X1 xDrive18i 2010 - 2012

BMW X3 xDrive 20i 2005 - 2010

BMW Z4 2.0 2004 - 2009

Engine Codes:

1.8cc

N42 B18A, N46 B18

2.0cc

N42 B20A, N46 B20, N46 B20B, N46T B20, N46T B20B, N46T B20BD,
N46T B20BZ, N46T B20O2

8. PREPARATION

The following is for guidance only. Please refer to OEM derived data such as the vehicle manufacturer's own data or Autodata. The use of this product is purely down to the user's discretion and Draper Tools Limited cannot be held responsible for any damage caused what so ever.



9. PROCEDURE AND APPLICATION GUIDE

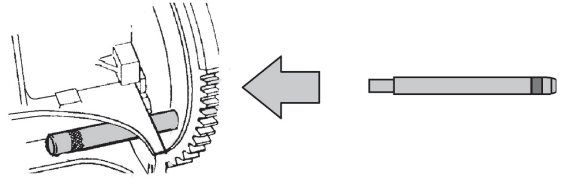
Depending on manufacture and model, some engine components do change. Please check with Autodata or the manufacturer's data before use.

The following instructions are for guidance only. Please refer to OEM derived data such as the vehicles manufactures own data or Autodata.

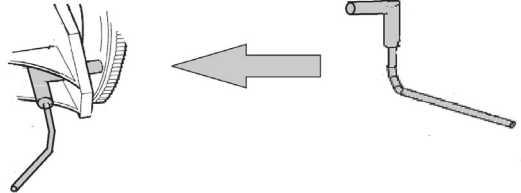
The use of these engine timing tools is purely down to the user's discretion and Draper Tools cannot be held responsible for any damage caused what so ever.

Component 1 = CRANKSHAFT LOCKING PIN

Ensure engine is set at TDC on number 1 cylinder and insert the crankshaft pin as shown



Component 2 = FLYWHEEL LOCKIN



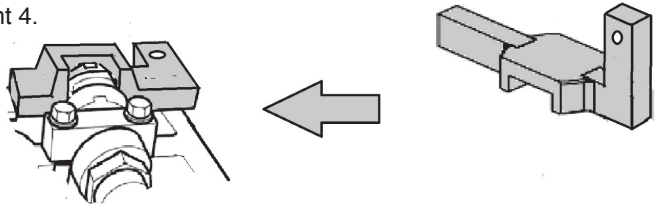
Components 3 & 7 = CHAIN TENSIONER PRE-LOAD TOOL

Component 3 & 7 are provided to allow the user to release the tension on the camshaft chain tensioner which is particularly required when

- Removing or replacing the Cam chain
- Setting/removing/replacing the VANOS units(s)

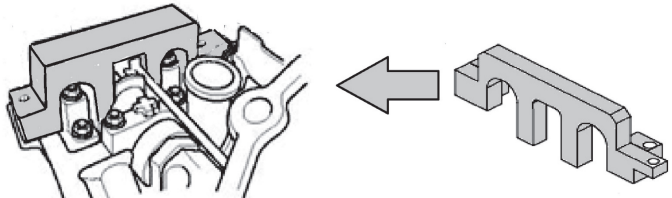
Component 4 = INLET CAMSHAFT ALIGNMENT TOOL

Component 4 is used to align the inlet camshaft. Fit component 6 after component 4.



Component 6 = EXHAUST CAMSHAFT ALIGNMENT TOOL

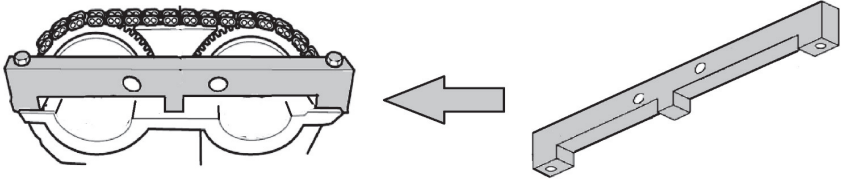
Component 6 is used to align the exhaust camshaft and hold down component 4.



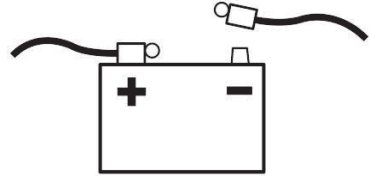
9. PROCEDURE AND APPLICATION GUIDE

Component 5 = VANOS SENSOR GEAR ALIGNMENT TOOL

Component 5 is used to align the VANOS sensor gear after the camshafts are aligned.



Please note images are for guidance only and subject to change.



10. EXPLANATION OF SYMBOLS

10.1 EXPLANATION OF SYMBOLS



Read the guide.



Refer to website.

CONTACTS

Draper Tools Limited, Hursley Road,
Chandler's Ford, Eastleigh, Hampshire. SO53 1YF. U.K.

Helpline: (023) 8049 4344

Sales Desk: (023) 8049 4333

Internet: drapertools.com

E-mail: sales@drapertools.com

General Enquiries: (023) 8026 6355

Service/Warranty Repair Agent:

For aftersales servicing or warranty repairs, please contact the
Draper Tools Helpline for details of an agent in your local area.

YOUR DRAPER STOCKIST

MCDB0618

©Published by Draper Tools Limited.

No part of this publication may be reproduced, stored in a retrieval system or transmitted in any form or by any means, electronic, mechanical photocopying, recording or otherwise without prior permission in writing from Draper Tools Ltd.