

## Introduction to Cooling System Pressure Testing

Sykes-Pickavant has been involved in the design and manufacture of Cooling System Testers for more than 40 years and now manufactures a comprehensive range of System Testers, covering Cars, LCV's and HGV's, using both hand and air-pressure pumps, along with the latest addition to the range, the new Electric Cooling System Tester.

Individual vehicle System and Cap adaptors are available for all types of SP System Tester and all are inter-changeable between different models of SP System Tester, with the use of simple adaptors, which are readily available. Details of the range of System and Cap adaptors for each System Tester are shown with the appropriate model, along with a summary of kit content options which are available.

### '316' Series - One Man Cooling System Testing Electric Cooling System Tester - Complete Set

33169000

This latest tester turns Cooling System testing into a genuine one-man operation, as it is no longer necessary to have an assistant on-hand to check for leaks whilst the technician is operating a pump!

The Electric Cooling System Tester uses the vehicles' own 12v. supply to operate a fast-acting pump which is automatically regulated, and has a pressure limiter with auto shut-off for safety. Most systems can be pressurised and tested in less than one minute.

The unit is supplied with a 4m power lead, and a 4m pressure hose and sits on a mobile trolley for ease of use both in and out of the workshop.

A comprehensive, 20 piece, set of Cap Adaptors (ref 33167500) is supplied with this kit, covering the majority of European and Asian applications, and these adaptors are also fully compatible with all current SP Cooling System Tester kits.



### Electric Cooling System Tester - Pump Unit Only

33169500

Electric Cooling System Tester - Electric Pump Unit c/w Trolley and Hose Assembly

#### Spare Parts:

33162100 Flexible Pressure Hose Assembly for Electric Cooling System Tester

33162300 Power Cable for Electric Cooling System Tester

### Cooling System Adaptor Set (20 piece) for Electric Cooling System Tester

33167500

Set of 20 Cap & System Adaptors covering the Majority of European and Asian applications, for use with the Electric Cooling System Tester. All vehicle adaptors are compatible with alternative SP Cooling System Testers, via a simple adaptor supplied with this set.



### Cooling System Cap & Hand Pump Set

33167600

A basic Cooling System Testing Set, comprising of the 20 piece set of System Connectors (33167500 - above), coupled with our standard '317' series quick-connect Hand Pump (03170100)



### Cooling System Cap Set for Japanese Vehicles

33162200



### '317' Series - Pump

03170100

Featuring a self-testing metal hand pump and precision gauge, with specially designed pressure release valve for safe de-pressurising cooling systems. Ideal for detecting leaks in radiators, heater matrix, hoses, cylinder heads, engine blocks, water pumps etc.

Gauge & Hose assembly c/w quick-connect coupling



### '318' Series - Parts






















03180200 - Connector Hose

03180900 - 318 Pump Gauge Assembly

03182200 - Cap Connector Hose

03180700 - 318 Pump Seal and Washer Set

**Individual Cap Adaptors for '316' Series**

<b>'316' Series - Electric Cooling System Adaptors : Applications</b>				
<b>REFERENCE</b>	<b>DESCRIPTION</b>	<b>APPLICATIONS</b>	<b>CAP NO.</b>	<b>IMAGE</b>
33160100	CAP	Mercedes	1	
33160200	CAP	Audi, Daewoo, Ford, Saab, Skoda, VW, New VW	2	
33160300	CAP	Audi, Ford, Opel, Seat, Skoda, VW	3	
33160400	CAP	Audi, Alfa, BMW, Seat, VW	4	
33160500	CAP	BMW, Rover	5	
33160600	CAP	Citroen, Fiat, Opel, Peugeot, Renault, Rover, Volvo	6	
33160700	CAP	Audi, Citroen, Fiat, Honda, Lancia, Peugeot, 7 Renault, Rover, VAG, Volvo	7	
33160800	ADAPTOR		8	
33160900	BAYONET	50mm Ø	9	
33161000	BAYONET	35mm Ø Chrysler, Citroen, Mercedes, Mitsubishi, Nissan, Suzuki	10	
33161100	BAYONET	27mm Ø Nissan, Suzuki, Toyota	11	
33161200	ADAPTOR	Suzuki	12	
33161300	CAP	Kia	13	
33161400	CLIP		14	
33161500	CAP	Honda, Toyota	15	
33161600	CAP	Ford, Honda, Hyundai, Mazda, Mitsubishi, Nissan, Opel	16	
33161700	CAP	Ford	17	
33161800	CAP	Ford	18	
33161900	CAP	Mercedes	19	
33162000	CAP	Ford	20	
33167500	CAP SET COMPLETE	All Applications		

## '315' Series Cooling System Test Master Kit

33159500

The '315' Series Cooling System programme from Sykes-Pickavant provides extensive coverage for both popular and less popular models and is constantly updated as new models are released. More than 30 specialist Cooling System Cap Adaptors are also available.

- All '315' Series Cap Adaptors are compatible with older Sykes-Pickavant Cooling System Kits
- Master Kit of 14 Cap Adaptors for Cars & LCV's – covers 80% of the UK market
- Wide applications coverage – applications information included
- Hand Pump with Pressure Gauge
- Quick-Connect Hose for Cap Adaptors
- N.B. – Compatible with older Sykes-Pickavant Cooling System Kits & Adaptors
- Includes special adaptors which allow you to use your old style cap adaptors with this new kit

### 33159500

#### Contents:-

- 33150100 - Hand Pressure pump c/w gauge
- 33150300 - Connector Hose

3. 33151500	Large Bayonet
4. 33156700	Deep Small Bayonet
5. 33157100	Short Small Bayonet
6. 33151700	Ford, Vauxhall / Opel
7. 33151600	Fiat, Renault, Volvo
8. 33152200	VAG
9. 33153500	VAG

10. 33154800	BMW
11. 33151200	VAG
12. 33155500	Ford, Jaguar
13. 33154100	Mercedes
17. 33156500	BMW
18. 33156600	Galaxy, Alhambra, Sharan
21. 33157300	Alfa, GM, Saab



Full applications information contained within each kit. Also available online at [www.sykes-pickavant.com](http://www.sykes-pickavant.com)

#### Optional Cap Adaptors:-

33152700	JAG XF+XJ/XK 2007 ONWARDS
33153300	CAMRY/CELICA 1995 ONWARDS
33154300	MERCEDES A/B CLASS
33155100	VOLVO FH12
33155800	TOYOTA CRD, LEXUS, PRIUS

33156100	MINI COOPER S 2002 ONWARDS
33156200	MERCEDES SPRINTER 2006 ONWARDS
33156400	BMW 5&6 SERIES 2004 ONWARDS
33156800	FORD TRANSIT 2006 ON VOLVO C30,S40,V50
33156900	FORD C MAX GALAXY 2006 KUGA

#### Spare Parts:-

- 33150100 - Hand Pressure pump
- 33150200 - Gauge Assembly
- 33150300 - Hose Assembly
- 33150400 - Pump Seal Kit

- All '315' Series Cap adaptors are compatible with older SP Cooling System testers - an adaptor may be required.
- To use old SP '318' series threaded cap adaptors with '315' series hand pump - use convertor reference 03176870
- To use new '315' series cap adaptors with old '318' series hand pump - use convertor reference - 03186870
- No adaptor is required when using new '315' series cap adaptors with old '317' series hand pumps - the quick release fittings are identical

## Combustion Leakage Tester

33194000

Compatible with Sykes-Pickavant Cooling System Testers '317', '318' & '319' Series

- Diagnose cylinder head leaks by detecting the presence of CO<sub>2</sub> in the cooling system
- Fluid colour change indicates the presence of CO<sub>2</sub>
- Variable pressure valve allows for use with motorcycles, cars, vans and HGV
- Supplied with both Standard and Sensitive Reaction Fluid, for accurate diagnosis of cooling system faults.
- Replacement Bottles of Reaction Fluid:-
- Standard 33194200
- Sensitive 33194400

A strong colour change from blue to yellow, using either the standard or sensitive reaction fluid, indicates the presence of carbon dioxide in a vehicle's cooling system. Supplied with convenient wire hook for hanging under the bonnet.



### Spare Parts

- 33194170 Tester Body, Valve & Gauge Assembly
- 33194500 Connector Hose Assembly
- 33195300 Set of O Ring Seals (2)
- 33195470 Glass Sight Tube only

## Cooling System Speed Filler

33160000

The Air Operated Cooling System Speed Filler offers some advantages over the more traditional methods of filling:

- The system integrity can be assessed prior to filling the cooling system with coolant.
- Significantly reduced coolant wastage and mess.
- High efficiency, labour saving and cost effective.
- Uses standard workshop compressed air to generate vacuum (70 - 170 psi)

This kit enables a cooling system to be refilled quickly while eliminating the chances of an air lock. Modern vehicle design has meant that the cooling radiator is often positioned either in line with or below the top of the engine. This means the using gravity to fill the cooling system is not always possible.

The 33160000 overcomes this issue by first forming a vacuum in the cooling system then using this vacuum to "suck" the new coolant in to the cooling system. By "sucking" the new coolant in by means of a vacuum, no airlocks can form and the speed of the refill is much increased.



## Refractometer

03201000

This multi-purpose tool tests Coolant, Battery Acid and Screenwash, using an Optical prism test technique.

- Coolant - tests both propylene and ethylene based anti-freeze coolant solutions and determines the freezing point
- Battery Acid - indicates the specific gravity of the battery electrolyte
- Screen Wash - shows the freezing point of screenwash fluids
- Freezing point shown in degrees C

Spare Part - 03201700 Spare Lens Cover for Refractometer



## Antifreeze & Coolant Hydrometer

03200000

- Measures the volume percentage of **Ethylene Glycol** contained in the cooling system
- Safe to use from -5°C to +40°C



## Antifreeze & Coolant Hydrometer

03200200

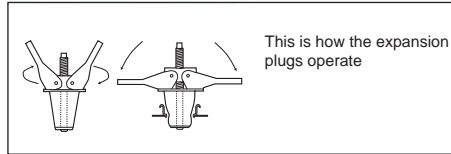
- Measures the volume percentage of **Polypropylene Glycol** contained in the cooling system
- Safe to use from -5°C to +40°C



## '319' Series - Universal expansion plug system

### For use with hand pump, or with airline adaptor (for HGV)

- Also compatible with '318' Series threaded caps and adaptors to extend applications coverage.
- Features a self-testing metal hand pump and precision gauge, with specially designed pressure release valve for safe de-pressurising of cooling systems.
- Designed to cover three types of system test:-
  - leak detection
  - thermostat and thermo-switch operation
  - temperature testing



The special patented design of the Expansion Plugs, features a tapering rubber cone to fit a variety of radiator and header tank neck diameters. With a range of just 5 plug sizes, it is possible to cover a very wide range of applications, from small cars through to commercial vehicles and heavy plant.

The Safety Retaining Clamp has been specially designed to provide added safety in certain applications, e.g. plastic expansion bottles, situations of extreme cold, or very high water temperatures, and when it is not practical to fully clean the surfaces of the aperture neck. The Safety Retaining Clamp greatly reduces the risk of the expansion clamp slipping from its fixed position, particularly under high pressure, and it is recommended to be used for all applications.

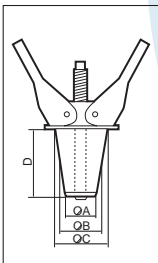
Blanking caps are also provided with the '319' series System Testers, in order to perform Radiator Sealing tests, off the vehicle. Temperature testing can be carried out by using the Thermometer in conjunction with the appropriate expansion plug and by observing the change (or lack of change) in the fluid temperature and by measuring the rate of change of temperature.

## Cooling System Pressure Testing '319' Series Expansion Plug System Test Kit - Car Kit

33190000

- 03190100 Pump, gauge and hose assembly  
 Universal expansion plugs x 3  
 (applications range from 21mm to 50mm apertures)  
 Safety retaining clamp  
 Thermometer  
 Small bayonet adaptor for Japanese vehicles

- 03191500 Optional extra : Stepped expansion plug for Mercedes  
 (applications range from 27mm to 44mm)



Technical: 33190000 Expansion Plugs							
	D	ØA	ØA Expanded	ØB	ØB Expanded	ØC	ØC Expanded
03191100	70	21	24	30	32	38	38
03191200	70	27	29	35	37	42	42
03191300	70	33	36	41	44	50	50

Note: All dimensions in millimetres

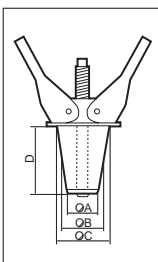


## Cooling System Pressure Testing '319' Series Expansion Plug System Test Kit - Commercial Kit

33190500

- 03193000 Airline adaptor and gauge assembly, for fast pressurising of large capacity systems on Commercial Vehicles and Plant equipment  
 Universal expansion plugs x 2  
 (applications range from 33mm to 65mm apertures)  
 Safety retaining clamp  
 Thermometer  
 Small bayonet adaptor for Japanese vehicles

- 03191500 Optional extra : Stepped expansion plug for Mercedes  
 (applications range from 27mm to 44mm)



Technical: 33190500 Expansion Plugs							
	D	ØA	ØA Expanded	ØB	ØB Expanded	ØC	ØC Expanded
03191300	70	33	36	41	44	50	50
03191400	70	40	44	53	56	65	65

Note: All dimensions in millimetres



## '319 series - Expansion Plug System Adaptors and Connectors

APPLICATION	IMAGE	TYPE	REFERENCE	33190000	33190500
<b>Radiator System Connectors : 319 series - threaded connectors</b>					
No.1 Universal Expanding Connector		Expansion Plug (21 - 38mm)	03191100	•	
No.2 Universal Expanding Connector		Expansion Plug (27 - 42mm)	03191200	•	
No.3 Universal Expanding Connector		Expansion Plug (33 - 50mm)	03191300 03193300 (less handle)	•	•
No.4 Universal Expanding Connector		Expansion Plug (40 - 65mm)	03191400		•
No.5 Stepped Expanding Connector (Mercedes)		Expansion Plug (27 - 44mm)	03191500		
Daihatsu, Mazda, Mitsubishi, Nissan, Subaru, Toyota, Some Honda motorcycles		System Connector:- Small Japanese Bayonet	03191600	•	
Cooling System Thermometer			03192500	•	•
Airline Adaptor & Gauge Connector			03193000		•

Technical Specifications							
	D	ØA	ØA Expanded	ØB	ØB Expanded	ØC	ØC Expanded
03191300	70	33	36	41	44	50	50
03191400	70	40	44	53	56	65	65
03191100	70	21	24	30	32	38	38
03191200	70	27	29	40	42	44	44
03191500	70	27	29	40	42	44	44

Note: All dimensions in millimetres

Full Range of Expansion Plugs for Cars, LCV's & HGV's.

CONTENTS - 33190500			
03192870	03192100	03192500	
03192900	03193000	03191300	03191400

Note: 319 Series is compatible with all 318 series system connectors and adaptors.

CONTENTS - 33190000		
03190100	03191600	03192100
03192870	03192900	03192500
03191100	03191200	03193300