

DRAPER[®]

INSTRUCTIONS FOR Coolant Vacuum Refill Kit

Stock No.09544 Part No.CAV1

IMPORTANT: PLEASE READ THESE INSTRUCTIONS CAREFULLY TO ENSURE THE SAFE AND EFFECTIVE USE OF THIS PRODUCT.



DRAPER[®]

GENERAL INFORMATION

These instructions accompanying the product are the original instructions. This document is part of the product, keep it for the life of the product passing it on to any subsequent holder of the product. Read all these instructions before assembling, operating or maintaining this product.

This manual has been compiled by Draper Tools describing the purpose for which the product has been designed, and contains all the necessary information to ensure its correct and safe use. By following all the general safety instructions contained in this manual, it will ensure both product and operator safety, together with longer life of the product itself.

All photographs and drawings in this manual are supplied by Draper Tools to help illustrate the operation of the product.

Whilst every effort has been made to ensure the accuracy of information contained in this manual, the Draper Tools policy of continuous improvement determines the right to make modifications without prior warning.



CONTENTS

- 1. Guarantee 1
- 2. Specification & Scope 2
- 3. Safety instructions 3
- 4. Identification guide 4
- 5. Assembly
 - Connecting to the expansion tank..... 5
 - Joining the gauge assembly to the venturi 5
- 6. Operation and use
 - Connecting to an air supply & creating a vacuum..... 6
 - Refilling the system with coolant 7
- 7. Disposal 8
- 8. Explanation of symbols/Pictograms 8



1. GUARANTEE

Draper tools have been carefully tested and inspected before shipment and are guaranteed to be free from defective materials and workmanship for a period of 12 months from the date of purchase except where tools are hired out when the guarantee period is ninety days from the date of purchase.

A proof of purchase must be provided with the tool.

Should the machine develop any fault, please return the complete tool to your nearest authorized warranty repair agent 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.

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 does not apply to normal wear and tear, nor does it cover any damage caused by misuse, careless or unsafe handling, alterations, accident, 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 12 month period.

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

Draper Tools Limited



2. SPECIFICATION

The Draper Tools policy of continuous improvement determines the right to change specification without notice.

Stock no.	09544
Part no.....	CAV1
Working pressure	80-90psi
Maximum pressure	90psi
Weight (gross).....	1.68kg

ALWAYS WEAR APPROVED SAFETY GOGGLES, EAR DEFENDERS AND GLOVES.

SCOPE: After the cooling system has been drained, this product will speed up and simplify the process of refilling the system without the potential for trapped air (creating airlocks). It is designed for connection on to private and light commercial vehicle’s cooling systems allowing a vacuum to be applied. When the system is ready, coolant will be drawn back into the system as the vacuum is released.

NOTE: Any other application is considered misuse.



3. SAFETY INSTRUCTIONS

⚠ WARNING: Read all safety warnings and all instructions. Failure to follow the warnings and instructions may result in electric shock, fire and/or serious injury.

If the engine has been running the water in the cooling system will be scalding hot and under pressure. To prevent serious burns allow the vehicle sufficient time to cool and when you remove the radiator cap - do this slowly with a rag covering it. The rag should soak up any scalding water that is forced out toward you.

When working on any vehicle - make sure it is out of gear (the gearbox in neutral) and the parking brake is applied with the wheels chocked.

Take care when using compressed air - high pressure air on the skin can cause injury or prove fatal.

CAUTION: Do not attempt to modify this product in any way.

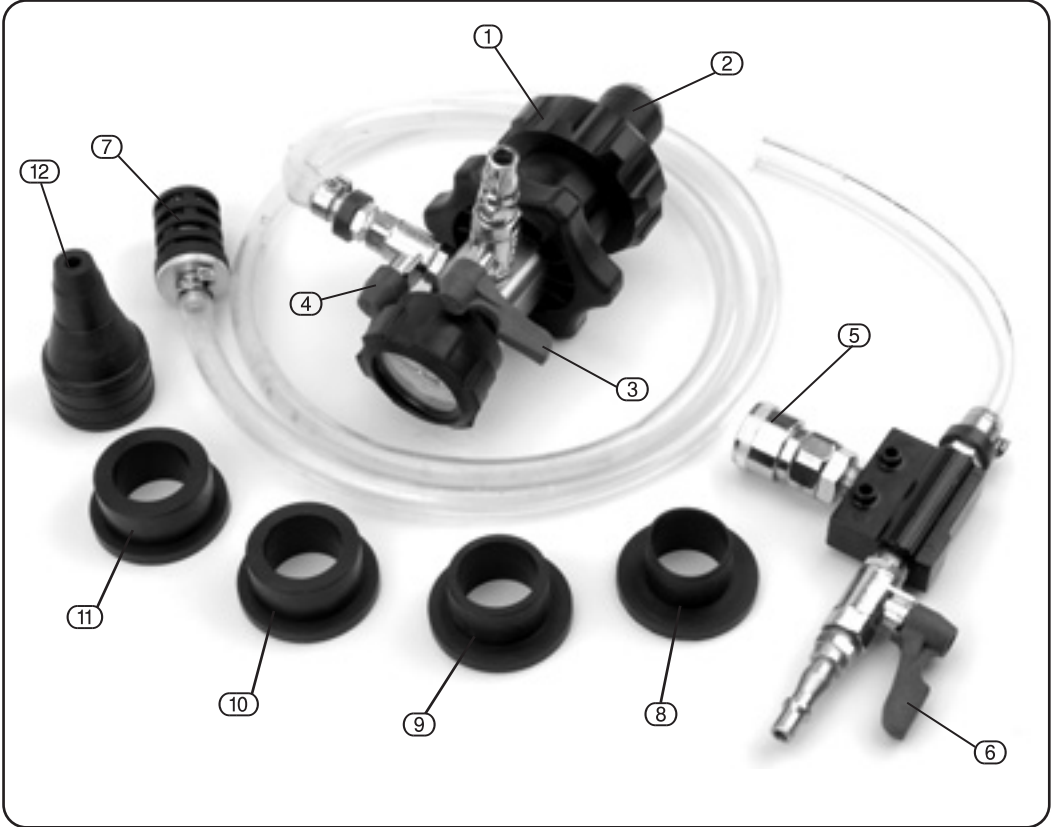
Cooling system hoses can become brittle due to the age and the extreme temperatures under the bonnet Under normal working conditions. when the vacuum has been applied it will cause the cooling system hoses to completely collapse. This can cause any brittle hose to crack requiring replacement.

Before attempting to use this product - consult the vehicle manufacturer to ensure your vehicle does not have a lightweight radiator. A high vacuum may cause the fins to collapse damaging a lightweight radiator.

NOTE: Do not exceed an inlet air pressure of 90psi.

Always wear approved safety goggles, ear defenders and gloves.

4. IDENTIFICATION GUIDE



GAUGE ASSEMBLY

- ① Wheel.
- ② End section.
- ③ Gauge inlet tap.
- ④ Coolant suction tap.

VENTURI

- ⑤ Sleeve.
- ⑥ Venturi tap.

COOLANT SUCTION HOSE

- ⑦ Filter.

SLEEVES

- ⑧ 31mm.
- ⑨ 35mm.
- ⑩ 40mm
- ⑪ 42mm.
- ⑫ Universal.

- **UNPACKING:** After removing the packing material, make sure the product is in perfect condition and that there are no visible damaged parts. If in doubt, do not use the product and contact the dealer from whom it was purchased.

The packaging materials (plastic bags, polystyrene, etc.), must be disposed of in an appropriate refuse collection container. These materials must not be left within the reach of children as they are potential sources of danger.

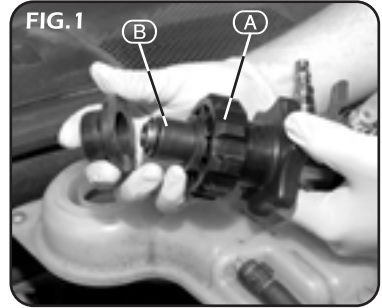
Carefully remove everything from the packaging and compare it to the identification guide.

5.1 CONNECTING TO THE EXPANSION TANK (Figs. 1&2.):

- i. After the coolant has been completely drained from the system reseal the drain bung.

To connect the gauge assembly to the vehicle, select the appropriate size rubber sleeve. The kit is supplied with a 31mm, 35mm, 40mm, 42mm and a universal sleeve.

- ii. Looking at the gauge, turn wheel (A) anticlockwise until it stops.
- iii. Push the chosen sleeve over the end section (B) of the gauge assembly.
- iv. Locate the gauge assembly in the top of the expansion tank.
- v. Turn wheel (A) clockwise until tight. This causes the end section to swell up and grip the sleeve firmly along the tank opening.

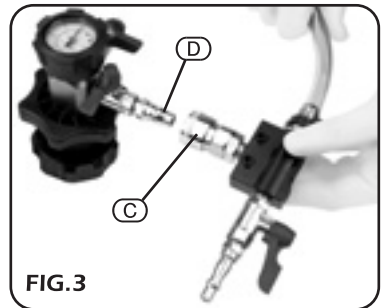


5.2 JOINING THE GAUGE ASSEMBLY TO THE VENTURI (Fig.3.):

A vacuum is created in the cooling system by removing all the air: this is achieved by forcing high pressure air (from the compressor fed air line) past a venturi†

† **Venturi** - a small tube for exerting suction.

- i. Pull sleeve (C) backward and hold.
- ii. Push the female connector on to the male connector (D).
- iii. Release sleeve (C) and make that it slides all the way forward, locking the two connectors together.



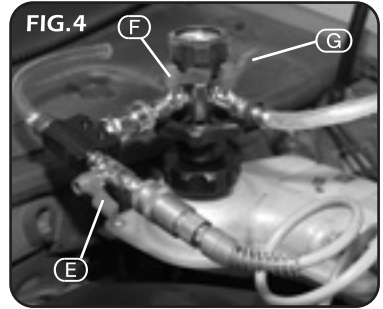
WARNING! Read and understand the safety instruction section of this document before attempting to operate this product.

6.1 CONNECTING TO AN AIR SUPPLY AND CREATING A VACUUM (Fig.4.):

Before an air supply is connected the flow taps on the gauge assembly and venturi must be correctly set.

NOTE: All the flow taps are closed when they are positioned 90° left or right.

- i. Close the venturi tap (E).
- ii. Close gauge inlet tap (F).
- iii. Close coolant suction tap (G).



The air line can now be safely attached to the air inlet connector.

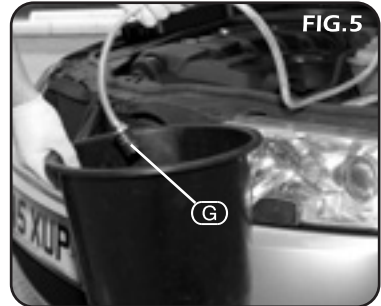
- iv. Connect air line with the pressure regulated to between 80 and 90psi.
- v. Open venturi tap (E). This will start air rushing through the venturi.
- vi. Open gauge inlet tap (F). This will start the vacuum process.
- vii. Watch the reading on the gauge.
- viii. When the vacuum reaches 19 to 23inHg immediately close gauge inlet tap (F) followed by venturi tap (E).
- ix. Disconnect the air line.

The coolant system should now be in a state of vacuum with all the flexible hoses compressed flat. If this has not happened, there is a leak allowing air back into the system. Check the hoses for cracks, splits or other damage and that they are all correctly located and securely clamped before trying again.

6.2 REFILLING THE SYSTEM WITH COOLANT (Figs.5-6.):

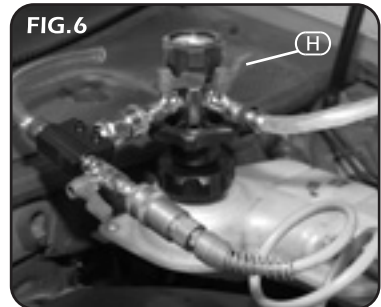
When the vacuum is released it will try to suck air back into the system. It is this suction that will be used to refill the fresh coolant mix.

- i. Select the correct coolant as specified by the vehicle manufacturer.
- ii. In a clean bucket, mix the correct proportion of coolant to water suitable for the time of year again, detailed by the vehicle manufacturer.
- iii. Sink the filter (G) to the bottom of the bucket and make sure it stays there.
- iv. Open the coolant suction hose (H) to release the vacuum.



NOTE: Make sure the filter remains at the bottom of the bucket, otherwise air will be drawn into the system possibly causing an air lock and subsequent bleeding problems.

- v. Remove the gauge assembly (turn the wheel anticlockwise) and the rubber sleeve.
- vi. Finally, top up the level with water in the expansion tank up to the manufacturer's mark.
- vii. Replace the radiator cap.



NOTE: The vehicle heating system will need to be run up and checked to ensure no air is present in the cooling system. With the engine hot (and the engine thermostat open) the heater system should be producing hot air from the vents. Check the temperature gauge does not exceed the half way mark.

7. DISPOSAL

- At the end of the product's working life, or when it can no longer be repaired, ensure that it is disposed of according to U.K. regulations.
In all circumstances:
 - Do not abandon in the environment.

8. EXPLANATION OF SYMBOLS/PICTOGRAMS



Read operations manual.



Wear safety goggles.



Wear safety gloves.



NOTES

- **DRAPER TOOLS LIMITED,**
Hursley Road, Chandler's Ford,
Eastleigh, Hampshire. SO53 1YF. U.K.

- **Helpline:** (023) 8049 4344
- **Sales Desk:** (023) 8049 4333
- **Internet:** www.draper.co.uk
- **E-mail:** sales@drapertools.com
- **Sales Fax:** (023) 8049 4209
- **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

OADH061109

©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.